User Manual

BA_110_F_GEN_01_en

Mais Star* Horizon

Corn Header

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GERINGHOFF

Important Information!

Important information concerning the user manual

Dear Customer,

Along with your Geringhoff header you have received two user manuals. The first manual contains all the basic information about the machine. The second, additional manual contains all the changes and additions relevant for the newest generation of Geringhoff harvesting equipment. If you cannot find information on a particular topic in the basic instructions, please refer to the additional instructions.

Please keep both manuals at your disposal for future reference.

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1 General information

1.1 Introduction

Dear customer,

Thank you for your trust in our products.

Regular maintenance and care contribute to maintaining this machine's value, guaranteeing a problem-free use for many years.

Your feedback is very important for us. This information contributes to the constant further development and optimization of our products.

This operating manual was supplied to you along with your machine. Please store this operating manual carefully. Please hand this operating manual over to the buyer in case you sell this machine.

Important notes about the operating manual

Please read the operating manual carefully prior to commissioning/start-up. This applies to each person working with this machine. Commissioning/start-up is the first intended use of the machine by the user.

Always adhere to the safety and accident prevention regulations, , as well as the notes about the intended use, .

Always keep the operating manual within reach. Also read the combine harvester manufacturer's operating manual concerning the use of headers. You will receive a separate operating manual for the PTO-shaft, directly attached to the PTO-shaft. In addition, we also advise reading the spare parts catalog.

- Dimensions are indicated in the internationally standardized SI system of units.
- The right-hand and left-hand side are always seen in the driving direction.
- The header rows are numbered from left to right, also seen in the driving direction.
- Dimensions and weights are approximate indications and refer to the standard versions of the individual header types.
- If no specified torque is indicated, please always use the table "Torques for screws", in the appendix.

This manual was created and inspected with great care. Should you find mistakes nonetheless, please inform our editing team.

Symbols and notes

Important notes and information in this operating manual are marked by symbols and signal words. Always adhere to safety. Act with caution to avoid accidents, injuries and damage to property. Also always adhere to local accident prevention regulations as well as general safety regulations. The following symbols and notes warn of possible injuries or damage to property or contain important information.

DANGER

This warning note signifies a danger which could lead to death, severe, medium or minor injuries or damage to property, depending on the situation. The degree of danger is indicated in the respective safety instruction. Always adhere to these warning notes and act with special attention and caution.

Important note! This information is important to ensure problem-free working or to ensure that the machine functions correctly. Always adhere to these notes.

Note: This information is helpful and facilitates use of the machine.

Tip: Useful tips and additional information.

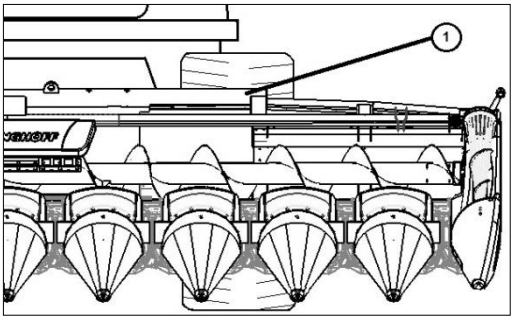
Exemplary figures and wordings

Some figures in this operating manual are not identical to the supplied machine. In these cases, this is of no importance for depicting the situation, because these figures refer to statements about all models of this machine type.

Safety-relevant information required for safe and problem-free operation of the machine always refers to the supplied product.

Prior to commissioning / start-up

Write down the most important data of your machine in the intended fields below, so questions asked by your supplier can be answered clearly. For the data, refer to the type plate of your machine (1); for the position of the type plate, refer to the figure below.



Type plate position

Type plate

Mach.-Type: _____

Mach.-No.: _____

Key-Code: _____

Weight (kg): _____

Year of construction: _____

Row spacing: _____

Work width / number of header rows: _____

Combine harvester type: _____

Contact your specialist retailer, if you require replacement parts, and have the required data ready.

Only use original Geringhoff replacement parts.

Do not modify important load-bearing and/or safety-relevant assembly components. The manufacturer does not assume liability for any damage resulting from use of the machine other than that intended.

(Errors and technical changes excepted.)

1.2 Information about environment protection

Ensure that consumables and auxiliary materials as well as assembly components are disposed of in a proper and environment-friendly manner. Adhere to the legally valid regulations as well as the environment protection and disposal standards valid in your country of use.

General information

1. Avoid skin contact with liquid fuels, oils, lubricants, acids, solvents, etc. Always wear suitable protective clothing during disposal.
2. Never set fire to oils and similar materials.
3. Ensure that no consumables (oils, greases, etc.) which can endanger the ground water seep into the ground water or the ground.
4. When changing oil, ensure that the used oil is collected in suitable containers and does not seep into the ground. Ensure a proper disposal taking into account the valid environment protection regulations.
5. Immediately repair defects or leakages on the hydraulic unit. Regularly check the hydraulic hoses for defective parts.
6. If you have questions about the disposal, contact a certified disposal company.

2 Safety

2.1 Intended use

This machine is only intended for harvesting corn, and sunflowers.

Likewise only use load handling devices for their intended use. Any modification or use with other machines is prohibited.

Any use other than the above is regarded as use other than that intended. The manufacturer does not assume liability for damage resulting from use other than that intended; the owner/user bears the sole risk.

Adherence to the operating, maintenance and repair regulations specified by the manufacturer is also part of the intended use.

Ensure that the machine is only used, maintained and repaired by qualified personnel and/or persons who are familiar with it and informed about the dangers.

Always observe and adhere to the relevant accident prevention regulations as well as all other generally accepted and valid regulations concerning safety, Health and Safety at Work and road traffic laws.

In case of unauthorized modifications on the machine, the manufacturer will not assume liability for the resulting damage.

2.2 Basic safety instructions

1. Read the machine operating manual carefully.
2. Adhere not only to the safety instructions in this operating manual but also to the generally valid safety and accident prevention regulations.
3. Read the combine harvester manufacturer's operating manual.
4. The warning notes attached to the machine contain important information for safe operation of the machine. Read them carefully.
5. Observe maximum permissible weights. Use suitable load handling devices. The machine weight is indicated on the machine type plate.
6. Attach transport securing devices for transport on roads. If necessary, have additional headlights fitted by qualified personnel (see admission requirements).
7. Check the driving and steering characteristics as well as the braking capability.
8. Always adhere to the permissible axle loads and the regulations for the total weight.
9. Ensure that persons only use the intended seats when riding on the machine.
10. When using public traffic routes, adhere to the respective locally valid legal regulations. Always establish the machine transport position when driving on public routes.
11. Check the machine for operational and traffic safety prior to each start-up.
12. Prior to starting work, familiarize yourself with the operation and functions of the machine.
13. Always close all protection devices/guards and maintenance openings prior to commissioning/start-up. Check the machine for loose parts.
14. Carry out all work (repairs, maintenance, cleaning as well as malfunction rectification) in and on the machine while the motor is switched off and the lowering protection is activated. To do so, pull off the ignition key and switch off the battery separator switch. Ensure that hydraulic lines are depressurized and operating levers are in their neutral position. Secure the equipment against unauthorized operation.
15. Always switch off the battery separator switch prior to working on the electrical unit.
16. Use the intended supporting devices for all work on the machine.
17. Only initiate the folding process when the chassis is at a standstill and secured against rolling away. Remove persons from the swivel range.
18. Ensure that no persons are in the hazard zone when the machine is running.
19. There is an increased danger of injury when replacing knives.
20. The intake auger and other movable parts cannot be completely secured by construction measures. For this reason, always keep a sufficient distance from the movable parts during operation.
21. Ensure that the PTO-shafts are always equipped with suitable protection devices/guards.
22. Be especially cautious when attaching the header to the combine harvester. Increased danger of injury!
23. Only carry out test runs when the machine is lowered.
24. Replace damaged or missing safety labels on the machine.

2.3 General accident prevention regulations

The following instructions are general accident prevention regulations, which are generally valid for working with any machine.

DANGER

Protect yourself!

- Always wear the required protective clothing during set-up, work or service.

This includes:

Protective helmet and protective goggles

Safety shoes /Boots

Work gloves

Protective suit
Rain protection

Breathing mask

Hearing protection

Conduct regulations

1. Always have a First Aid box at hand for emergencies.
2. Always have a functioning fire extinguisher available. Check it for proper function prior to use and familiarize yourself with the operation.
3. Never allow young children or animals to come near machines.
4. Accidents are often caused by tiredness and/or time pressure. Always carry out your work calmly and with concentration. Never ignore signs of tiredness.
5. Always wear tight-fitting clothes. Cover long hair. Do not wear hanging pieces of jewelry or necklaces.
6. Always keep your hands and feet as well as clothing and hair away from moving parts. Never try to remove blockages or objects from the machine while the motor is running.
7. Never modify or remove safety devices. Leave all parts in their place. Ensure that all drives run without problems.
8. Only use service and replacement parts approved or produced by the manufacturer. Unauthorized replacement parts can deviate in strength, design or safety requirements and can lead to loss of warranty claims.
9. Do not modify the machine under any circumstance. Unauthorized modifications can negatively affect the function, safety and operating life of the machine.
10. When leaving the driver's seat, always stop the engine and pull off the key to securely prevent unintentional machine starts.
11. Keep the machine maintenance environment clean and dry. Avoid the danger of slipping resulting from wet or oily floors. Avoid the danger caused by wet patches when working with electrical tools. Always ensure that the electrical tools are grounded.
12. Provide sufficient lighting in the work place.
13. Always keep the machine clean. Materials such as straw or chaff can catch fire from hot machine components. Do not accumulate oil or grease on service stations, ladders or inspection devices. Thoroughly clean the machine before placing it in storage.
14. Never use gasoline, solvents or similar substances for cleaning. Substances may be toxic or flammable.
15. When placing the machine in storage, ensure that there is no danger of injury from sharp-edged or protruding parts.

2.4 Positioning and meaning of the danger symbols on the machine (ISO 11684)

Danger symbols, so-called pictograms, pointing out particular risks are attached to the safety-relevant parts of this machine. The danger of injury is always shown on the left hand side of these symbols, the correct way of avoiding injury is shown on the right hand side. Always replace the danger symbols if they are damaged or lost! Also attach the required danger symbols to replacement or new parts! The labels can be ordered using the indicated replacement parts numbers.

In the following section, the placement of the individual danger symbols on the machine as well as their meaning is described.

Prior to maintenance and repair work, turn off motor and pull off key. Secure against unauthorized operation.
(Order no. 510891)

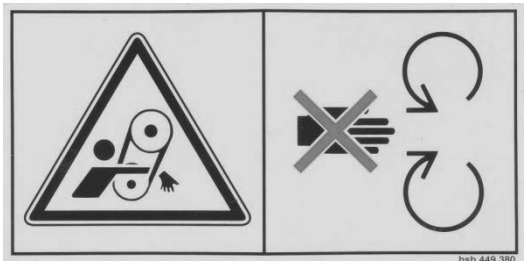
1.

Never access the hazard zone between the header device and the machine.
(Order no. 510891)

2.

Never open or remove the protection devices/guards while the motor is running.
(Order no. 510893)

3.



Keep a sufficient safety distance from the harvest header. Prior to maintenance work or removing blockages, switch off the harvest header drive, turn off the motor and pull off the key.
(Order no. 510895)

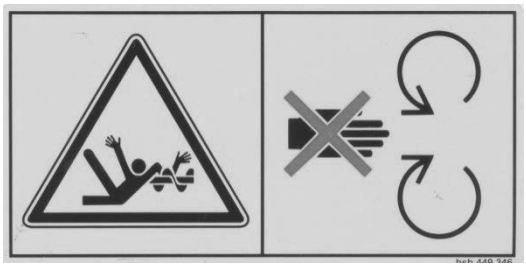
4.

Staying in the hazard zone is only permissible if the lifting cylinder safety device is activated.
(Order no. 510890)

5.

Never touch the turning auger.
(Order no. 510892)

6.



Keep a safe distance from any rotating machine parts.
(Order no. 519917)

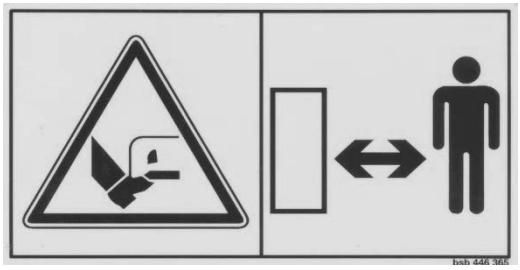
7.

Do not remain in the swivel range of devices.
(Order no. 510896)

8.

Keep a sufficient distance from the mower knife when the drive is switched on and the diesel engine is running.
(Order no. 510905)

9.

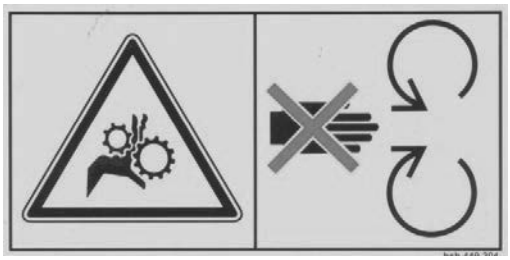


Danger caused by launched particles when the motor is running - keep a safe distance.
(Order no. 510904)

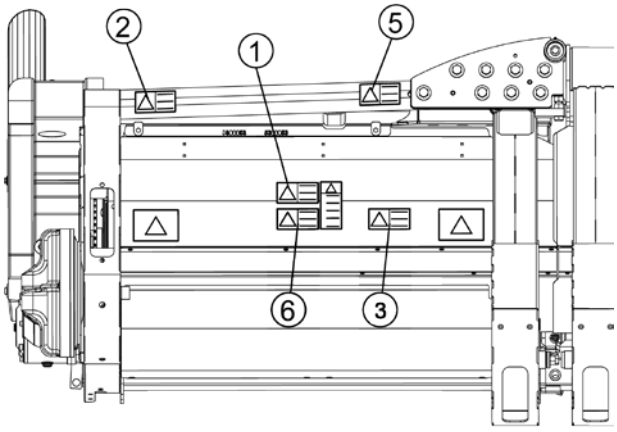
10

Do not open or remove protection devices/guards while the motor is running.
(Order no. 510894)

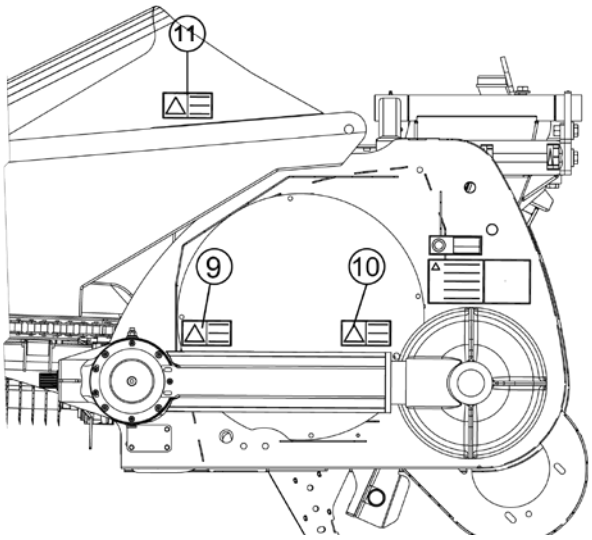
11



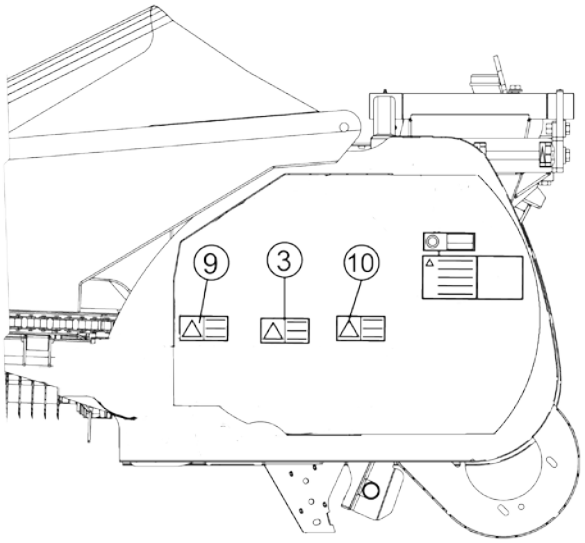
Positioning of the danger symbols on the machine

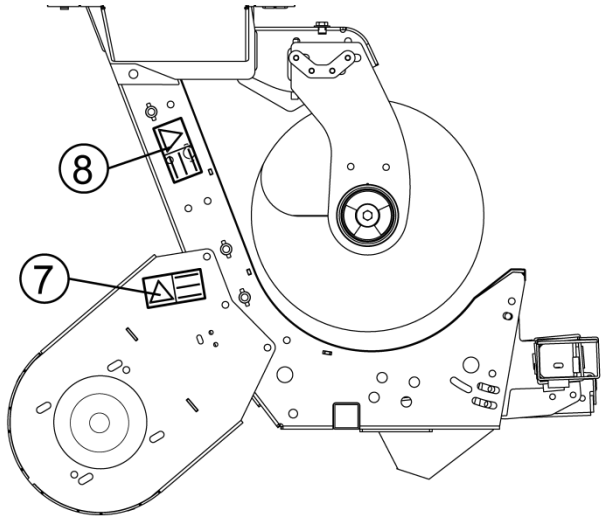


Right or right and left

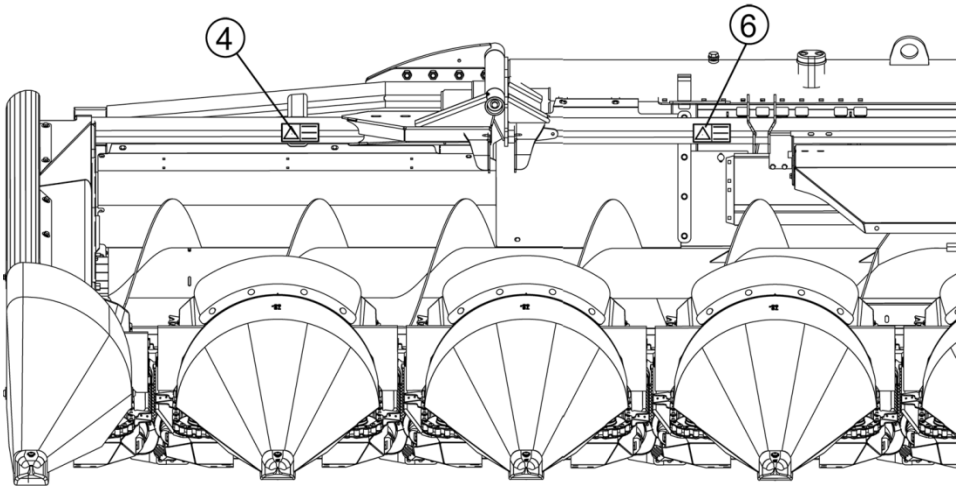


Right or right and left





Right or right and left



Pictogram no.6 three times

3 Prior to commissioning/start-up

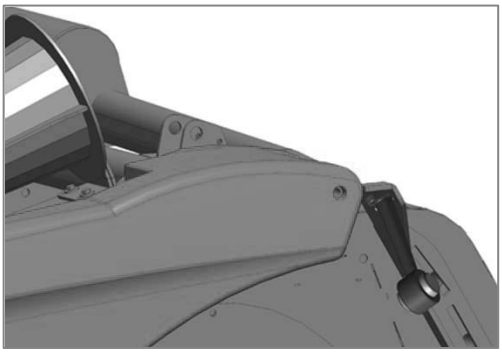
3.1 Assembling additional lighting

DANGER

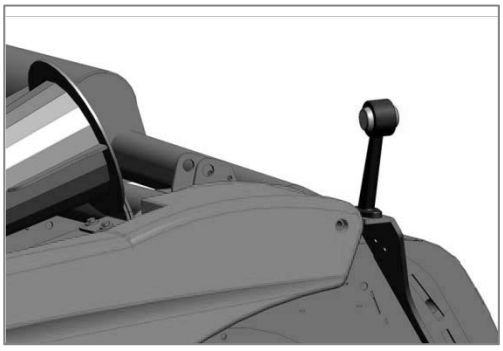
- Always assemble additional lighting prior to machine commissioning/start-up!

The use of the additional lighting is required by law and additional lighting has to be installed after delivery of the machine.

1. Install additional lighting on the intended position according to the figure and check for proper function.



Additional lighting on delivery



Additional lighting in correct position

Connecting the additional lighting with the terminal box

2. Establish an electrical connection with the combine harvester.

Arrow: Input additional lighting

3.2 Attaching the corn header to the harvester

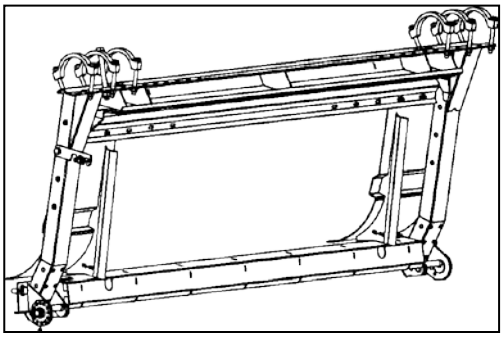
DANGER

Danger of injury!

- Only carry out work on the machine when the diesel engine is switched off!
- When attaching the header, take safety precautions!
- Ensure that there are no persons between the combine harvester and the header!
- Observe the load bearing capacity of the combine harvester and the tires!
- Adhere to the combine harvester manufacturer's specifications!

The corn header is designed according to the order, making an uncomplicated assembly possible.

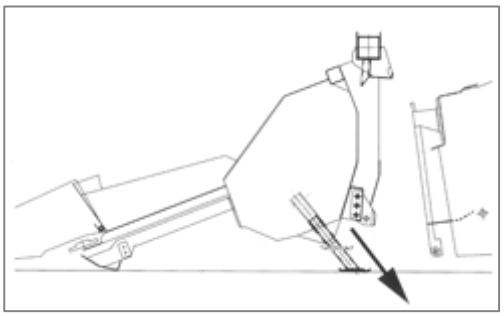
By replacing adapter frames, hydraulics and drive components, a harvester type different from the one indicated in the order can be used.



Adapter frame

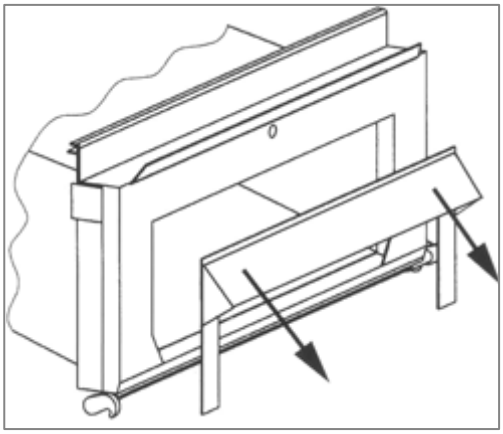
1. Move the corn header to its harvesting position.
2. Fit the support legs in their support position (for initial assembly, if necessary turn the support legs by 180°).
3. Remove the transport frame.

Support legs in transport position



Support legs in support position

4. Remove the channel splash guard from the combine harvester.



Remove the channel splash guard

5. Move the combine harvester and header into the correct intake position.

3.3 Connecting the adaption and the hydraulic multi-coupling (For Case Combines only)

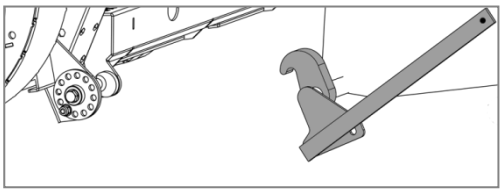
Locking the adaption

DANGER

Danger of injury!

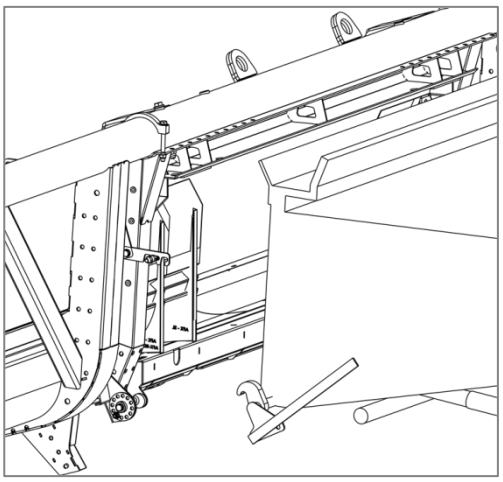
- Always activate the lowering protection before working on the header!

1. Ensure that the locking lever on the intake channel is open.



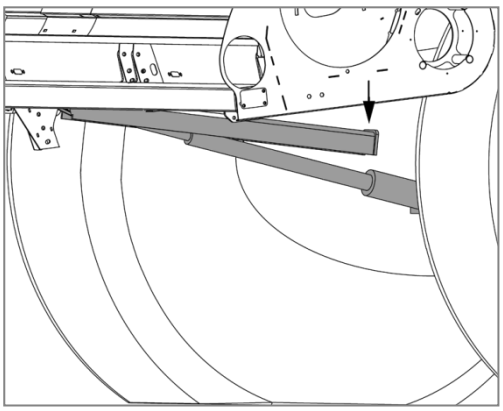
Lock in open position.

2. Insert the header into the combine harvester far enough that the lowering protection can be activated. While doing so, ensure that the channel holding fixture is securely hooked in.



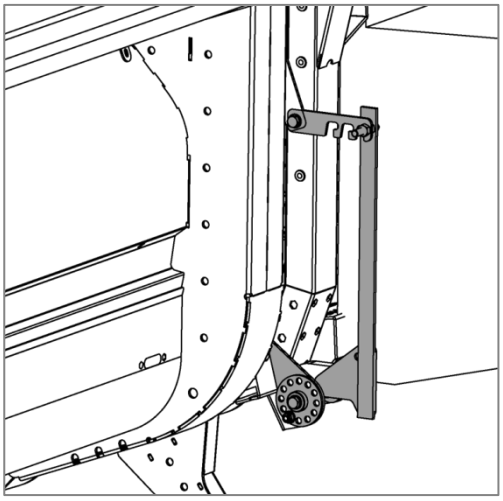
Header prior to mounting

3. Activate lowering protection!



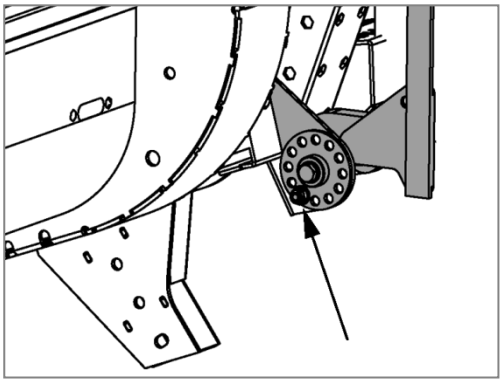
Activated lowering protection

4. Throw the locking lever of the intake channel and securely hook it into the intended section of the header.



Hook in locking lever

5. If necessary, remove the screw of the eccentric connection and set the eccentric shaft so the connection between the locking hook and the header is secure and free of clearance. Subsequently re-secure the eccentric connection by means of an appropriate screw.



Activated lock with eccentric screw (arrow)

Connecting the hydraulic multi-coupling (Case)

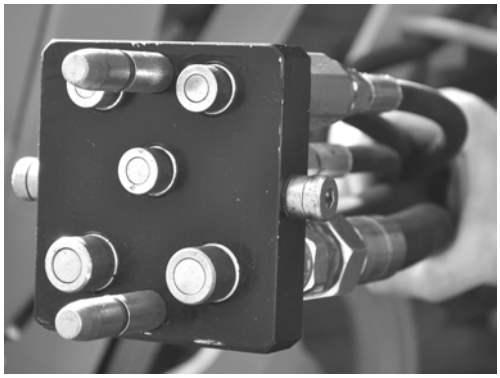
DANGER

- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

On delivery the multi-coupling (plug) is secured on the carrying device of the combine harvester.

Multi-coupling on the combine harvester

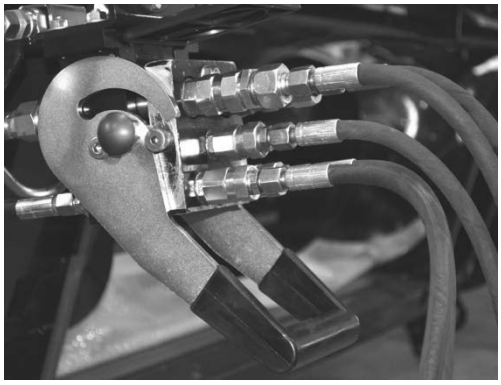
1. Remove the multi-coupling from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach multi-coupling to header and throw the lever.

   Adhere to the combine harvester manufacturer's specifications!



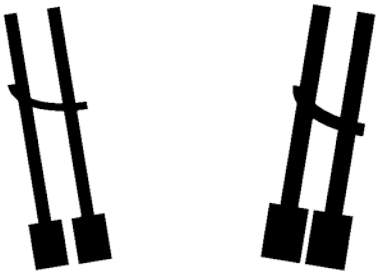
Multi-coupling on the header

Connecting the hydraulic without multi-coupling (Case)

DANGER

- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

Connect the hydraulic lines of the combine harvester with the header as shown in the following figures:



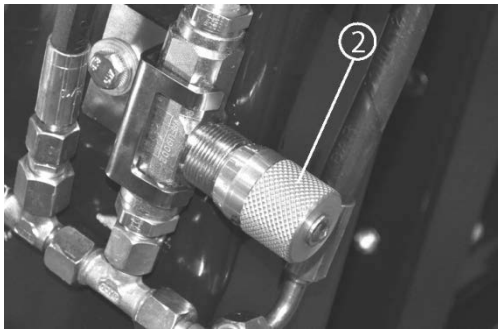
Hydraulic hoses bundled in pairs
LH side, picking plate adjustment, RH side reel drive, sweeper

Hydraulic lines of the harvester;
LH side PPV, RH side reel drive, sweeper

Mixing up is impossible due to the different arrangement of plugs and the coupling.

Rotational speed reduction valve (Case)

Use the control valve (2) to set the rotational speed of the sweeper and the corn auger thus that sufficient adjustment is possible by using the combine harvester function "Reel fast/slow".



Rotational speed reduction valve New Holland

3.4 Connecting the adaption and the hydraulic multi-coupling (Lexion Combines)

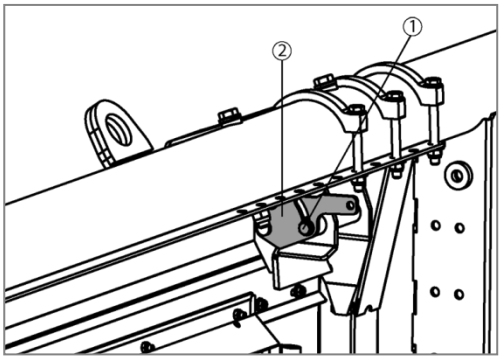
Locking the adaption

DANGER

Danger of injury!

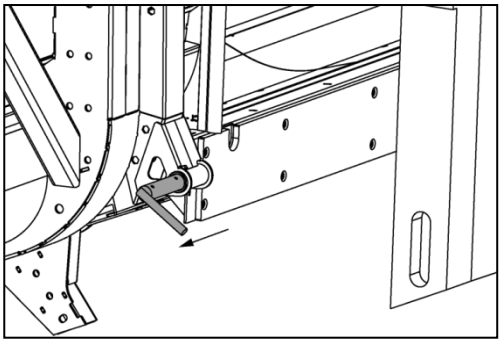
- Always activate the lowering protection before working on the header!

4. Undo the LH and RH screws (1) and swivel the upper locking lever (2) upwards.



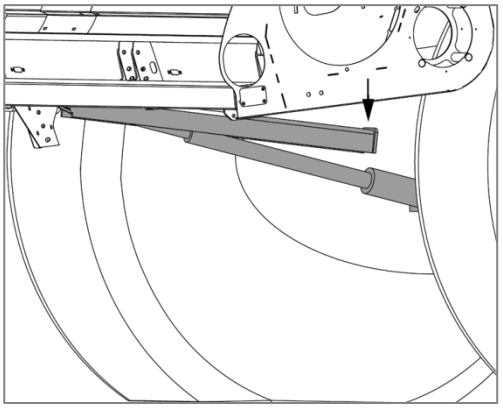
Locking lever in open position

5. Undo the spring cotter and pull back the locking bolt (gray).



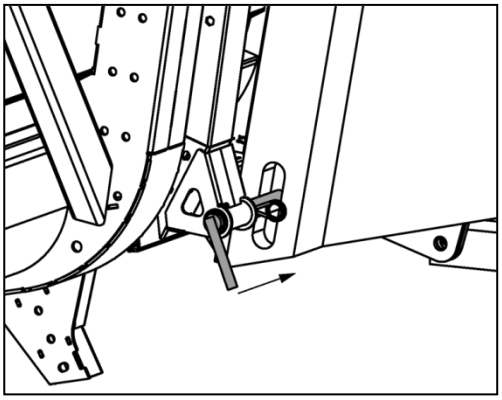
Pull back locking bolt

6. Insert the header into the combine harvester far enough that the lowering protection can be activated. Subsequently activate the lowering protection!



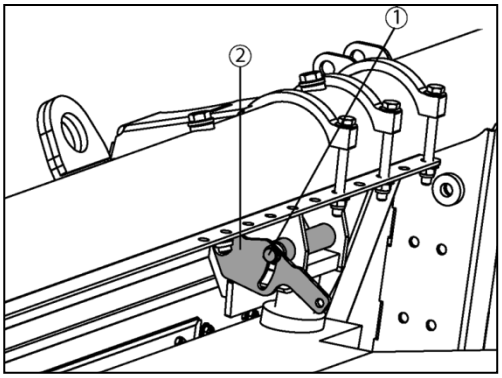
Activated lowering protection

7. While doing so, ensure that the channel holding fixture is securely hooked in. Push in the locking bolt and secure it with the spring cotter.



Push in locking bolt

8. Swivel the upper locking lever (2) downwards and tighten the LH and RH screws (1) (wrench size 17).



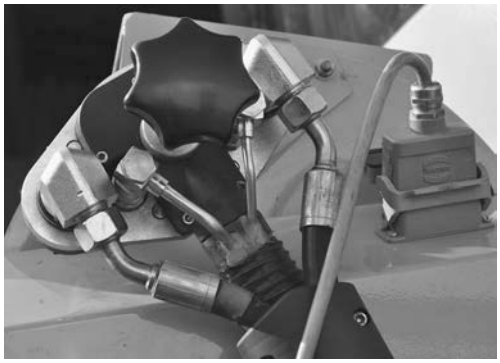
Locking lever in closed position

Connecting the hydraulic multi-coupling (Lexion)

DANGER

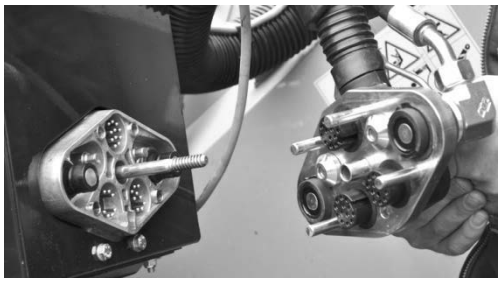
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

When delivered the multi-coupling (plug) is secured on the carrying device of the combine harvester.



Multi-coupling on the combine harvester

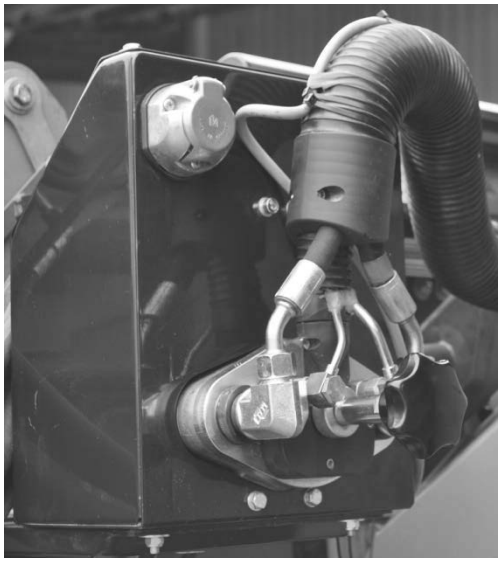
1. Remove the multi-coupling (plug) from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach the multi-coupling to the header and tighten the screws.

➲ Adhere to the combine harvester manufacturer's specifications.



Attach and tighten screws

3.5 Connecting the adaption and the hydraulic multi-coupling (John Deere Combines)

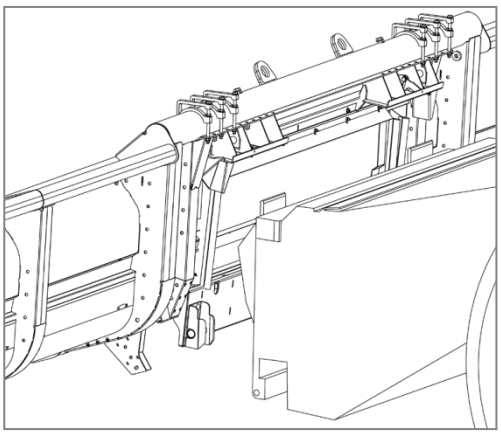
Locking the adaption

DANGER

Danger of injury!

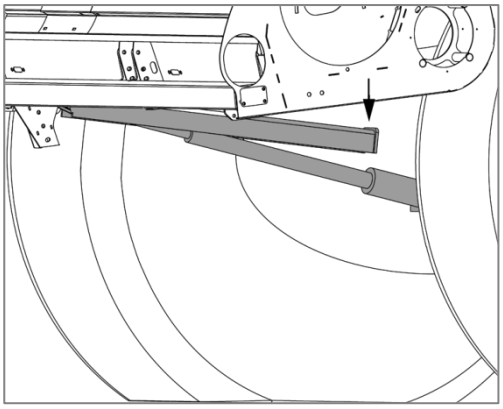
- Always activate the lowering protection before working on the header!

1. Insert the header into the combine harvester far enough that the lowering protection can be activated. While doing so, ensure that the channel holding fixture is securely hooked in.



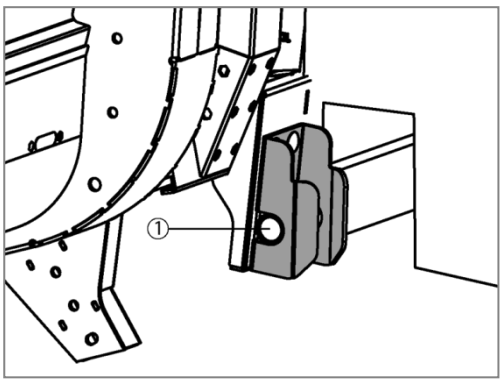
Header prior to mounting

2. Activate the lowering protection!



Activated lowering protection

3. Ensure that the bolts lock correctly. If necessary, align pos. 1.



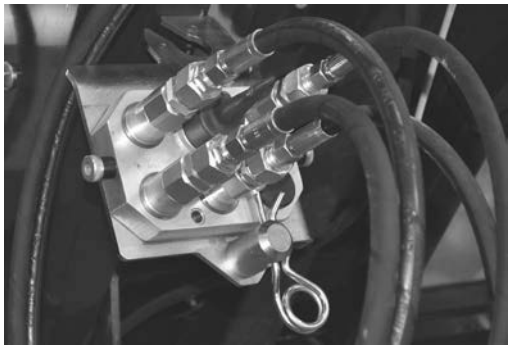
Securely locked bolts

Connecting the hydraulic multi-coupling (John Deere)

DANGER

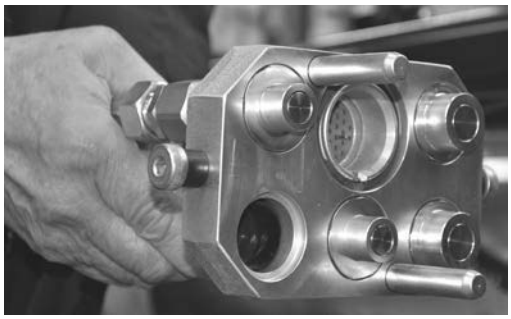
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

On delivery the multi-coupling (plug) is secured on the carrying device of the header by means of a spring cotter.



Multi-coupling on the header

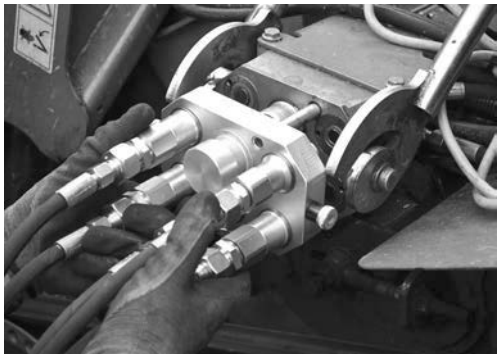
1. Remove the multi-coupling (plug) from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach multi-coupling to combine harvester and completely throw the locking lever.

   Adhere to the combine harvester manufacturer's specifications!



Attach and throw the lever

Adapt hydraulic group to the header (John Deere)

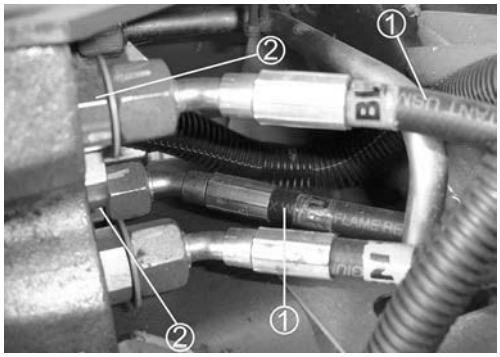
To increase the folding speed for foldable headers and/or to increase the lifting speed when using the sweeper, carry out the changes described below.

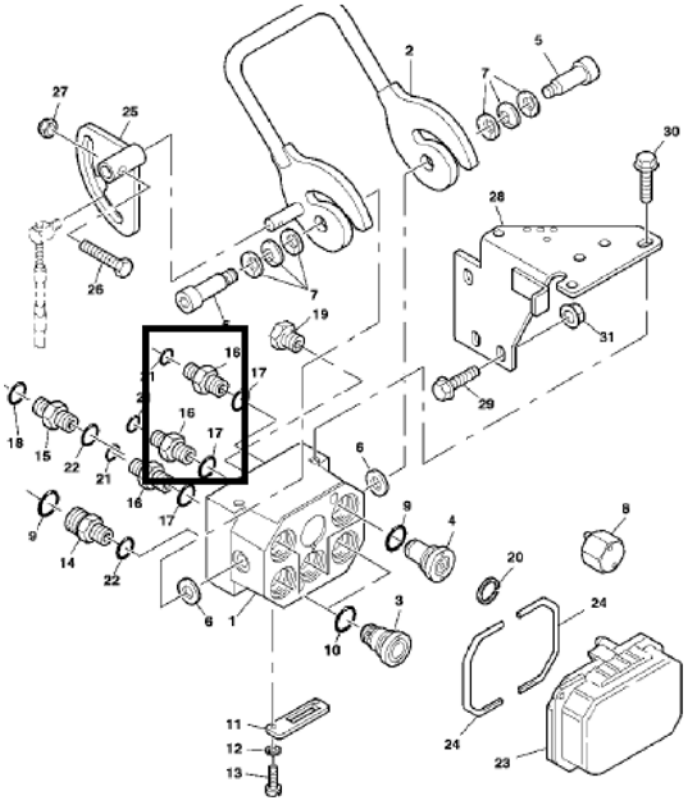
DANGER

For later use of the combine harvester with John Deere attachments, always re-use the unchanged original screw connections!

- Check the hydraulic lines for leaks!

1. Disassemble the two hydraulic lines marked in blue (1) and unscrew the screw-in socket (2).
2. Drill open the integrated throttle to 4 mm, remove chips and dirt, then re-insert and tighten (Position 16 of the screw-in sockets in the John Deere replacement parts catalog).
3. Subsequently reconnect the hydraulic lines. Check for leaks!





Position of the screw-in sockets in the John Deere replacement parts catalog

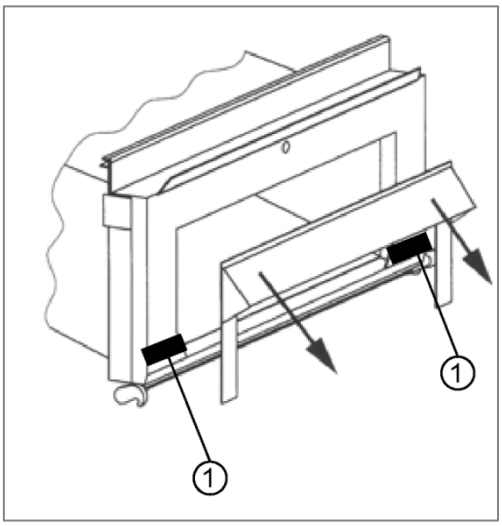
3.6 Connecting the adaption and the hydraulic multi-coupling (New Holland)

Adjusting the combine harvester intake channel (New Holland)

Prior to the initial installation of a header on a CNH combine harvester of the CX and CR series, always detach the brackets (2) on the upper link holding fixture.

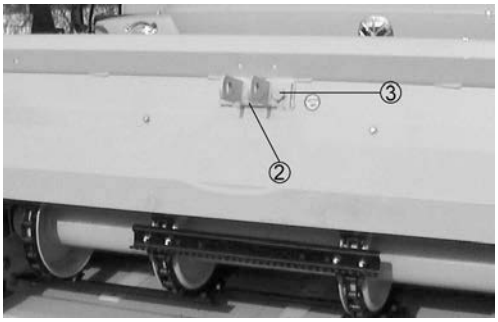
Only remove the brackets, not the entire holding fixture!
The rest of the fixture is required for the pivot point of the angling blade.

1. Remove the channel splash guard from the combine harvester intake channel. If necessary, remove the scraper angle (1).



Remove the channel splash guard, if necessary, remove the scraper angle

2. Remove the brackets (2) on the intake channel. Ensure that the flat steel including screws (3) remains attached to the machine!



Remove bracket (2)

The additional part (550900) is supplied so that the upper link holding fixture can be reused later.

Screw-fit the additional part onto the already installed bracket using longer screws (M16 x 50).

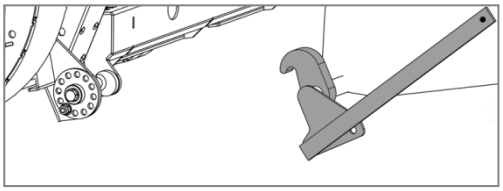
Locking the adaption

DANGER

Danger of injury!

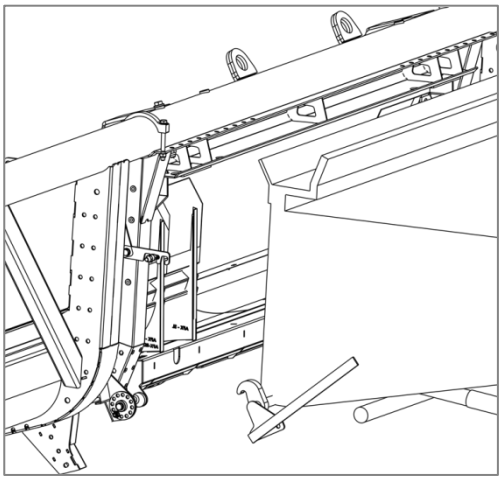
- Always activate the lowering protection before working on the header!

1. Ensure that the locking lever on the intake channel is open.



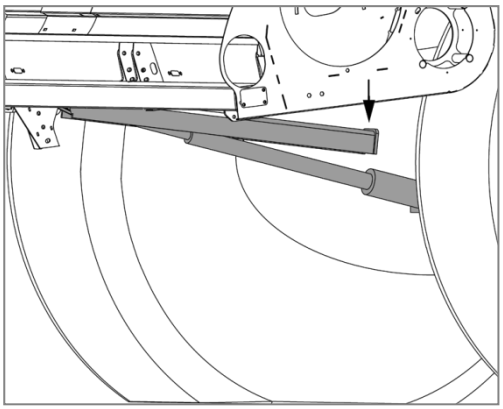
Lock in open position

2. Insert the combine harvester into the header far enough that the lowering protection can be activated. While doing so, ensure that the channel holding fixture is securely hooked in.



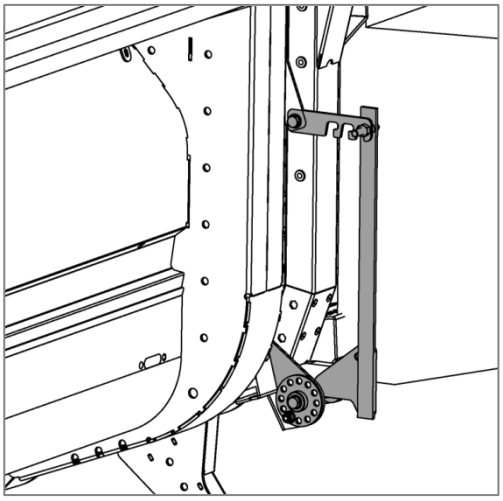
Header prior to mounting

3. Activate lowering protection!



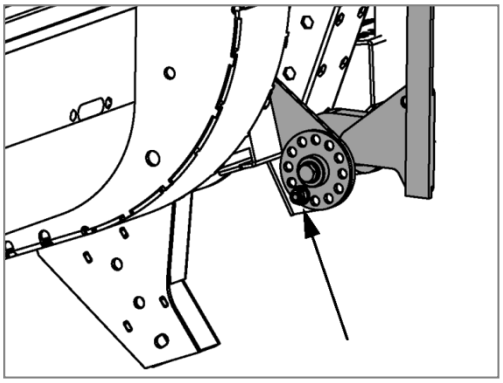
Activated lowering protection

4. Throw the locking lever of the intake channel and securely hook it into the intended section of the header.



Hook in locking lever

5. If necessary, remove the screw of the eccentric connection and set the eccentric shaft so the connection between the locking hook and the header is secure and free of clearance. Subsequently re-secure the eccentric connection by means of a screw.



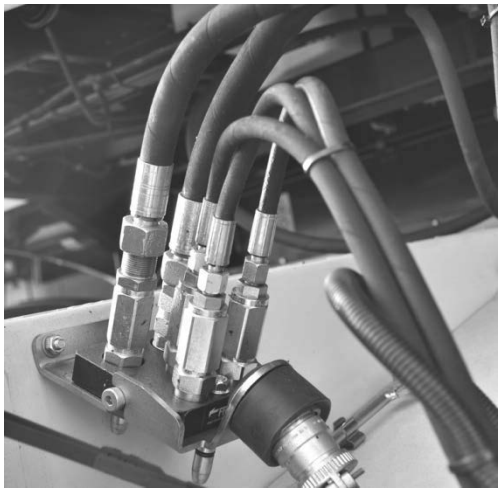
Active lock with eccentric screw (arrow)

Connecting the hydraulic multi-coupling (New Holland)

DANGER

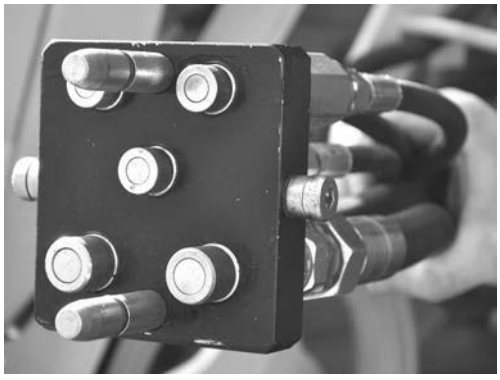
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

On delivery the multi-coupling (plug) is secured on the carrying device of the combine harvester.



Multi-coupling on the combine harvester

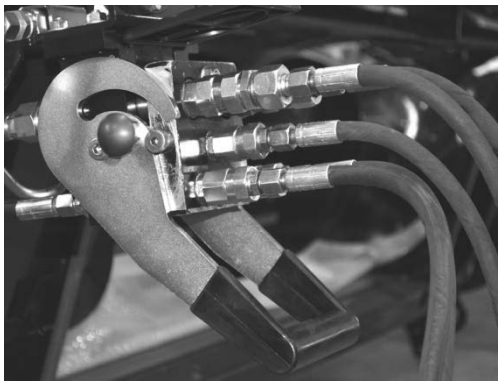
1. Remove the multi-coupling from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach multi-coupling to header and throw the lever.

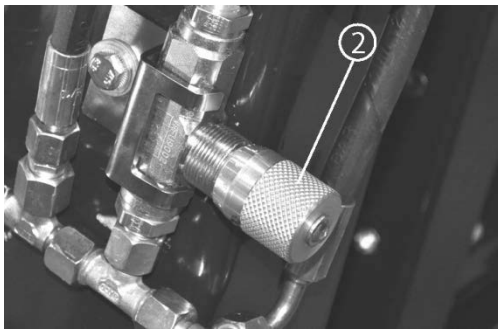
Adhere to the combine harvester manufacturer's specifications!



Multi-coupling on the header

Rotational speed reduction valve (New Holland)

Use the control valve (2) to set the rotational speed of the sweeper and the corn auger thus that sufficient adjustment is possible by using the combine harvester function "Reel fast/slow".



Rotational speed reduction valve New Holland

3.7 Connecting the adaption and the hydraulic multi-coupling (Massey Ferguson)

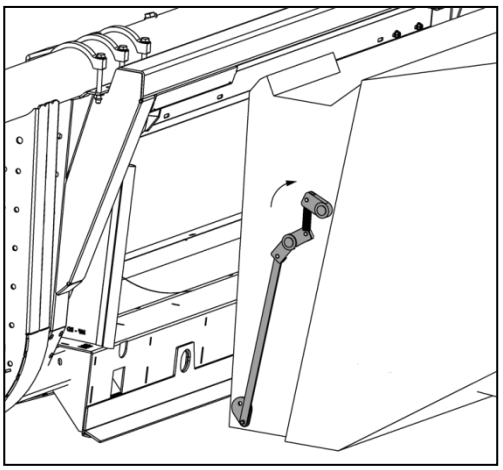
Locking the adaption

DANGER

Danger of injury!

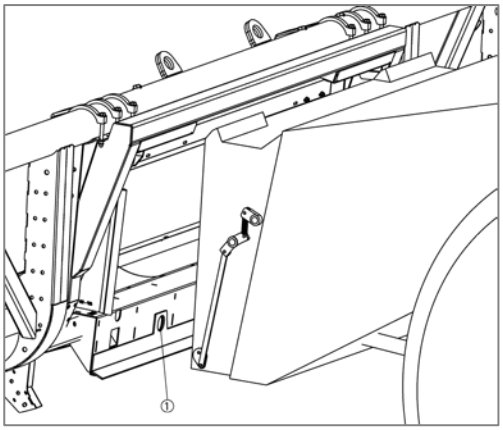
- Always activate the lowering protection before working on the header!

1. Ensure that the locking lever on the intake channel is open.



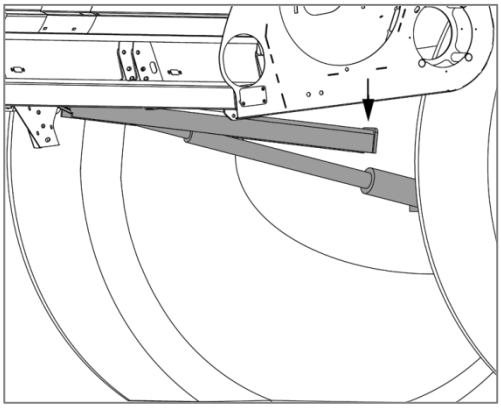
Locking lever in open position

2. Insert the header into the combine harvester far enough that the lowering protection can be activated. While doing so, ensure that the centering pin engages properly in the intended opening (1).



Header prior to mounting

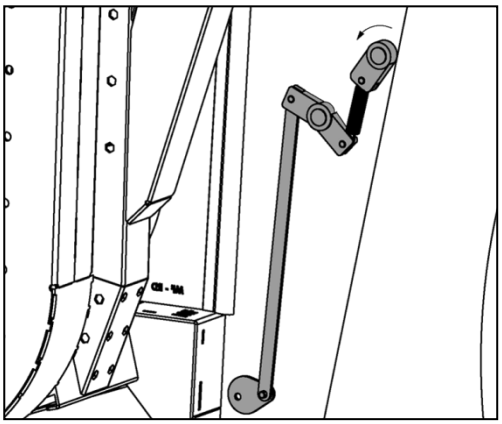
3. Activate lowering protection.



Activated lowering protection

4. Throw the locking lever of the intake channel across the dead center using a suitable tool.

Adhere to the combine harvester manufacturer's regulations!



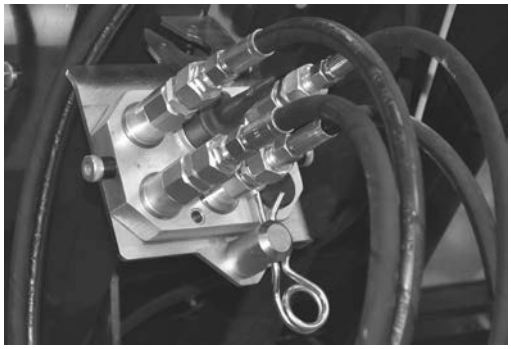
Locking lever in open position

Connecting the hydraulic multi-coupling (Massey Ferguson)

DANGER

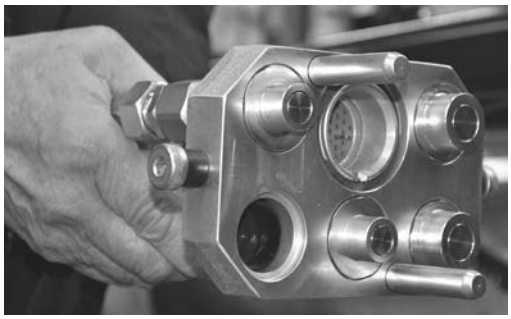
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

On delivery the multi-coupling (plug) is secured on the carrying device of the header by means of a spring cotter.



Multi-coupling on the header

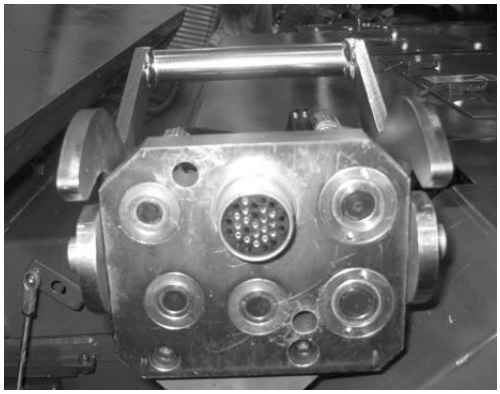
1. Remove the multi-coupling (plug) from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach multi-coupling to combine harvester and completely throw the locking lever.

   Adhere to the combine harvester manufacturer's specifications!



Attach and throw the lever

3.8 Connecting the adaption and the hydraulic multi-coupling (Gleaner)

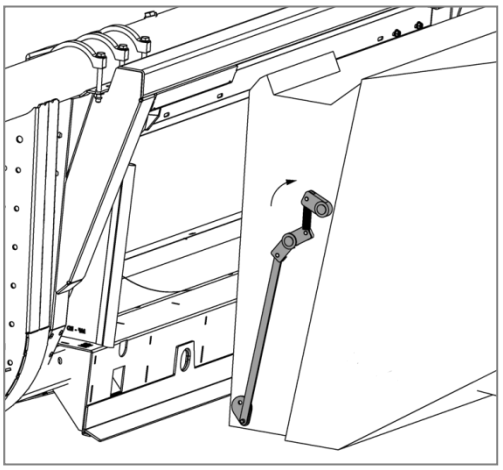
Locking the adaption

DANGER

Danger of injury!

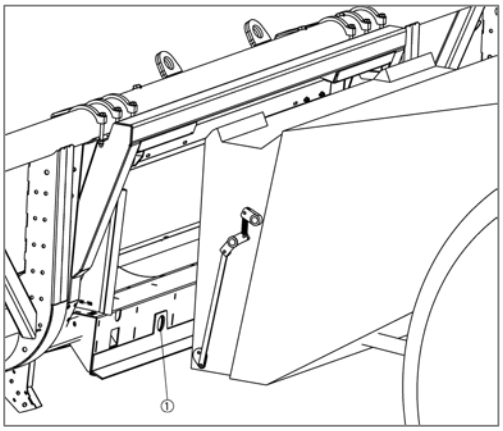
- Always activate the lowering protection before working on the header!

1. Ensure that the locking lever on the intake channel is open.



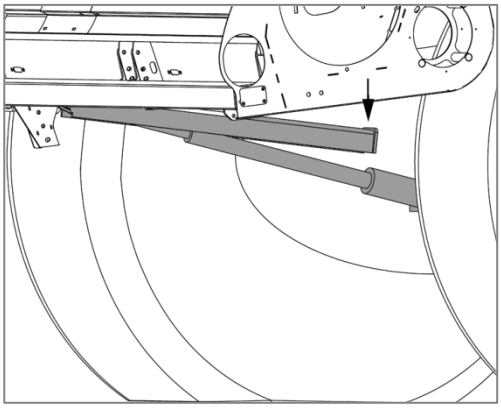
Locking lever in open position

2. Insert the header into the combine harvester far enough that the lowering protection can be activated. While doing so, ensure that the centering pin engages properly in the intended opening (1).



Header prior to mounting

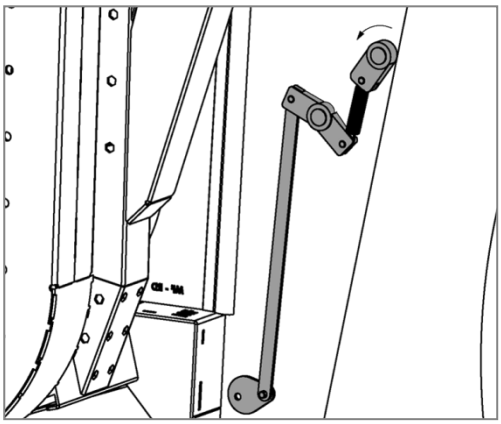
3. Activate lowering protection.



Activated lowering protection

4. Throw the locking lever of the intake channel across the dead center using a suitable tool.

Adhere to the combine harvester manufacturer's regulations!



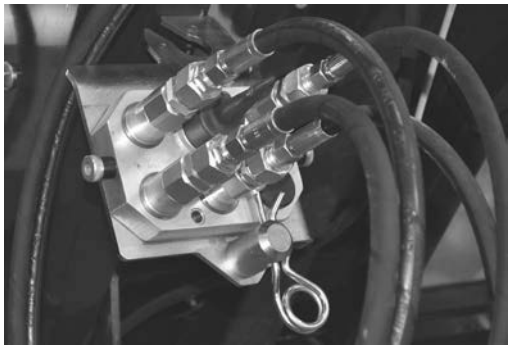
Locking lever in open position

Connecting the hydraulic multi-coupling (Gleaner)

DANGER

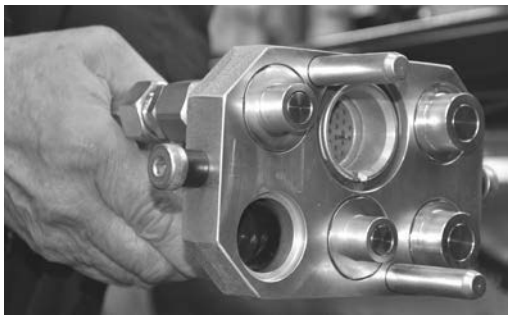
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

When delivered the multi-coupling (plug) is secured on the carrying device of the header by means of a spring cotter.



Multi-coupling on the header

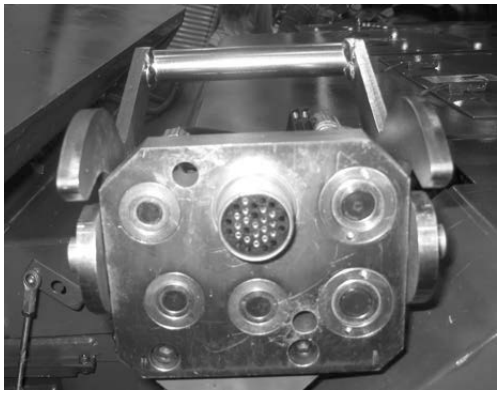
1. Remove the multi-coupling (plug) from the carrying device.
2. Ensure that the plug and the coupling are clean.



Remove the multi-coupling

3. Attach multi-coupling to combine harvester and completely throw the locking lever.

➲ Adhere to the combine harvester manufacturer's specifications.



Attach and throw the lever

3.9 Assembling the cardan shaft

Depending on their type, the corn headers are equipped with different PTO-shaft drives. Usually the drive is located on the RH side, depending on the model, there may be an additional drive on the LH side.

DANGER

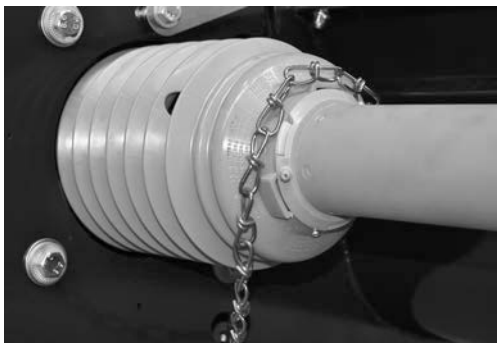
Danger of injury!

- Switch off the diesel motor for all work carried out on the machine!
- Secure the PTO-shaft protection devices against turning!
- Check the PTO-shaft protection devices, if necessary, replace immediately!
- Never open or remove protection devices/guards during operation!
- Before connecting the PTO-shaft, read the operating manual supplied by the manufacturer!

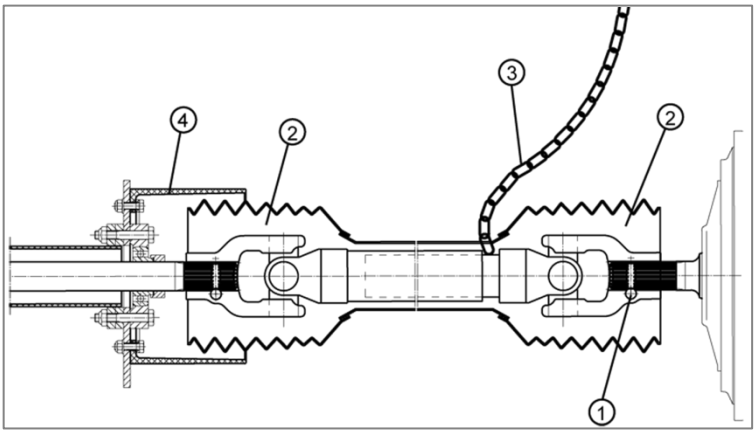
1. Clean and grease the drive shaft prior to connecting it to the PTO-shaft.
2. Fit the PTO-shaft onto the drive shaft until it securely engages (1), see fig. below.
   Ensure that the cardan shaft protection device (2) is undamaged and placed over the connection.
   Ensure that the protection device on the combine harvester side is installed.

PTO-shaft on drive

3. Hook the holding chains (3) into the intended loop to secure against turning.
4. Ensure that the protective cap (4) is undamaged and correctly positioned over the PTO-shaft protection (2).
5. Check for sufficient covering of the PTO-shaft.



Holding chains against turning



1. Locking mechanism, cardan / drive shaft
2. Cardan shaft protection device
3. Holding chain
4. Protective cap

3.10 Installing the monitor

Installing the monitor and the terminal box

DANGER

Ensure that the monitor does not limit the field of vision!

- Attach the monitor so that the field of vision is not limited and the display is easily readable.

1. Attach the monitor in the driver's cab on the RH side above the instrument board by means of the suction holder. Alternative attachment possible.

Monitor with holding fixture

Ensure that the windscreen is free of dust and grease and that the monitor is not attached in the curved section.

2. Install the terminal box at a suitable and easily accessible position in the driver's cab.

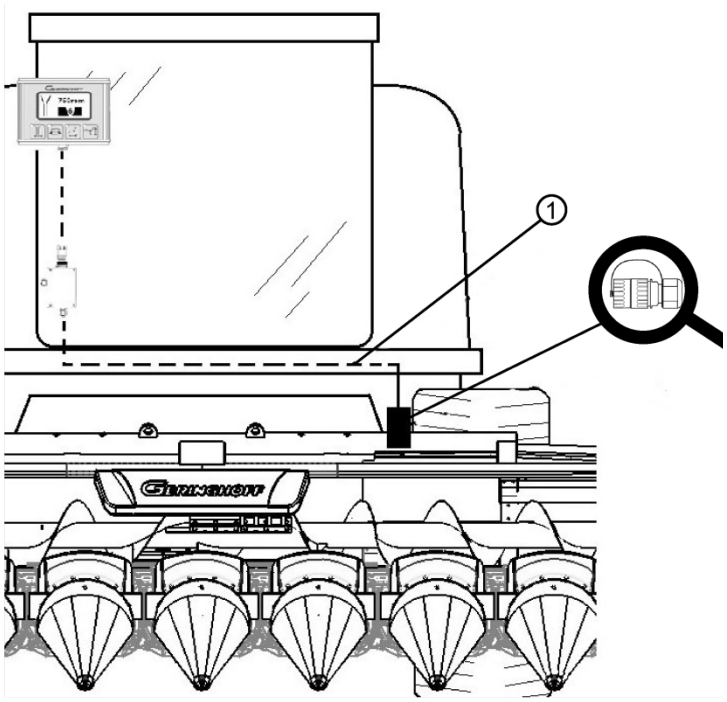
Terminal box

Laying cables

1. Lay the monitor cables to the terminal box without damaging them
2. Lay the header/ terminal box connection cables starting from the LH outside through a suitable opening on the RH side in the cab floor. (If necessary, drill a hole of Ø 13 mm).

Seal the cable exit opening!

Ensure that the cable length is sufficient for the lifting and lowering movements of the intake channel**.**



1=cable path, magnifying glass=monitor connection to the header

Clamping the cables

Connect according to the figure with the current switched off.

br=brown

gr=gray

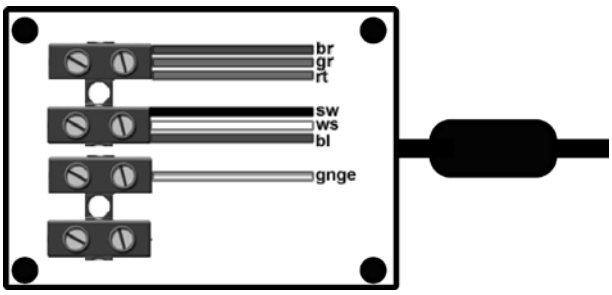
rt=red

sw=black

ws=white

bl=blue

gnge=green-yellow



Connection diagram

Connecting the power supply and the monitor

DANGER

Danger of short-circuit!

1. Connect the plug for the power supply incorporating the ignition lock (12 V, fuse max. 10 Amp.).
2. Securely connect the electrical connection (monitor) with the header.

3.11 Operating the monitor

Switching on the monitor

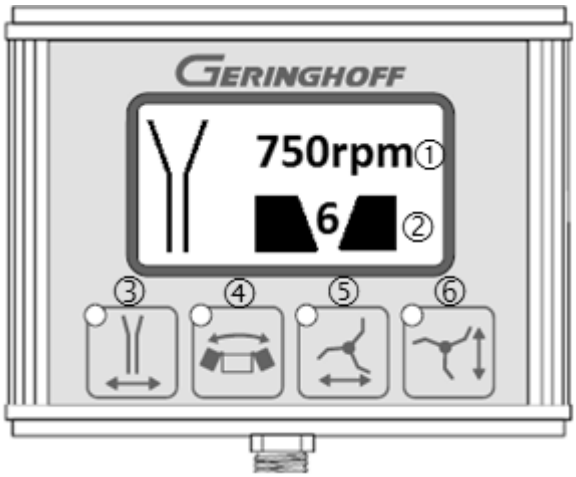
The monitor automatically switches on as soon as contact is made via the ignition lock.

The system automatically recognizes the attached header type and activates the corresponding buttons. The button LEDs light up briefly, then the display changes to road or harvesting mode (rotational speed display and picking plate position).

If it is not used, the monitor automatically switches itself off after approx. 3 minutes (no input, combine harvester standstill or road transport.)

Press any key to restart the monitor.

Monitor functions



1. Rotational speed
2. Picking plate spacing
3. Activate function "adjust picking plates"
4. Activate "fold" function (optional)
5. Activate "sweeper forward/backward" function (optional)
6. Activate "raise/lower sweeper" function (optional)

During operation the monitor shows the rotational speed of the header in real time. In this way, possibly occurring slippage of the combine harvester drive as well as occurring overload moments can be monitored reliably.

The monitor is used to access the following functions:

- Set picking plate spacing
- Fold up/fold out header
- Position sweeper

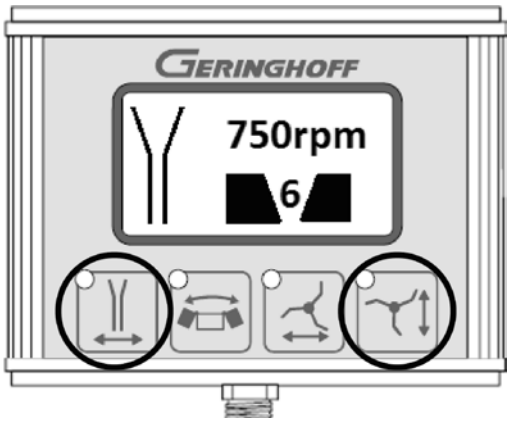
3.12 Rotational speed ranges for headers:

North Star: >650 and <850

Rota Disc: >650 and <800

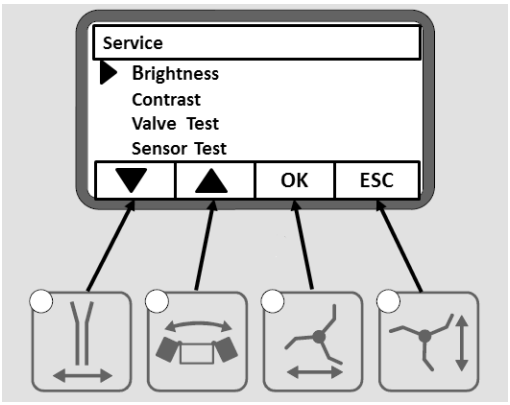
Setting contrast and brightness

1. Simultaneously press the "picking plate spacing"  and the "raise/lower sweeper"  buttons for 3 seconds to change over to service mode.



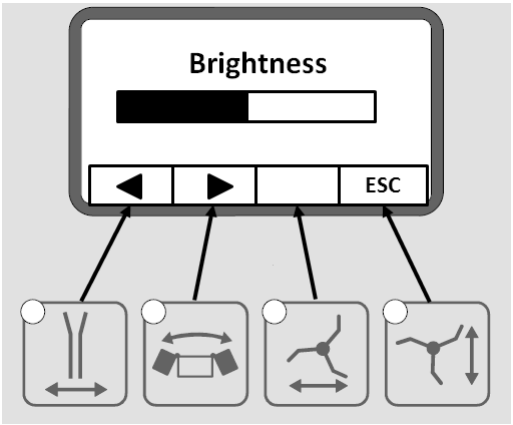
Simultaneously press buttons for 3 seconds

2. First use the arrow buttons ▼ ▲ to select the function (brightness or contrast) and then press the OK button.



Service mode

3. Use the arrow buttons ◀ ▶ to adjust the selected function. Use the ESC button to return to the main menu.



Set the brightness

Moving the header to its harvesting position

DANGER

Danger of injury!

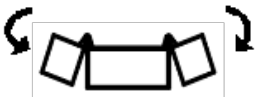
- Never initiate the folding process while the header drive is switched on!
- Never initiate the folding process while driving!
- Ensure that no persons are in the swivel range!

Prior to initiating the folding process, ensure that the folding covers are completely open!
If necessary, briefly actuate the hydraulic valve in the direction of the transport position.

Carry out the folding process without interruptions as the function is otherwise canceled and has to be accessed again via the monitor!

1. Press the "fold" button  to change over to the folding mode. The button LED lights up.

➲ First the folding symbol appears on the display.



Folding symbol on the display

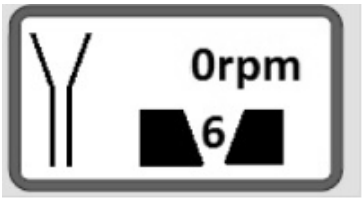
2. Move the header to its harvesting position by means of the function "reel forward or backward" on the control lever of the combine harvester.

➲ The unlocking symbol appears on the display until the cover hoods are closed.

Fig. schematic

3. Do not stop actuating the valve until the harvesting position has been fully reached.
For this reason, continue actuating the valve for 10 seconds after the cover hoods are closed (ensure that the center hoods are completely closed!).

➲ As soon as the harvesting position has been fully reached, the monitor display will switch to the standard harvesting mode.



Standard harvesting mode in standstill

Do not stop actuating the valve until 10 seconds after the cover hoods are completely closed!

Moving the header to its transport position

DANGER

Danger of injury!

- Never initiate the folding process while the header drive is switched on!
- Never initiate the folding process while driving!
- Ensure that no persons are in the swivel range

Carry out the folding process without interruptions as the function is otherwise canceled and has to be accessed again via the monitor!

1. Press the "fold" button to change over to the folding mode. The button LED lights up.

➲ First the folding symbol appears on the display.

Folding symbol on the display is continuously shown

2. Move the header to its transport position by means of the function "reel forward/backward" on the control lever of the combine harvester.

Fig. schematic

➲ The unlocking symbol appears on the display.

➲ The lock symbol extinguishes as soon as the unlocking process is finished and the folding process starts.

Setting the picking plate spacing

The picking plate spacing can only be adjusted in the harvesting position!

1. Press the "picking plate spacing" button to switch into the picking plate adjustment mode.

➲ The button LED lights up, the current indicator value for the picking plate spacing appears on the display.

2. Set the spacing of the picking plates by means of the "reel forward/backward" function on the control lever of the combine harvester.

Picking plate adjustment mode

The picking plate spacing is displayed with values between 0-10 (indicator values).

Adjusting the sweeper

The infinitely variable conveyor segments are available as an option and will be referred to as "sweeper" hereinafter. For foldable headers the sweeper is only installed on the non-foldable header rows, for rigid headers it is installed on all rows. The sweeper is automatically moved into the correct position when the folding process is initiated.

The sweeper can only be adjusted in the harvesting position!

Adjusting the sweeper horizontally

1. Press the sweeper forward/backward button  to change over to horizontal mode.

➲ The button LED lights up.

2. Horizontally adjust the sweeper by means of the function "reel forward/backward" on the control lever of the combine harvester.

➲ Finish actuating the valve when the desired position is reached.

Adjust the reel horizontally

Adjusting the sweeper vertically

1. Push the "raise/lower sweeper" button  to change over to vertical mode.

➲ The button LED lights up.

2. Vertically adjust the sweeper by means of the function "reel forward/backward" on the control lever of the combine harvester.

➲ Finish actuating the valve when the desired position is reached.

Adjust the reel vertically

3.13 Assembling the conveyor segments of the sweeper

DANGER

Danger of crushing!

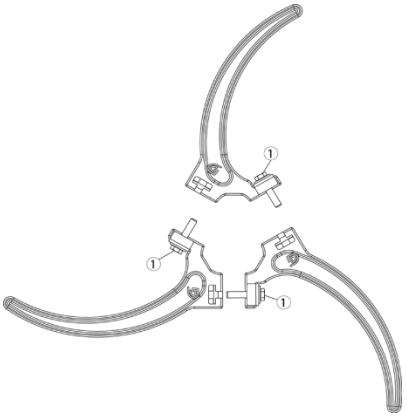
- Only install the conveyor segments of the sweeper when the header is lowered!
- Always move the sweeper to its bottom position for road transport!

The chapter "Operating the monitor", see page 42,describes how to operate the sweeper.

Before assembly, ensure that the hydraulic group and the monitor are connected and that the header is lowered.

1. Remove transport securing devices.
2. Switch on monitor and press "raise/lower sweeper" button. Use the "reel forward" button to lift up the sweeper far enough so that the conveyor segments can easily be assembled.
3. Assemble the conveyor segments on the support pipe as depicted. Tighten the surrounding screws (1) evenly in alternation.

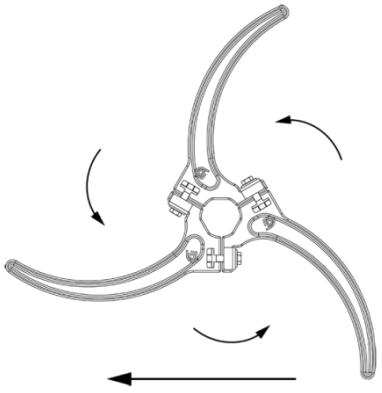
Raise/lower sweeper button



Three-component conveyor segment

Keep a degressive work direction, see figure on the RH side.

Degressively install the conveyor segments on the support and drive pipe. While doing so, center the conveyor segments precisely in relation to the header row.



Degressively installed conveyor segment

For rigid headers, the conveyor segments are installed on all header rows; for foldable headers they are only installed on the non-foldable header rows.
For the harvesting process, set the sweeper (horizontally and vertically) so that the conveying capacity within the header rows is optimal.

Avoid unnecessary strain on the conveyor segments caused by inproper setting!

Rotational speed adjustment of the sweeper and the corn augers

Adjust the rotational speed by means of the "reel rotational speed adjustment" function of the combine harvester.

3.14 Installation and adjustment of the divider points

Attaching the divider points

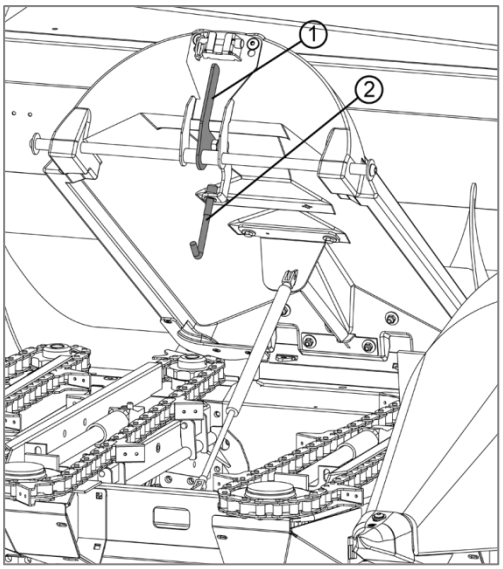
DANGER

Danger of injury!

Covers can spring upwards when opened due to the gas pressure cylinder! When assembling the covers and divider points, body parts can be crushed.

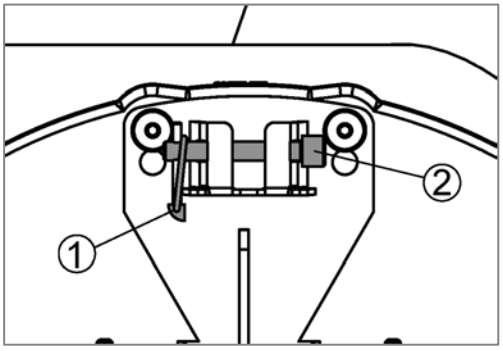
- Only carry out assembly work when the lock and the lowering protection are activated!
- Take special care while working!

1. Throw the lever (1). Press down the cover and unhook the locking hook (2).
2. Carefully swivel the hood upwards.



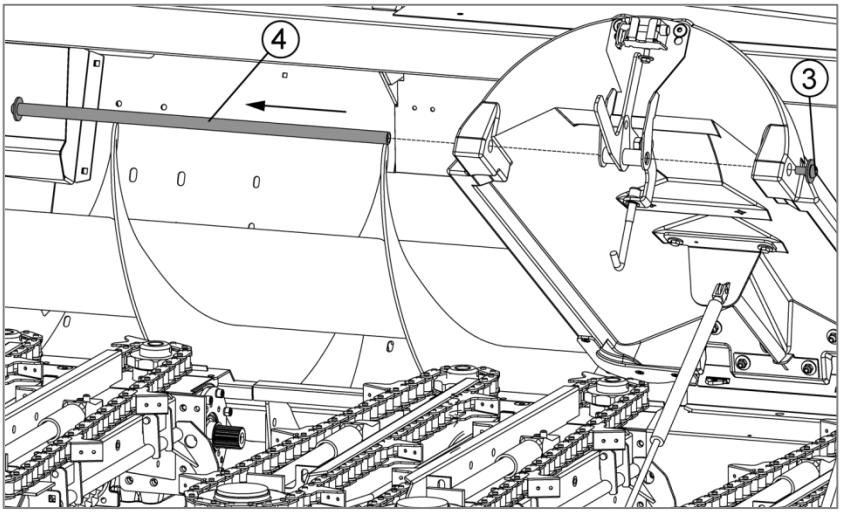
Throw the lever and unhook the locking hook

3. Remove the linchpin (1) and pull out the bolt (2).



Remove linchpin (1), pull out bolt (2)

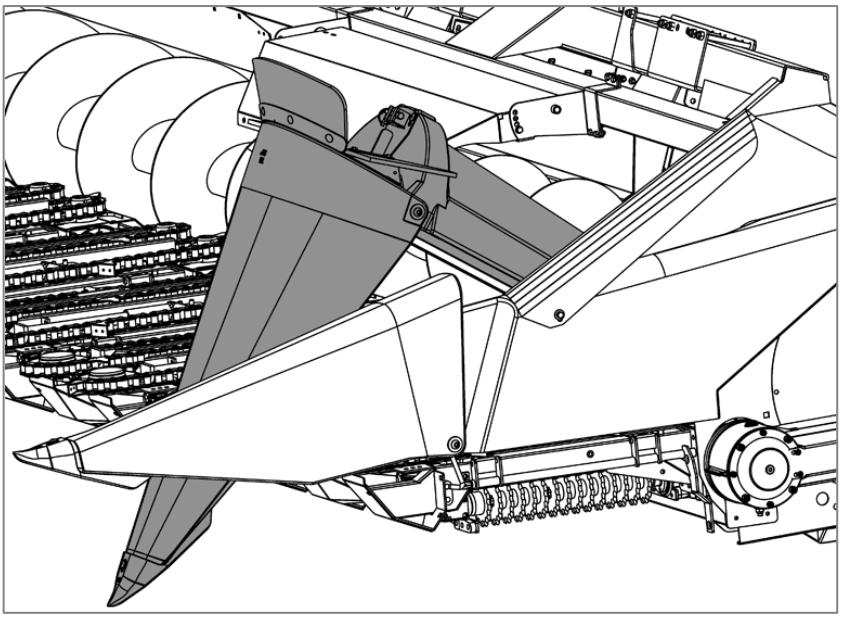
4. Undo the screw (3) on one side, hold the locking lever, and pull out the pipe (4).



Undo screw (3) and pull out pipe

Lower the machine until the divider points are easy to install.
Activate the lowering protection, if necessary use an alternative protective device.

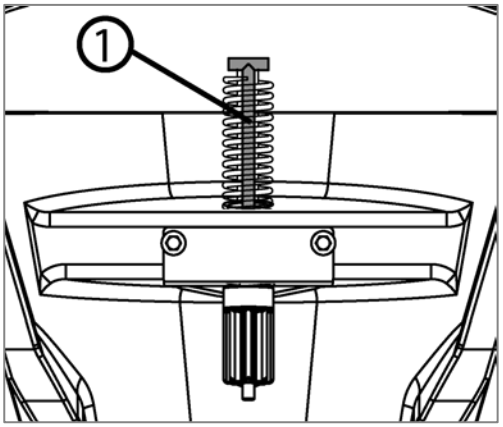
5. Raise the divider point as depicted and insert the pipe in the intended opening of the cover and the divider point. Subsequently screw-fit and secure the screw with a screw adhesive. For the required torque (Nm), refer to the torque table in the appendix.



Insert the pipe while the divider point is hanging

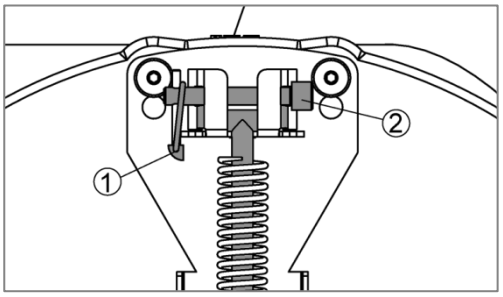
Release pressure from the pressure spring of the setting spindle until the spindle can be hooked in.

6. Hook the setting spindle (1) of the divider point into the intended loop of the cover.



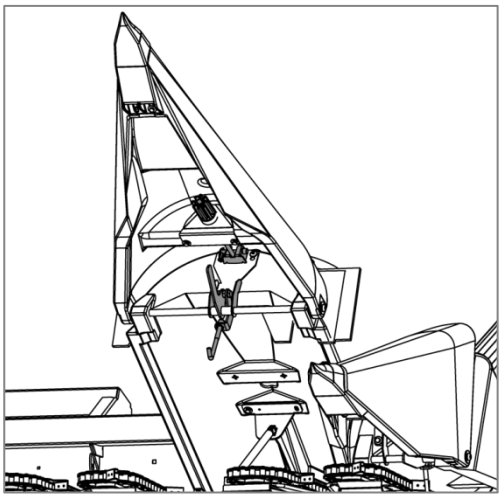
Hook in setting spindle

7. Install safety bolt and secure with linchpin.



Install and secure bolt

8. Close cover. Ensure that the locking hook is simultaneously hooked in.
9. Close the locking lever with moderate pre-tension. If necessary, adjust by turning the hook in or out.



Lock and close

Installing the outer divider point

The assembly of the outer divider points is carried out following the same procedure as the assembly of the center divider points.

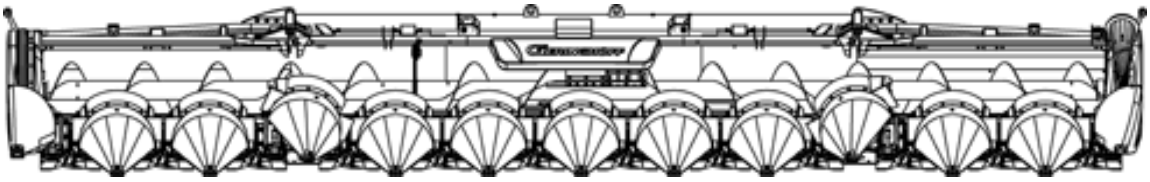
Attaching the divider points on the folding covers

DANGER

Danger of injury!

- Never initiate the folding process while the drive is switched on!
- Never initiate the folding process while driving!

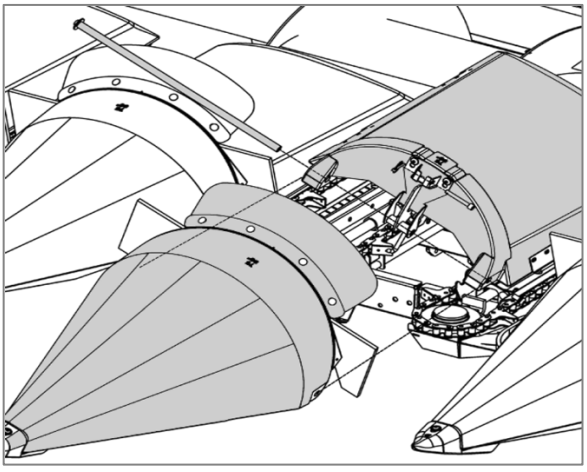
1. Press the "fold" button to change over to the folding mode.
2. Hold the button until the folding covers are open. Interrupt the command as soon as the folding covers are open.
3. Switch off the ignition lock



Fold until covers are open

Always keep the header in its harvesting position!

4. Fit the divider points to the center covers analogous to the assembly of the divider points.
5. After assembling the divider points, switch on the monitor again and select the "fold" command .
6. Move the header to its harvesting or transport position.



Folding covers in open position

Adjusting the divider points

DANGER

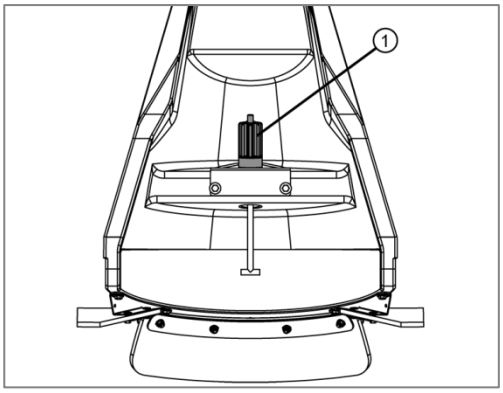
Danger of injury!

- Always activate lowering protection!

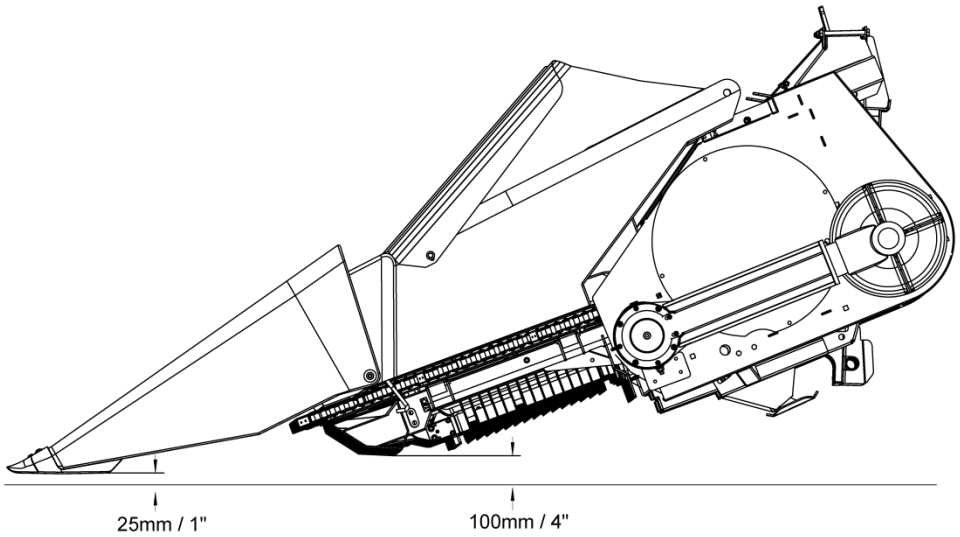
Avoid contact between the divider points and the intake chains!

If the combine harvester significantly sinks into the field, raise the points further.
For lodged corn harvest, lower the points further.

1. First deactivate the lowering protection.
2. Lower the header to a distance of approx. 10 cm from the ground on an even ground.
3. Set the screw (1) so that the divider points are approx. 2 cm from the ground (standard setting).
4. Lift the machine, activate the lowering protection and align the remaining divider points with the outer points.



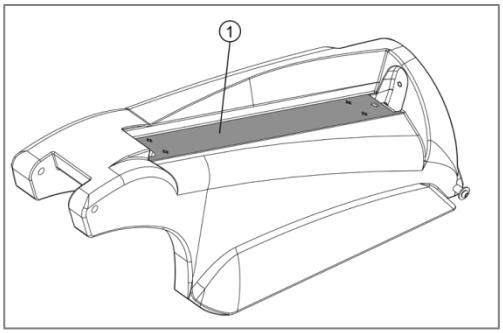
Set a distance of 2 cm from the ground by means of the screw



We recommend setting the two outer divider points approx. 50 mm (2 inches) higher.

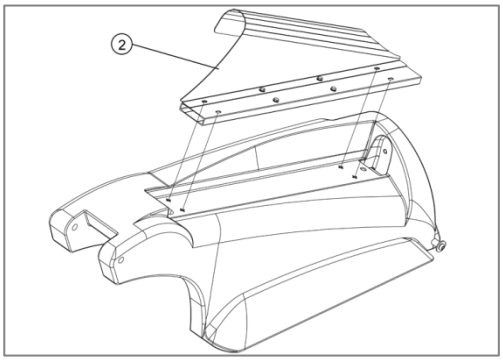
3.15 Assembling the body raiser

1. Remove the screws of the rectangular pipe (1).



Rectangular pipe on body

2. Fasten the body raiser (2) according to the figure using 4 screws on the inside (M8 x 16) and 4 screws on the outside (M8 x 40).



Assembling the body raiser

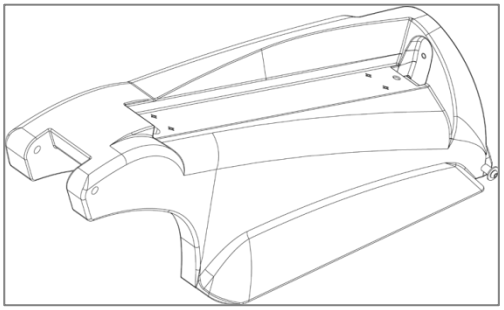
3.16 Assembling the corn auger (optional)

DANGER

Danger of injury!

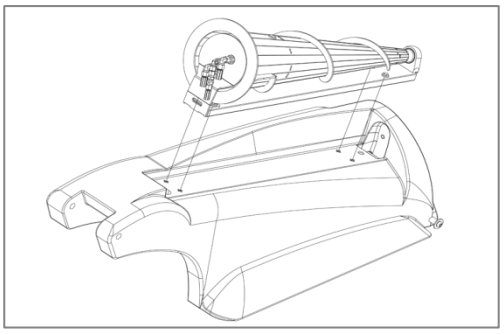
- Only assemble the corn auger when the diesel engine is switched off.

1. Undo the screws of the rectangular pipe and remove the rectangular pipe.



Remove the rectangular pipe from the body

2. Fit the corn auger to the body and fasten with 2 screws on top (M8 x 45) and 2 screws on the bottom (M8 x 40).

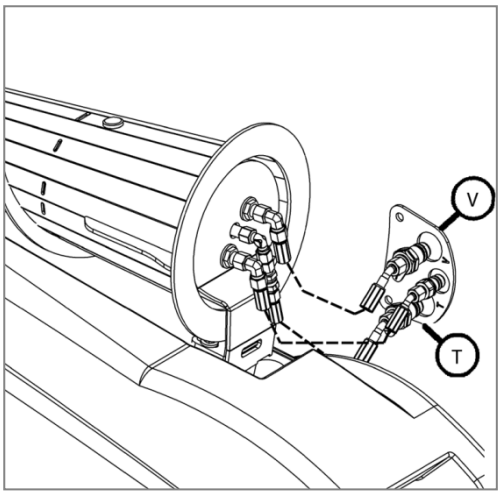


Assemble the corn auger with the rectangular pipe

Connecting the hydraulic connections

The corn auger has 3 hydraulic connections on the LH side and 2 hydraulic connections on the RH side.

3. Connect according to the markings: V=supply line, T=tank (return line). If corn augers are installed on both sides, there is an additional leakage connection (without a marking) on the LH side.



V=supply line, T=return line, center=leakage

Rotational speed adjustment of the corn auger

The rotational speed is adjusted by means of the combine harvester function "reel rotational speed adjustment".

3.17 Operating the sweeper and the corn auger simultaneously

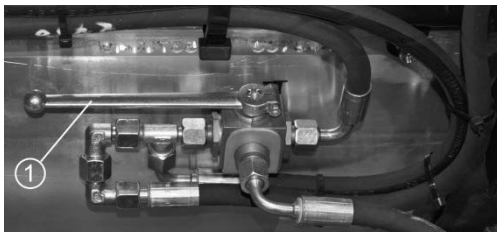
DANGER

Danger of injury!

- Only toggle between the sweeper and the corn auger when the machine is in standstill!

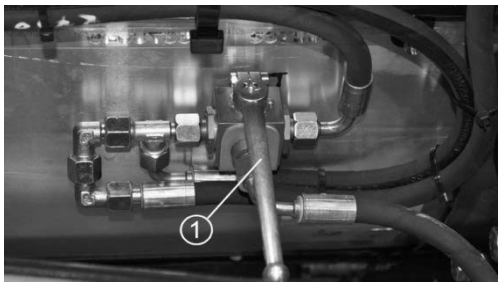
When using the corn auger and the sweeper simultaneously, it is possible to switch off the sweeper and only use the corn auger.

1. Either turn the sweeper on or off by positioning the lever (1) as depicted.



Lever position as an example

➲ The respective on and off positions depend on the model and can deviate from the figures.



Lever position as an example

3.18 Assembling the covers

Assembling / disassembling the exterior covers

DANGER

Gas pressure!

Covers can spring upwards when opened due to the gas pressure cylinder!

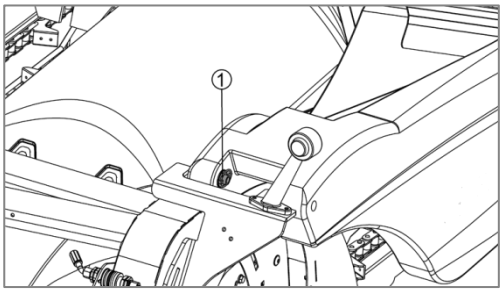
Danger of crushing!

When assembling the covers and divider points, body parts can be crushed.

- Take special care while working!
- Only carry out assembly work when the lowering protection is activated!

1. Remove the linchpin (1).
2. Open the exterior cover.
3. Remove the spring clip on the gas pressure cylinder and tilt the cylinder backwards.
4. Pull off the cover to the side and lay aside.

➲ The assembly procedure is the same as above.



Linchpin on the exterior cover

Disassembling / assembling center hoods

The hoods and divider points are easy to disassemble without tools for cleaning and maintenance work.

DANGER

Gas pressure!

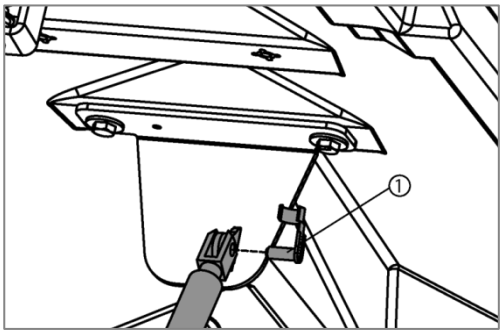
Covers can spring upwards when opened due to the gas pressure cylinder!

Danger of crushing!

When assembling the covers and divider points, body parts can be crushed.

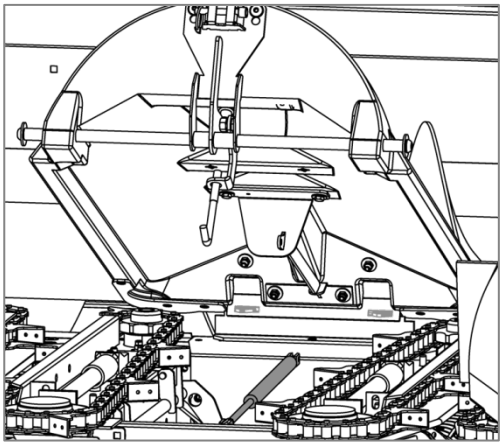
- Take special care while working!
- Only carry out assembly work when the lowering protection is activated!

1. Open the center hood and lift it.
2. While doing so remove the spring clip with the bolt (1) on the gas pressure cylinder.



Spring clip with bolt

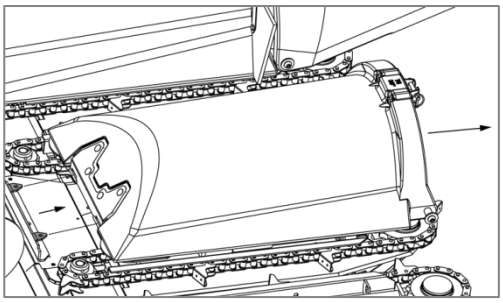
3. Tilt the gas pressure cylinder backwards.



Tilt the gas pressure cylinder backwards

4. Manually lower the hood far enough so that it can be pulled off and removed from the front.

➲ The assembly procedure is the same as above.



Pull off the cover towards the front

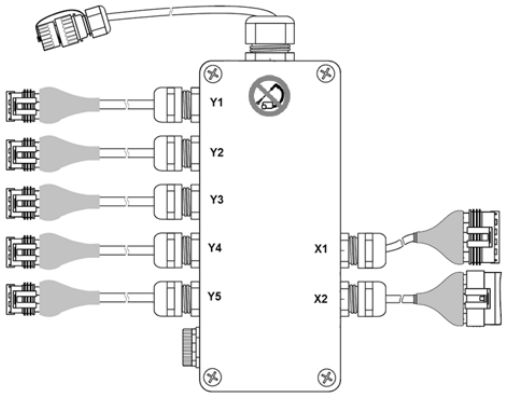
4 Operation

4.1 Troubleshooting

Carrying out a valve test

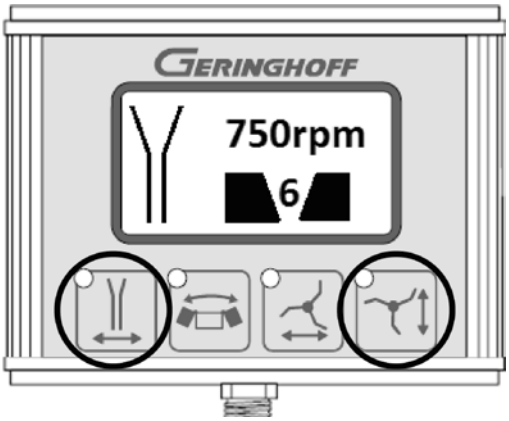
Valve functions

Y1	Picking plate adjustment
Y2	Folding function (optional)
Y3	Locking (optional)
Y4	Sweeper forward/backward (optional)
Y5	Raise/lower sweeper (optional)



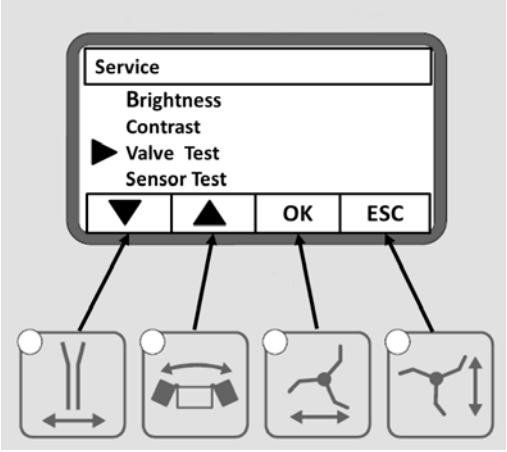
Wiring depends on model

1. Simultaneously press the "picking plate spacing"  and the "raise/lower sweeper"  buttons for 3 seconds to change over to the service mode.



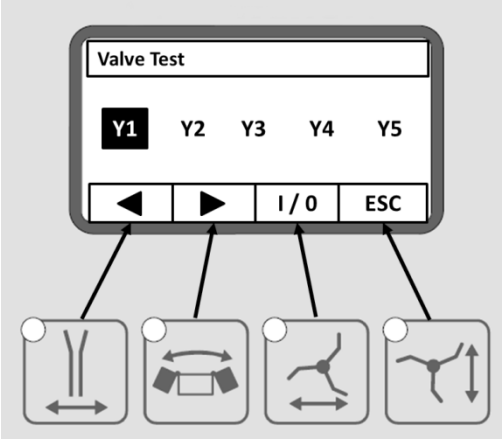
Simultaneously press buttons for 3 seconds

2. Use the arrow buttons ▼ ▲ to select the valve test function and confirm by pressing the OK button. (Setting of brightness and contrast,



Select valve test function

3. Use the arrow buttons ◀ ▶ to select the valve to be activated and subsequently press the I/0 button to activate the valve.



Select valve

➲ The selected valve is shown with a black background. If the electrical connection is correct, the LED on the valve will light up, otherwise carry out troubleshooting. Press the I/0 button again to switch off the valve.

4. Press the ESC button to return to the service mode. Press the ESC button again to return to the main menu.

Valve with LED

Carrying out a sensor test

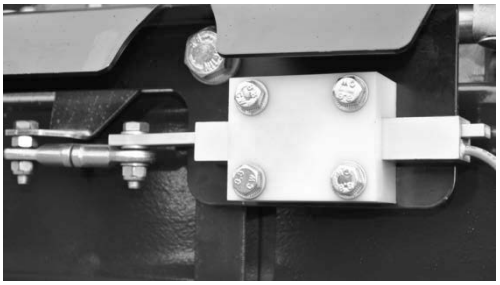
2-3 mm spacing between the sensors and the signal transmitter!

Sensor functions

E1 = rotational speed

Sensor (E1) for rotational speed monitoring below the machine

E2 = picking plate spacing

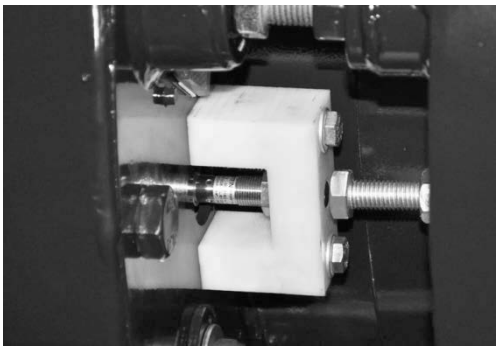


Sensor (E2)for picking plate spacing below the machine

E3 = folding function (optional)

LED on sensor lights up in case of activity.

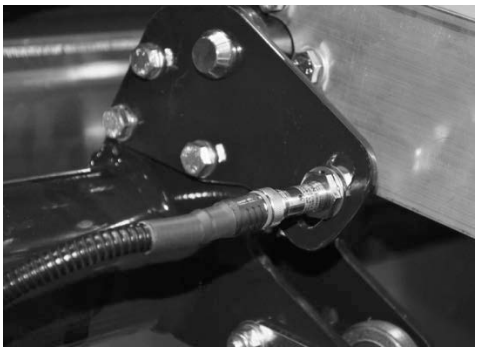
The two sensors for the folding function are serially connected. When testing first make contact on the LH side, then test the RH side.



Sensors (E3) for folding function, RH and LH side in the back

E4 = bottom sweeper position (optional)

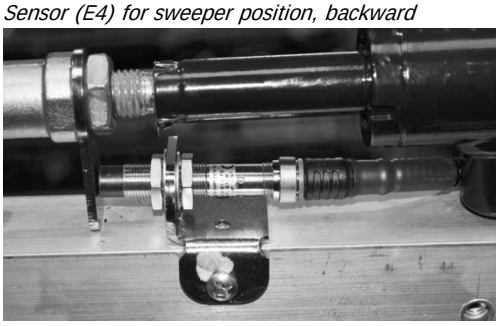
LED on sensor lights up in case of activity.



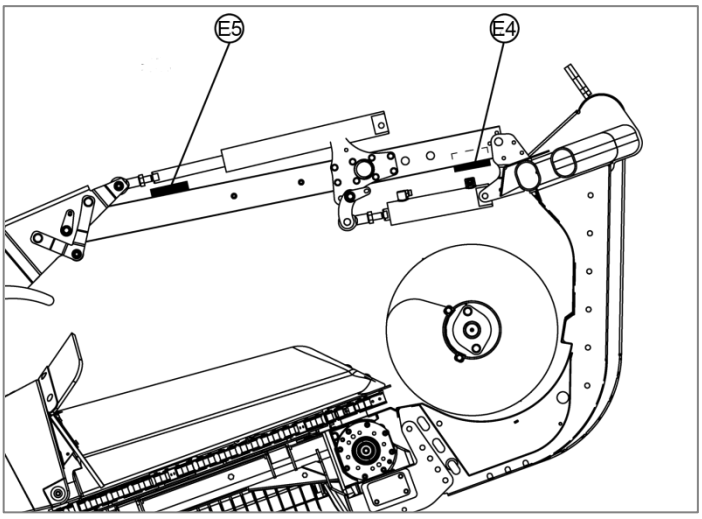
Sensor (E4) for sweeper position, backward

E5 = sweeper position backward (optional)

LED on sensor lights up in case of activity.



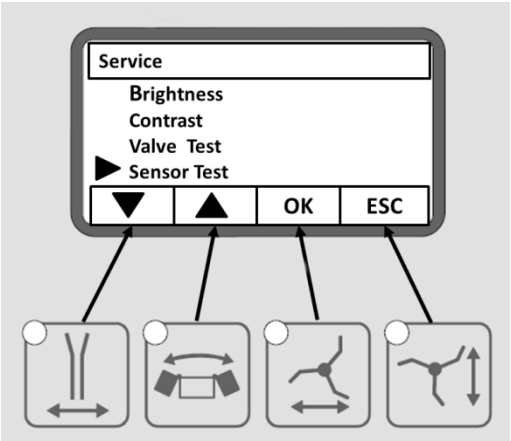
Sensor (E5)



E4 = Sensor sweeper position, bottom, E 5 = sweeper position, backward

E6 = Sweeper detection (determined by wiring)

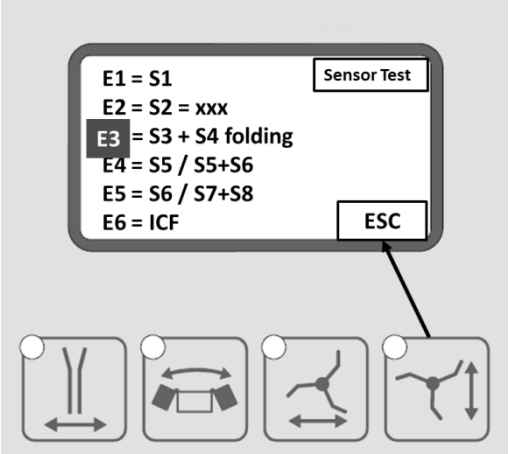
1. Use the arrow buttons ▼ ▲ in service mode to select the sensor test function and then press the OK button.



Select sensor test function

➲ The active input is displayed with a black background.

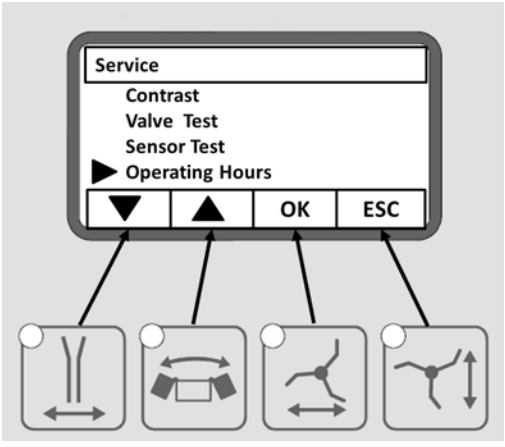
2. Test further sensors by making contact between the sensor and a suitable metal part. If the sensor is active, the LED will light up.
3. Use the ESC button to return to the main menu.



Active sensor is displayed

Displaying the operating hours

1. Use the arrow buttons ▼ ▲ to select the "operating hours" function in service mode and then press the OK button.



Select the operating hours function

➲ The operating hours are displayed

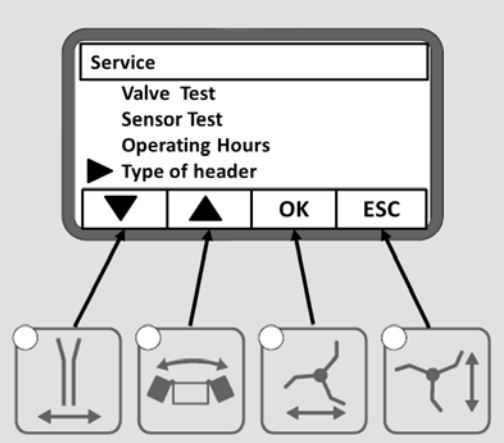
2. Use the ESC button to return to the main menu.

Operating hours display (as an example)

Selecting the header type

The ideal rotational speed range is different for the individual headers (corn or sun flower harvest). Select the connected header model prior to commissioning/start-up so that a warning signal can be given if the rotational speed deviates. If the rotational speed is outside of the determined range, the rotational speed display flashes.

1. Use the arrow buttons ▼ ▲ in the service mode to pick the "type of header" function
2. Subsequently press the ▼ button for approximately 3 seconds.

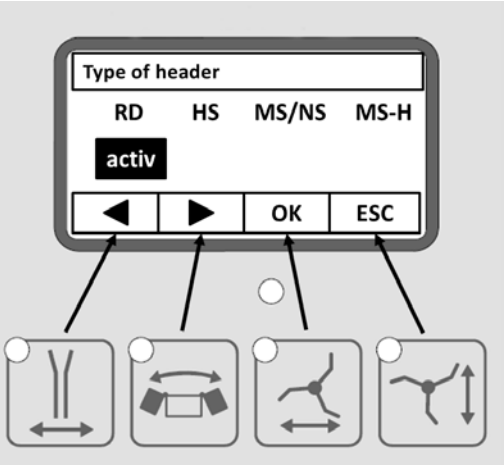


Select the type of header function

3. Use the arrow buttons ◀ ▶ to select the respective header model and confirm by pressing the OK button.

➲ The selected header model is displayed as "active".

4. Use the ESC button to return to the main menu.



Header type selection (as an example)

4.2 Readjusting the basic setting of the picking plates

DANGER

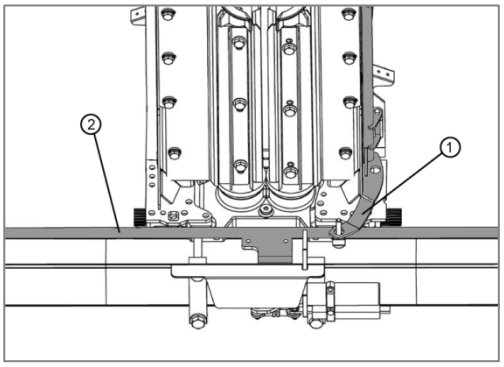
Danger of injury!

- Only adjust the picking plates when the diesel engine is switched off.
- Only adjust the picking plates when they are lowered!

Readjusting the picking plates may become necessary due to regional variations in corn types or the effects of foreign objects.

Adjust the basic setting of the picking plates on one side by means of the lever (1).

1. Hydraulically move the picking plates to their most narrow position.
2. Slide the lever to the LH side on the round pipe (2) = picking plate closes.



Picking plate spacing adjustable on one side

Always center the gap above the picking plates! Ensure that the picking plate spacing and the centering are identical for all picking plates. If necessary use suitable tools. Ensure that the picking plate spacing on the gear side is set to at least 3 mm more than on the intake side (conically opened to the back).

4.3 Adjusting the auger cover

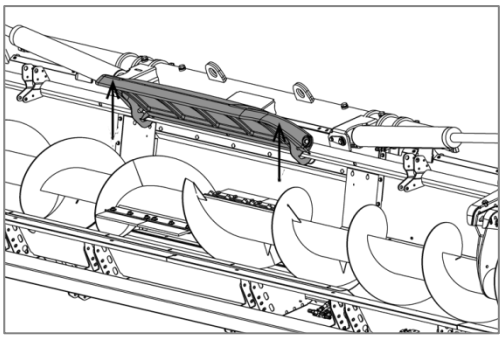
DANGER

Danger of injury!

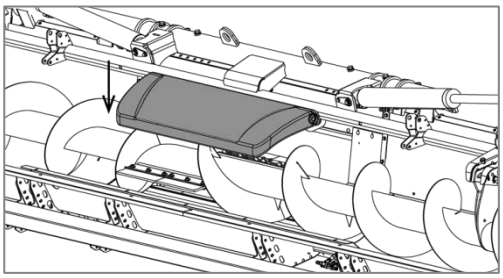
- Only adjust the auger cover when the diesel engine is switched off!

The auger cover adjustment is infinitely variable and the cover can therefore be adjusted to individual requirements.

1. Manually adjust the auger cover upward or downward until the desired position is reached.



Open auger cover



Completely closed auger cover

5 Appendix

5.1 Tightening torque for screws

Minimum tightening torque for screw connection category II accordant 1c.

Dimension size	**M rated in Nm** degree of firmness 8.8	**M rated in Nm** degree of firmness 10.9	**M rated in Nm** degree of firmness 12.9
M4	2,7	3,8	4,6
M5	5,4	7,6	9,1
M6	9,2	13,0	15,5
M8	22,0	31,0	37,5
M8 x 1	24,0	33,5	40,0
M10	43,5	61,0	73,5
M10 x 1,25	46,0	65,0	77,5
M10 x 1	50,0	70,0	84,0
M12	76,0	106,0	127,0
M12 x 1,5	79,0	111,0	133,0
M12 x 1,25	82,5	116,0	139,0
M14	120,0	168,5	202,0
M14 x 1,5	130,0	183,0	219,0
M16	187,0	262,0	314,0
M16 x 1,5	198,0	278,0	333,0
M18	257,5	362,0	433,0
M18 x 2	272,0	382,0	457,5
M18 x 1,5	287,0	403,0	483,0
M20	362,5	509,0	610,0
M20 x 2	381,0	535,0	641,0
M20 x 1,5	400,0	562,0	673,0

Current for "full" bolts. Use suitable tool for reaching the required fastening torques.

GERINGHOFF

Operating instructions

Mais Star* Horizon

BA 5003-2 MSH en

Maize header

Carl Geringhoff – Vertriebsgesellschaft mbH & Co. KG
Porschestrasse 8, D – 59227 Ahlen
Tel. ++49-2382-9814-0, Fax ++49-2382-981440

E-Mail: info@geringhoff.de Internet: www.geringhoff.de

Content

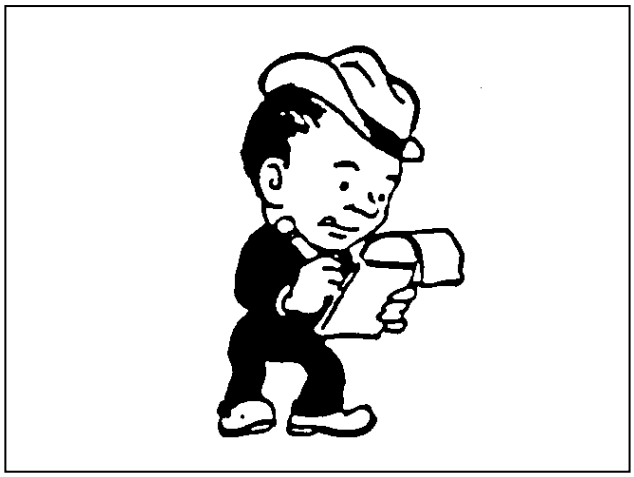
Introduction

These operating instructions describe the most essential working steps for a safe handling and use of the Geringhoff products.

Read these instructions and observe the safety notes.

A regular maintenance and care will help to keep the value of the product and to ensure a trouble-free use over many years to your benefit.

Tell us about your experience made with the machine to enable us to put it into practice. The partnership with our customers is very important to us and will contribute to our common success.



Note!

Some illustrations in these operating instructions are not identical with the machine supplied.

In such a case the instructions refer to all Geringhoff Maize head models!

However, all information and instructions important for the danger- and trouble-free operation of the machine refer to the supplied product.

(subject to alternations)

We thank you for the confidence placed in us on the purchase of a Geringhoff product.

Hereunder you'll find some important information for the use of these operating instructions:

- When using the operating instructions, we recommend using also the spare part catalogue for gaining an in-depth understanding of essential details.
- Note the most important data of your machine in the fields provided. That makes it easier to you answering the questions of your supplier.

  Machine type.:_____

  Machine no.:_____

  Key-Code:_____

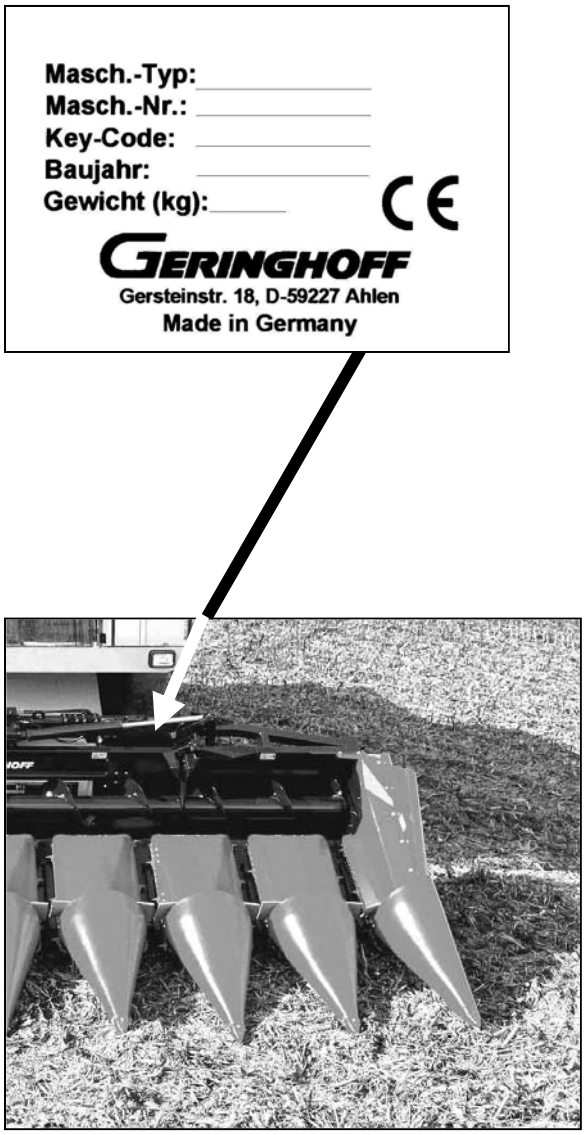
  Year of construction:_____

  Row distance:_____

  Working width/ Number of row units: _____

  Combine type.:_____
- The series no. is on the type plate left on the supporting frame.
- The operating instructions contain the international standard SI-measures.
- Right and left means always towards travel and/or working direction.
- If you are in need for spare parts, keep the required data available and get in touch with your dealer.
- Do only us original Geringhoff spare parts.
- Ensure that the completed Product-Handingover Document is send to the manufacturer. This information is very important for potential guarantee claims. Failing which, these potential claims cannot be handled.
- Do not make any modifications on important, load-bearing and safety-relevant elements. The manufacturer does not assume any guarantee for damages resultant therefrom.

(We reserve the right for modification of technical data and construction in the interest of technological progress.)



To prevent accidents, follow strictly these operating instructions and warning notes on the machine.

Before starting the machine, check it for operational dependability and traffic safety!

Apart from these operating instructions, follow also the current safety instructions!

The warning signs and labels give important notes for the safe operation of the machine and serve to your and the health of others!

Prior to starting the works, make yourself familiar with all operating elements and functions.

Check the driving characteristics, steering and braking behaviour.

No riders unless sitting on the provided places.

When working on the machine, the provided supporting devices must be used.

Admissible axle loads and total weight must absolutely be observed.

Before the start-up, all guards and maintenance holes to close.

Whilst the machine is running, keep off the dangerous area.

Maintenance and repairing works to be performed only with Diesel motor cut off.

On public roads the legal provisions to observe.

All machines have a valid ABE or EBE governing the road transport licensing regulations.

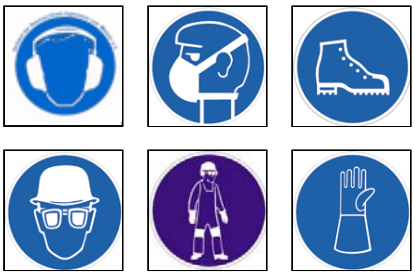
If required, additional headlights for the road transport to mount.
(see road transport licensing regulations)

The instructions of the combine manufacturer for the operation with headers to follow.

CAUTION

- The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

- Protect yourself.

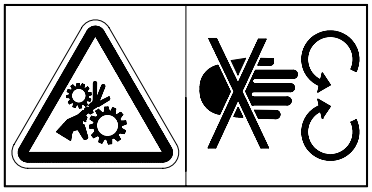


When assembling, operating and servicing machinery, wear all the protective clothing and personal safety devices that COULD be necessary for the job at hand. Don't take chances.

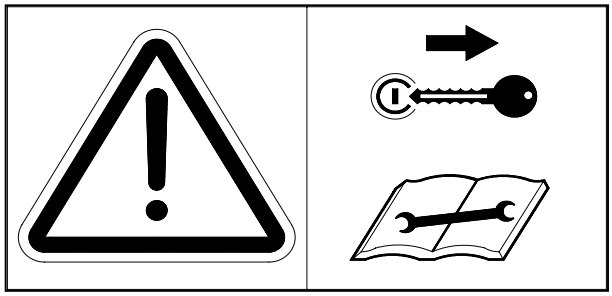
You may need:

- a hard hat.
- protective shoes with slip resistant soles.
- protective glasses or goggles.
- Heavy gloves.
- wet weather gear.
- respirator or filter mask.
- hearing protection. Be aware that prolonged exposure to loud noise can cause impairment or 1055 of hearing. Wearing a suitable hearing protective device such as ear muffs (A) or ear plugs (B) protects against objectionable or loud noises.
- Provide a first-aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine.

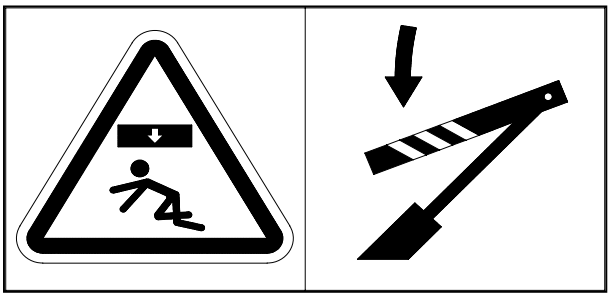
  Be sure the extinguisher is properly maintained and be familiar with its proper use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when the operator is tired or in a hurry to get finished. Take the time to consider the safest way. Never ignore warning signs of fatigue.
- Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep hands, feet, clothing and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.
- Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
- Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.
- Do not modify the machine. unauthorized modifications may impair the function and/or safety and affect machine life.
- Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.
- Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.
- Use adequate light for the job at hand.
- Keep machinery clean. Straw and chaff on a hot engine are a fire hazard. Do not allow oil or grease to accumulate on service platforms, ladders or controls.
  Clean machines before storage.
- Never use gasoline, naphtha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover sharp or extending components to prevent injury from accidental contact.



ISO 11684

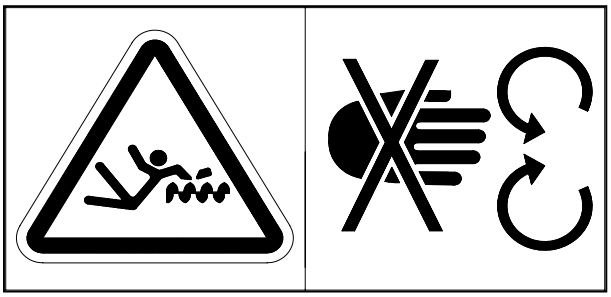


Prior to performing maintenance and repairing works, the motor to turn off and the key to withdraw!

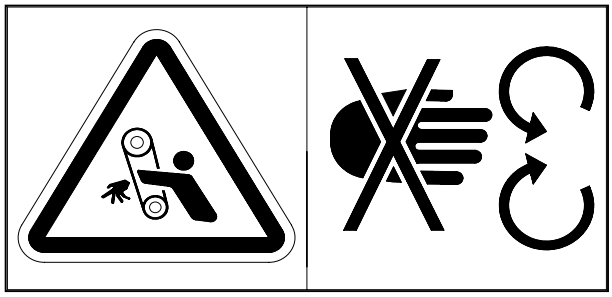


It's only allowed to go into the dangerous zone when the lifting cylinder safety is put in!

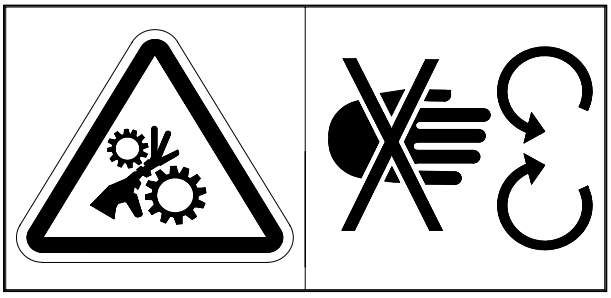
Keep off the dangerous zone between header and machine!



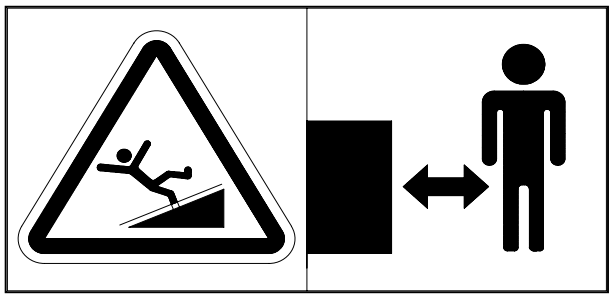
During the operation guards must not be opened or removed!



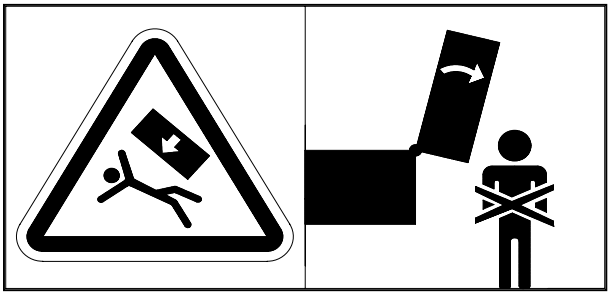
Whilst motor is running, guards never to open or remove!



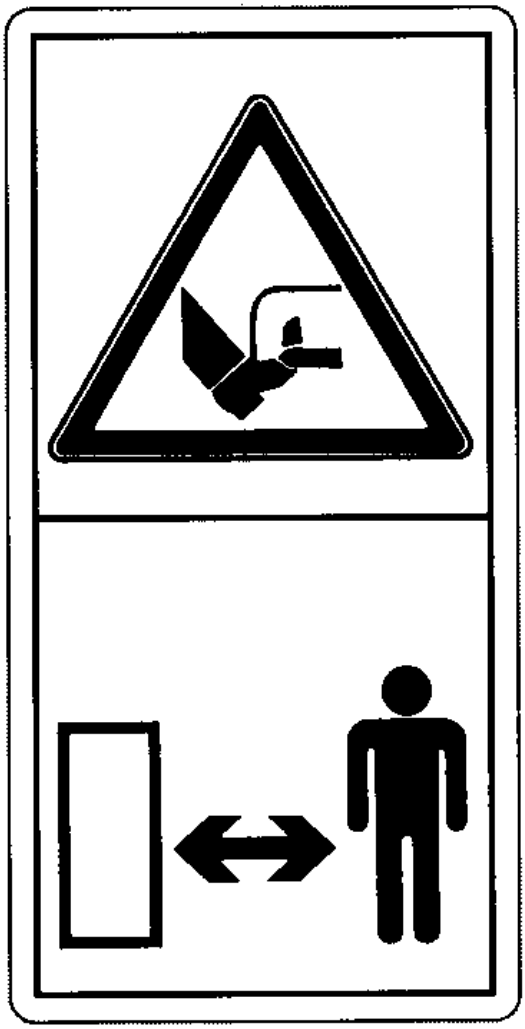
Whilst the motor is running, guards must not be opened or removed!



Keep a sufficient safety distance to the header. Prior to maintenance works or clearing of cloggings header to switch off, motor to stop and key to withdraw!

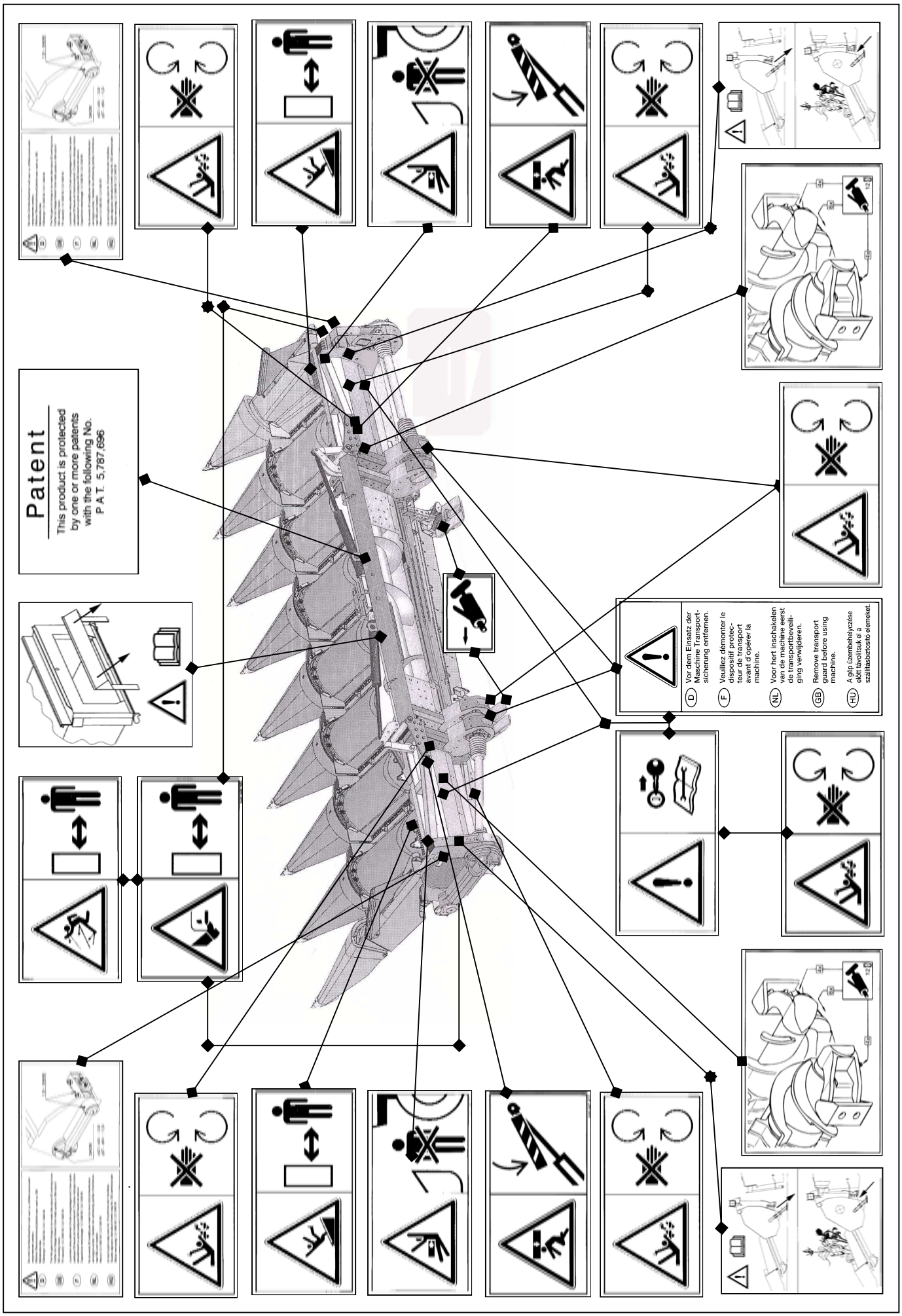


Never go into the slewing range of the machine!



Keep a sufficient distance from the chopper knives if the drive is switched on and the motor is running!

Hazard due to catapulting parts with running engine Keep safety distance!


Patent
This product is protected by one or more patents with the following No.
P A T. 5,787,696
(D) Vor dem Einsatz der Maschine Transportsicherung entfernen.
(F) Veuillez démonter le dispositif protecteur de transport avant d opérer la machine.
(NL) Voor hert inschakelen van de machine eerst de transportbeveiliging verwijderen.
(GB) Remove transport guard before using machine.
(HU) A gép üzembehelyzése előtt távolítsuk el a szállításbiztosító elemeket.

Carl Geringhoff GmbH & CO.KG Maschinenfabrik
Gersteinstraße 18
D – 59227 Ahlen

EC – Conformity Declaration in accordance with the
EC – Machine Directive 2006/42/EG, Annex II A
We declare herewith that the maize headers

Mais Star* Horizon

MSH 300, MSH 400, MSH 500, MSH 600, MSH 700B, MSH 800B
MSH 900B, MSH 1200B
MSH 600F, MSH 800FB, MSH 900FB, MSH 1200FB
Series No.
4500 10 670 (FS / FB) bis 4900 11 1230 (F / FB)

is in harmony with the following relevant rules and provisions:

Machine Directive 2006/42/EG
EMV – directive 2004/108/EG
No warranty for the completeness of the rules and provisions indicated.

Applied harmonised standards the sources references have been published in the official bulletin of the EU:

DIN EN ISO 12100 (General directives)

DIN EN ISO 13849-1 (Safety of machines – safety-specific machine parts).

DIN EN ISO 14121- 1 (Risk rating)

DIN EN 60204 – 1 (Safety of machines - electrical equipment)

DIN EN 953 (Design and building of stationary and mobile protective equipment).

DIN EN 349 (Safety of machines, safety clearance to prevent members of the body from getting contusions).

DIN EN 632 : 1995 – 08 farm machines, combines and field choppers.

ISO 4413 (Fluid technique – design directives – hydraulics)

Applied national norms, standards and technical specifications:

VDI guideline 0113 - Safety of machines, displays, identification and operation - part 1: Demands on visible, audible and tactile signals (IEC 1310-1: 1995 and correction 1995) German version EN 61310-1: 1995

Authorized person for the compilation and preparation of the technical documentation:

Sachverständigenbüro Klaus Ahlendorf, Von Loe Straße 40a, D-47906 Kempen

Ahlen 16.06.2010

Technical Head

MAIS STAR* HORIZON

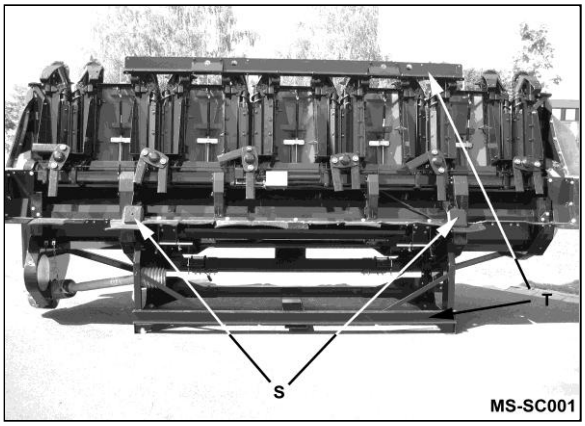
We reserve the right of making modifications for the sake of progress.

Sizes and weights are approximate values and refer each to the standard versions of the different header types.

Due to the great number of header models and combines this list cannot show all the different illustrated variants.
For this reason, we hope you will understrand the general sense of the wordings, which requires a sufficient basic knowledge of the carrier machine.

Intended use

- **This machine must only be used for harvesting grain maize.**
- **Any use with other substances is excluded and prohibited.**
- **The machine must only be operated by trained staff.**
- **Keep a distance to the running machine!**
- **Switch off the diesel engine before you carry out any service or control work!**
- **During operation never get near any moving parts!**
- **Observe the accident prevention regulations!**



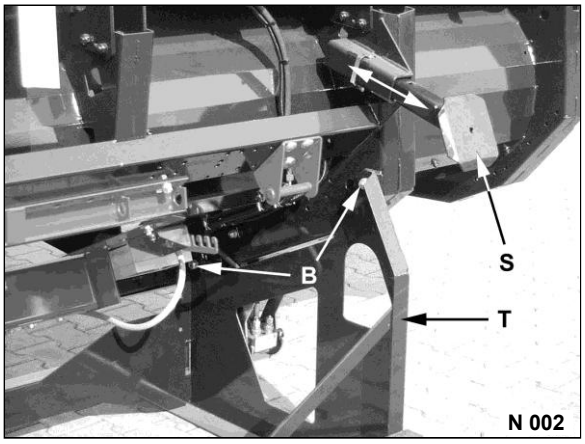
Scope of supply / state at time of supply

Subject to model and type the header can be supplied in horizontal position or upright on a shipping rack.
Each consignment is accompanied by a detailed and type-referred packing list.

Remove the packages attached to the header..
Check the scope of supply!

Check the supplied row distance!

Ensure the safe standing of the machine!



Remove the shipping rack.

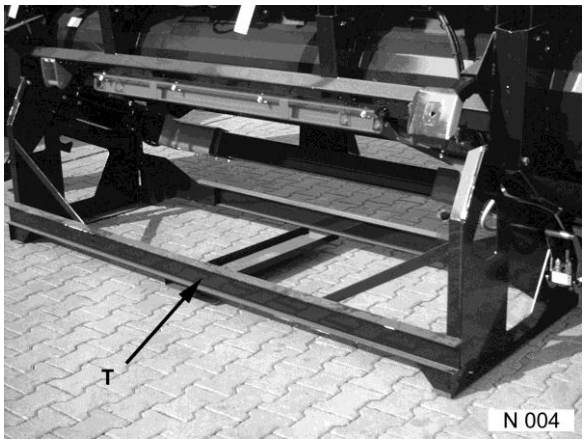
Extend the supports (S). Move the hoist to the lower side of the header.

Attach suitable chains or ropes to the drawbar eyes (W), and slightly lift the header whilst slowly moving the hoist away from the header.

Lower the header carefully, considering the tilting angle.

Use hoist, which is strong enough!
Do not go into the dangerous zone!
Follow the instructions for hoists!

Remove screws (B) and shipping crate.

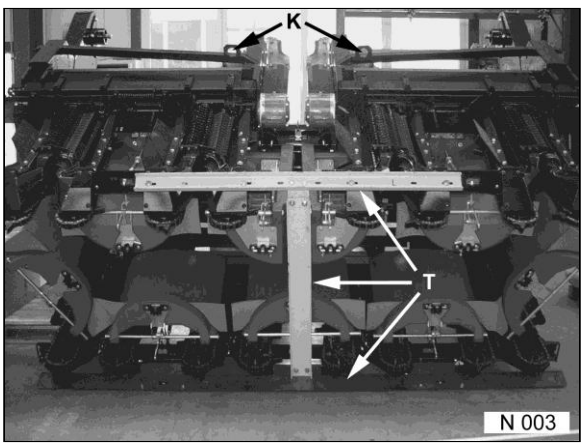


Further use of the shipping rack.

The rack (T) is recommended to be stored for a later use.

Possible after-season service work are performed easier with the machine standing in upright position.

Only use load handling devices in accordance with their intended purpose. Any modification or use with other machines is prohibited.



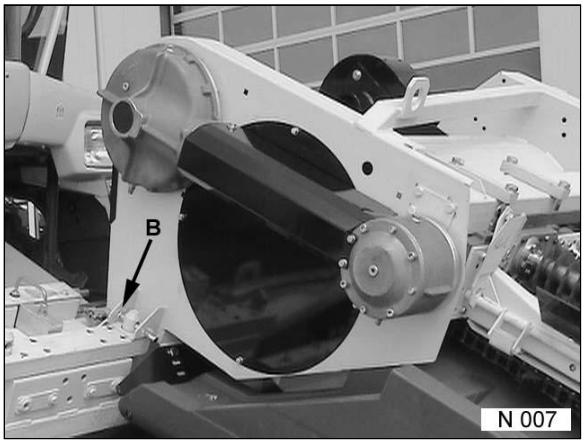
Folding maize headers lifted by a crane

Folding headers are possibly supplied without a shipping rack (T).in the folded-up position.

For moving the header with a hoist use only the provided eyes (L) and the facility provided on the front transport angle (S). If necessary, remove the transport protection.

Before mounting the header to the combine, transport protection must be removed (S).

Protection to be remove only when the header stands on firm ground.

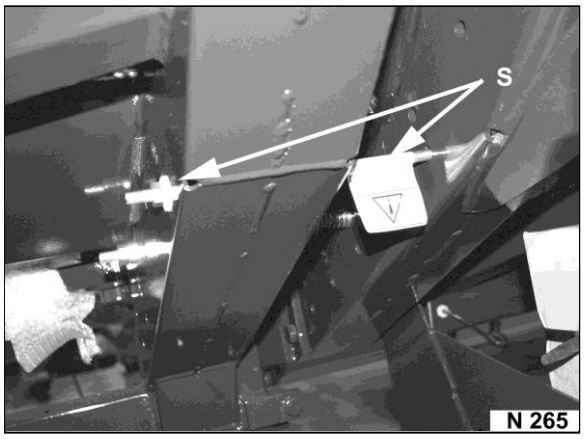


Transport protection folding Maize headers

Apart from the transport protection as shown in picture N 003 page 09 / 000, folding maize headers from 8 rows upwards are fitted with an additional protection (B) on the frame.

Bolts (B) not to remove before definite placing down of the header and removing of the hoist.

When using the hoist again, locking bolt (B) must be put back, as before.



Transport securing screw folding headers

The securing screw (S) is required only for transporting the header in vertical position.

Transport securing screw (S) to remove only if header was put into working position.

Prior to putting the header into vertical position again for storing or transport purposes, securing screw (S) is to be mounted!

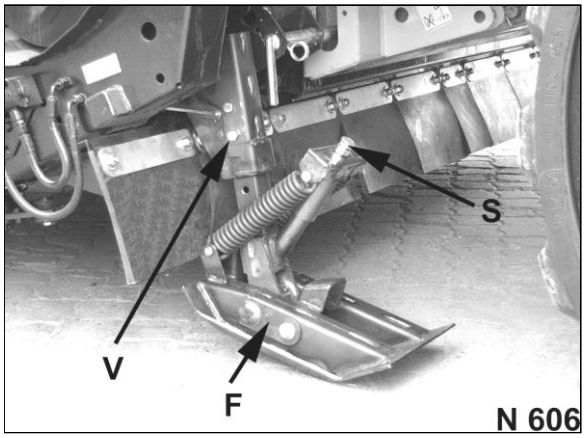
Maize header	Approximate weight in kg
4-rows	1500
5-rows	1800
6-rows	2100
6-rows (folding)	2400
8-rows	2700
8-rows (folding)	3300
9-rows	2900
9-rows (folding)	3500
12-rows	4100
12-rows (folding)	4500

Take a hoist, which is strong enough

The approximate weight of different header models can be determined from the opposite table.

Follow the instructions for the use of hoists.

The exact weight of the different headers is indicated on the type plate of each machine located on the left side of the main frame.



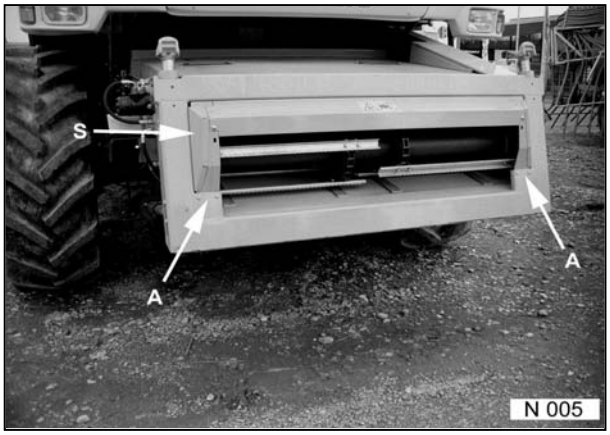
Stubble breaker

Once the header has been coupled with the combine harvester, the stubble breakers delivered together with the equipment must unconditionally be installed instead of the support stands. The stubble breaker has to be mounted for protecting the combine tires.

The stubbles are snapped directly behind the row unit for preventing it from not producing a permanent impact upon the tires and damaging them.

The height is adjusted by displacing the complete unit within the square tube (V).

Via the screw (S) and the tension springs a pretension is produced for allowing the swivel-mounted foot (F) reaching the stubble even if the header will be lifted any further.

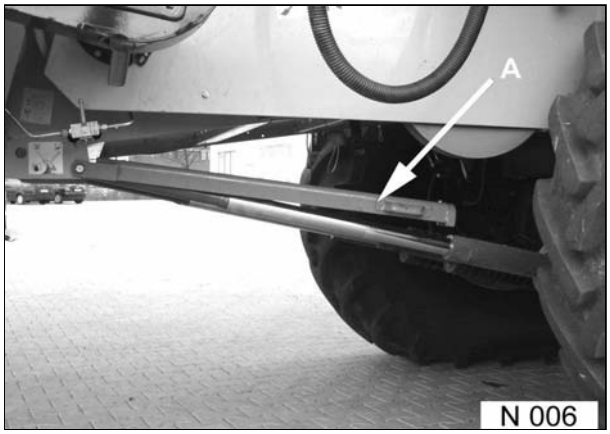


Front protection on row-units

The standard front protection (S) on top of the feeder house chains and the stripping angles (A), in front of the row units must be dismounted.

The maize header itself is fitted with a special front protection.

When working on the combine, the Diesel engine must be turned off!

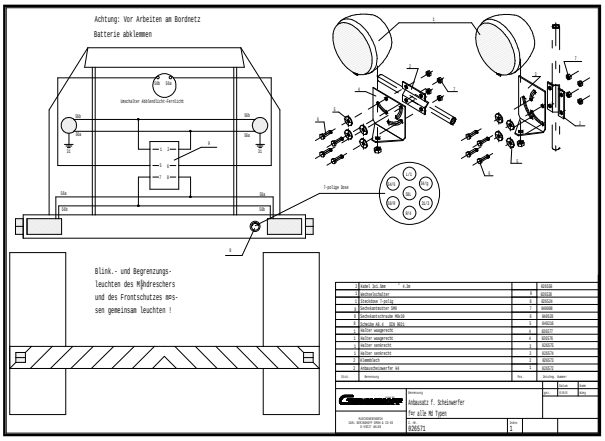


Assembly preparations on the combine feeder house housing

The feeding chain, its tension and the distance to the infeeder housing bottom is to be adjusted according to the instructions of the combine manufacturer.
(See combine manual)

Prior to the first mounting of the header, the anti-lowering safety device (A) of the infeeder housing must be checked. Never to perform any work on the header without engaging safety devices.

With all service work on the header, lowering lock must be in position.



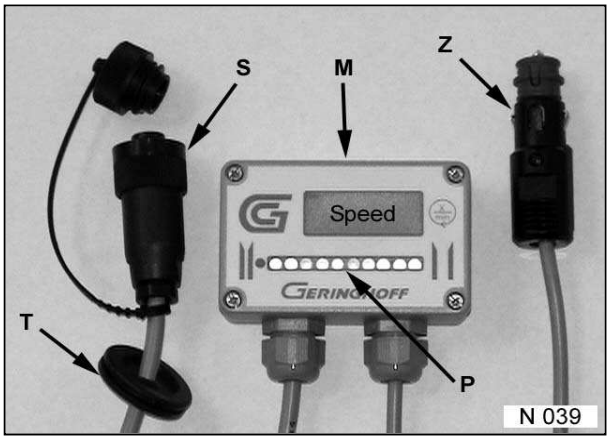
Additional headlights

Some combine models require the fitting of additional headlights for travelling on the road, see the scope of supply of the header.

A wiring diagram is enclosed with the headlight set.
A position switch must be used for changing between standard and additional headlights!

Observe the legal requirements and instructions of your local jurisdiction.

General terminal connecting diagram on page 36 / 500



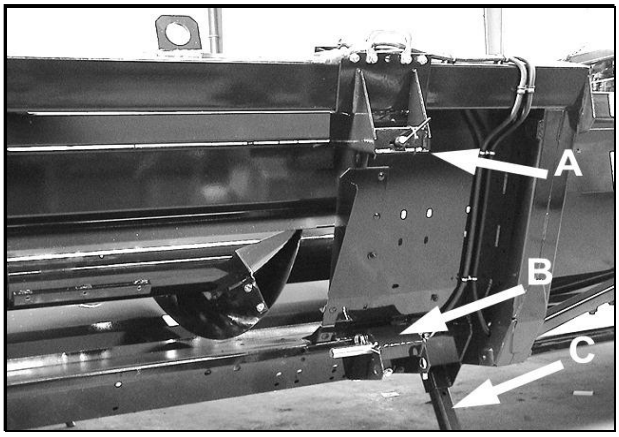
Monitor

Display unit (M) must be fitted so as to be easily read and without visual obstruction on top of the fittings.

The 12 V current is supplied independent of the ignition lock via the plug (Z). (fuse max. 10 Amp.).

Connecting cable (S) with seal (T) right below, must lead out of the cabin bottom. Ensure that the cable is long enough outside of the cabin.

The monitor reads both the speed of the header and the position of the stripping plates (P) via a changing number of diodes.



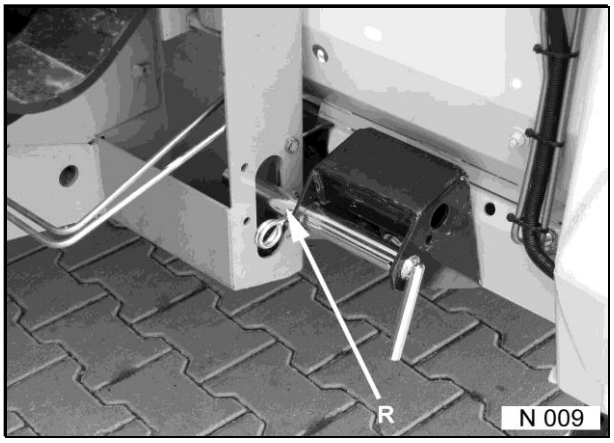
Adaptation to the combine

The maize header is to be placed down on the supports (C). Check the correctness of the adaptation parts. For further information see spare part catalogue from picture table 60/.. onwards.

The combine is driven to the header.

Prior to lifting the header with the combine feeder house the Correct fit of the adaptation parts (A) must be checked.

No Persons are allowed to stay between combine and header during the mounting process.



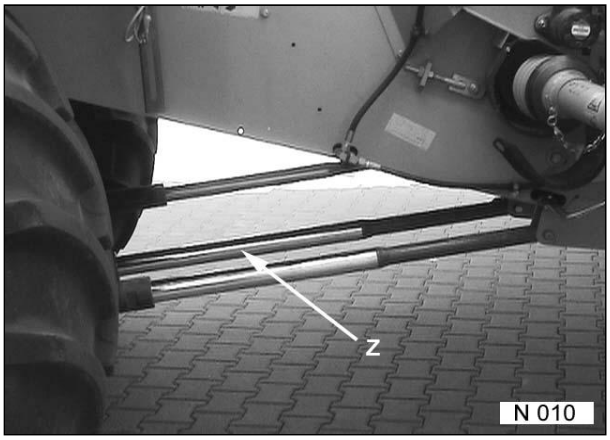
Locking maize header to the combine feeder housing.

Secure maize header against unwanted lowering by applying the locking mechanism on the hydraulic cylinders!

The header (R) must be mounted to the points and devices of the combines as provided.

Always lower maize headers slowly to the ground to keep unwanted forces away from the locking devices.

Follow the instructions of the combine manufacturer



Additional lifting cylinder

Subject to the size and weight of the maize header, one or two additional hydraulic cylinders (Z) may be required.

The combine manufacturer generally keeps the corresponding kits readily available for the dealer

Subject to the design of the maize header and carrying capacity of the different combines, the steering axle may require the fitting of additional weights and the rear tires might need to be filled with water.

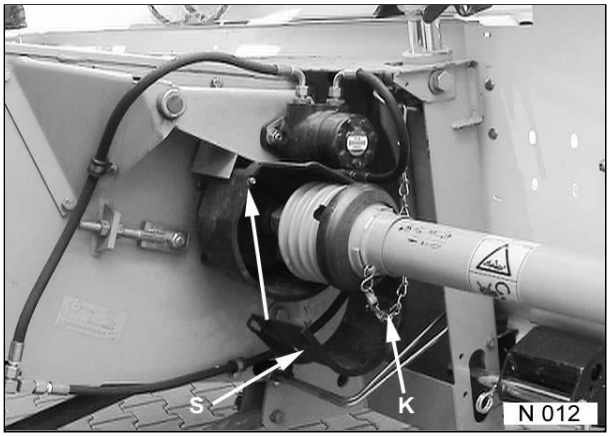
Follow the instructions of the combine manufacturer.

Additional counterweights

Subject to the weight of the mounted maize header, additional loading weights may be required for the steering axle of the combine.

The dimensions of these additional weights are to be learnt from the combine operators manual

The road transport licensing regulations must absolutely be followed.



Drive with PTO-shaft

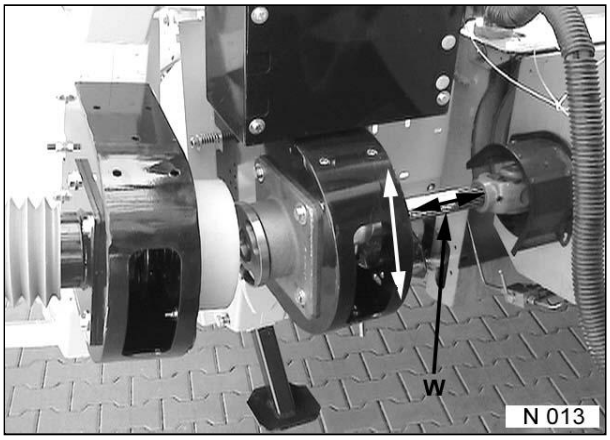
Straight (Not folding) maize heads are driven by a simple PTO-shaft on the right-hand side.

Subject to the combine models, they can also be driven on the left-hand side, e.g. machines > 6 rows.

PTO-shaft is protected, via a chain (K) to prevent it from turning.

If the combine is fitted with a pivoting shield, check for overlapping in the extended state.

Protection devices (S) are to be installed prior to start-up. Do not remove them during operation.

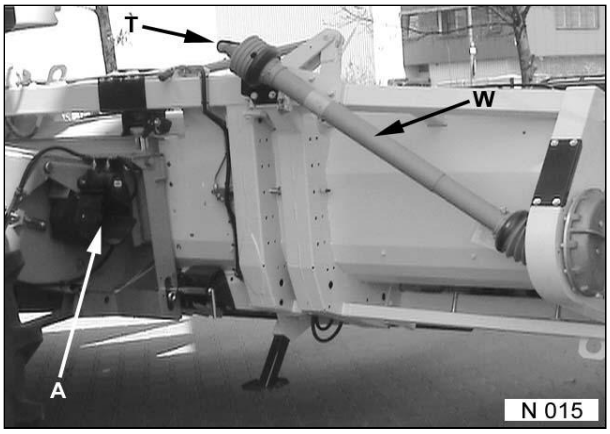


Folding headers with PTO-shaft coupler

Check the PTO-shaft between coupler and trough connection for sufficient overlapping. If required, actuate pivoting shield.

The Reel compensation of some models are required to be blocked.

Hillside combines cannot be operated with automatic PTO-shaft coupler.



Drive for hillside combines

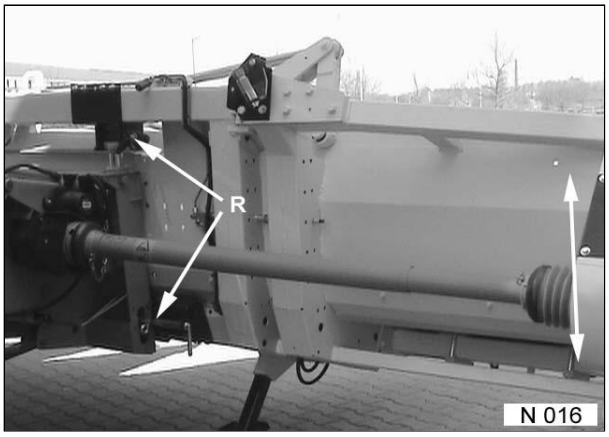
All hillside combines are directly driven by PTO-shafts (W) These have to be slipped on by hand.

Certain combine-header combinations require wide angle or even special PTO-shafts.

Instructions must be strictly followed and PTO-shaft design must be considered.

Prior to start up, check pivoting range and PTO-shaft length. Check for sufficient overlapping.

The fastening (T) of the PTO-shaft is for transport.



Use of the pivoting shield (reel compensation)

On principle, the pivoting shield of the combine can be used in combination with the majority of the maize headers without any limitation, unless otherwise specified.

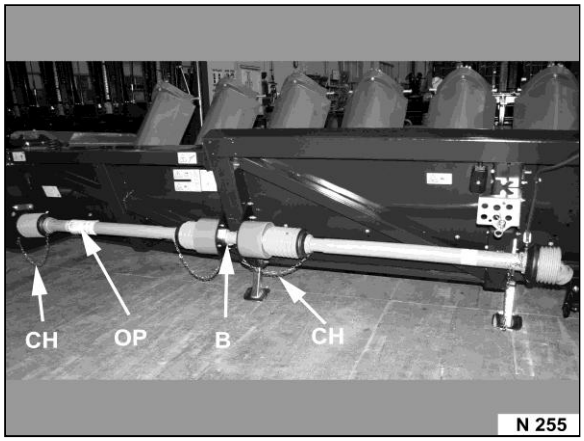
Follow the instructions of the combine manufacturer.!

PTO-shaft length to be checked in all positions.

If required, special locks (R) to be fitted to upper adapter frame and secured.

Always conduct a trial run!

Instructions for PTO-shaft drives must be observed!

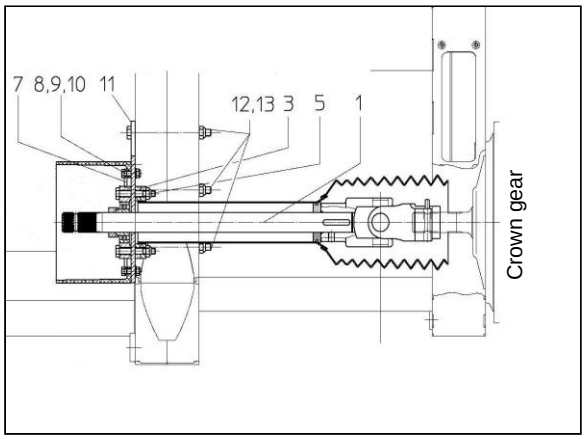


Power take-off drives

Model-related, the maize headers can be fitted with different power-take-off drives

Prior to working at the machine, Diesel engine to be turned off!
PTO-guards to secure against turning!
Damaged guards immediately to be replaced!

(CH) Chains for securing the guards against turning
(OP) Special operating instructions for PTO to read and remove prior to startup!
(B) Intermediate bearing



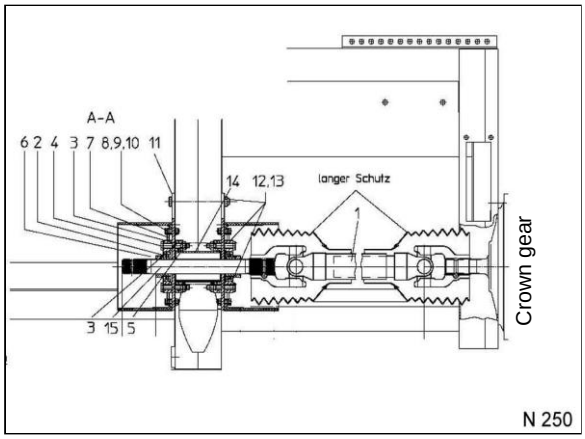
Graphic representation of PTO-drive with single intermediate bearing

Splined shaft connection of PTO-connection to be greased once the year.

For PTO-care see special operating instructions.

Intermediate bearing (7) to be checked once the year.

Prior to working at the machine, Diesel engine to be turned off!



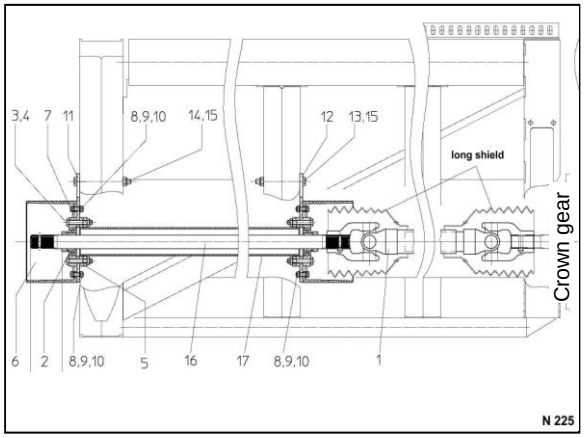
Graphic representation of PTO-drive with double intermediate bearing (narrow)

Splined shaft connection of PTO-connection to be greased once the year.

For PTO-care see special operating instructions.

Intermediate bearing (7) to be checked once the year.

Prior to working at the machine, Diesel engine to be turned off!



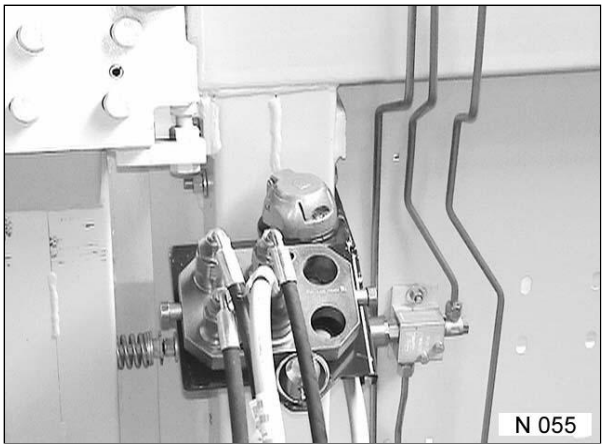
Graphic representation of PTO-drive with double intermediate bearing (large)

Splined shaft connection of PTO-connection to be greased once the year.

For PTO-care see special operating instructions.

Intermediate bearing (7) to be checked once the year

Prior to working at the machine, Diesel engine to be turned off!



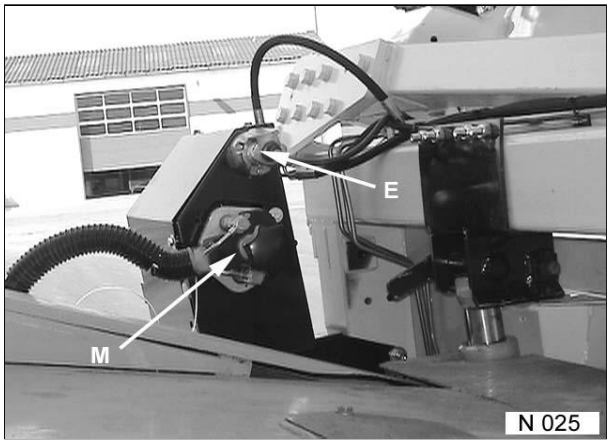
Multi coupler

If the combine is fitted with a multicoupler (optional), the header should be fitted likewise.

The suitable coupler (optional) can be added to the supply.

The operation to be made according to the instructions of the combine manufacturer.

When checking the functions, keep off the dangerous zone.
Check tightness of all connections in case of leakages
Follow the conditions for environmental protection.



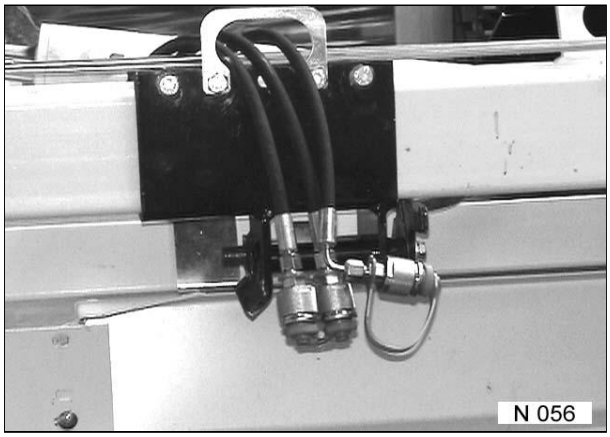
Connection via control valve coupler

Some combine makes require using a control valve coupler (M) for connecting the header.

The respective headers are fitted accordingly as standard.

The operation to be made according to the instructions of the combine manufacturer.

When checking the functions, keep off the dangerous zone.
Check tightness in case of leakages
Follow the conditions for environmental protection.



Connection via simple screw and/or slip-on couplers

If only simple slip-on and/or screw couplings are available, First mark the double and single-acting lines.

The single-acting line is to connect to the line of the stripping plate adjustment.

The double-acting lines serve to control the folding process of the respective headers.

Establish a safe connection to allow the oil flowing !

Mark the lines and always connect them immediately so that the working arrangement remains unchanged!

In case of function check, keep off the danger zone! Tightness to check! In case of leakages, environmental standards to observe!

Hydraulic actuation of the folding process

Reel:
" Lifting and lowering " = stripping plates *" open and close"*

Reel horizontal adjustment: (optional)

" *forward and backward* " = folding process " *open and close* "

Attention!

Some combine makes are fitted with a separate electrical operating device in driver stand.

Hydraulic oil quantity in combine storage tank to check.

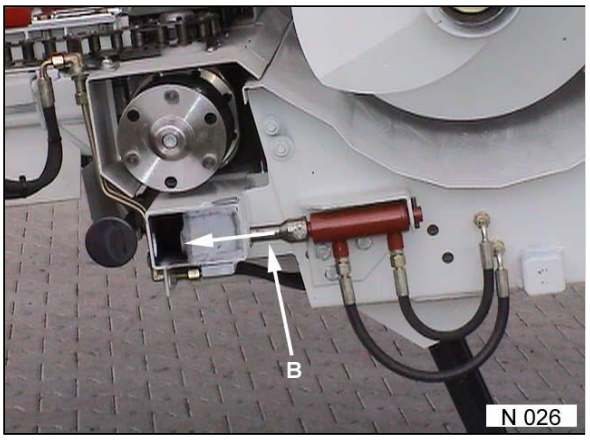
Folding process (from transport to working position)

Reel horizontal adjustment or special electric combine device to operate until header has reached its working position.

Keep off the dangerous zone!
Keep off the working range of the header!

Actuation of Valve to continue until 10 seconds after the cover shields have completely closed (to assure the locking function).

Machine to run idle to get the drive coupler engaged.



Locking

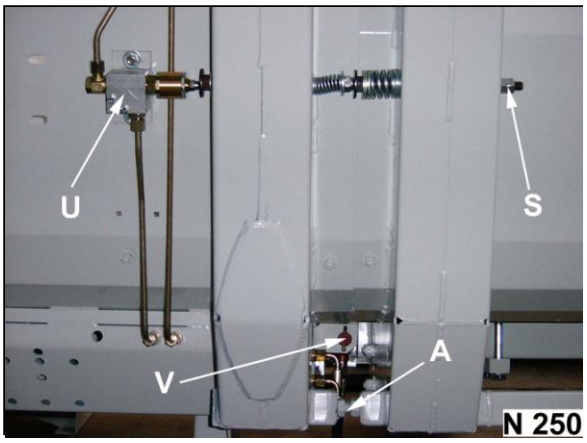
Once the header is completely open and in working position, the locking (B) is automatically activated.

If the header is not completely open in working position, you must troubleshoot.
(seek help in case of malfunctions, page 14 / 900)

There are possibly foreign substances hindering the function.

Bolt (B) must be completely extended in the locked position.

Check drive coupler! Cams are spring-loaded and turn off unless cam and opening in driving plate are not in line!

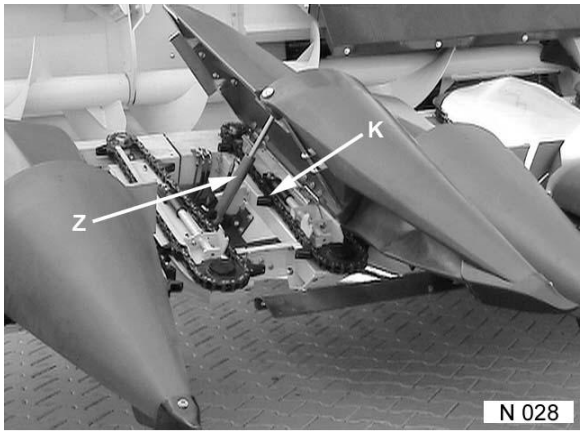


Control valve for locking

The locking (V) is triggered by the valve (U) and closes only if the header has really reached the working position.

If despite of exact bordering on the stop screws (A), the locking is not activated, drive of the on-off valve (U), if required, to be readjusted by slightly turning the nuts (S) back!

The stop screws (A) on the bottom frame are exactly factory-set and may not be readjusted.



Automatically closing cover shields

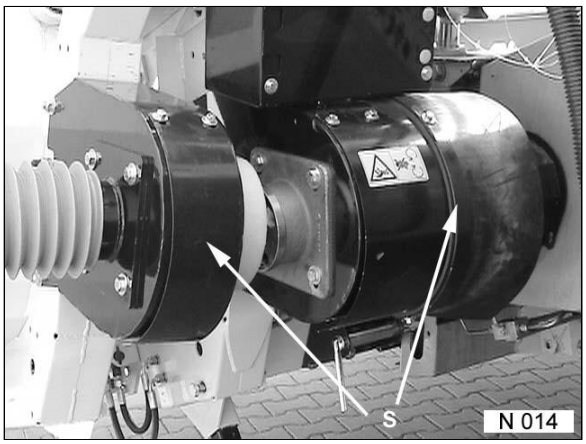
Cover shields (A) close only after complete extension of the locking bolt.

Failing which, to troubleshoot.

Factory adjustment has been checked. Corrections are in general, not required.

Folding process is not finished until the cover shields are completely closed.

Attention!
Machine MUST NOT run with opened shields. Hydraulic cylinder (Z) would get in contact with the gathering chain.



Drive coupler folding headers

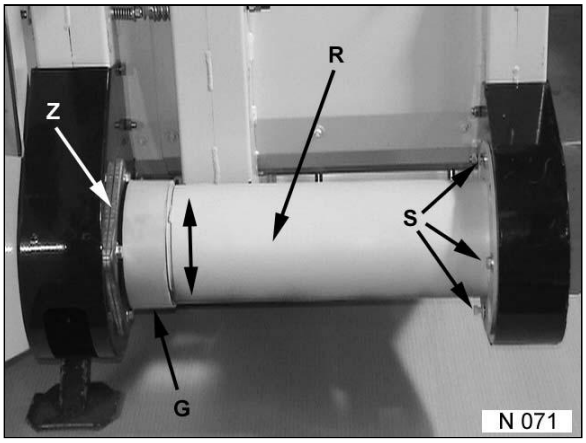
The drive coupler, if any, ensures an automatic coupling of the PTO-shaft drive.

Prior to start-up and then in regular intervals the correct position of the coupling halfs must be checked.

Check the protective devices (S) for correct fitting.

Always when the Machine idles.

Persons to keep off the dangerous zone!



Drive coupler 6-row folding headers

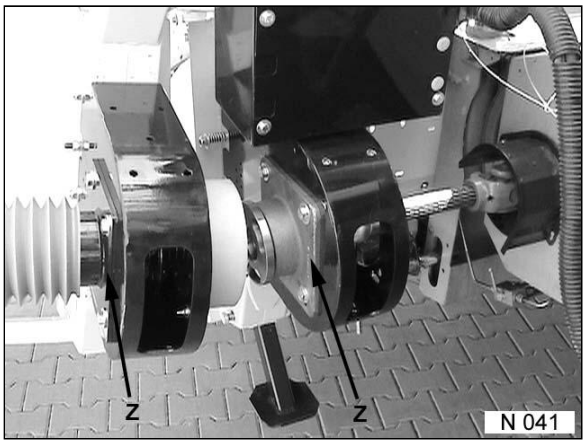
The coupling half mounted to the folding element is adjusted only via the protective tube (R).

If the coupling halves must be readjusted, loosen screws (S) and re-set protective tube accordingly.

Parallel fitting of the coupling halves is absolutely necessary.

The coupling halves are axially regulated only via spacers (Z) below the bearing.

Ensure the correct fitting of the protective ring (G)



Header with drive couplers on both sides

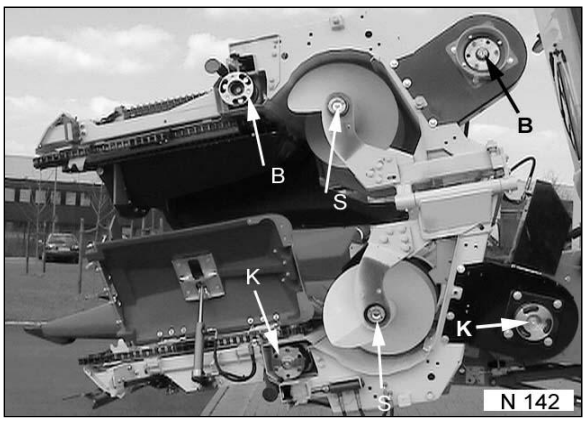
From a certain number of rows onwards the headers are fitted with a drive from both-sides..

If the coupling halves require an axial regulation, appropriate spacers (Z) only to be used on the marked positions.

The radial adjustment is made on the bearing points by moving the bearings into the bores provided.

Ensure the exact parallel fitting of the coupling halves. .

Cardan shaft protection to mount!
(In ill. removed for photo purposes)



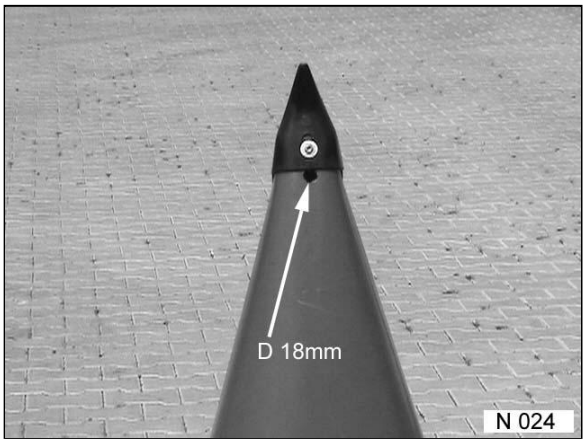
Maintenance and care

Coupling washers (S + B + K) to be slightly greased in regular intervals.

Sliding parts of the respective coupling halfs must be dismounted prior to harvesting season and sliding parts be greased.

Axial fastening screw carefully to tighten with standard torque (see page 36 / 100).

Header drive MUST NOT be engaged if the header is folded or not fully opened. Accident Risk on the coupling halfs.

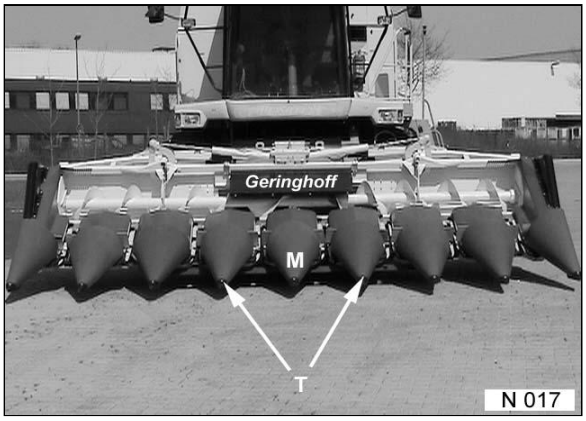


Selection of the divider noses for assembling

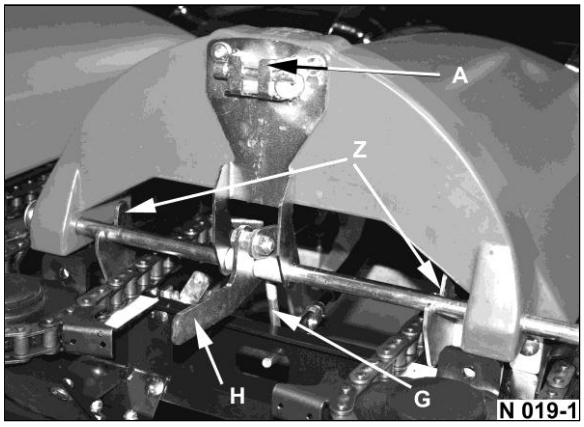
Divider noses with mounting hole (D)

The supplied center divider noses differ only by a hole (D) about 0,71" / 18 mm Ø if the header has been supplied with a transport protection.

These center divider noses are being fitted to the right and left (T) from the center (M) for accepting the transport protection.



Lift the maize header and lock the lifting cylinders against unwanted lowering!



Mounting of the center divider noses

Open the shield by lifting the lever (H) and press slightly upwards from the centerings towards the stop of the gas pressure spring.

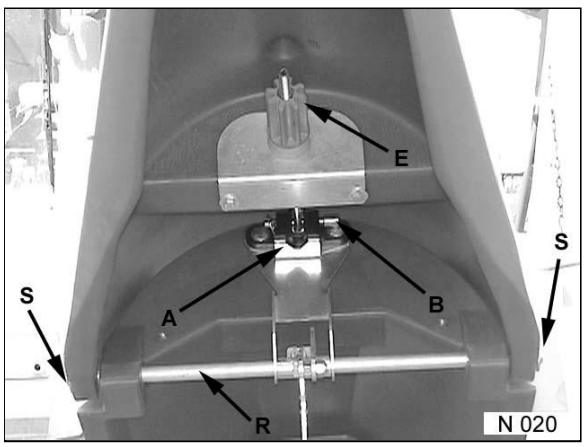
Shields may jump upwards by gas pressure cylinder!

Remove tube (R) after unscrewing the axial screws (S). Push Tube in the provided holes of the divider nose and shield.

Re-fit and tighten the axial screws

Lift divider nose and hook setting bar (E) into the support (A). Fit safety bolt (B) and secure by cotter pin.

Press down Shield forcefully for closing and check that hook (G) on lever locks. With lever (H) shield must close with moderate prestress. If required, locking hook must be readjusted.

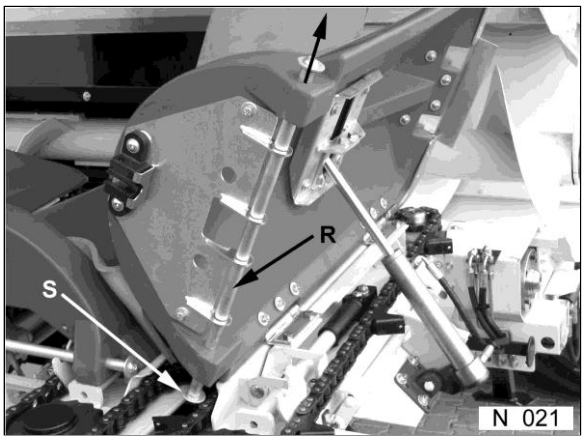


Mounting of outer divider

The same procedures as with the center divider noses.

Risk of bruising when mounting shields and divider noses !

The divider noses are height-adjusted via the screw (E).



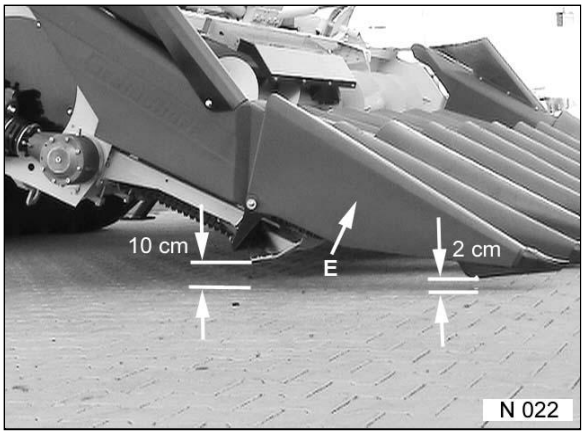
Fitting of centre divider noses to folding shields

Only possible when hydraulic connections are already mounted.
Start folding process. If folding shields are open, stop procedure.

Engine to turn off !
Maize header to secure against unwanted lowering!

Mounting procedure of the divider noses is the same as for the other center noses.

The divider noses are adjusted via the screw (E).



Adjustment of the divider noses

Remove protection against lowering of maize header.

Lower header to about 100 mm above the ground, on an even surface.

Adjust divider noses with screw (E) so that their distance to the ground is 20 mm (normal adjustment).

When harvesting lodged maize and when the combine sinks deep into the ground, the noses are to be lowered further.

Attention!

In case of an extremely lower adjustment, ensure that the divider noses don't get in touch with the gathering chains!

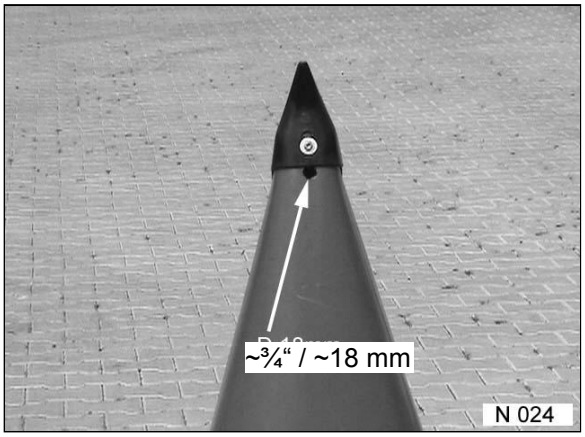
Fitting of the increased side shield

In order to minimize the transport size and for package reasons, the increased side shield is supplied unpacked.

It is mounted to the outer bodywork into the provided threaded holes (G).

Attention!

Tighten all screws to the plastic parts with only normal tension, to prevent the threaded holes from being damaged.

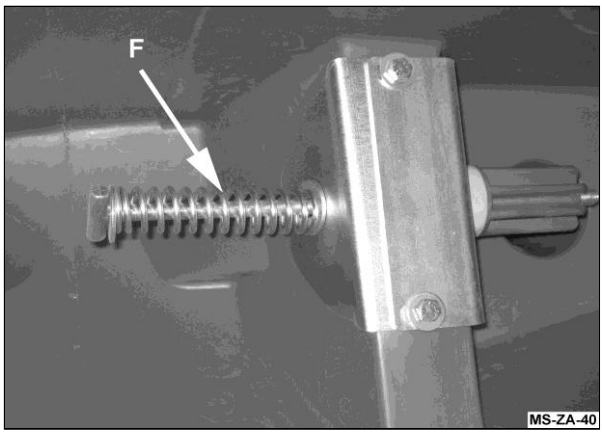


Bores to drill for transport protection

If divider noses have been mixed up on assembly or supply, the required bores can be drilled into the both center divider noses on the site.

Directly behind the divider nose top plate an 18 mm Ø bore to drill only into the upper plastic surface.

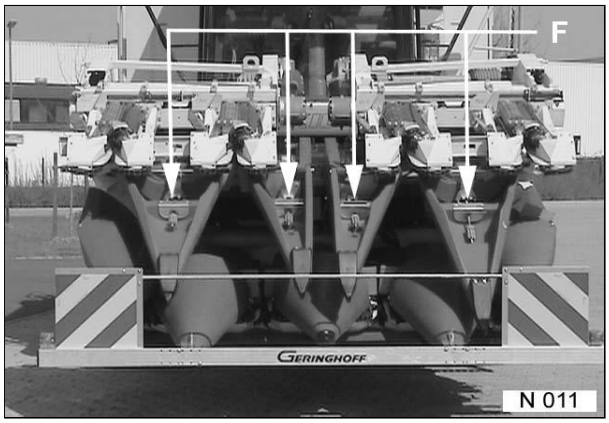
The respective center divider noses are selected according to the specifications of the transport protection or to picture N 017 on page 09 / 320.



Support spring at folding divider noses

The divider noses of all row units, which are folded for road transport, must be fitted with the pressure spring (F) (see ill. N 011).

The pressure spring (F) prevents the folded and unfolded divider noses from getting in contact during the road transport (see also picture no. N 011).



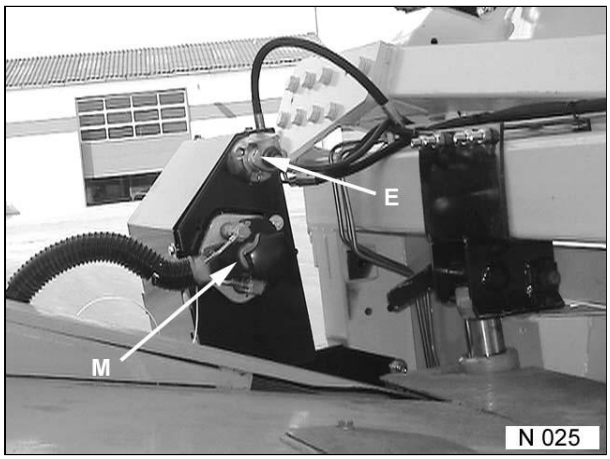
Front protection

Non-folding headers up to a transport width of 3,0 m are fitted with an unlit transport protection.

All foldable headers up to a transport width of 3,3 m are fitted with a lighted transport protection.
The connection is made via a standard socket which, if not available, must be mounted on or below the driver platform.

The outer non-folding centre divider noses are provided with holes for locking of the transport protection.

(see page: divider noses to mount, page 09 / 320)



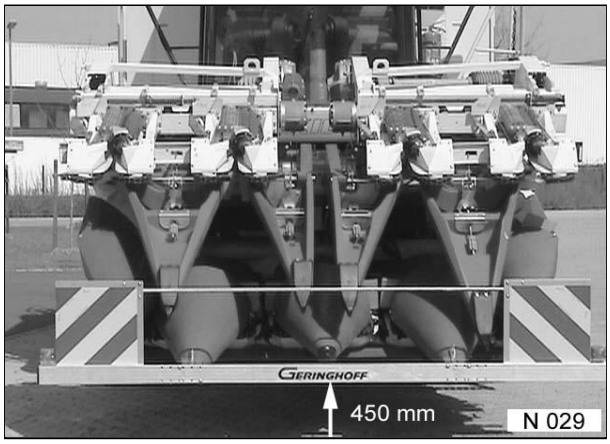
Front protection with lighting connection

(on multi coupler and/or control valve unit)

In certain combine makes the lighting connection for the front protection is integrated into the general supply line (M) to the header.

- The front connection is then connected to the socket (E).
- If required, the front protection is connected via another individual connection.

Follow the instructions of the combine manufacturer

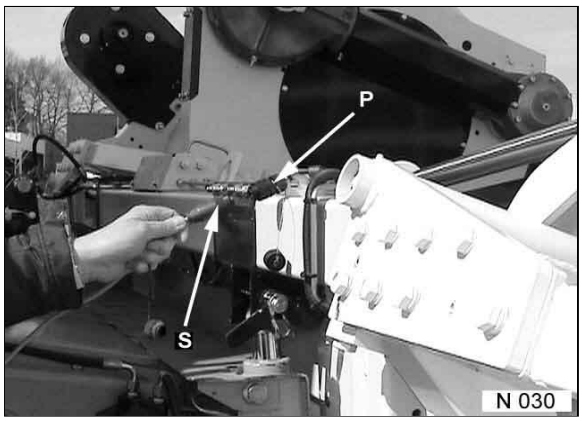


Transport on public roads

It's not allowed to transport the maize header on public roads without transport protection.

The maximum admissible height of the maize header for transport on public roads is about 0,45 m as measured on the front protection (H) and is determined for each machine in the separate licensing documents.

Transport licensing and Road-regulations as well as instructions of the combine manufacturer must be observed strictly.



Monitor to connect to the header

Plug-type connector of the monitor cable coming from the driver cabin must be connected on the right-hand side, with the header coupler.

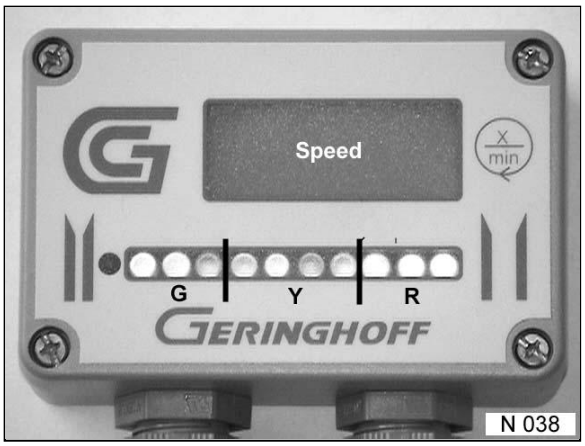
Current supply to be activate as described on page 09 / 080

Speed indication on monitor reads „ O “.

If the machine is running on operational conditions, a value of about 780 - 800 rpm is indicated.

The speed indication allows to reliably evaluate the state and load of the combine-drives towards the maize head.

Dropping speeds signal either an insufficient belt tension or overload of the combine drive.



Stripping plate adjustment

Subject to the position of the stripping plates, a certain number of green (G), yellow (Y) or red (R) diodes light up.

The more the stripping plates are open, the more diodes are lighting up.

The number of the flashing diodes is only to be seen on the monitor. Before the start-up, the proportion of the flashing diodes to the position of the stripping plates as a function of the harvest conditions is to be determined.

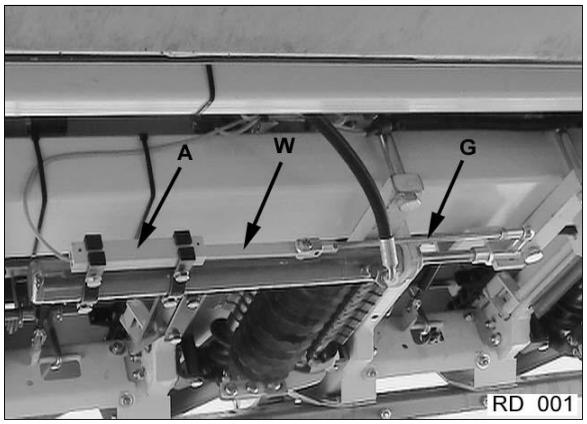
If the following message appears:

ERR - 1 = Short circuit in the travel sensor cable
ERR - 2 = Sensor cable disconnected or travel sensor cable broken

Recording tachometer

The recording tachometer (S) is located between two rows on the drive connection claw of the Centaflex-coupler.

The distance between the magnetic switch (S) to the magnet (M) and/or claw should at least be 1,5 mm and at max. 2,5 mm.



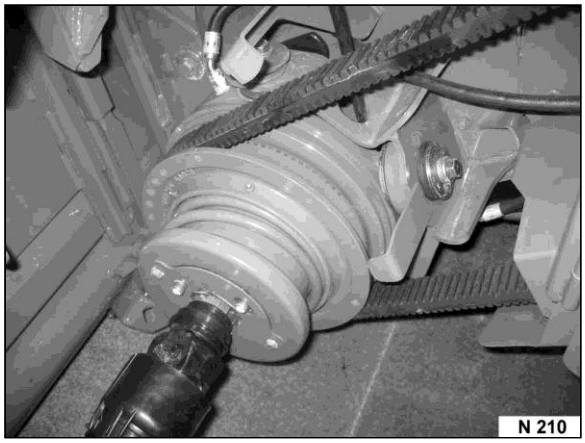
Rheostat of stripping plate adjustment

The rheostat (A) and the slider (W) should be cleaned in regular intervals.

Via the axial adjustment of the spindle (G) and by displacing the position of the rheostat (A), the indication of the diodes allows individually to be changed.

Electric supply lines to be checked in regular intervals.

Prior to checking, Diesel motor to turn off!
Header to be secured against unwanted lowering!



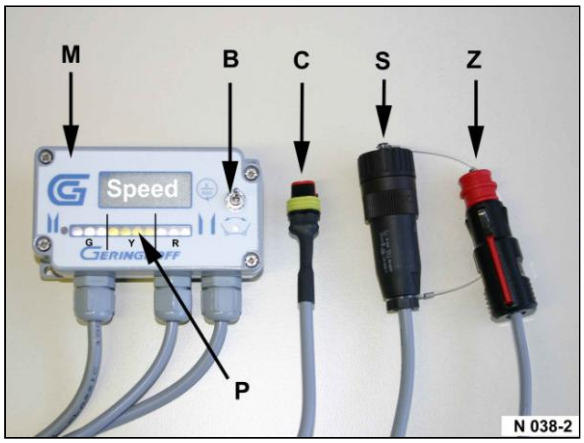
Hydraulically adjustable speed variator

Certain combines (e.g. John Deere (as illustrated) and Massey Ferguson) are fitted with a hydraulically triggered speed variator.

These machines use the hydraulic line, which in general is used for the folding process, already for the variator.

For this reason, the maize headers are fitted with an additional valve, which allows an alternate use for both the hydraulic operation of the stripping plates and the folding process.

The triggering is made via the switch arranged on top of the monitor (B).

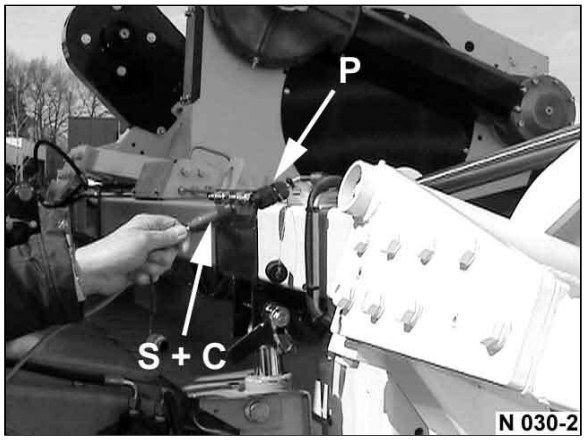


Monitor with switches

- (M) Monitor
- (B) Position switch
- (P) Indication stripping plate adjustment
- (C) Connecting cable control valve
- (S) Connecting cable rev counter/stripping plates
- (Z) Current connection 12 V max. 10 Amp.

Plug-in connections to establish only if the monitor is switched off-circuit! Board net plug to withdraw or mount ignition lock-dependent!

See also pages 09 / 080 and 09 / 442



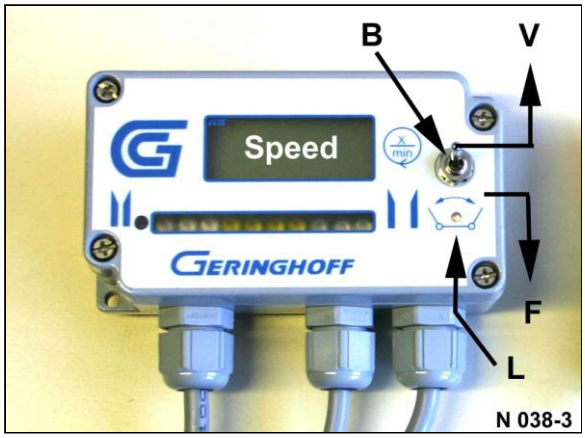
Connections

The connections are located in pos. (P) on the right-hand side of the folding maize headers.

The plugs (S) and (C) are to be connected in clean, dry and dead state.

Plug-in connections to establish only if the monitor is switched off-circuit! Board net plug to withdraw or mount ignition lock-dependent!

See also pages 09 / 080 and 09 / 442



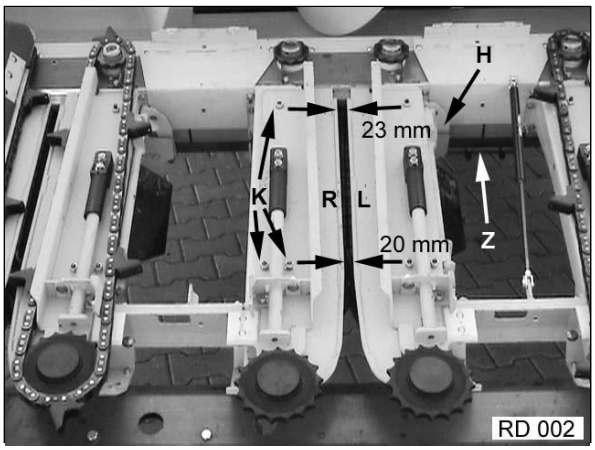
Operation of position switches

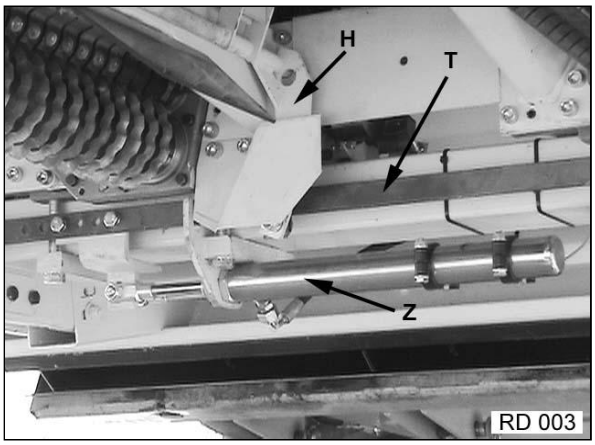
The general monitor functions are described on page 09 / 442.

Alternate use of hydraulics via switch (B).

Switch position (V) ensures the unlimited hydraulic stripping plates adjustment.

Switch position (F)  allows the folding process. The light (L) within the graph lights up.





Function and basic adjustment

The basic front adjustment is 20 mm and the rear one 23 mm in position „ narrow “. That means, the stripping plates are pushed together as far as possible.

The wedge-shaped adjustment is of essence for the function of the header.

These values are set via the screwed down stripping plate (R) and the screws (K).

For the harvest, the stripping plates are set hydraulically via „reel lift and lower control“.

The average maize ear diameter is important for the setting of the stripping plate distance. For this reason, the plates for the harvest works should be opened as far as possible, just as far as to prevent cob losses.

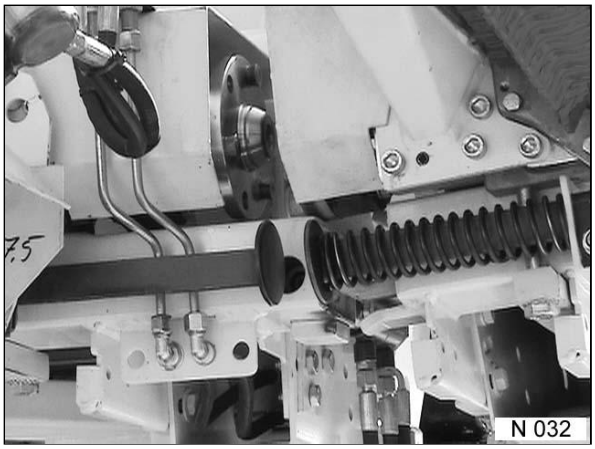
Prior to checking, Diesel motor to turn off!
Header to secure against unwanted lowering!

Via the shifting cylinder (Z) the left stripping plates are opened by the sliding bar (T) and lever (H). The plates are closed again by one or several restoring springs.

The regulation of the uniform setting of all stripping plates on the different rows is made by shifting the levers (H) on the sliding bar (T).

It is recommended to make a re-adjustment, only, if prior the basic adjustment „in front 20 mm, rear 23 mm“ was carried out.

(Form and design of stripping plates might country-specifically deviate from the photos)



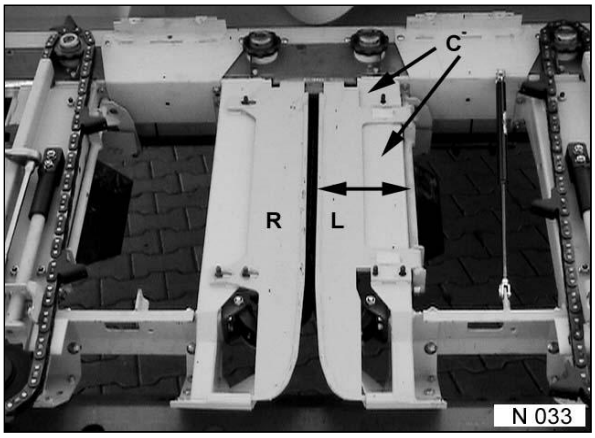
Stripping plate adjustment folding headers

The function and layout is identical to the unfolding machines.

The stripping plates on the folding parts are actuated via the spring-loaded sliding bar contact. Additional, right and left differently mounted restoring springs open the plates on activation of the folding process.

Pressure plates should well overlap.

Adjustment and setting to be made in working position and adequate locking only.



Maintenance and care of the stripping plate adjustment

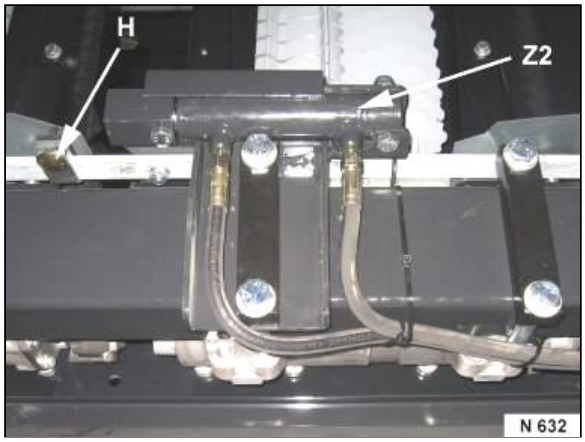
Impurities are not to exclude. For that reason, at least once the day the stripping plates (L) to open and close several times to assure the free floating and to remove impurities.

Joints to oil every 100 h. Restoring springs to clean.

Once finished the harvest works, bearing (C) of the adjustable stripping plate (L) to clean and to protect against corrosion using adequate means.

Check that the stripping gab is centrically arranged in the working position.

(Form and design of stripping plates might country-specifically deviate from the photos)

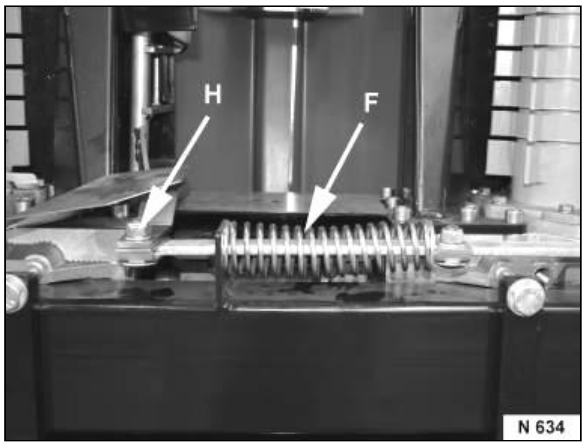


Stripping plate regulation rigid maize header = > 12 row units (double-acting)

Headers from 12 row units on are fitted with two double-acting hydraulic cylinder (Z2).

In case the stripping plates are readjusted, first hydraulic regulation to place in the narrowest possible position. Then conical position of the stripping plates to check (for setting see page 09 / 480, ill. RD 002).

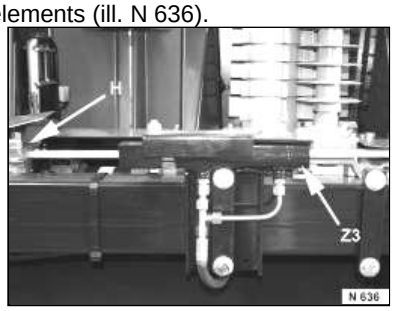
If required, uniform stripping distance to be set via adjusting lever (H).

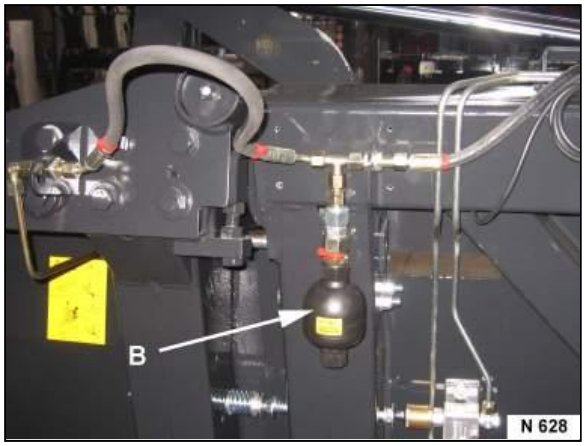


Stripping plate regulation folding maize header = > 12 row units (double-acting)

Double-acting hydraulic cylinder with a short-circuit line are mounted on the folding elements (ill. N 636).

Recuperating springs (F) are mounted in addition.
Springs to clean in regular intervals.



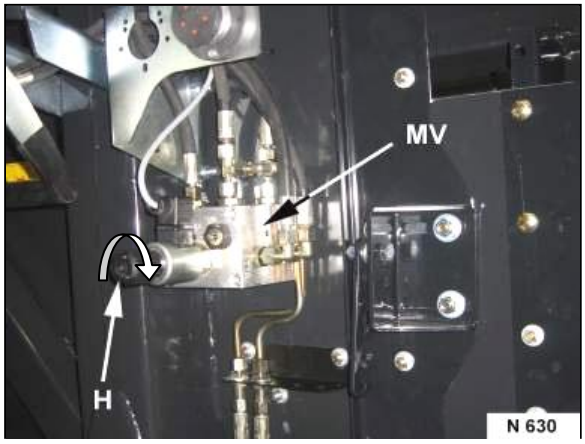


Equalizing tank stripping plate regulation folding maize headers

If the stripping plate regulation is operated in folding position of the header, the hydraulic cylinder of the folding elements work only in one direction. In order to reach the synchronisation of the system in working position, false positions are compensated by the accumulator (B). until the first operation of the stripping plate regulation.

Additional valve double-acting stripping plate regulation

If the combine is not fitted with an adequate equipment, the maize header is fitted with an additional valve (MV) for the alternate triggering of both the folding process and stripping plate regulation. This valve is operated via the switch (B) in the monitor (see page 443, ill. N 038-3).

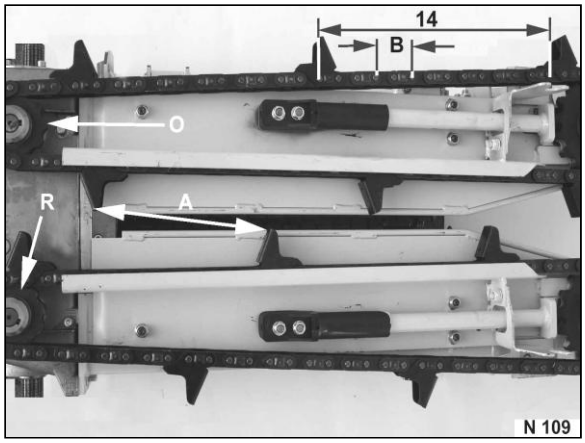


Manual control of folding process

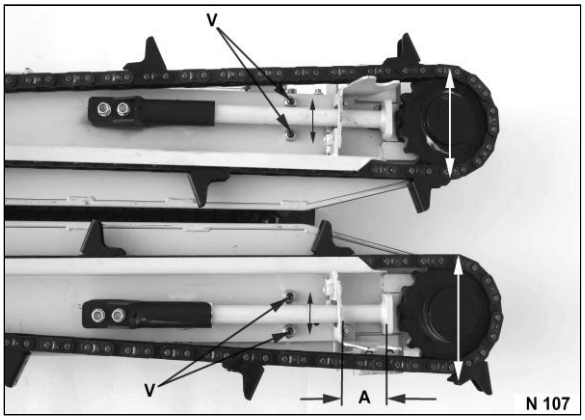
In case of electric trouble the solenoid valve (MV) allows to be operated by hand.
Screw (H) to press down towards the valve and regulate clockwise by ¼ rotation until it is engaged.

Now the switching command can be executed via the hydraulic system.

If the control valve is de-energized, the stripping plate device is switched.



Adjustment for sunflower harvesting see page 35 / 002



Gathering chains

Special ”slipping” wheels (R) are pulling the gathering chains and prevent to a large extend that foreign matters enter the maize head

The position of the gathering chain fingers (A) to each other is permanently changing, even during normal harvesting operation due to the slipping function of the slipping wheel.

When noticing a stretched chain (ill. N 107), there is the unique chance of shortening the chain by one outer and inner link plate each (B). The shortening to be made in the area (14) = 14 pces. link pin distance from one finger to the next finger.

The plastic protective rings (O) beneath the slipping wheels must be checked regularly for their good state.

Chain tensioner

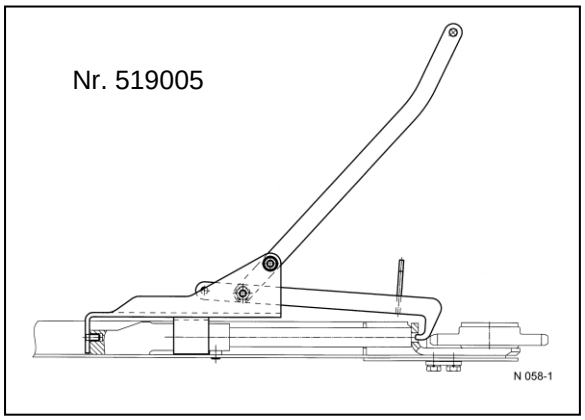
The maintenance-free gathering chains are automatically tensioned via constant spring pressure.

The preset chain tension is also to regulate the driving torque of the gathering chain and thus the efficiency of the slipping wheels.

When to change the gathering chains?

A = 83 mm chain in new state
A = 113 mm chain worn-out, replacement required.

Attention!
Wear proportion of the front reversing wheels to consider when determining the chain stretching!
According to the requirements, the distance of the chains to each other can be adjusted via the setting option (V) from wide to narrow. **Series setting is „narrow“.**
In narrow position the chain noses catch more aggressively and force the plant stronger into the picking gab.

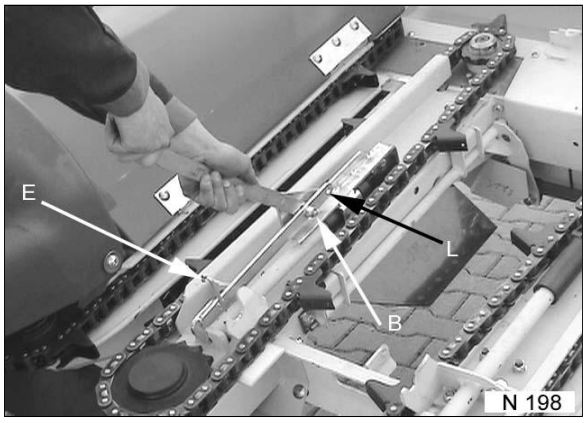


Removing of the gathering chains

The chains can be removed with ease by using a special tool, spare part no. 519005 attached to the header.

Prior to working on the machine,
Diesel engine to turn off.
Special tool may jump back!

The gathering chains are recommended to be changed once a year from right to left and vice versa to ensure thus a uniform wear.

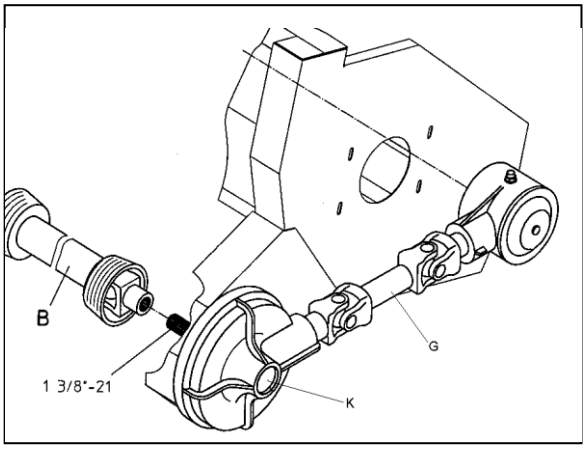


Removal of front chain idler.

Place the special Tool for chain removal to pos. (B) as shown in ill. N 058-1 and N 198 and pull close.
Secure Lever under hook (E).

The removal of the front chain idler sprocket is done in the same way. Change the assembly of the Special tool by fitting the lever to position (L). Secure lever under hook (E). Subsequently dismount the front idler sprocket and release the lever of the Special toll slowly and carefully.

Tool jumps back by ! spring pressure
Risk of accident!



Nominal speed is not reached

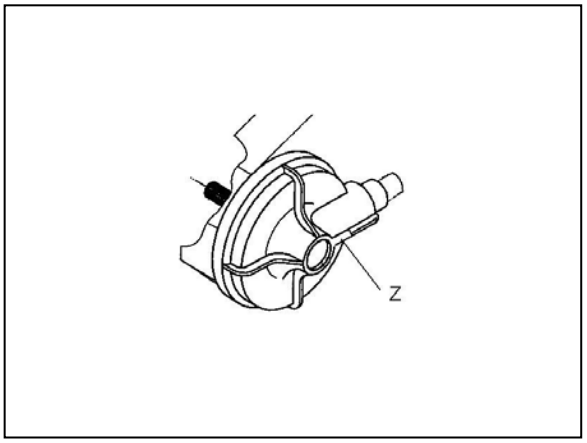
In case the nominal speed of the header of about n = 780 - 800 rpm is not obtained, the speed can be corrected by changing the crown gear within the transmission (K).

First check whether the speed of the combine on the PTO-shaft connection (B) in question is in line with the Combine specifications. Check Combine Operators Manual.

On the transmission box a number is marked on the pos. (Z) showing the number of teeth on the crown gear.

The following formula allows to calculate the speed:

Combine speed x teeth number of contrate gear / 16 x 17 / 32 = header speed



Change of crown gear

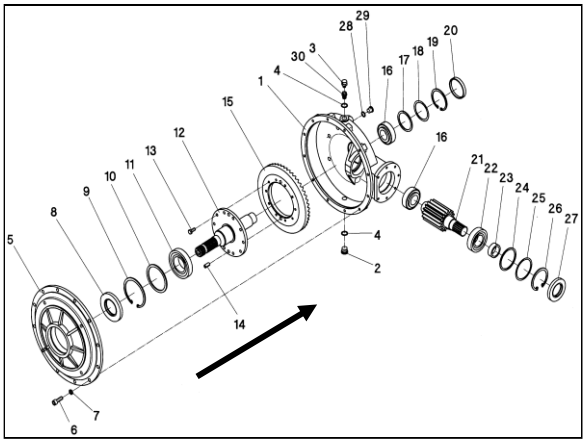
Remove PTO-shafts (B+G) .

Remove the Screws on the backside holding the transmission and lift off the complete crown gear transmission from the header.

Obtain new crown gear from the manufacturer or dealer.

Attention!
The crown gears are available only in certain graduations. If intermediate speeds are required or wanted, Speed-change gearbox must be mounted (page 35 / 011).

Changed teeth number of the crown gear to be markt on the transmission box!



Opening of the Crown gear transmission

Put down transmission horizontally to avoid oil losses.

Remove Screws (6).

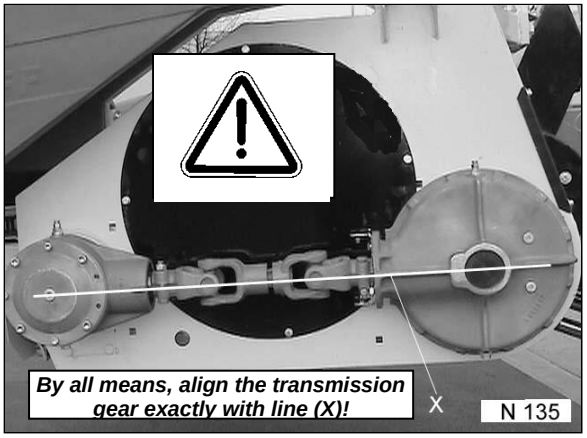
Loosen Gearbox cover by knocking same with an adequate tool and remove. Shaft (12) with bearing (11) remains in the cover (5).

Drive shaft (12) out of the box cover (5) in the direction of the arrow.

Remove Screws (13) and crown gear (15) for replacement.

Have the work performed by an expert only.

For lubricants and filling amount see page 13 / 403.



Refitting of crown gear transmission to the header

Fit crown gear transmission to the provided place, if required together with PTO-shafts.

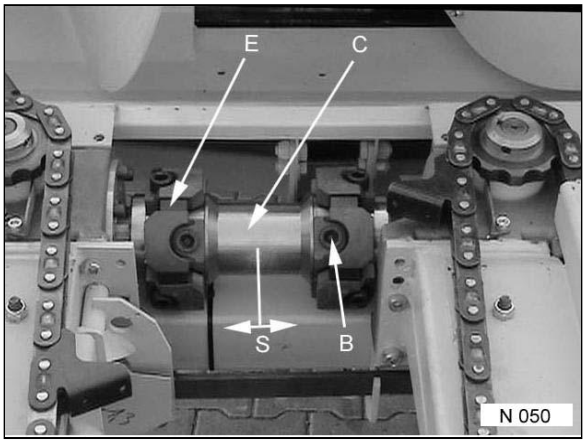
Tighten the mounting screws slightly only to allow the transmission still to be aligned (see white line X).

Only original screw length (6) must be used, since longer screws would destroy the transmission housing.

Refit guards and conduct a trial run.. Check the speed!

Check Oil level.

(Ill. shows drive left-hand side)



Centaflex-couplers

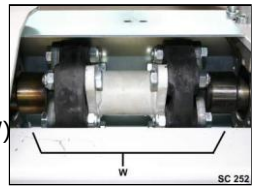
Centaflex-couplers (C) to be checked in regular intervals to see the conditions of the flexible elements (E) and engaging dogs. Worn parts must be replaced immediately.

Axial clearance (S) of 2 mm for the center part (C) must be kept absolutely.

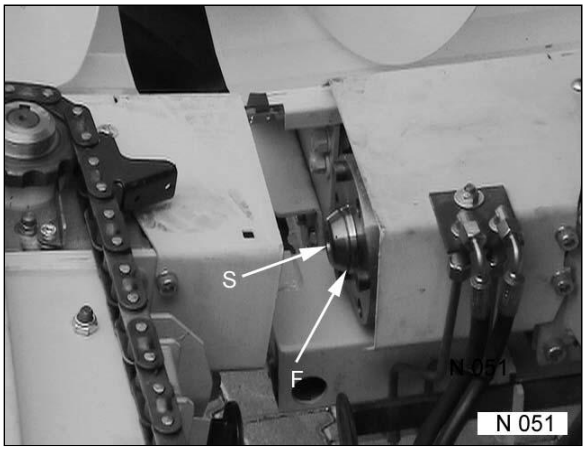
Hexagon socket screws (B) to be tighten with 140 Nm. (use Loctite blue, or similar)

6 rows and 12 row

Following the first row unit arranged on the drive end, all maize headers with six row units are fitted with a special reinforced shaft connection (W)



Check screws and elastic elements.

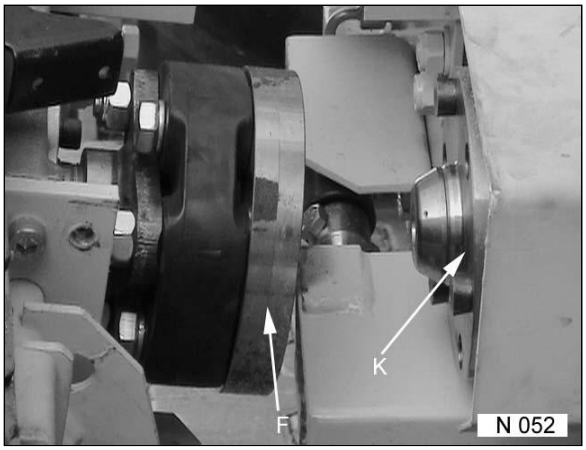


Row unit drive connections on the folding parts

The axial flexibility of the coupling half (F) to be checked in regular intervals by pressing same inwards with a tyre-lever.

If required, axial safety bolt (S) must be unscrewed, coupling half pulled off, splinted shaft section be cleaned and greased.

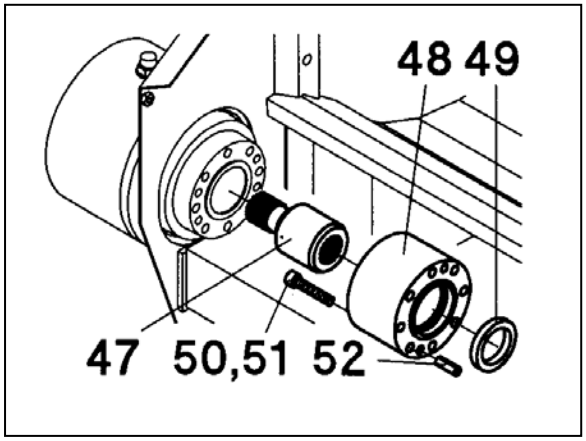
With engine switched off and clutch engaged, the parallel position of the cam plate (K) towards the punched disk (F) must be checked in regular intervals..



Axial adjustments are made with shims between gearbox bearing and hardy disc carrier-flange.

Radial differences are to be compensated by readjustments made on the pivot of the folding part suspension.

Drive couplers to get engaged only at minimum speeds.

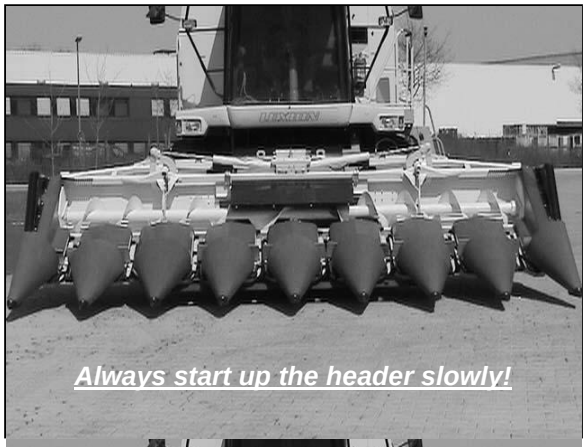


Maize header with shaft extension (optional)

Maize headers with certain row distances can be fitted with a shaft extension (47) on the drive side.

Flange (48) and intermediate shaft (47) are arranged between angular gear and the row unit gear.

The intermediate shaft needs no maintenance at all.



Reduction of the starting torque

For reducing the starting torque, maize header to let run up at no-load with reduced motor speed. In consequence, drive clutches and belts will have an extremely longer lifetime.

The horizontal chopper is to be prevented from getting in contact with foreign bodies.

Keep a safe distance to the machine! Protect yourself and others against damages and accidents!

Operating speed to be checked on the monitor (n=780-800 r/min).

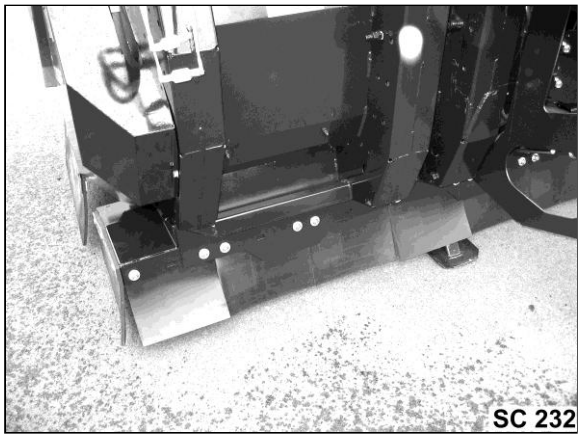
Trial run in lowered state only

For security reasons, the header and chopper must always be in their lowered position when starting up or making a trial run.

You have to take precautions so that no objects can get into the header as well as the chopper during the trial run.

Turn always off the engine and activate the lowering protection when working at the machine!

Risk of accident by catapulted parts!



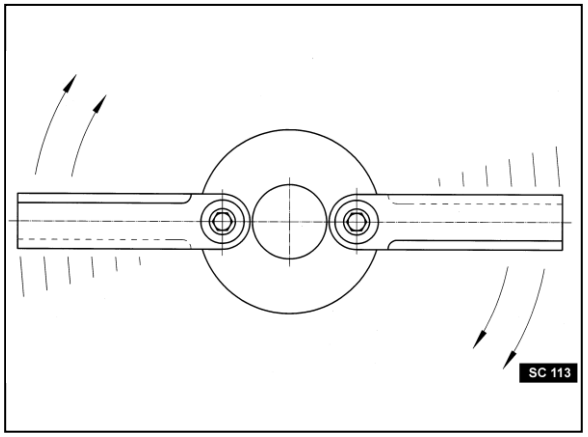
Protective trim for stubble choppers

Check completeness and integrity of the protective rubber trim prior to any commissioning.

Should any damage occur, immediately replace the protective trim, find out the reason for the damage and resolve the issue.

Inspect!

- Completeness and integrity of the chopper knives
- Balancing or concentricity of the chopper knives
- Sufficient ground clearance



Safety instruction "rapidly rotating knives“

Danger caused by parts flying around with drive turned on. Safety distance to observe!

If the motor runs and drive is turned on keep sufficient distance to the chopping knives!

Combines with variator drive

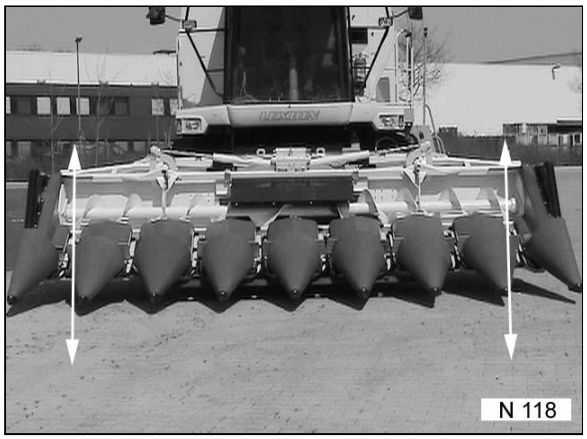
Speed

If the combine is equipped with a drive variator for the headers, absolute attention is to be paid to the speeds indicated on the monitor

for not falling below n= 725 U/min -
and not exceeding n= 830 .

When falling below 725r/min., the speed is strongly reduced so that a reliable operation cannot be guaranteed any longer. When exceeding the speed of 830 r/min., the torque of the safety friction clutches would be changed in an unwanted way.

When falling below the speed range, no guarantee will be furnished for consequential damages.

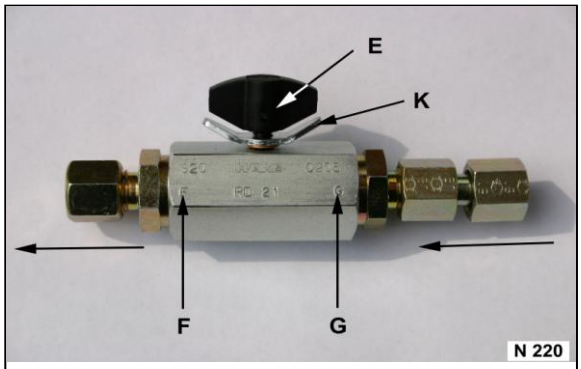


Test of the lateral compensation

Prior to start-up, the pivoting shield function of the combine is to be checked in conjunction with the maize header.

- Check PTO-shaft length and for sufficient overlapping
- Check ground levelling system (optional)

Keep off the dangerous zone whilst the machine is running !



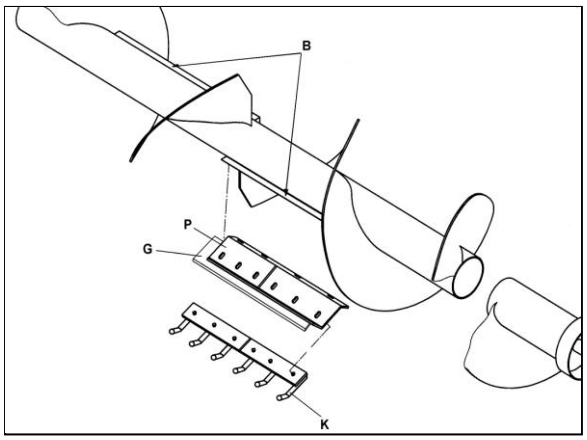
Additional valve for switch-on delay urgently to be mounted!

Additional valve for switch-on delay

Certain combine makes and types require an additional valve for delaying the run-up of the maize header.

This additional valve is part of the header's scope of supply and is urgently required to be mounted according to the respective enclosed instructions.

← = Oil flow direction
(G) = Inlet side
(F) = Outlet side
(E) = Setting screw for flow rate / switch-on delay
(K) = Securing fly nut



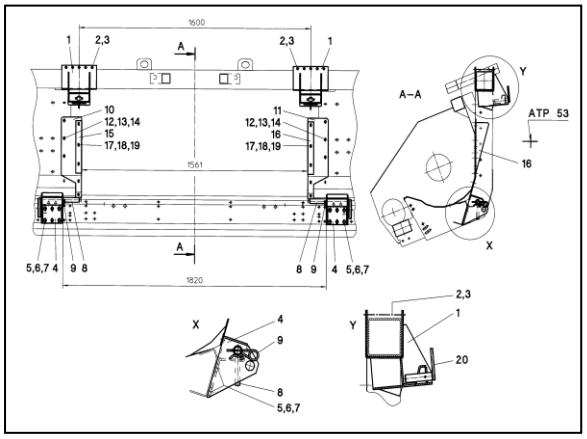
Variable arrangement of the conveying claws

The cross conveyor auger are provided with fastening irons (B) in the area of the channel opening where conveying claws are mounted for the transport of the harvest material.

The number of claws (K) and their width of the different header models can differ and is governed by the gathering channel width of the respective combine.

It's of the essence to mount the conveying claws only in front of the channel opening.

As a guideline applies: gathering channel opening ~ 8" / 200 mm = maximum overall width of the conveying claw arrangement.
On option rubber plates instead of conveying claws can be mounted (not included in scope of supply).



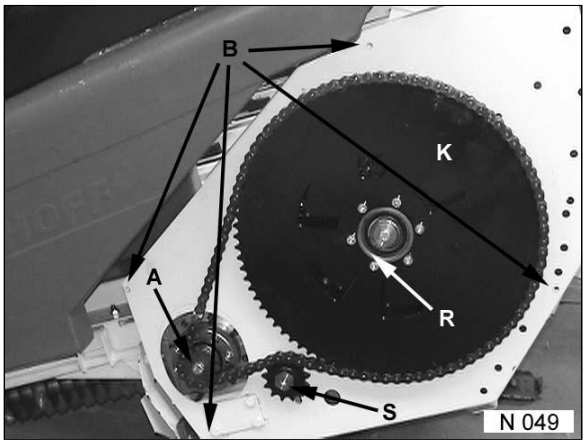
Feed opening of the maize header

Certain opening sizes of the header for all combine makes and models are determined for the feeding to the gathering channel of the combine.

The exact opening width to be learnt from the sketches in the spare part catalogue from picture table 60/.. .

For standardization reasons, slight variations from the rated size are allowed.

In particular when working on slopes a regular feeding is of essence for the harvest material to be distributed evenly within the machine.



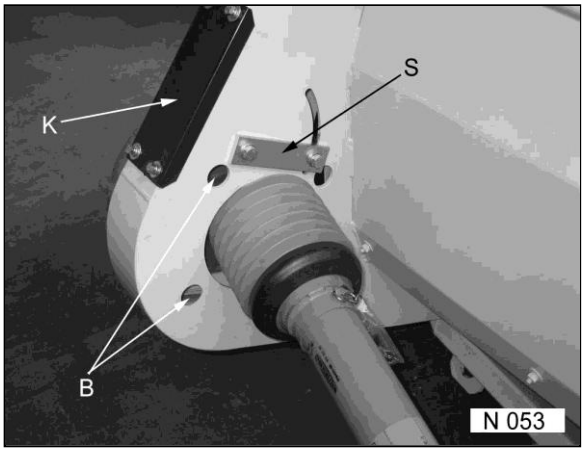
Auger drive up to 6 row units

The auger is driven from the side opposite to the main drive. The speed is subject to the main shaft of the header and thus preset.

Chain tension to check in regular intervals, if required, to readjust via the idler (S).

Chain to oil in regular intervals.
Protection box to clean in regular intervals.

Maize header never to operate without guards mounted and closed!



Auger drive from 8 row units

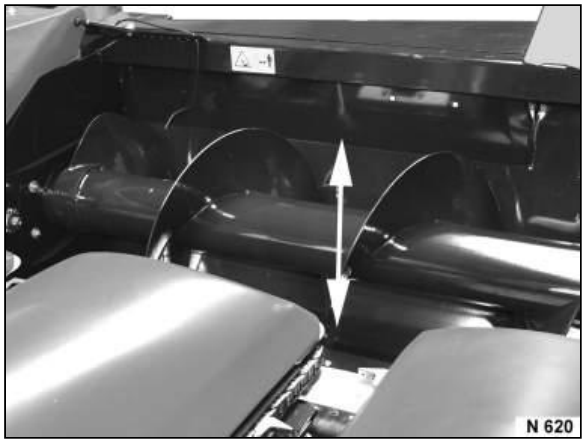
The auger is driven from the feed shaft of the contrate gear transmission and is not subject to the speed of the header.

Maintenance and care of the chain drive to be made via the flap (K)

The chain tension is adjusted by shifting the tension lever (S) downwards.

All bearings of the cross conveying auger are maintenance-free.

The bores (B) serve to fasten the contrate gear transmission.



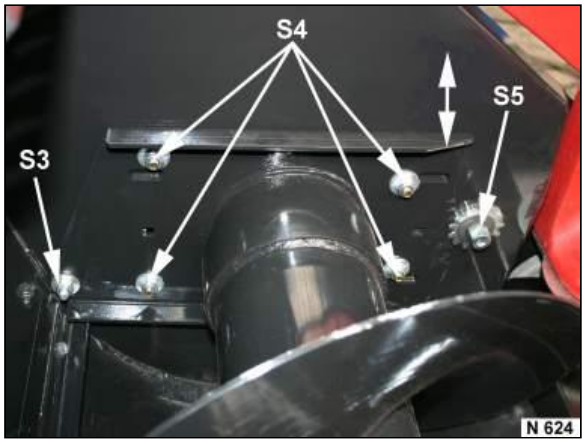
Height adjustment

The cross conveying auger is factory-se to the ideal value toward the screw bottom.

The height (see arrow directions, ill. N 620) only can be changed.

The diameter of the maize cobs is decisive for a height regulation. The cobs should reliably be transported. The auger plates should be prevented to produce broken maize.

Prior to any change of the auger setting the roller chain drive to unstress (see page 09 / 725). Once finished the works, roller chain to unstress.

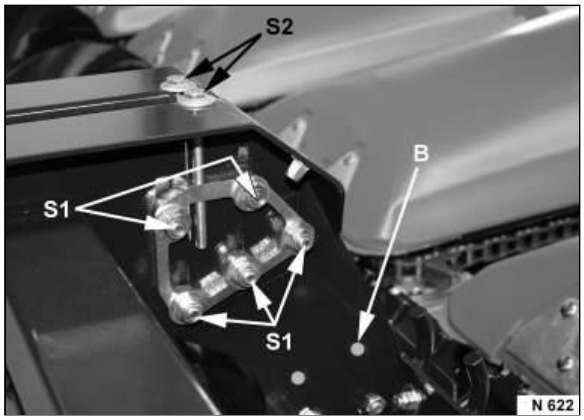


Regulation to perform (rigid maize headers)

- Fulcrum auger (S3) not to unscrew.
- Screws (S4) to unscrew by 2 turns.
- Via adequate tool pinion (S5) to turn such as to reach the desired setting.
- First a locking screw (S4) to tighten.
- Regulation to be performed on the opposite side.

Auxiliary means for the height setting should preferably be used as distance gauge

- All screws to tighten (see page 36 / 100).

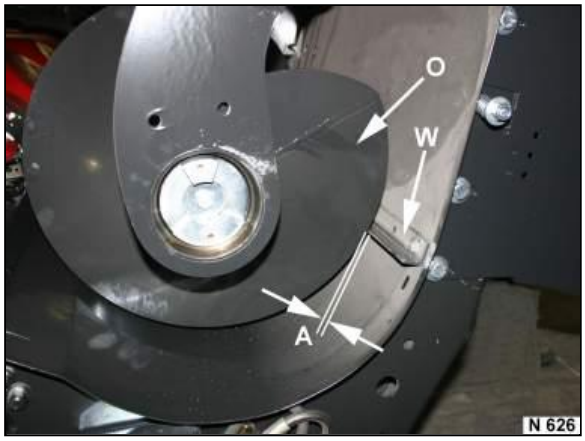


Regulation on folding headers to perform

In principle the same procedure as with rigid headers. However, the following steps to be taken in addition:

- Header to be placed in working position and locked.
- Auxiliary screw M12 x 50 to mount in bore (B) and tighten.
- Locking screws (S1) to unscrew.
- Desired setting to perform using setting screws.
- Regulation to be performed on the opposite side.

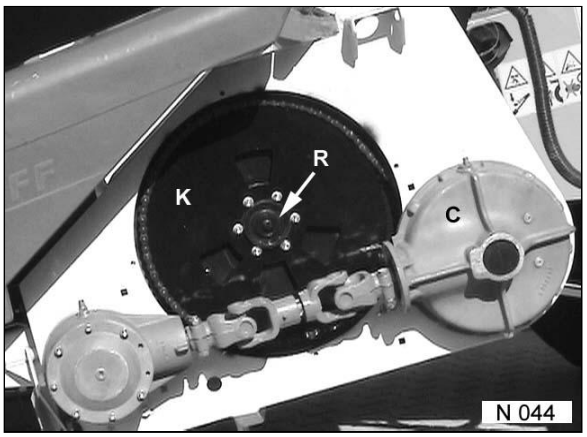
Auxiliary means for the height setting should preferably be used as distance gauge.



Attention!

The unscrewing (S1) results in changing the distance (A of the spirals towards the scraper. The parallel distance (A) towards the scraper is to be set using an adequate gauge. Attention is to be paid to the cross conveying screw remaining unstressed.

- All screws to tighten (see page 36 / 100).
- Auxiliary screw M12 x 50 to mount in bore (B) and tighten.
- Folding procedure to perform and connection coupler of the screw to check.



Sliding clutch cross conveying auger

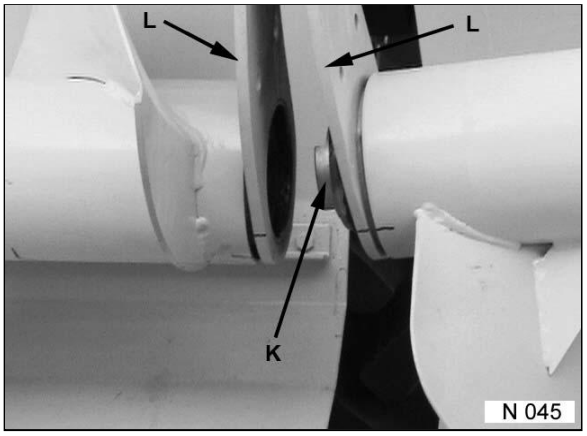
All auger drives are fitted with a maintenance-free and not readjustable sliding clutch.

If the sliding clutch reacts, machine immediately to turn off and troubleshoot.

Insufficient torque of the clutch cannot be decisive for the response behaviour.

In case of overfeeding, the reversing device of the combine allows for a refeeding.

Chain drive to grease and tension in regular intervals.



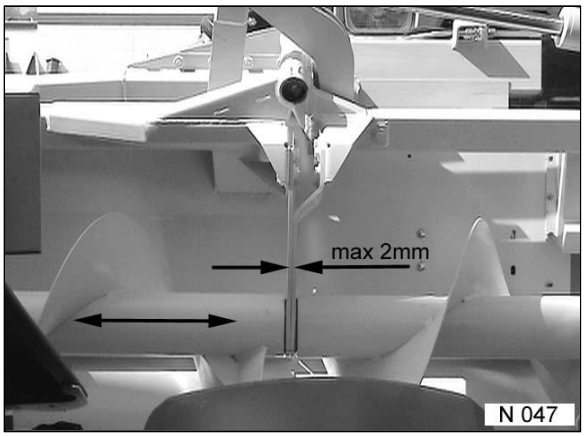
Driving clutch cross conveying auger

The coupling halfs (K) in the folding auger elements are spring-loaded mounted on a splined shaft section engaging automatically after the folding process.

Axial spring load of the clutch (K) several times to be checked during the harvest season by simple pressing in.

The screw joint of the bearing holders (L) serves to the adjustment of the auger elements.

Once finished the setting works, the screws to remove.



Setting of the cross conveying auger

The cross auger is factory-mounted in ideal position and not provided for being displaced.

Provided setting facilities serve only to the assembly of the cross conveying auger.

Bearing holders (L) must in working position be parallel and close to each other (max. ~ 0,08” / 2 mm distance).

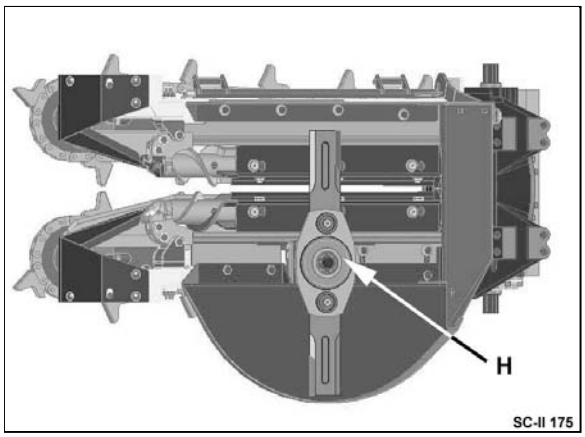
If the bearing holders (L) are too far from each other, the corresponding auger element can be regulated by axial displacement. For doing so, the locking ring of the respective bearing to loosen.

Covering cap cross conveying auger

The height adjustment of the covering cap is made via the screwing (S).

The distance between auger and cap should be as big as possible to ensure a free passage of husks, leaf and even stalk parts.

Prior to working on he maize header, Diesel motor to turn off!



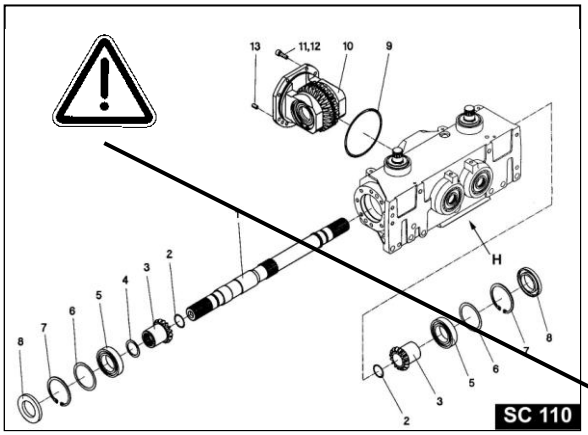
Basic equipment of all headers

A number of overload protections and slipping clutches are provided for the safe operation of the machine.

I If these devices respond, maize header must immediately be switched off! Diesel engine of the combine also to be switched off and header be secured Against unwanted lowering.

Troubleshoot and rectify the problem.

Never switch the header on and off to get it turning again.



Sliding clutch in the row unit gear

One maintenance-free and wear-poor cam clutch each (19) is arranged within the gears. If it responds, there is a trouble beside the normal operational conditions.

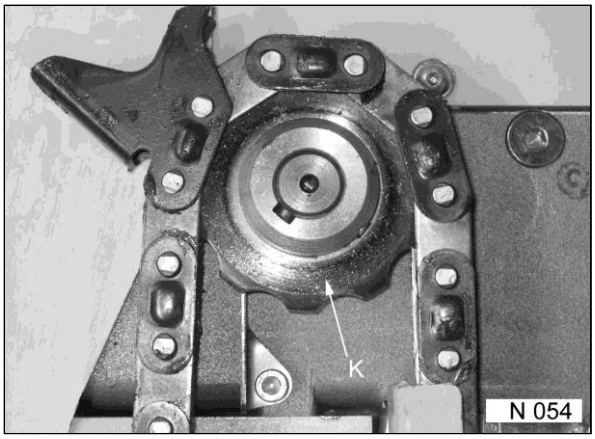
Once stated that the foreign body did not cause the response behaviour, the reversing device of the combine allows the header to be turned backwards and to remove sticking harvest material.

Clutch must not run hot!

Attention ! (see page 13 / 235)

Gear to be dismounted only by using special tools and detailed information gathered before!

Works to be performed by an authorised special shop only.



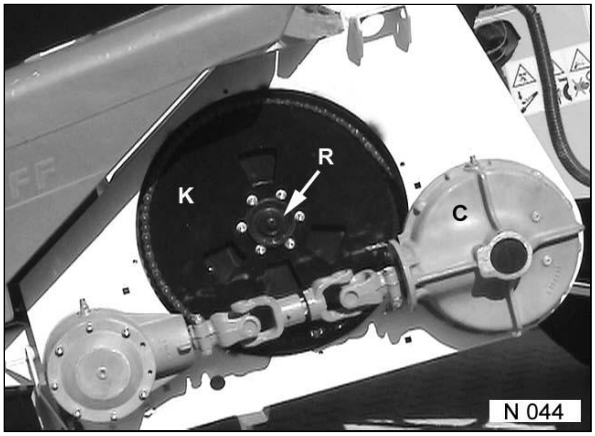
Slipping wheels on the gathering chains

See also page 09 / 525

The special tooth form of the driving chain wheels (K) combined with the automatically tensioned gathering chains effect a well-balanced driving torque of the gathering chain drive.

In case of overload or foreign bodies the driving chain wheel turns within the gathering chain without moving it ahead. That ensures that damages are prevented and foreign bodies kept away from the combine.

Never to change the chain tension using inadequate tools.

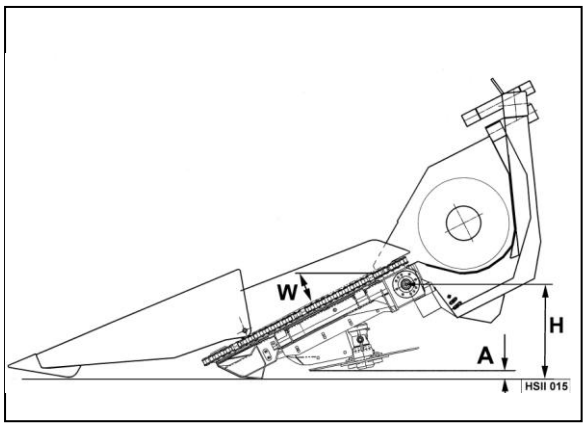


Slipping clutch in the cross auger drive

A not readjustable cam clutch is mounted on the drive side of the auger shaft.

If it responds, there is a trouble beside the normal operational conditions.

Once stated that the foreign body did not cause the response behaviour, the reversing device of the combine allows the header to be turned backwards and to remove sticking harvest material.



Working angle (basic position)

A working angle of **22°** is factory-set. If the combine is fitted with larger or smaller tires, that means, differing from the standard equipment, we recommend checking the working angle (W). The same applies also if tracks are fitted.

The real angle is easily established by placing an adjustable angle on the stripping plates in working position and a " level". (Distance (A) min. 100 mm / 3,9 ")

This check should be made under real working conditions on the field with the header at the usual working height.

When the header is just making ground-contact and is set at an angle of **22°**, a distance of about **425** mm will be measured from the centre of the front angle-drive (H) to the ground.

Adjustment of the working angle

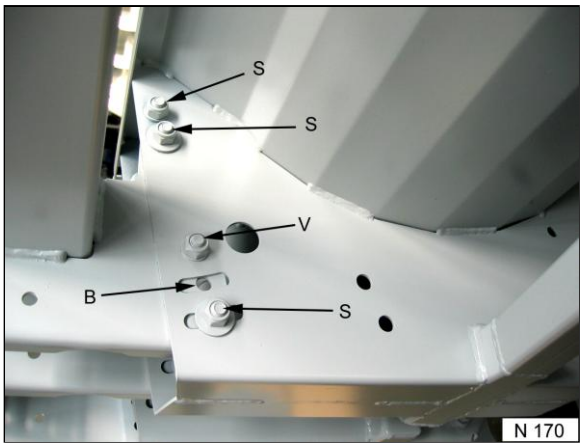
Combine and maize header, completely mounted, to put down in working position on a level surface.

Screwing of the outer bodywork suspension on the frame to remove.

Guard (C) of the gear drive to remove.

On foldable headers, the locking must absolutely be activated in working position (see page 09 / 240).

Header, completely relieved but firmly connected to the combine, to be put down to the ground!



Adjusting device

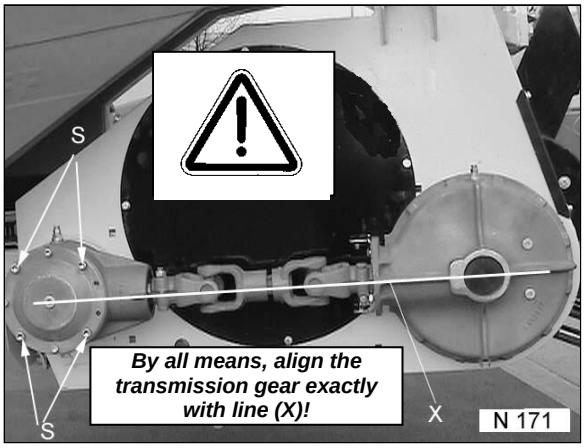
When the machine has been put down, first the screw (V) to remove from all frame connections and to put into the bore (B).

Then, screws (S) on all frame connections, also on the sidewalls, slightly to loosen for allowing the elements to be moved to each other.

The required working angle to adjust via the lifting device of the combine (header to lift and/or lower).

Then all screws of the frame connection to retighten with the header being put down!

Note: With certain variants, the adjustment possibilities have already been maxed out in the manufacturers' factory such that no further adjustment will be possible.



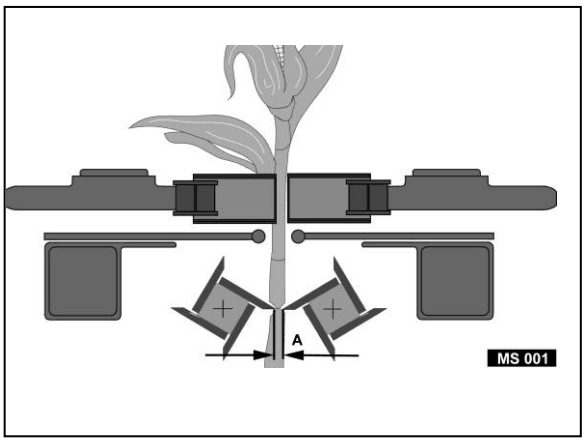
Drive gear to align

Maize header with the gathering channel to lift and secure against unwanted lowering.

Only the four screws (S) Sw 8 of the angular gear and the four screws of the contrate gear fastening on the backside to loosen. Both the gears to turn until reaching the exact alignment (see line X).

Gear to refasten and guard to remount.

Outer framework to be connected again. If required, spacing to be compensated by spacers.



Stripping roller setup

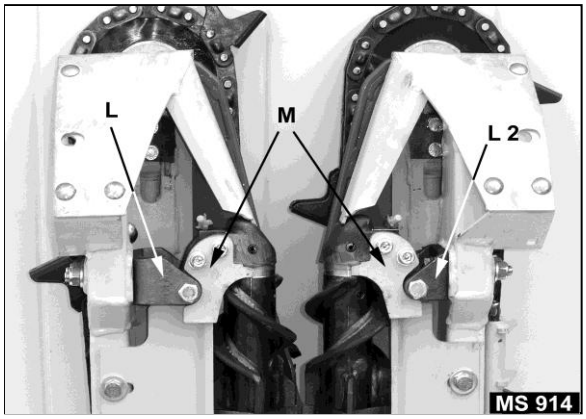
Stripping rollers of the MS-SC header cannot be readjusted with respect to their parallel alignment amongst each other.

Only the stripping bands (knives) arranged on the square shafts and equipped with oblong holes can be adjusted.

Distance (A) should amount to 2 mm in the front and 0.1 mm in the rear, at max.

Always install the stripping rollers as shown in the figure.

Turn off the engine before starting any work at the machine!
Activate the lowering protection!



Front stripping roller fastening

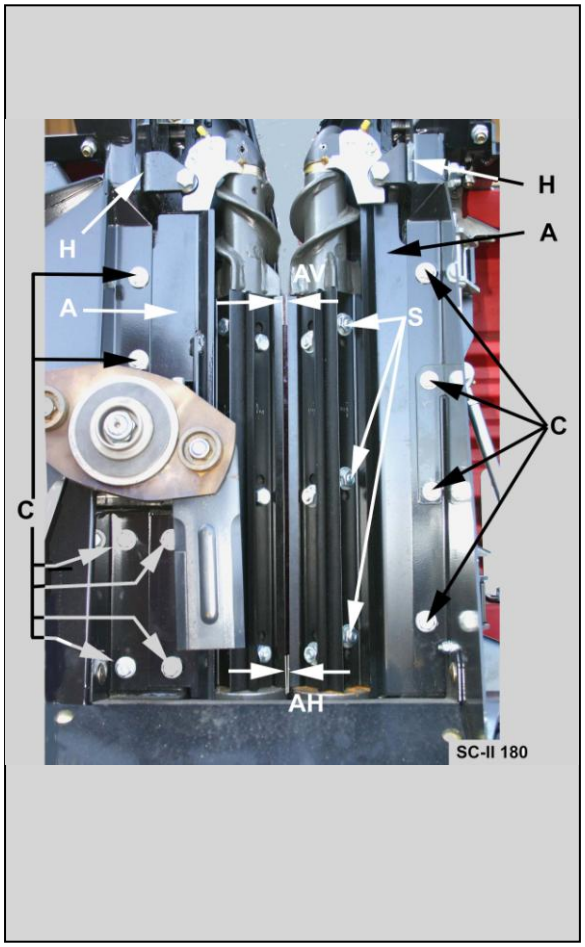
The stripping rollers are frontally screwed down left (L2) and right (L). They are not designed to be adjusted.

The shackles L + L2 differ and cannot be exchanged for each other.

The stripping plates (M) for the front part of the stripping auger are adjustably mounted on the bearing holders.

IMPORTANT is that the stripping plates are set closely to the augers on the stripping rolls..

The distance should be less than 0,5 mm.



Adjustment of the stripping knives.

All adjustments must be made only on the screws (S) on the stripping rollers. The oblong holes (L) in the stripping knives allow for this adjustment.
You must never place shims between the holders (H) and the frame to adjust the stripping roller knives.

The stripping roller knives must be set at a distance (AV) of 2 mm in front and 0,5 mm in the rear (AH).

The adjustment of the stripping roller knives has to be follwed by the adjustment of stripping knives (A)

Tighten the screws according to the values given on page 36 / 100.

Stripping knives keeping Rotors clean.

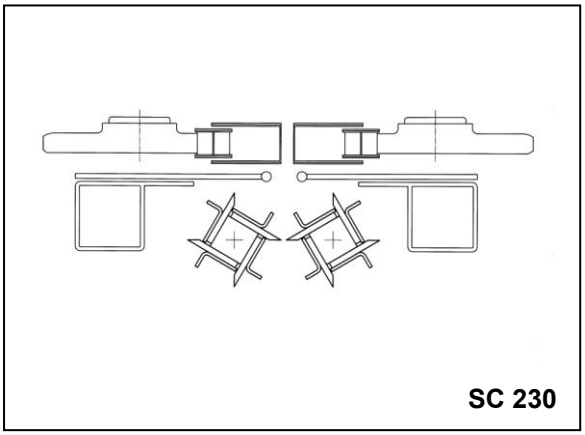
The stripping knives (A) are to be adjusted to a maximum distance of 0,5 mm to the stripping roller knives.

The adjustment to be made after loosening the screws (C) and side wards movement of the stripping knives. .

Particularly, when the maize stalks are humid and still green but also with a lot of still wet weeds, the stripping knives prevent the rotors from being clogged.

Before starting up, machine must be turned by hand and stripping rotors etc. be checked for clearance.!

Risk of injuries by sharp tools!
Take protective measures.



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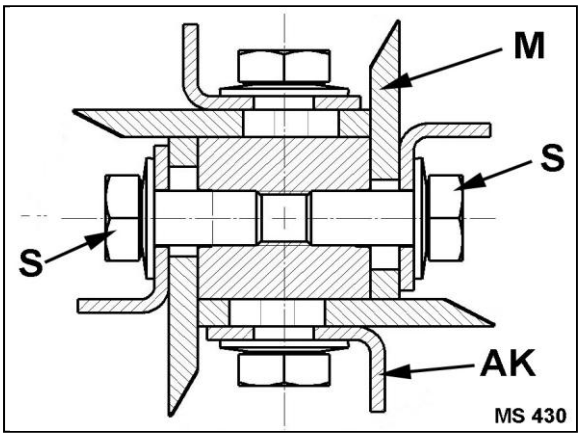
Ancillary edges

As an option, the stripping rollers can be equipped with L-shaped ancillary edges for work under critical working conditions.

This can especially be of advantage for any wet and not consistently matured maize crop.

The best indicator for whether this ancillary equipment is needed is, if an increased straw proportion is fed into the harvester.

Ordering no.: 502354 (One set per header row)

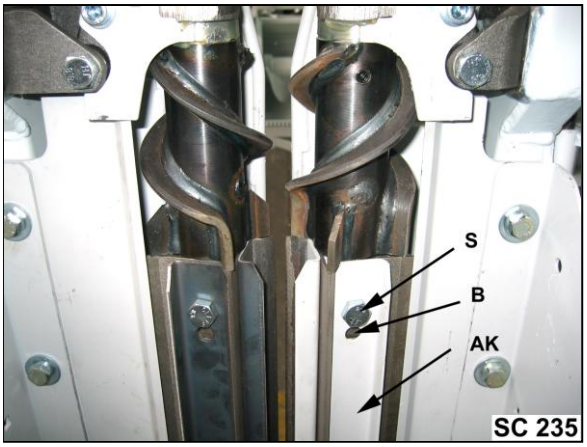


Additional working angles

The additional working edges (AK) serve to improve the plant gathering if the harvest material is humid or not completely ripe.

The round hole bores in the additional working edges (AK) prevent a displacement in case the knives (M) must be readjusted.

Screws (S) to be tightened according to the instructions given on page 36 / 100



Additional working edges to change

Due to the extreme stress and dependent on the operation period the working edges (AK) may require to be changed.

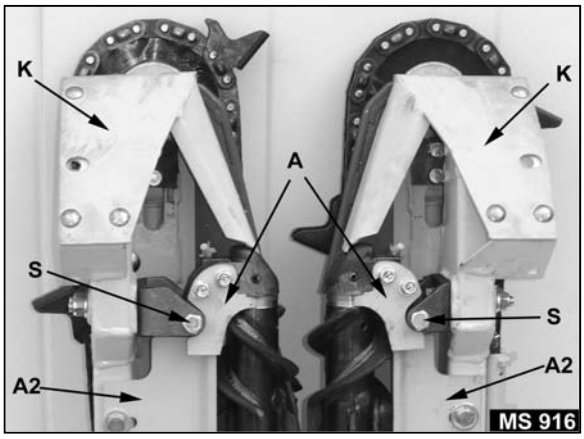
Only original spare parts and new screws, screw locking elements and nuts (S) to be used.

Separate designs for right and left. Bore (B) is required for screwing staggered by 90°.

If commercial screws are used, excessive length causes risk of wrapping. Consequential damages to the header shafts cannot be excluded.

Safety instructions

When working on the machine, motor to turn off and lowering protection to activate!



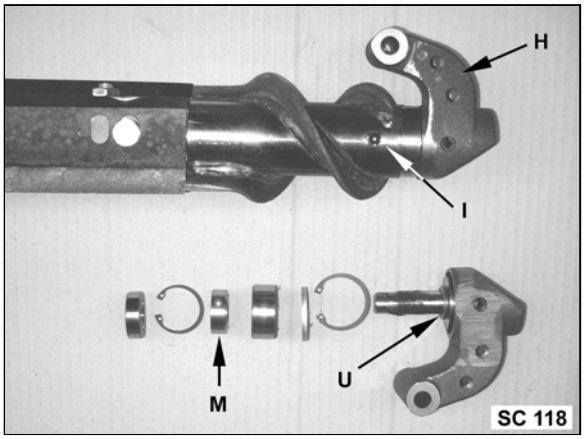
Dismounting of Stripping roller

Firstly remove the, skids (K).

Remove stripping plates for auger and for stripping roller (A and A2) Also remove Screws (S).

Complete stripping rollers with augerr and bearing holder is pressed off from the row gearbox, using an tyre-lever. Attention! Prevent the aluminium gearbox housing from being damaged.

When working on the machine, switch the engine off and activate the lowering protection!



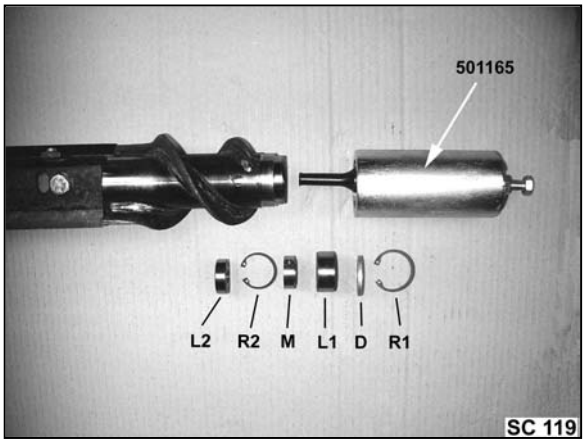
Bearing holder to be taken off the rotor

Remove hexagon socket srew (I) SW 5..

Revolve bearing holder until hexagon socket screw SW3 gets visible in securing nut within the stripping rotor..

Loosen stud screw (SW3) by one left-hand turn..

Rotate bearing holder by 180°until adjusting ring (M) gets visible.
Block securing nut against stripping rotor by means of a 6mm rod and turn bearing block to the left, untill securing nut is free..



Remove bearing from rotor

Remove circlip (R1) ..

Pull off front bearing and packing ring, using Geringhoff's special tool, part-no. 501165.

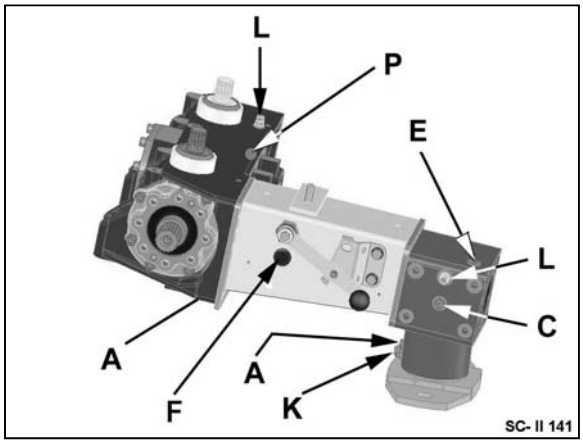
Remove circlip in front of the rear bearing (R2).

Pull off rear bearing, using the special tool.

Remounting in reverse order.

Tighten nut (L2) with 90 Nm +10 Nm.

Attention!
Special nut (M) the nose must point towards the front bearing (L1)!



Header in-line gearbox

(View without stripping rollers and support bars)

(A) Oil drain plugs

(C) Level control plug

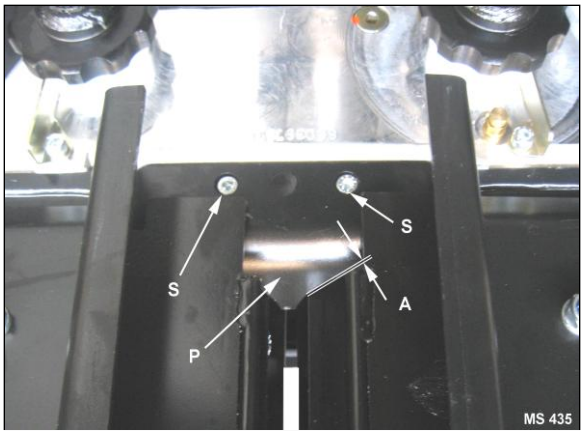
(E) Oil filling screw, chopper gearbox

(F) Oil filling hole for low viscosity grease: 250 ml of low viscosity (gearbox) grease
MP 00/000 G-35 (or similar)

(K) Grease nipple, grease chamber

(L) Venting hole

(P) Oil filling screw including dip stick for header gearbox



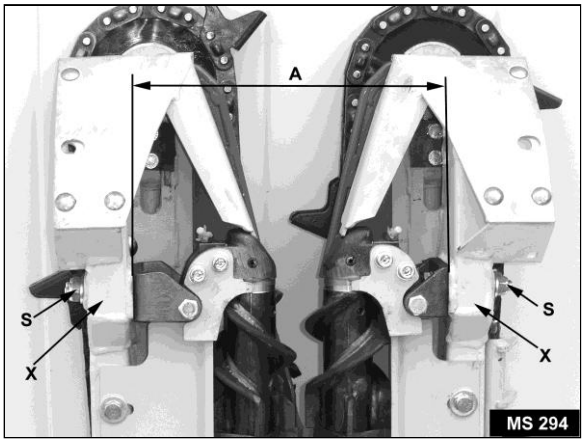
Cut-off block

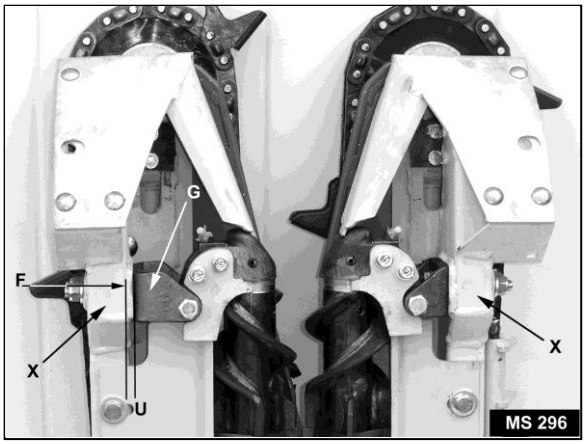
With 2 screws (S) the cut-off block (P) is mounted below the stripping plates in front of the gear box.

Spacers are fitted between the cut-off block (P) and the row unit gearbox for adjusting a maximum distance (A) of 1 mm to the rotors, if required.

If the distance is more than 1 mm, in particular in humid conditions the rotor could be clogged in this area.

When working on the machine,
Switch off the engine
Lowering protection to activate!





Control dimension row unit frame

The exact frame carrier distance (A) in the front area is of special importance for the function of the maize header.

This distance may be changed due to collisions. There are in particular the outer rows, right and left, where the brackets are sensitive to being bent, since they cannot be supported from a connecting row.

If such a collision has occurred or a row unit shows a malfunction, the distance (A) 317,5 ± 0,5 mm must be checked. The given measurement indicated must be maintained absolutely.

In order to find out which bracket (X) is bent, loosen the screws (S) and after the the row –unit has been cleaned from any harvest material is, turn the unit by hand at least once. The resultant gap (U),will show which side side is bent. Minor differences, up to 4 mm, can be compensated by distance plate part No. 501249 placed between the fork (G) and the area (F).

Attention!

If a shim is placed under the fork (G), the respective stripping plate must separately be readjusted for re-establishing the reference setting (see page 09 / 480).

In the event of major changes, the bracket in question must be aligned or replaced!

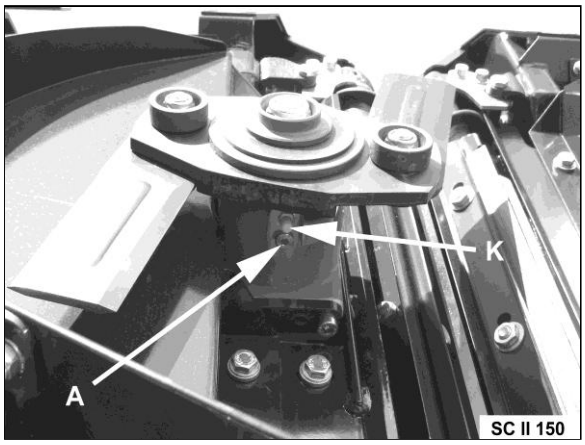
Breaking bars

An evident sign for a negative change in the alignment of the row unit brackets is if,the breaking bars are no longer in the ideal position, i.e. 2 mm in front (AV) and 0,5 mm at the rear.

In such a case, the row unit has urgently to be checked.

A visual control of the position of the rotor stripping knives for finding a possible mis-alignment, will not do.

When working on the machine,
Switch off the engine
Lowering protection to activate!



Chopper gearbox

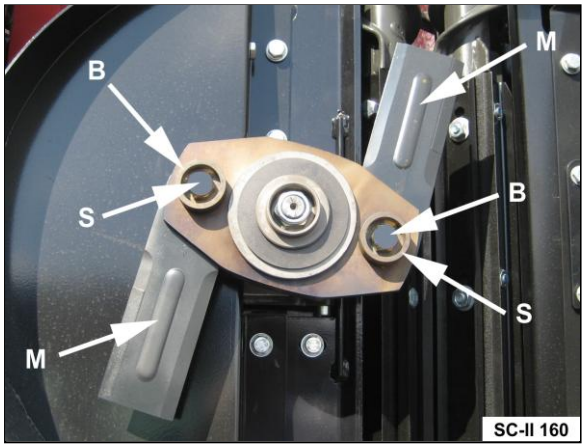
- (K) Grease nipple for grease chamber filling (15 h)
- Oil drain plug

Gearbox oil: SAE 90 API – GL- 4 *(or similar)*
Quantity: 0.35 litres

Oil change intervals: Initially 50 h after commissioning; subsequently once before each harvest - but after 200 h, at the latest.

Drain plugs are equipped with magnets, which should be cleaned with each oil change.

Inspect the oil level!



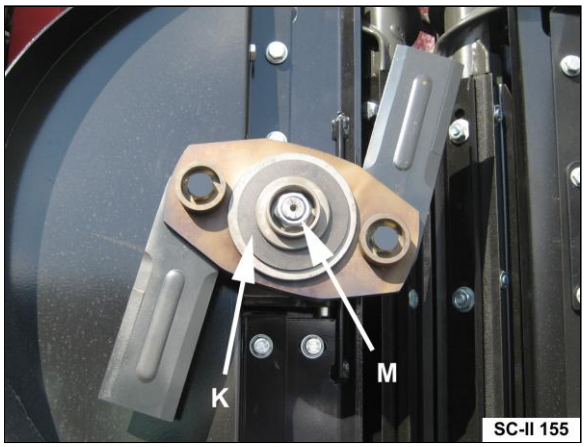
Knife retainer / chopping knife

Nut (S) and nut protection ring (B) must be installed in such a way that they point to the bottom.

The screw (S) must be tightened according to the specification on page 36 / 100.

Either side of the knives (M) can be used, refer to the notes on page 13 / 205

Turn off the engine before starting any work at the machine and activate the lowering protection!

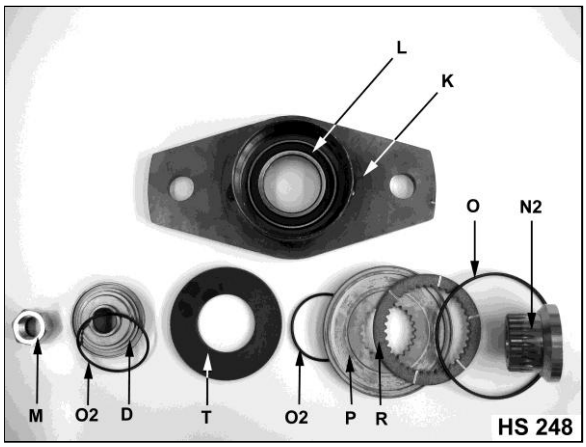


Friction disk coupling

For reducing the starting torque and protecting against damages caused by foreign bodies, the knife carrier is fitted with a friction disk coupling (K).

The centrally arranged nut (M) is to be tightened to the value T = 200 Nm by using a torque wrench. For doing so, the respective row unit is absolutely to be blocked for ensuring to reach the required value.

The torque of the slipping clutch cannot be changed.



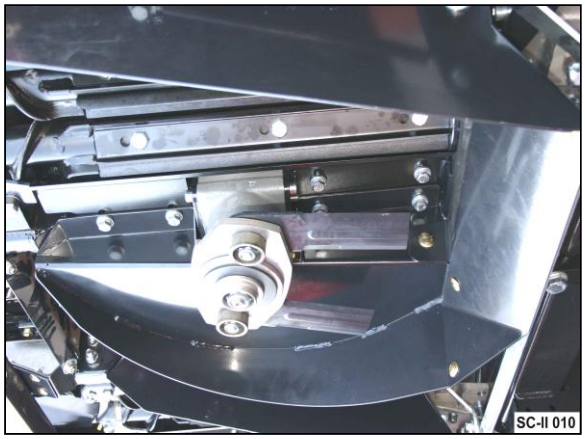
Friction disk coupling

Elements of the friction disk coupling:

(M)	Fastening nut	(P)	Thrust plate
(D)	Thrust ring	(R)	Friction disk
(O2)	O-rings	(O)	Square ring
(T)	Spring disk	(N2)	Hub
(K)	Knife carrier	(L)	Bearing

For assembly order, see page 14 / 220.

Friction disk clutch always to mount using sufficient grease!



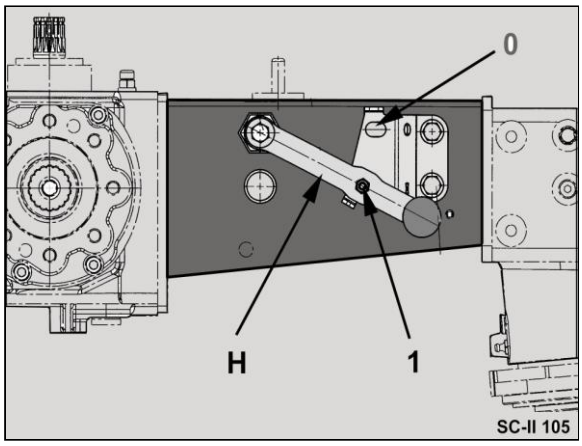
Straw chopper

The straw chopper is arranged to the right of the stripping rollers. The gearbox is driven by the header in-line gearbox, and is maintenance free.

The deflector for cleaning the right-hand rotor is divided. For this reason, the adjustment has to be done separately for the front and for the rear part. The setup values are indicated on page 13 / 002.

Machine bottom must be cleaned from time to time.

The chopper must never be lifted above the regular operational height during test run or idle run. No one is allowed to stay in the close vicinity!



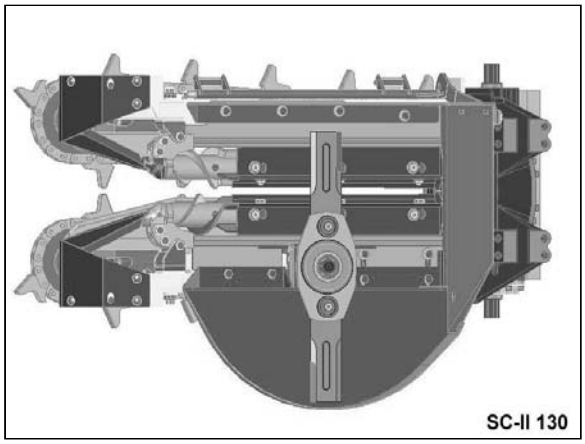
Turning off the chopper

As an option, the chopper drive can be equipped with a switch-off device at each individual header row.

Lift header and protect it from accidental lowering before actuating the control lever!
Turn the diesel engine off!

- Control lever (H) in (0) position: chopper is turned off.
- Control lever (H) in (1) position: chopper is turned on.

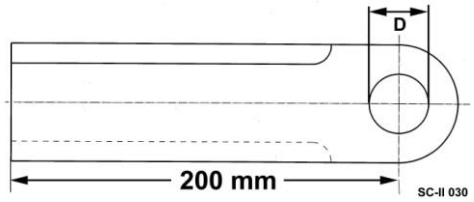
Securely snap in the control lever (H) when switching on. Slightly move the chopper body by hand if required.



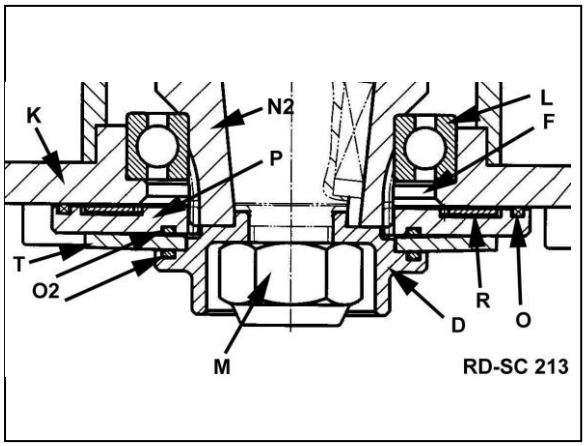
Straw chopper knife

Attention!

Only use genuine chopper knives, order number 506035, for replacement.



Replace worn knives in good time (refer to notes on page 13 / 205)



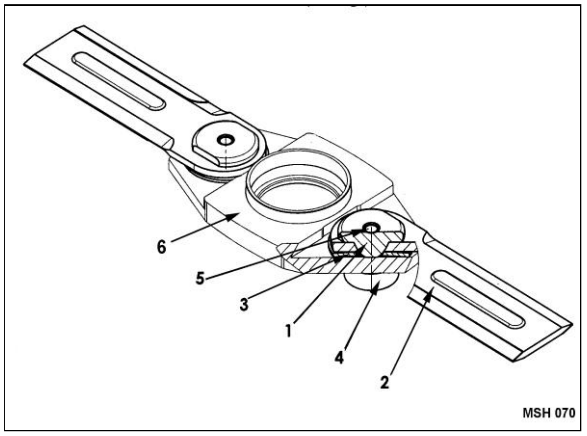
Friction disk coupling

Structure of the friction disk coupling:

(M) Fastening nut
(D) Thrust ring
(O2) O-rings
(T) Spring disk
(N2) Hub
(P) Thrust plate
(R) Friction disk
(O) Square ring
(F) Grease chamber
(K) Knife carrier
(L) Bearing

Important instructions!

- All elements to mount using roller bearing grease!
- Prior to mounting, grease chamber (F) to fill with grease!
- Using a torque spanner, the centrally arranged nut (M) to tighten to the value T = 200 Nm.

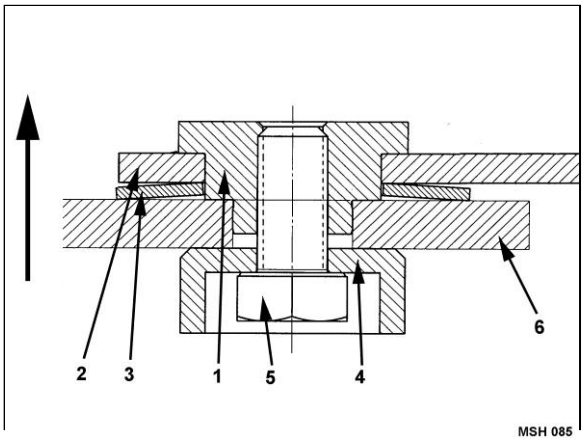


Knife head

For ensuring safe operation of the chopper, it is important to replace worn or damaged parts immediately:

- Check the slipping clutch in the knife holder (6).
- Check the bearing washer (1) and knife (2) for integrity, and loosen and check the knife fastening unit if necessary.
- Keep the disk spring (3) free from corrosion.

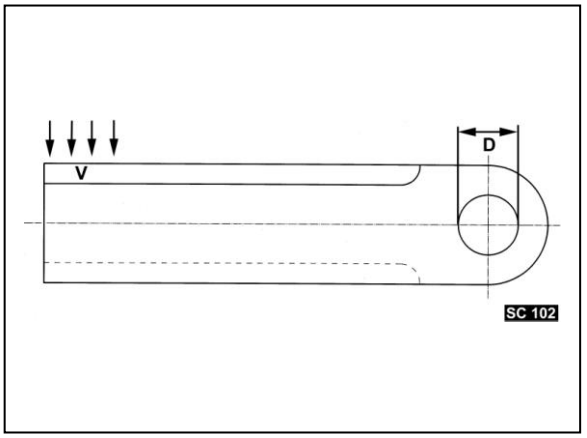
Turn always off the engine and activate the lowering protection when working at the machine!



Knife location

If new knives (2) are mounted, the knife locations (1) must also be replaced.

- The tolerance between knife holder (1) and knife (2) must not exceed 0.2 mm. If this limit is exceeded, replace the respective parts pairwise.
- Secure the arrangement of the disk spring as shown in the diagram. (Make sure that they rest with their outside on the knife holder.)
- Screw (S) to be tightened according to the instructions given on page 36 / 100.
- Use only original spare parts!



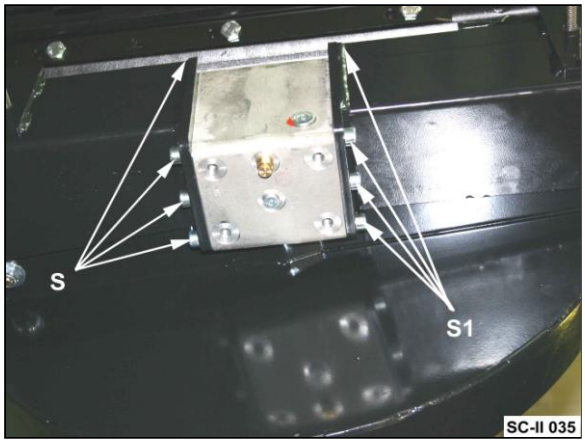
Chopper knife

Replace the chopper knife immediately:

- If borehole (D) shows even just a slightly oval shape,
- If strong wear and tear is detected in area (V) (required force / chopping quality),
- If any knives are bent or show cracks.

Install only equivalent knives with the same weight on each knife head. (Check their weights)

Never operate the chopper with just one knife!



Disassembling the straw chopper gearbox

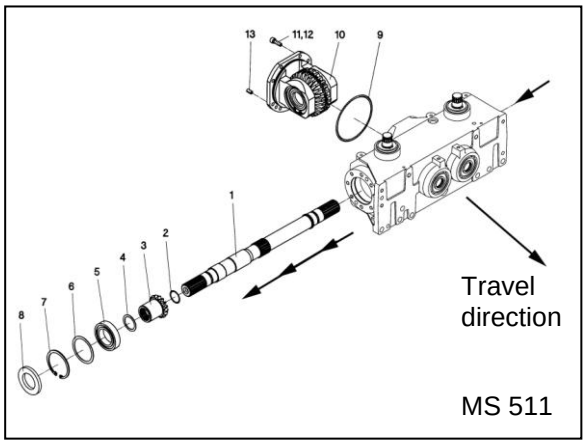
Turn off the engine before starting any work at the machine and activate the lowering protection!

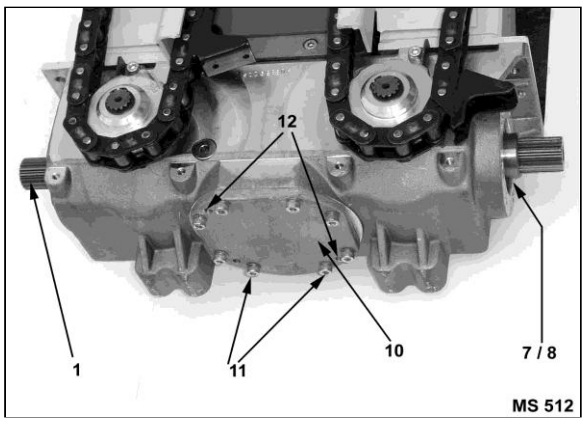
First disassemble knife head (page 13 / 100) as well as all obstructing sheet metal guards and deflectors.

Remove screws (S) and (S1), and pull the gearbox from the drive shaft in driving direction of the machine.

Collect the contained grease! (Environmental protection)

Pull drive shaft off. The row unit gearbox forms an enclosed separate unit, and can also be operated without the chopper drive.

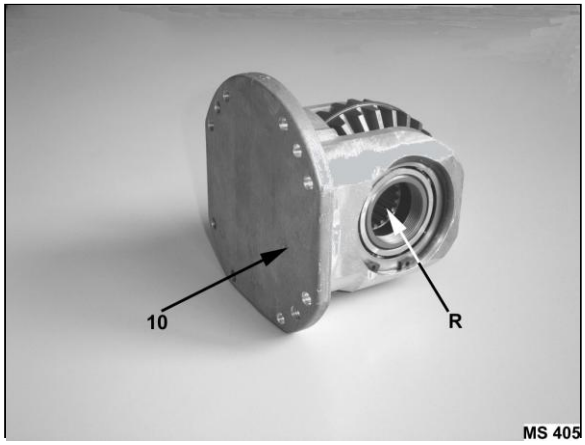




Disassembly of the row unit gearbox

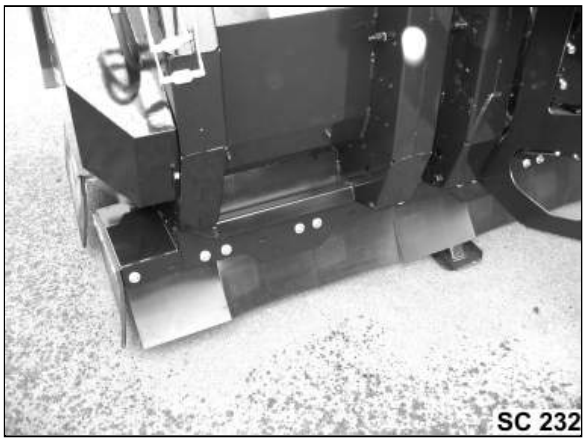
- Oil to drain and collect. Fuel dipstick to remove. (Environmental guidelines urgently to observe!)
- Retaining ring (8) only right-hand (seen in travel direction) to remove). Is damaged during disassembly and must be replaced.
- (7) Retaining ring only right-hand to remove.
- Shaft (1) to drive out of the gearbox from left to right using a suitable tool.
- All screws (11) of the plug-in unit (10) to remove.
- The box cover (10) is fitted with two threaded bores to be used for extracting the plug-in unit. Screws to (11) turn uniformly into the plug-in unit until the plug-in unit can be removed by hand.

The further gear disassembly is only possible by using special tools and detailed information gathered before!
Works to be performed by an authorised special shop only



Disassembly of the slipping clutch

- The plug-in unit (10) is fitted with the safety clutch (R) located within the bevel gear wheel.
- If the slipping clutch (R) requires to be exchanged, the plug-in unit (10) is completely to be replaced.
- When remounting the plug-in unit (10) attention is to be paid that the sealing ring (9) is undamaged and the right position of the stripping rollers as described on page 12 / 645 taken.



Protective covering for straw chopper

Prior to every commissioning the rubber protective covering is checked for being complete and undamaged. In case of potential damages, first to check the reason for the damage.

To check!

- Completeness and integrity of the chopping knives
- Balance and/or concentricity of the chopping knives
- Sufficient bottom clearance

Damaged or lost guards immediately to replace.

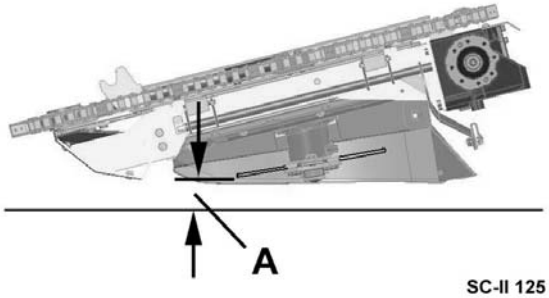
Lateral straw chopper - guard

It may happen on certain header models and special row distances that right or left or even right and left the chopping knives run close to the outer covering.

A special guard prevents from the contact with the rapidly rotating chopping knives.

Ensure the completeness and integrity of the guards.

If the drive is turned on and the engine running, keep sufficient distance to the chopper knives!



Bottom clearance of the straw chopper

Before the first use, bottom clearance must be checked for being correct in effective working position.

The distance (A) between knife head and arable soil in working position should not be less than about 100 mm.

If this value is not reached, the setting angle must be regulated.

For changing the setting angle see page 09 / 843.

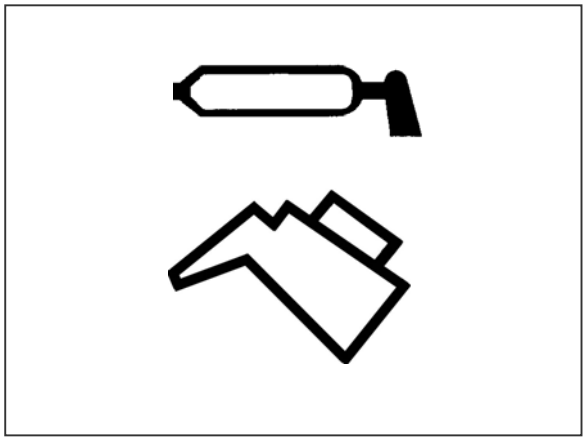
Air filter and
other sensible components and parts to clean once the day!

Formation of dust

For physical reasons a certain formation of dust close to the bottom cannot be avoided on horizontally working choppers.

Apart from that, subject to its nature, chopping material flying around, can impair one or the other function of the thresher.

For that reason, it is of importance to clean air filter and similar as well as other sensible parts (piston bars of the hydraulic cylinders etc. in regular intervals.



Recommended lubricants

Transmission:
Lubricant: **SAE 90 API-GL-4** (or better)

Hydraulic system:
According to the instructions of the combine manufacturer

Lubricating nipple in general:
Lubricant: Rolling bearing grease: KP2 *(or better)*

General instructions

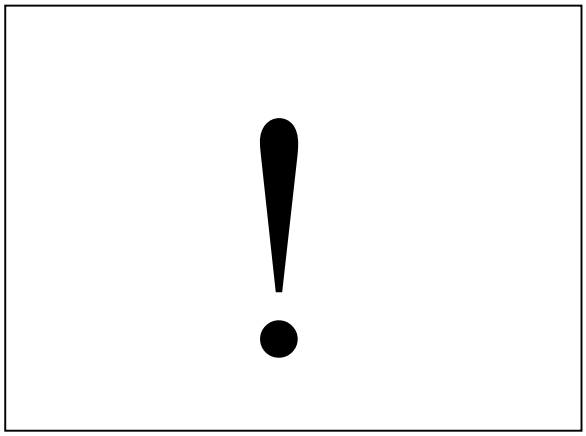
It is a general principle to grease and to service all moving parts within the usual scope of general machine construction.

Regular cleaning and removal of deposits contribute to the conservation of value and to operational safety.

Component parts not particularly indicated and being subject to a regular or an irregular movement also have to be oiled or greased from time to time.

After completion of harvest, all the metallically bright machine parts are to be reliably protected from rust.

Lubricant: Oil (commercially available)



Storage

Recommendation:

After completion of harvest, perfectly clean the machine from harvested products and other residues.

Leave the cleaning flaps and service holes open during the time of storage in order to avoid damage to cables and lines by rodents (mice, etc.).

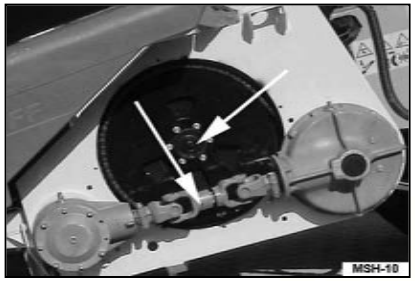
Disposal

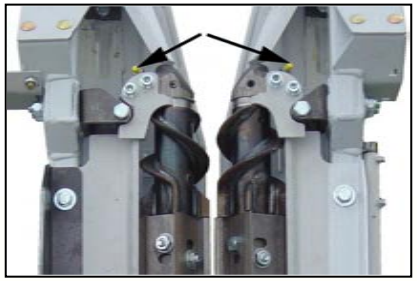
Pay attention to the fact that consumables and supplies as well as component parts will be disposed of appropriately and environmentally friendly.

Also pay attention to the fact that no consumables (oils, greases or other consumables that may pollute groundwater) will get into groundwater or seep away in the soil.

Should you have any questions concerning disposal, please contact your local specialist disposal company. We expressly point out that during disposal you have to wear your personal protective equipment.

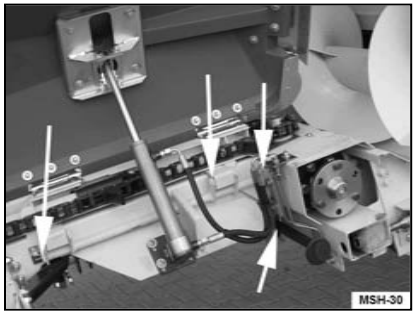
MSH



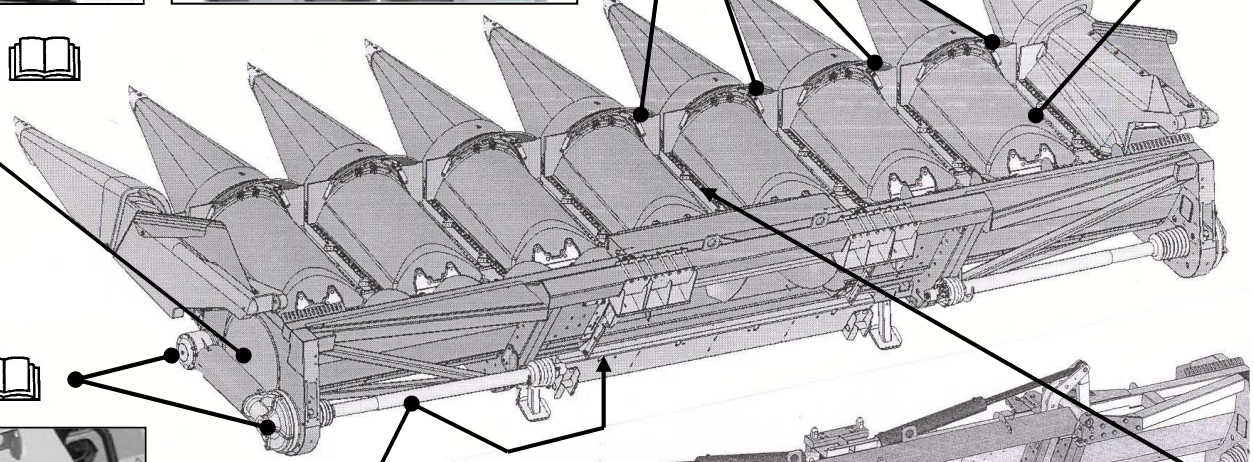


4 x 10 h

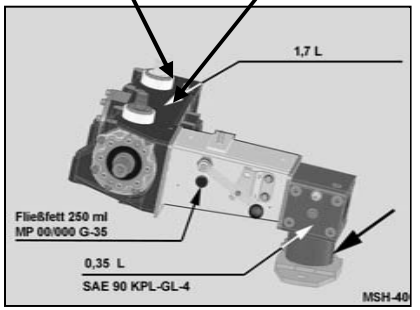
1 x 50 h
Air

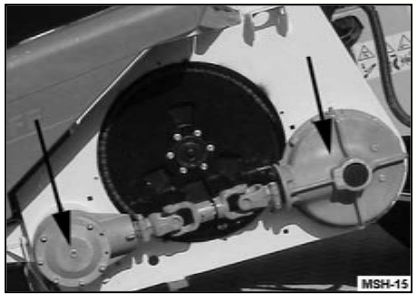


2 x 250 h



2 x 500 h

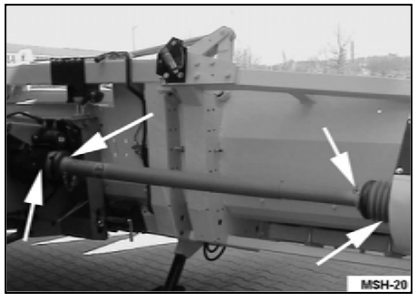


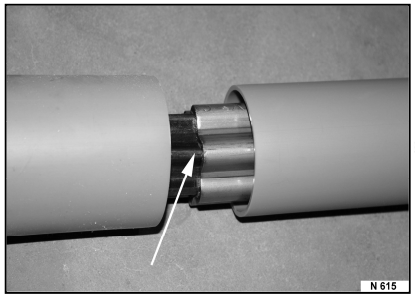


2 x 100 h

2 x 15 h

2 x 100 h

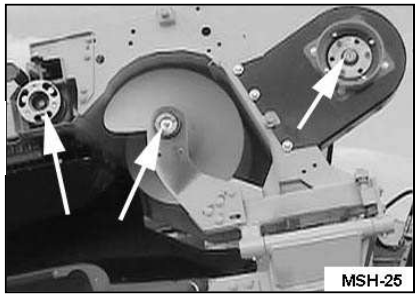


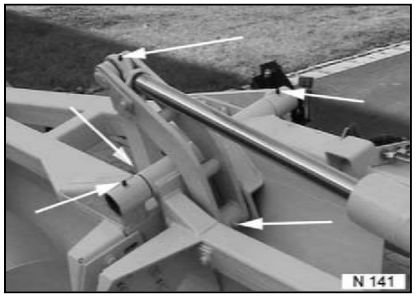


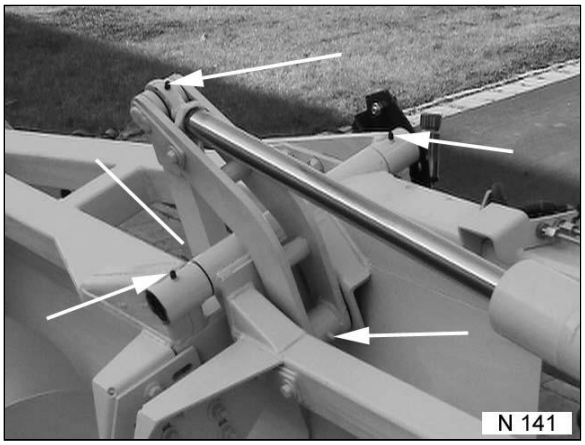
2 x 50 h

1 x 100 h

Air







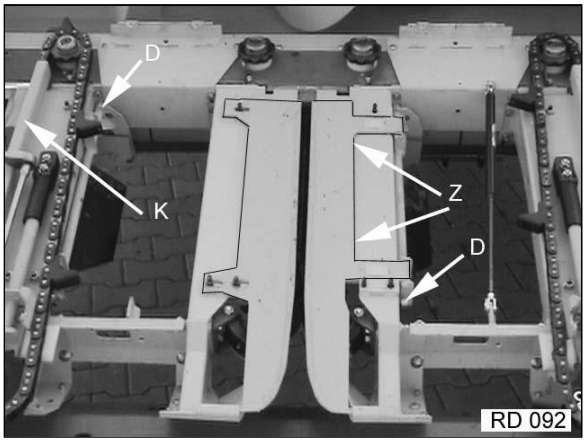
Cleaning after the harvest season

Once finished quite a dry harvest season, a dry cleaning is recommended using only compressed air.

If the machine was exposed to humidity with thus getting strongly soiled, a high-pressure cleaner should be used.

First, the shields and gathering chains to take off and all bearings lubricated.

← Greasing points 100 h

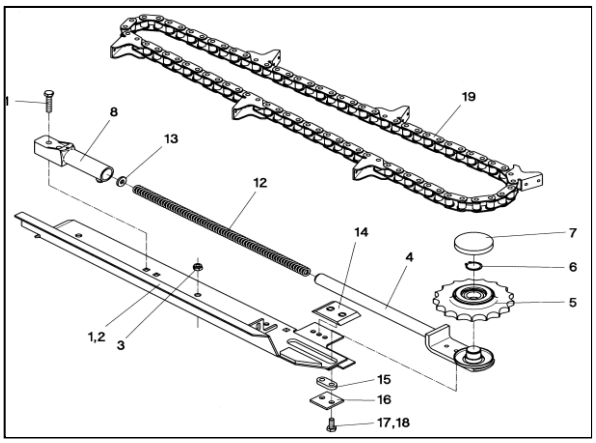


Stripping plates

When cleaning the machine, the stripping plates must be moved quite often for removing dust and maize remainders out of the pushing channels (Z).

If the machine is cleaned with water, the chain guides (K) to remove and the pushing area (Z) of the stripping plates to clean and protect against corrosion.

The pivots (D) should be oiled or greased.

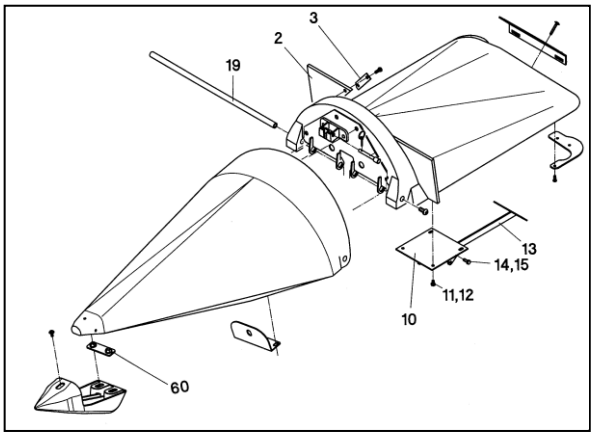


Gathering chains

Prior to winterizing the header, the gathering chains should be protected against corrosion using an adequate oil.

In the season to follow, the right and left chains should be changed to get a uniform stress.

See page 09 / 480



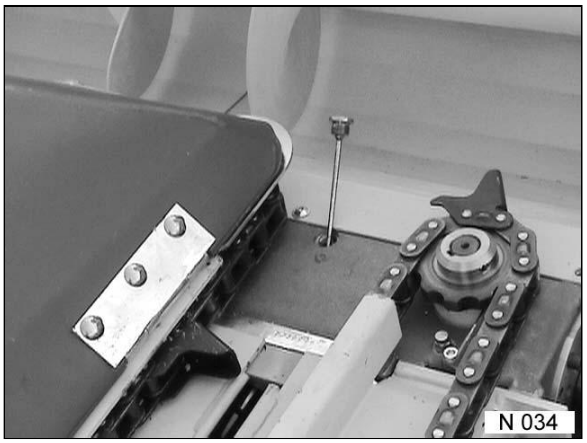
Plastic bodywork

The plastic elements do not need a special care.

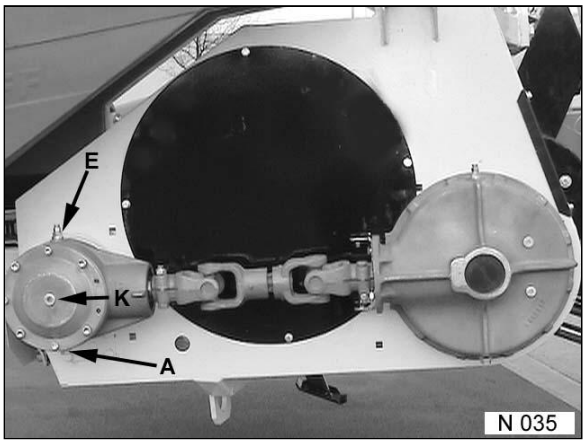
However, they should be stored free from distortion if the bodywork is not mounted to the machine.

Ensure that the shield extension rubbers (2) don't get deformed.

If required, metal parts are to be protected against corrosion.



1 Liter = 0,26 Gallons (US)



Row unit transmission

Lift Maize header to a height of about appr. 40" / 1 m to allow the lowering protection to engage.
Switch off Diesel engine!

The oil level is controlled by a standard dip stick on the oil filling plug.

Position when checking: Header lifted to about 1 m.

Filling level: 1,7 l gear oil SAE 90 API-GL-4 (or similar)

Changing interval: 50 h from start-up, then once before each harvesting season but the latest after 500 h.

Oil drain plug (not visible) is fitted with magnet, which must be cleaned at each oil change.

Angular transmission

Oil level control of angular gear via central gauge plug (K).

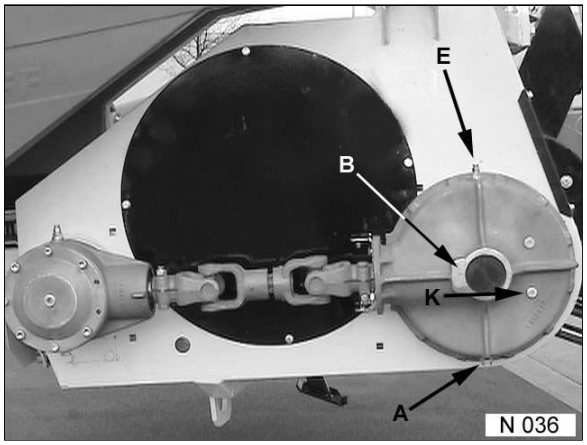
Filling level: 1,5 l gear oil SAE 90 API-GL-4 (or similar)
Fill to level of the gauge plug (K).

Changing interval: 50 h from start-up, then once before each harvest but the latest after 300 h.

Oil drain plug (A) is fitted with magnet, which must be cleaned at each oil change.

On folding header, in folded state, ventilation plug (E) to be checked for possible leakage in regular intervals.

Check oil-level regularly.



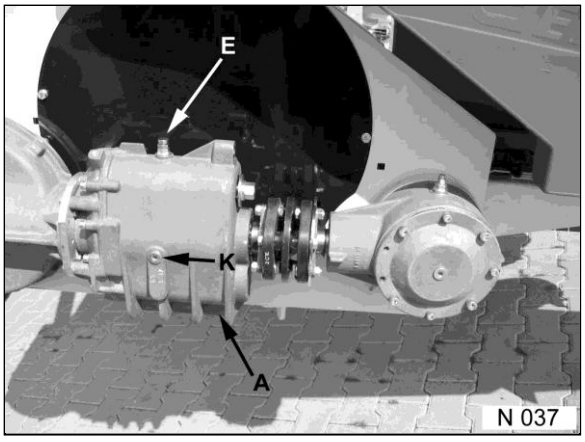
Crown wheel gearbox (Oil-check)

Check oil-level at the lower-oil-level plug (K) (below Gearbox-Centre)
Fill with 1,5 ltr. for Crown wheel-type Z= 37 - 64 teeth
Fill with 2,0 ltr. for Crown wheel-type Z= 32 - 34 teeth
Fill up with gear oil SAE 90 API-GL-4 (or similar) to level of oil-level plug (K)

Crown wheel-type (No. of teeth) is marked on surface (B) or on a special-type plate. Change Oil after first 50 working hours and before each new harvesting season, but latest, after 200 working hours. Drain-plug (A) is fitted with magnet, clean magnet at every oil change.

Test Breather-Plug (E) frequently for leakage, in folded-up position on fold-up headers

Check oil-level regularly.



Speed-change Gearbox 2, 3 or 5 gears (optional)

Oil level control via gauge plug (K).

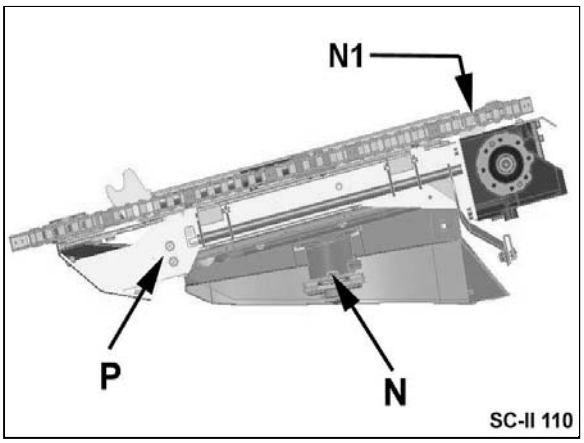
Filling level: 1,5 l gear oil SAE 90 API-GL-4 (or similar)
Fill up to level of the oil-level gauge plug.

Changing interval: 50 h from start-up, then once before each harvesting season but the latest after 200 h.

Oil drain plug (A) is fitted with magnet, which must be cleaned on each oil change.

On folding header, in folded state, ventilation plug (E) to be checked in regular intervals.

Check oil-level regularly.



Lubricating points

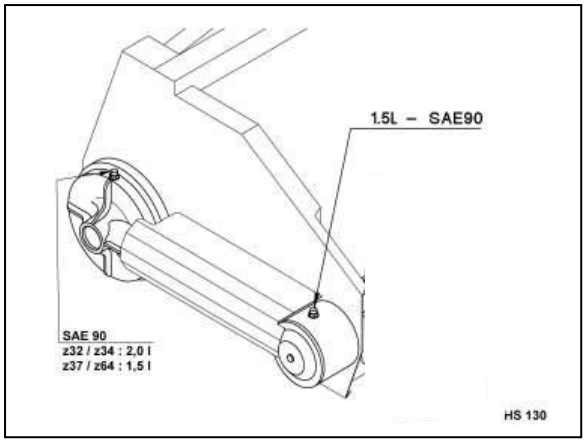
Lubricating points are located as follows : (hours)

Row units:	on front bearing (P)	(15)
Chopper gear box:	(N)	(15)
Gear box:	Gathering chain drive (N1)	(500)*
Articulated shafts:	general	(100)
Articulated shafts:	tubes and spline ends	(200)
Folding mechanism:	articulations and pivot points	(100)
Shaft coupler:	spline ends / flange	(200)

The lubrication intervals are shown in brackets in hours.

After each cleaning the machine should be relubricated and put into operation for a short while.

* Depending on the model



Gearbox

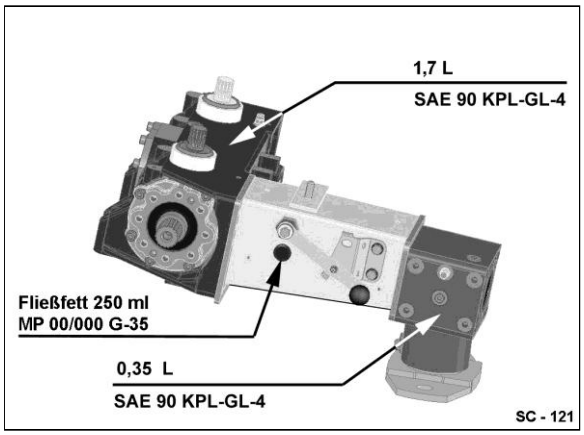
Gearbox oil: SAE 90 API-GL-4 (or similar)

Filling amounts:

Contrate gear:
2,0 l for gear set equipment z=32-34 or
1,5 l for gear set equipment z= 37-64
to be filled in horizontal position up to the exit on measuring hole.

Angular gear:
1,5 l up to the exit on measuring hole.
Changing intervals: 50 h after start-up, then once before every harvest, but after 200 h at latest.

Drain screw (A) is fitted with magnets, which are to be cleaned on every oil change.



Row unit gearbox (brief version)

Gearbox oil: SAE 90 API –GL-4 *(or better)*
Quantity: 1.7 litres; is measured with the dip stick when the header is in horizontal position.

Jack-shaft case

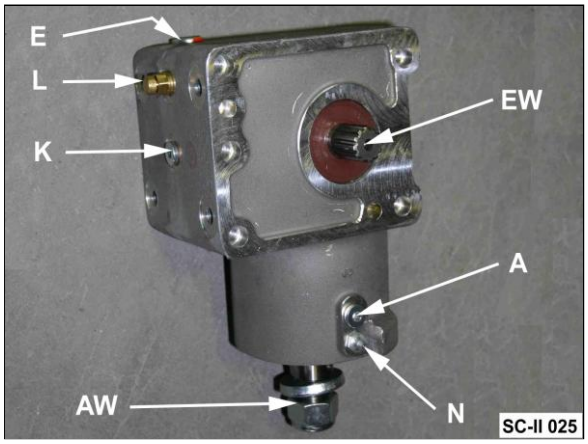
Ex works filled with low viscosity grease, 250 ml of MP 00/000 G-35 (or similar). Check once per year! Check plastic plug for leaks. Replace if required.

Chopper gearbox

Gearbox oil: SAE 90 API –GL-4 *(or better)*
Quantity: 0.35 litres

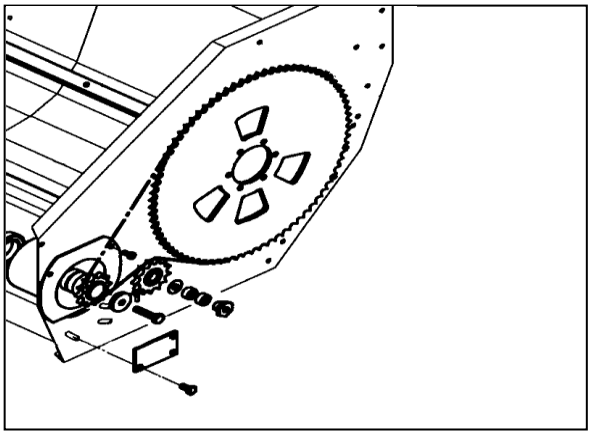
Oil change intervals: Initially 50 h after commissioning; subsequently once before each harvest - but after 200 h, at the latest.

Drain plugs are equipped with magnets, which should be cleaned with each oil change.



Inspect the oil level!
Check venting screws at the folding rows for leaks before putting machine into winter storage.

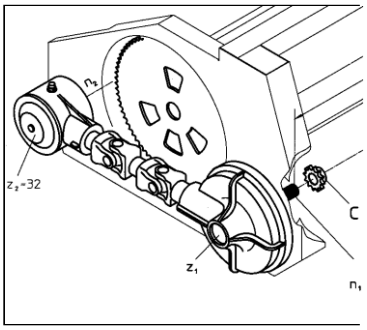
(E) Filling screw.
(L) Venting screw.
(K) Inspection screw for level inspection in horizontal position. Initial oil change after 50 h, then every 250 h.
(A) Oil drain plug.
(N) Grease nipple for meander seal supply: roller bearing grease KP2K-30 *(or better)*. Interval: every 15 h.
(EW) Input shaft
(AW) Drive shaft for holding the chopping knife retainer.

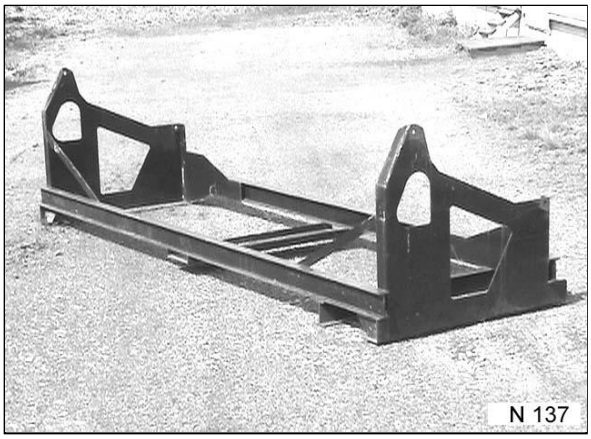


Roller chains

The only roller chain mounted for the cross auger drive must be kept rustfree when winterizing the header.

The recommendations for the roller chain care to follow.





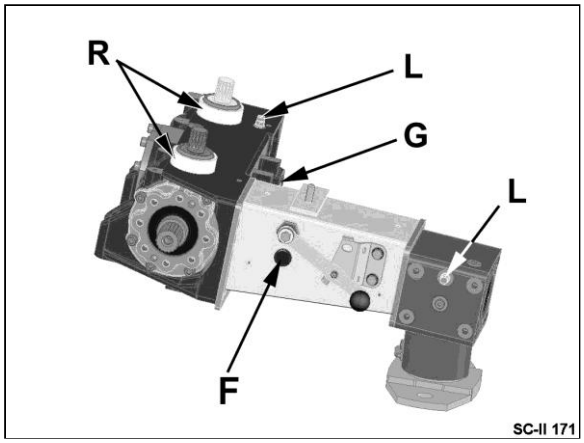
Storage

The maize header best to be stored in a well ventilated hall either upright in the transport rack or on a dry ground.

All metallic and bright parts should be protected against corrosion.

Only use load handling devices in accordance with their intended purpose. Any modification or use with other machines is prohibited.

Maize header not to store in lifted state on the combine.
Prevent the combine tires from unnecessary loads.



Row gear box

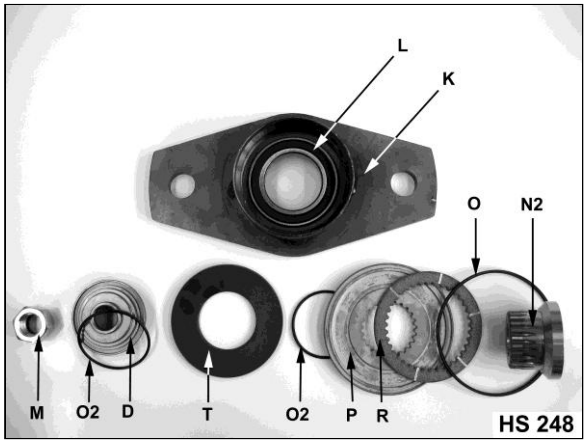
Check plastic rings (R)

Check air valve (L)

Grease bore before mounting rotors (G)

Check grease (F) (see page 13 / 405)

Recommended lubricants
(see page 13 / 405)



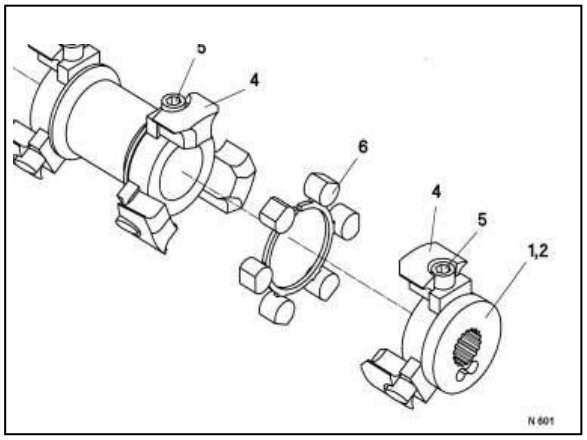
Friction disc clutch of the chopper

After a longer time of stocking, cleaning of the machine with water or caused by penetrating humidity during the harvest, corrosion may occur between the friction disc (R) and the clutch surfaces.

Corrosion and rust change the response characteristics of the friction disc clutch.

It is recommended to ensure the reliability of the clutch before harvest start. To mount with grease filling!
See page 14 / 200.

Check to perform only mechanically by using a mounting lever if the row unit is blocked!



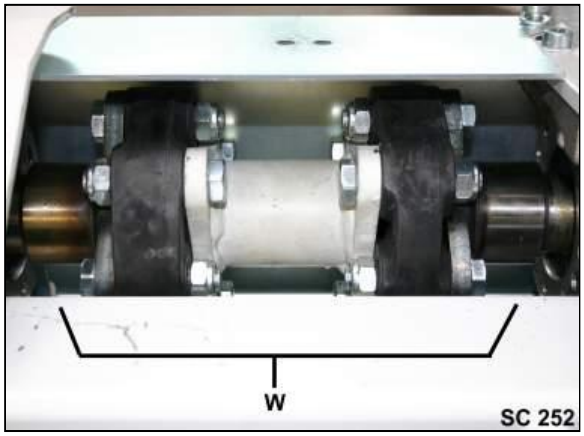
Centaflex drive connections

The well-protected drive connections between the row units should be checked in regular intervals for their state.

In particular on those row units, which are located first behind the main drive a check of the elastic elements (6) and cams (4) is of great importance.

The screw (5) to tighten with Loctite (medium strength) according to the table on page 36 / 100.

Attention!
On six row machines between row 5 and 6 there is mounted a drive connection via Hardy-discs.
(seen in travel direction from left to right).



MS-SC six and twelve rows

Following the first row unit arranged on the drive end, all maize headers with six row units are fitted with a special reinforced shaft connection (W).

Check screws and elastic elements.

Prior to working on the machine, Diesel engine to turn off and header to secure against unintended lowering!

Hydraulics

Trouble:	Cause:	Remedial action:	Page:
Maize header cannot be lifted	Not enough hydraulic oil	Oil to refill	09/200
	Lifting force too low	Additional lifting cylinder required	09/120
Hydraulic functions of the header don't work	No flowing-through in the hydraulic connections	Connections / couplers / screwings to check	09/200
	Transport protection blocks folding process	Transport protection on 8 and/or 12-row header to remove	09/060
	Optional: Control valve does not work	Control valve to check	09/200
	Insufficient pressure of the hydraulic system	Pressure to check, if allowed to increase	Combine manual
	Locking blocks	Locking and/or reversing valve to readjust	09/240
	Not enough hydraulic oil	Oil to refill	09/200
Folding header does not close on point of separation	Foreign bodies hinder folding process	Foreign bodies or maize remainders to remove	09/240
Folding shields do not close	Locking not made	Locking and/or reversing valve to readjust	09/240
Folding shields open automatically	Control valve does not close reliably	Control valve to check, correct operation to secure	09/200
Folding process is not quick enough	Combine is possibly fitted with a throttle in the reel horizontal adjuster	If allowed, throttle to remove Hydraulic pump to check	Combine manual

Drive

Trouble	Cause:	Remedial action:	Page:
Drive is turned on but does not turn	PTO-shaft	PTO-shaft to check	09/160
	PTO-shaft coupler does not engage	Locking not made, coupling halves to check for complete engaging	09/160 09/240 09/280
	Driver of the drive coupler defective	Drivers to check	09/645
	Coupler does not engage	Alignment to check Slider to make moving	09/645 09/280
Header stops during operation	V-belt not tensioned	Drive to check	Combine manual
	Overload	Working speed to adapt	

Trouble:	Cause:	Remedy:	Page:

Stripping unit

Header stops during the harvest	Sluggishness	Stubble cutter knife distance too great	13/002
	Working speed too high	To adapt	
Rotors are blocked	Stripper	Stripper to adjust	13/002
	stripping knives	stripping knives to change	13/002
Slipping clutch of the row unit does not react	Foreign bodies	Foreign bodies to remove, wearing to check	13/002 09/827
	Overload	Working speed to reduce and/or speed to increase	35/011 09/606
Straw portion too high	Stripping plates	Stripping plates to open as far as possible	09/525
	Working speed	Working speed to adapt to the conditions	
Cloggings within the row unit	Parallelism of stripping plates wrong	Stripping plates to adjust	09/480
	Gathering chains slip	Chains to replace or shorten	09/525
	Foreign bodies in or beneath the row unit	To remove, dragging maize chaff to remove	
	Speed too low	Check via monitor	09/606
	Cut-off block	Missing or defective	13/081
Maize cob losses	Speed too high	To reduce, if required	09/606
	Shield extension rubber	Missing or defective	35/040
	Cob saver	To mount in addition	35/040
	Working speed	Considerably to increase	
	Outer bodywork	Increases to mount	35/015
	Row distance	Machine to adapt to the conditions	
Grain losses	Stripping plates	To adjust narrower	09/480
	Speed	To reduce, if required	09/606
	Refeeding from gathering channel conveying chain	Abdeckung oberhalb der Querförderschnecke niedriger einstellen	09/760 Combine manual
	Working speed	To increase until header is better filled with material.	

Malfunction: Cause: Resolution: Page:

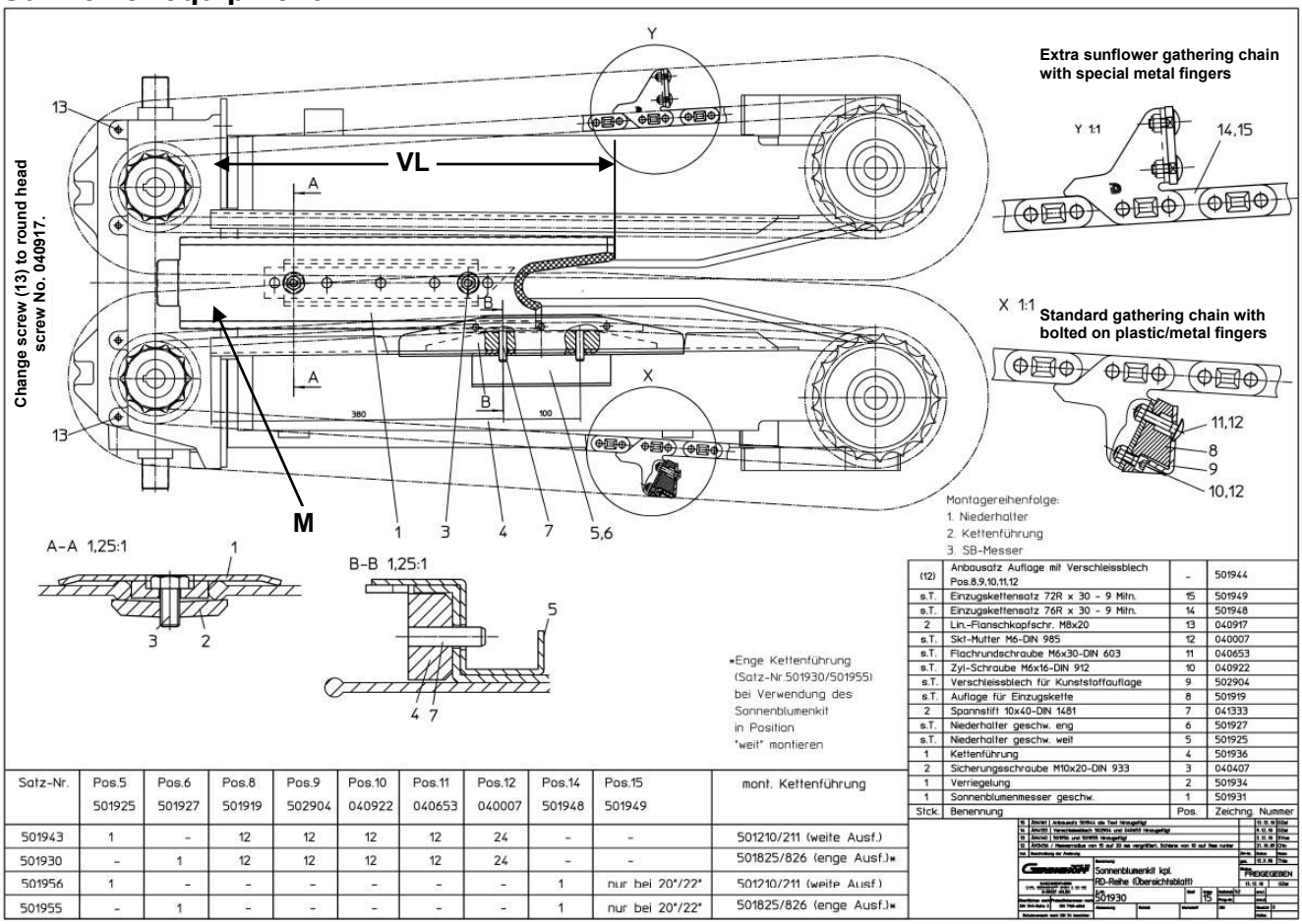
Header MAIS STAR* Horizon (continuation)

Gathers not enough lodged crop	Divider noses at a too steep angle	Adjust at a lower angle, put header closer to the ground	09/862
	Distance between rows	Unsuitable	
	Operating speed	Reduce speed	35/011
Header plates are blocked	Dirt/debris	Clean the mechanism, open and close plates alternatingly several times a day	13/401
	Throttle valve inside shifting cylinder	Clean	09/442
	Hydraulic supply line	Check	09/442
	Retaining spring	Clean or readjust	09/480
	Basic setting	Check	09/480
Bottom of straw chopper frequently hits the ground	Operating height too low	Readjust operating height	09/862
	Working angle misadjusted	Check working angle	09/862
	Lifting system / sensor skids don't work reliably	Check	
Bottom straw chopper is winding material	Knives are blunt	Replace knives	13/205
	Speed (RPM) too low or decreasing	Check speed	09/606 09/442
Bottom straw chopper is imbalanced	Knife damaged or uneven	Replace damaged or worn knives	13/205
	Knife retainers worn	Immediately replace parts	13/205
Straw is insufficiently chopped	Knife is worn	Replace knife, check knife retainer	13/205
	Working speed too high	Readjust speed	
	Unsuitable distance between rows	Readjust distance between rows	
Bottom straw chopper can't be turned by hand	Knife head seal is blocked by maize straw	Clean Check gearbox	13/100
	Stones, iron pieces, etc.	Immediate inspection required	13/205
Straw chopper was hit by foreign bodies	Insufficient chopping quality	Use only genuine parts and install them only in pairs	13/205
Chopping knives show signs of wear	Imbalanced weight of knives	Install only in pairs after reviewing their weight	13/205
Cracks and vibrations	Imbalance	Eliminate imbalance	13/205
Bent chopping knives	Contact with foreign bodies	Immediately replace knives	13/205

Trouble:	Cause:	Remedy:	Page:

Cross conveying auger

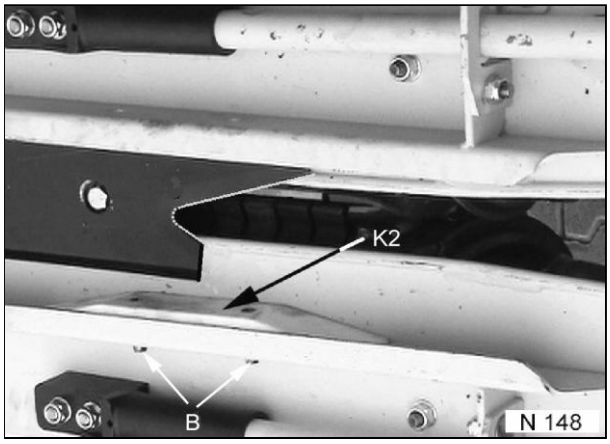
Cross conveying auger stops during operation	Overload	Material quantity to reduce Chaff portion too high	
	Sliding clutch responds	Foreign bodies to remove Stripper to check	09/827
	Drive	Chain and clutch to check	09/725
	Original combine splashboard mounted in front of the gathering channel	Splashboard to remove	09/080
Auger half of folding header stops	Driver clutch	Adjustment and gearing to check, axial spring-loaded half to check for function (lubrication)	09/760
	Locking of the header	Exact locking to assure	09/240
Auger ejects maize cobs out of the machine	Speed	To check via monitor	09/442
	Position of the conveying aids	Position to check via table	09/725
	Insufficient feeding	Advance to increase	

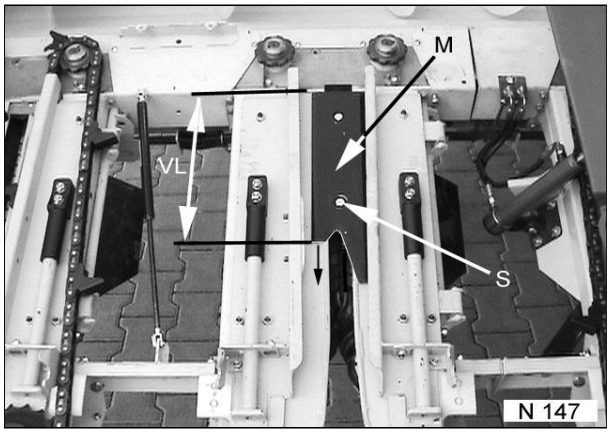


Satz-Nr.	Pos.5 501925	Pos.6 501927	Pos.8 501919	Pos.9 502904	Pos.10 040922	Pos.11 040653	Pos.12 040007	Pos.14 501948	Pos.15 501949	mont. Kettenführung
501943	1	-	12	12	12	12	24	-	-	501210/211 (weite Ausf.)
501930	-	1	12	12	12	12	24	-	-	501825/826 (enge Ausf.)*
501956	1	-	-	-	-	-	-	1	nur bei 20°/22°	501210/211 (weite Ausf.)
501955	-	1	-	-	-	-	-	1	nur bei 20°/22°	501825/826 (enge Ausf.)*

Stck.	Benennung	Pos.	Zeichng. Nummer
(12)	Anbausatz Auflage mit Verschleissblech Pos.8,9,10,11,12	-	501944
s.T.	Einzugskettensatz 72R x 30 - 9 Mtn.	15	501949
s.T.	Einzugskettensatz 76R x 30 - 9 Mtn.	14	501948
2	Lin.-Flanschkopfschr. M8x20	13	040917
s.T.	Skt-Mutter M6-DIN 985	12	040007
s.T.	Flachrundschraube M6x30-DIN 603	11	040653
s.T.	Zyl-Schraube M6x16-DIN 912	10	040922
s.T.	Verschleissblech für Kunststoffauflage	9	502904
s.T.	Auflage für Einzugskette	8	501919
2	Spannstift 10x40-DIN 1481	7	041333
s.T.	Niederhalter geschw. eng	6	501927
s.T.	Niederhalter geschw. weit	5	501925
1	Kettenführung	4	501936
2	Sicherungsschraube M10x20-DIN 933	3	040407
1	Verriegelung	2	501934
1	Sonnenblumenmesser geschw.	1	501931

Sonnenblumenkit kpl. RD-Reihe (Übersichtsblatt) 501930 FREIGEGEBEN





Cutter to mount

Release right-hand gathering chain and fit plastic block (K2) Pos.(4) .

Holding down device for gathering chain to put on pin (5), see ill.

Open stripping plates so far that premounted knife (M) can be pushed in, see above graph (ill. A-A) and also (ill. N 147 (M).

Measurement (VL) in above graph, min. 510 mm, max. 600 mm, allows for an individual axial knife setting. The more the knife is pushed rearwards the stronger the rotors start pulling the sunflower through. Consequently, the knife ought to be pushed forward so far that the sunflower head, if possible, won't be pushed downwards too much.

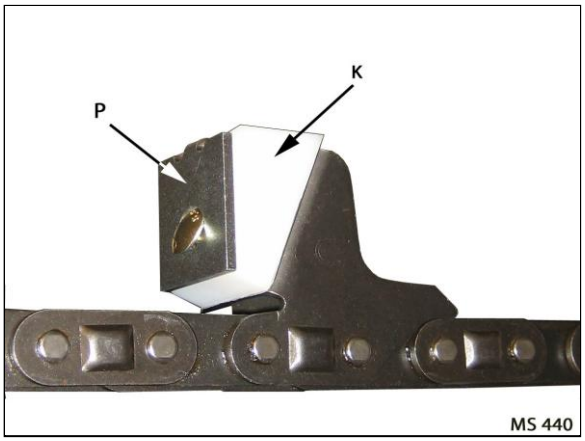
It must be avoided that the sunflower head gets in touch with the chains before the stalk has been cut off.

Close the stripping plate and tighten screws (S) .

In case of foldable headers (=>12 row units) with double-acting hydraulic system for the plate regulation, ball valve on additional valve to close (see page 09 / 481, ill. N630).

Holding-down device for gathering chain is not shown on the photos.

Prior to working on the machine, Diesel engine to be switched off.



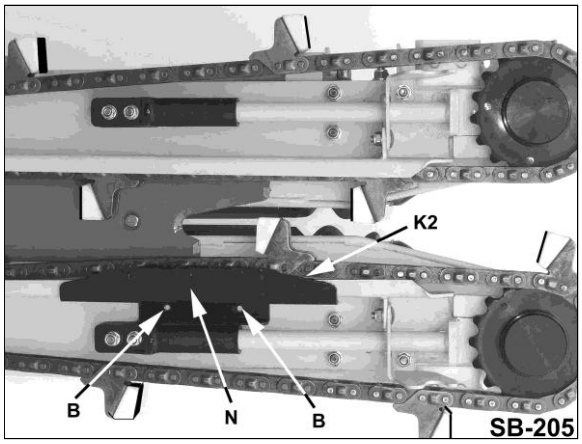
Plastic finger extensions

To improve the material transport and to obtain a better feeding angle, the plastic blocks (K) with metal plate (P) as shown in the illustration, must be mounted on all chain fingers with the enclosed screws.

Attention!

For the harvest of maize and sorghum, the plastic blocks (K + P) must be removed again

Prior to working on the machine, Diesel engine to be switched off.



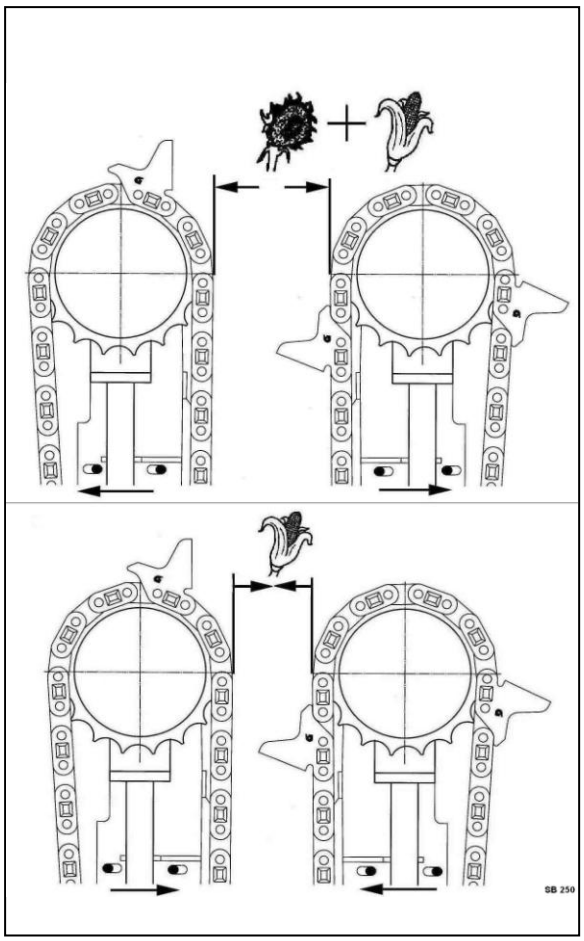
Stripping row for the sunflower harvest

The holding-down device (N) for the gathering chain is not shown on opposite illustration.

Prior to mounting the plastic block (K2), first the holding-down device (N) (see graph on page 35 / 000) to be put in behind the chain guide so that the pins (B) of the plastic block secure also the holding-down device (N).

Attention!

For the harvest of maize, the plastic blocks (K), the plastic block (K2) and the holding down device (N) must be removed again.



Position of the gathering chains

The standard setting of the gathering chains for the harvest of maize and sunflowers is „WIDE“; see opposite graph with the symbol.

For references to the adjustment see page 09 / 520.

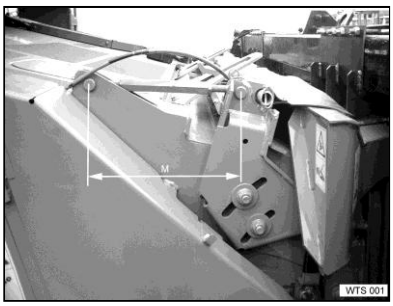
The setting „NARROW“ with the symbol can only be used for the maize harvest.

Setting angle of the header to reduce

The function mode of the maize header for the harvest of sunflower can strongly be improved when setting the angle as flat as possible.

The combines are very often fitted with a cutting angle adjustment, which allows achieving this improvement with ease.

The angle can also be changed directly on the header (see page 09 / 850). However, this is suitable only for the harvest of large areas, since the assembly takes a certain time.



The following steps urgently to be taken

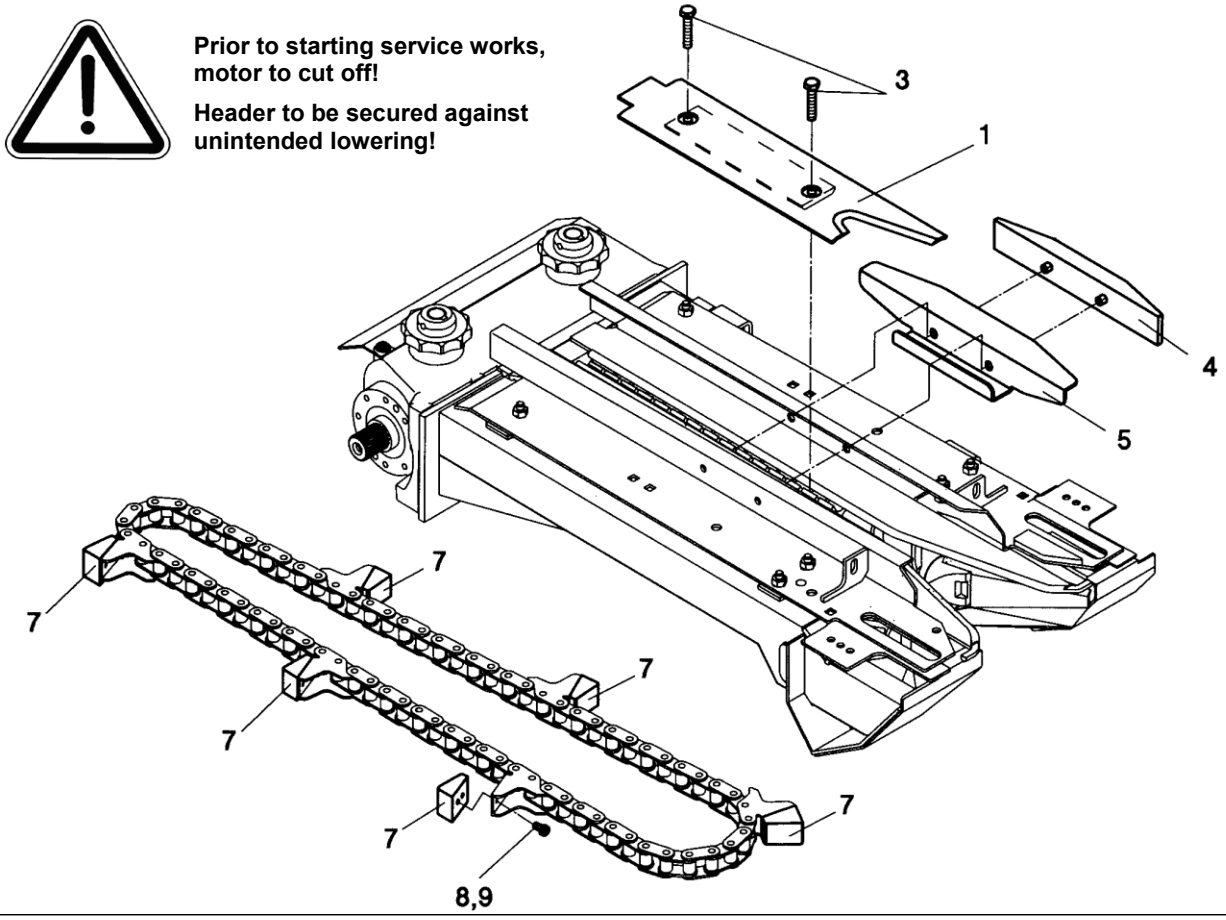
Subject to the order, the maize header can be supplied with completely mounted sunflower harvest equipment.

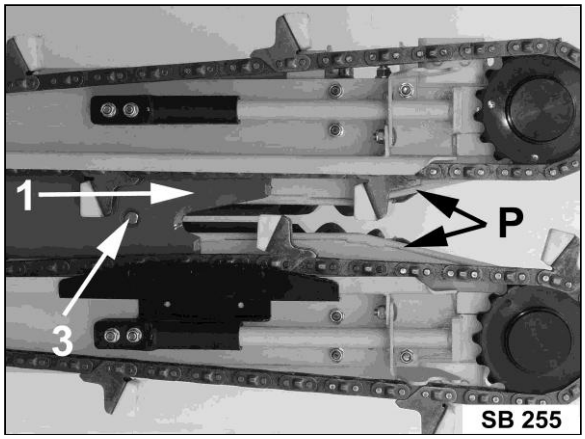
For this reason, the following backfittings are urgently required to be made:

1. Plastic drivers (7) of the gathering chains to remove
2. Holding-down device (5) of the gathering chains to remove
3. Plastic block (4) behind the gathering chains to remove
4. Special knife (1) to remove
5. Speed to change over to maize (maize n=780-800)
6. Gathering chains spacing to set (see page 35 / 002 and 09 / 525)
7. Setting angle to change to maize (see page 35 / 002 and 09 / 862)

Prior to starting service works, motor to cut off!

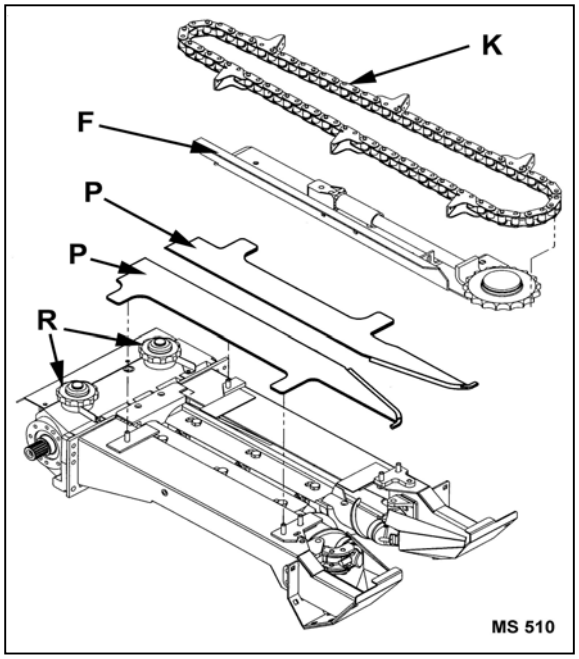
Header to be secured against unintended lowering!





Procedure

- First, gathering chains to disassemble (see page 09 / 525)
- Then, plastic block (4) and thereafter holding-down device (5) to remove
- Special knife screws (3) to loosen until underneath holding plate has clearance
- Stripping plates (P) to open hydraulically. Monitor has to indicate the most distant position (see page 09 / 442, all diodes from green to red are flashing)
- Special knife (1) to be pulled out in parallel to the stripping plates using a suitable tool
- Stripping plates to be closed again for maize harvest



Sunflower cutting knives to mount

Prior to working on the machine, Diesel engine to turn off and header to secure against unintended lowering!

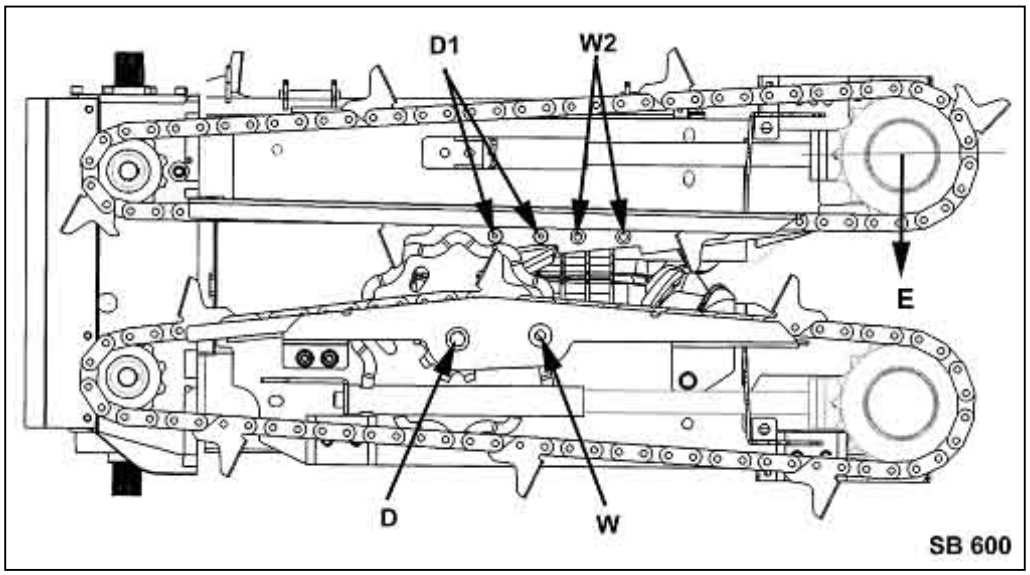
Gathering chains (K) see page 09 / 525, chain guide (F) and stripping plates (P) each row unit right and left to remove.

Once removed the shaft protection, chain slipping wheels (R) to remove using an adequate extractor.

Chain wheels contained in the sunflower kit to mount using grease or oil. Then, chain wheels to be securely fixed via shaft protection.

Attention!

The original chain wheels (see ill. MS 510 (R)) **must urgently be mounted again for the later maize harvest, since otherwise the row unit gear would not longer be protected against overload.**



D = Knife position for dry harvest conditions

W = Knife position for humid harvest conditions

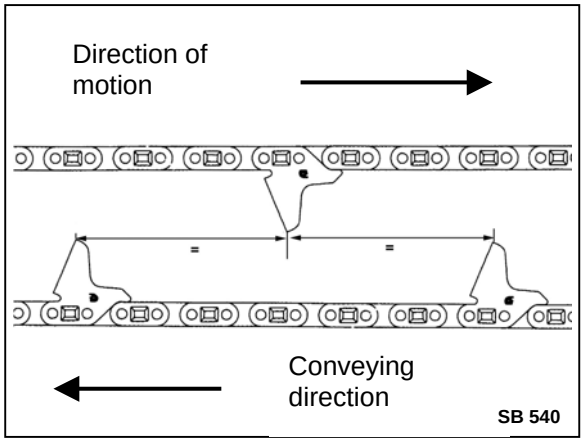
D1 = Knife disk position for dry harvest conditions

W2 = Knife disk position for humid harvest conditions

Attention! Positions (W + D1) and/or (D + W2) not to mix up!

Assembly

First, chain wheels of sunflower kit to mount and secure. Cutting equipment within the assembly to be placed into the required position (D or W). Assembly to be put upon stripping unit and screwed down. Then, chain guide (P) to be put on, placed in narrow position (E) and screwed down. **Gathering chains** to be put on and **positioned as describe in ill. SB 540.** Chains to tension. Handling of the chain-tensioning device is described on page 09 / 525.



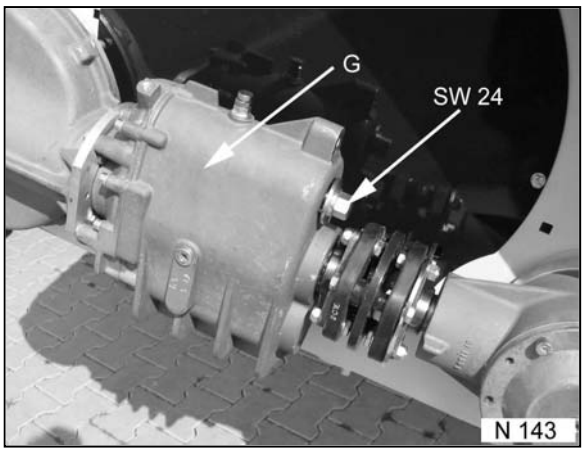
Arrangement of the gathering chains for the harvest of sunflowers

Other than with the harvest of maize, the position of the gathering chain pushers is important.

The gathering chain pushers are to be mounted according to ill. no. SB 540 more or less **evenly staggered**.

Attention!

The original chain wheels (see ill. MS 510 (R)) **must urgently be mounted again for the later maize harvest, since otherwise the row unit gear would not longer be protected against overload.**



Change speed gear for speed reduction

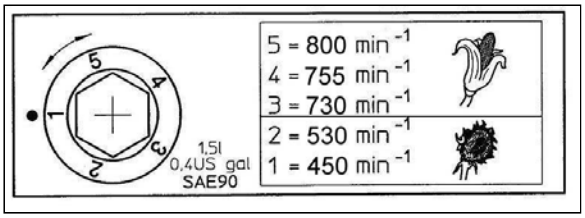
On option, 3 different change speed gears (G) are available.

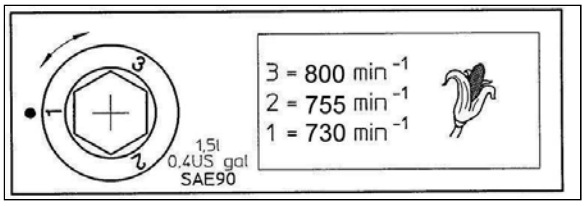
Particular harvest and harvest material may require changing the speed.

- 5 – speed for the maize and sunflower harvest
- 3 – speed only for the maize harvest

Information to the sunflower harvest, see page 35 / 000

(Ill. N 143 guard removed)





Change speed gear maize and sunflowers

5 - speed

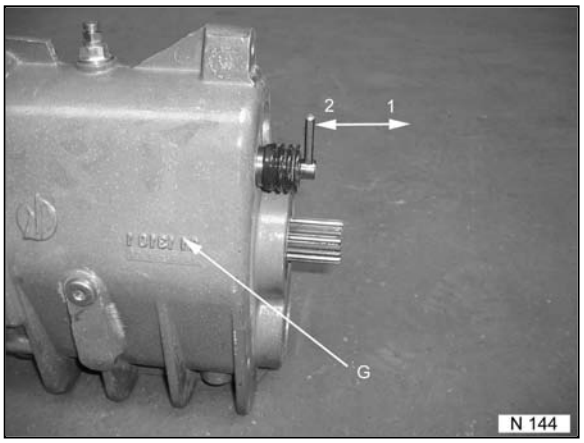
The speed is selected via a commercially available wrench SW 24.

Attention! The sunflower speeds must not be taken for the maize harvest.

Change speed gear maize

3 - speed

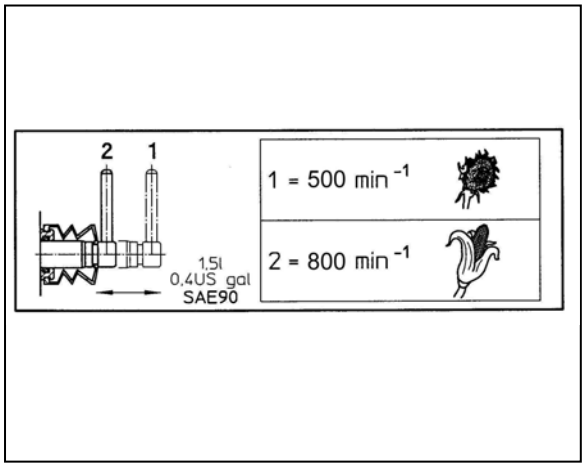
Attention!
Gear to shift in idleness only!



Change speed gear maize and sunflowers

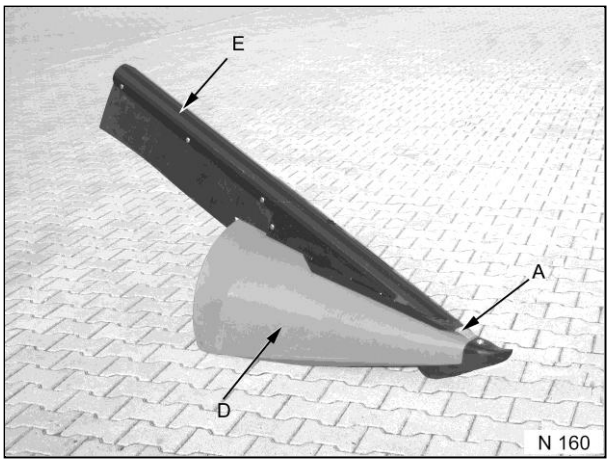
The 2 -speed gear (G) has a fixed speed each for maize and sunflowers.

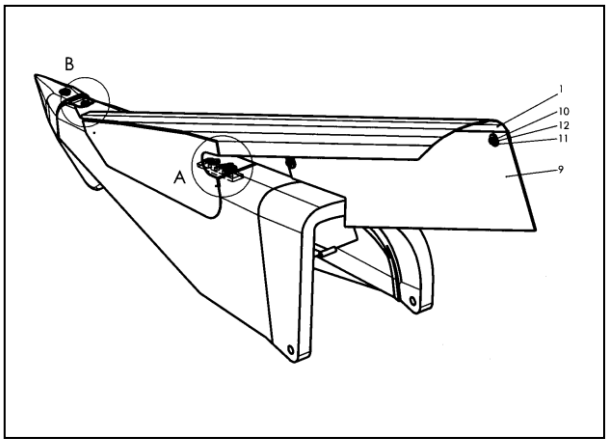
The speed is selected by shifting the lever 2 ⟷ 1.



Attention! ***The sunflower speeds must not be taken for the maize harvest.***

Attention!
Gear to shift in idleness only!



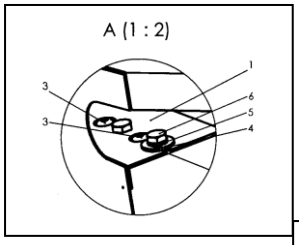


Bodywork increase laterally right and left

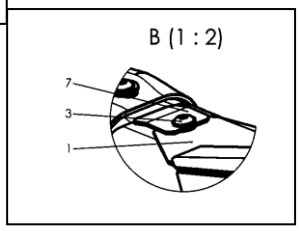
For sunflower and maize harvest to avoid harvesting losses

Mounting instructions:

1. Drill holes (in front: Ø9; rear 2x11-2x Ø9) with a template (504286 left; 504287 right).
2. In the area of the mounting holes, drill one assembly hole each from below and/or inside into the outer divider nose (Ø 50-55).
3. Through the mounting hole fit the threaded bar (2) from inside with the screws (3) to the outer divider nose (3).
4. Screw down clamping plate (7) with 3 spacers (8) to the outer divider nose (3,12,13).
5. Push outer divider nose extension with the frontal nose below the clamping plate so that the welded screw in the rear area engages into the pocket of the threaded bar.
6. Assemble outer divider nose increase and threaded bar with each other (4,5,6).
7. Fit covering rubber (9,10,11,12).



View A

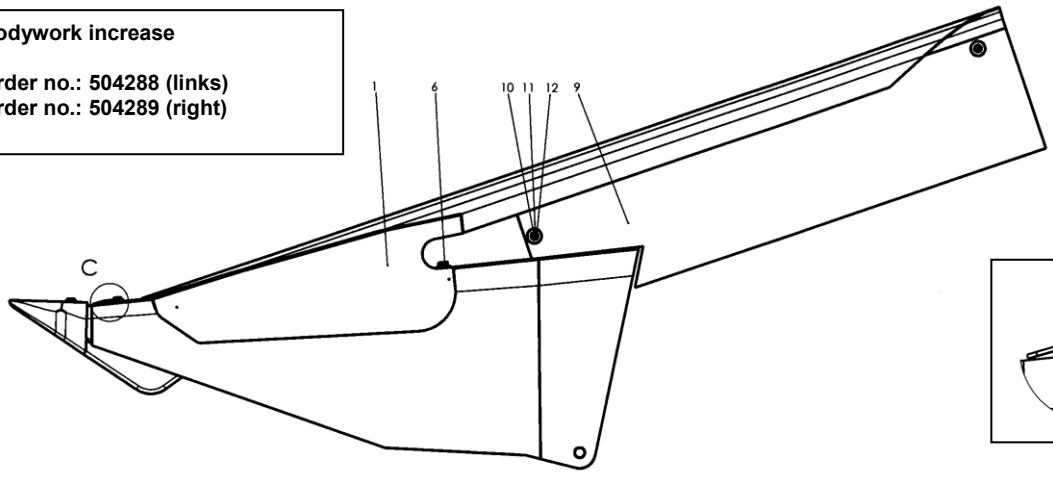


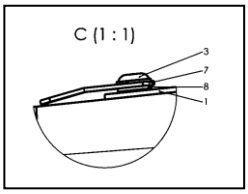
View B

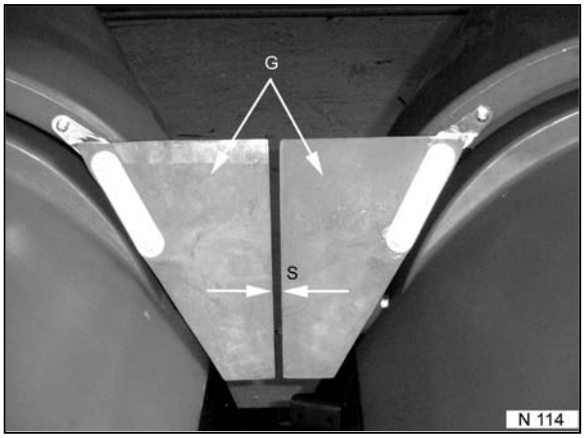
1	washer 8,4 DIN 9021	13	040216
5	hexagon nut M8-DIN 985	12	040008
4	washer V9-DIN 440	11	040300
4	saucer-head screw M8*16-DIN	10	040612
1	covering rubber	9	504297
3	washer A8-DIN 125	8	040201
1	clamping plate	7	504298
1	hexagon screw M10x30 DIN	6	040438
1	spring ring A10-DIN 9021	5	040109
1	washer 10,5-DIN 9021	4	040217
3	flat mushroom head screw 8x20	3	040917
1	threaded bar	2	504299
1	outer divider nose increase l+r	1	504290/291

Bodywork increase

Order no.: 504288 (links)
Order no.: 504289 (right)



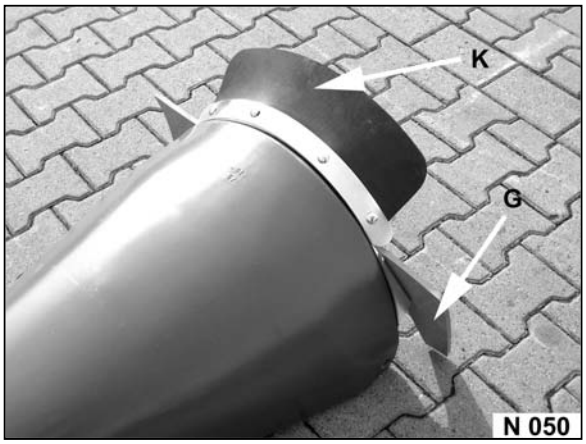


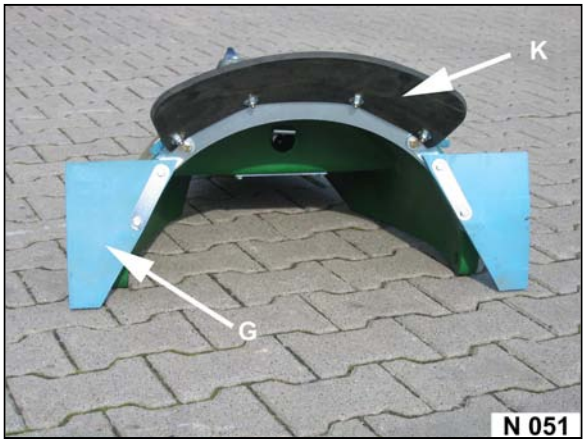


Shield extension rubber

If the maize plants are thin or even crumbly, and dry, the shield extension rubbers (G) can be taken off.

There is also the chance of extending the gap (S) according to the conditions by removing a uniform piece each, from the right and left.- hand side.

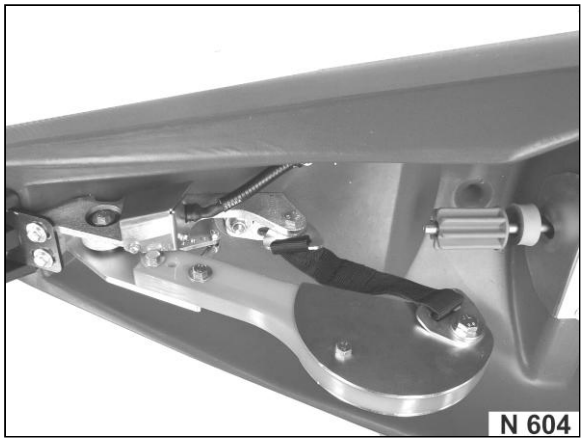




Additional cob saver (optional)

Additional cob savers are available for being put onto the center divider noses.

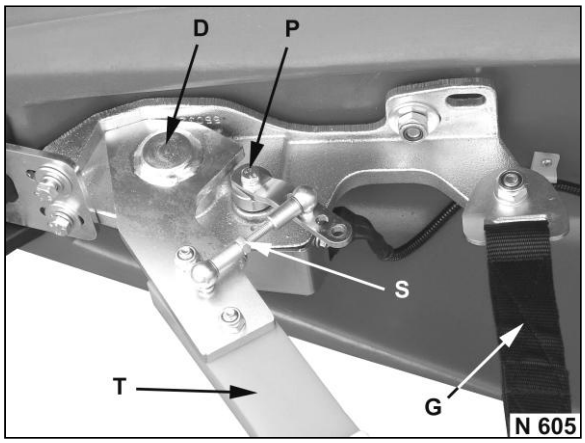
Certain maize varieties can produce cob losses, which requires using this additional device.



Ground levelling system

On option, an automatic bottom guide (keying device) can be supplied for getting a uniform lifting height and thus even a uniform stubble height.

The device allows to be fitted with ease. However, the used combine must be fitted with an adequate technique.



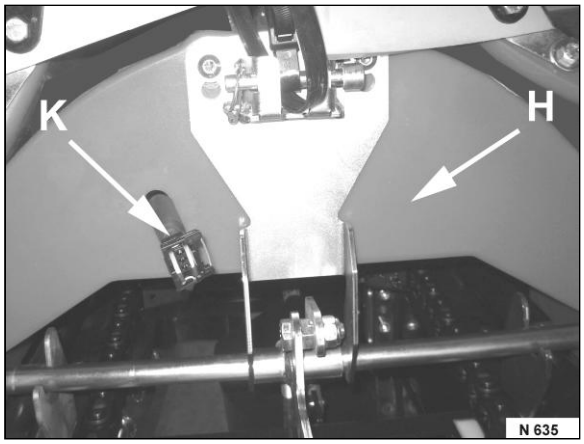
Adjustment of the automatic bottom adapter

The working height is fixed by the key (T) pivoted in position (D).

The spindle (S) allows adjusting the minimum and maximum value of the potentiometer position (volt) specified by the combine manufacturer.

All adjustments of the bottom guide device are described in the manual of the combine manufacturer and apply also to the maize header.

The belt (G) forms the downward limitation.



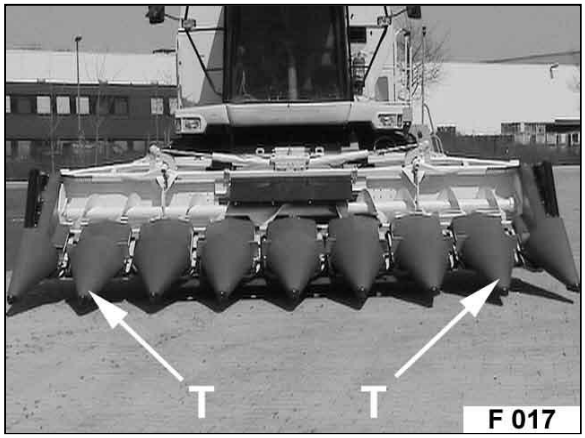
Connecting cables for keys

The connecting cables (K) for the keying device are laid within the covers (H).

For first connection cables (K) to be pulled out and connected to the potentiometer of the key.

Cables with the provided clamps to be fastened at the divider nose so as to avoid cable damages.

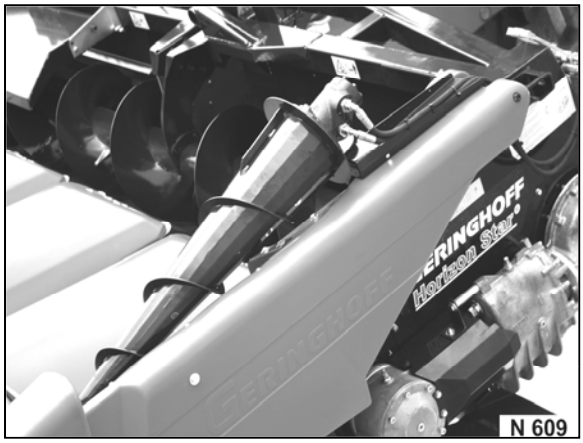
Fitting of the cable connection and the divider noses only to be made with activated lowering protection of the maize header



Arrangement of the keys

If an automatic ground adapter device has been supplied by the factory, the divider noses fitted with the keys are to be mounted at the points provided. They are to be identified via the connecting cables laid accordingly.

In case of a retrofitting, the keys are to be mounted at the outer centre noses.



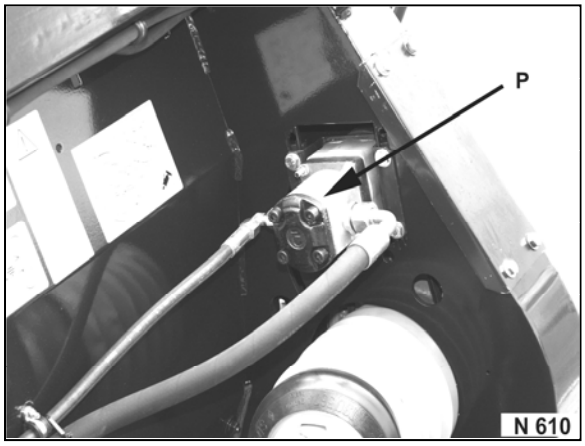
Lodged maize augers (optional)

If lateral conveyor augers for lodged maize are mounted right and left, the unit is driven hydraulically.

If the combine itself is fitted with a special connection for a hydraulic reel drive, it is also used for driving the lodged maize augers. In such a case, the speed can be regulated via the command

„Reel faster or slower „

It can be switched off only if either the reel speed is set to „zero“ or the hydraulic connection is disconnected.

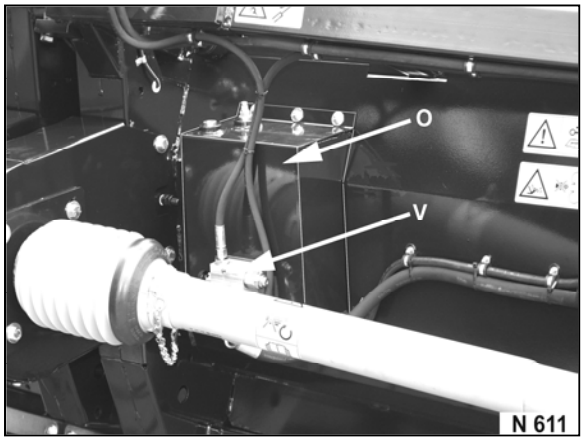


Lodged maize augers with on-board drive

If the combine is not fitted with a hydraulic reel drive, the lodged maize augers are driven by an on-board system.

The arrangement of the pump (P) may subject to model and type differ from the opposite illustration.

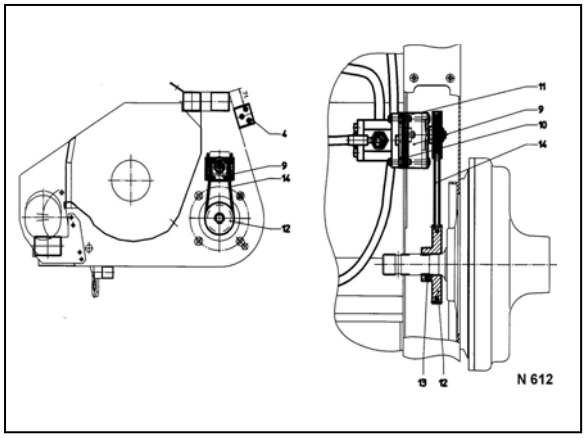
This additional device can be mounted to all headers with gear drive.



Hydraulic oil tank / control

The hydraulic oil tank (O) with the servo-valve (V) for the lodged maize augers is mounted on the rear panel of the header.

Filling capacity:	7 l hydraulic oil VITAM TF 46 (or similar)
Oil change:	Only if the system is damaged
Control:	Cut in and off via valve (V). Separate switching right / left is not provided.



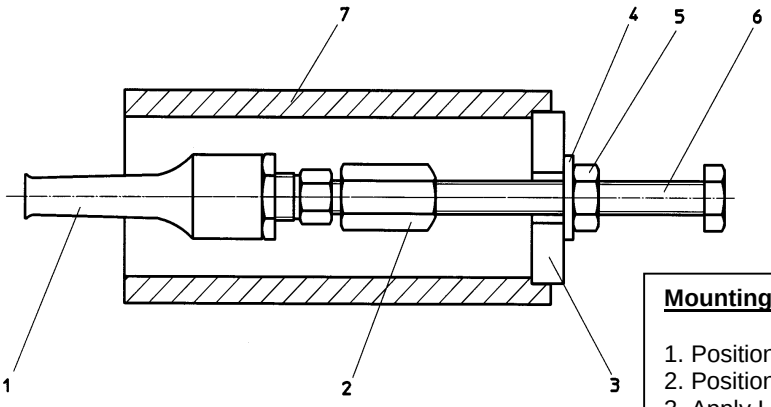
Driving scheme of the hydraulic pump

Via a duplex chain the pump is driven from the maize wheel ingoing shaft.

The driving chain is to be tensioned by displacing the hydraulic pump.
Chain to be oiled from time to time.

Prior to performing maintenance works, Diesel engine to cut off!
Ensure that system does not run dry!

Special tool for the disassembly of front rotor-bearing



Mounting instructions:

1. Position 5 to be screwed on pos. 6.
2. Position 4 to be slipped on pos. 6.
3. Apply Loctite medium-tight to thread of pos. 1 and 6.
4. Tighten pos.1 and 6 by turning pos. 2.

Dismounting tool
Order no. 501165

Pce.	Designation	Pos.	Drawing num.
1	withdrawal sleeve	7	501166
1	hexagon screw M10xW0 DIN 933	6	040476
1	hexagon nut M10 DIN 934	5	040015
1	washer DIN 125 A 10,5	4	040202
1	washer with groove	3	501167
1	extension nut 3 D hoch	2	x
1	internal puller KUKKO U-19	1	501168

Ind.	Beschreibung der Änderung	AM-Nr.	Datum	Name
0			2.6.03	Sudh

GERINGHOFF
MASCHINENFABRIK CARL GERINGHOFF GMBH & CO KG D-59227 AHLEN

Puller Front-Bearing on Rotor shaft

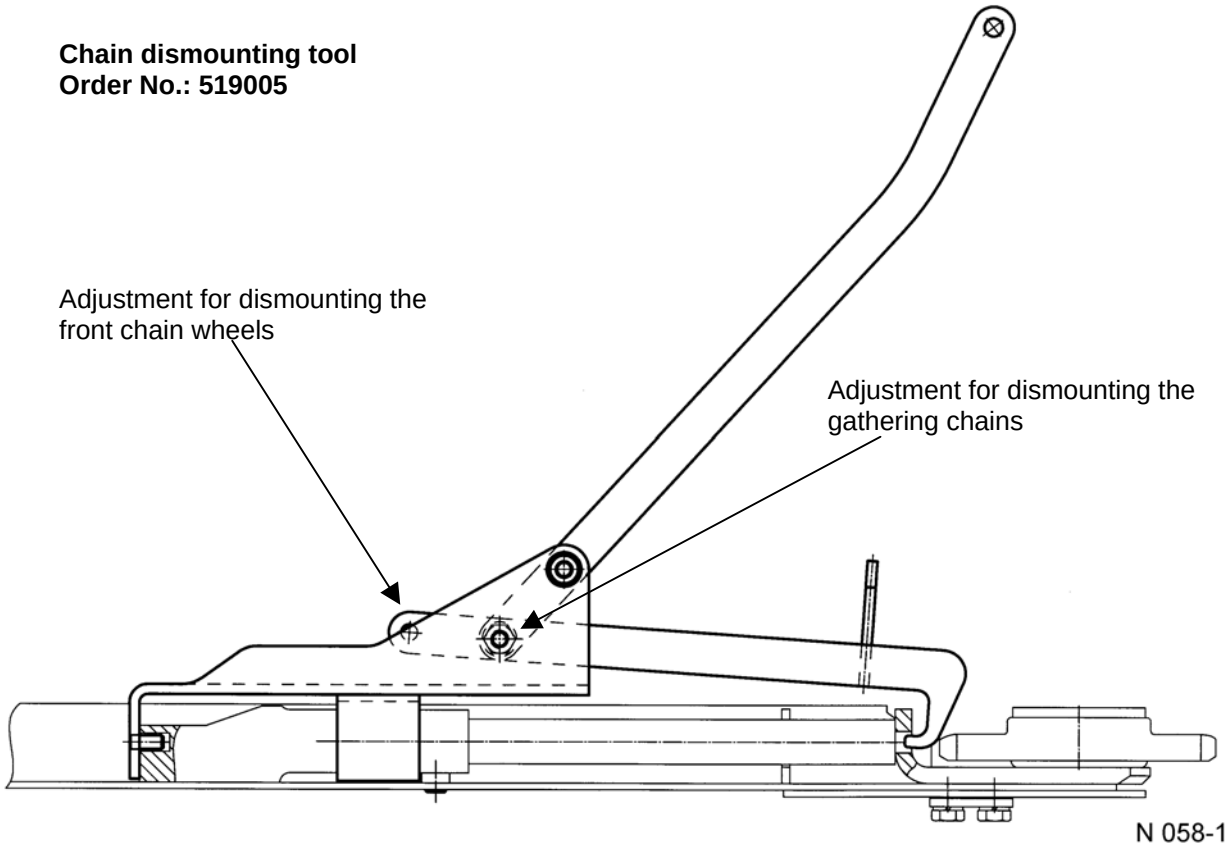
gez. 2.6.03 Sudh
Status IN_BEARBEITUNG

Z.-Nr. 501165 | Blatt 20 | Index 0 | Maßstab 1:1 | ers.z. | ers.d. | Prog-Nr.
Abmessung | Rohteil | Werkstoff | DIN | Gewicht 0 | Halbz.
Oberflächen nach DIN 3141-Reihe 2 | Freimaßtoleranzen nach DIN 7168-mittel
Schutzvermerk nach DIN 34 beachten

Bearing disassembly:

1. Tighten puller to bearing.
2. Slip puller-sleeve, pos. 7, on Rotor-head.
3. Fit washer with groove, pos. 3.
4. Secure Hexagon bolt, M 10, pos. 6.
5. Pull bearing by turning hexagon nut M10, pos. 5.

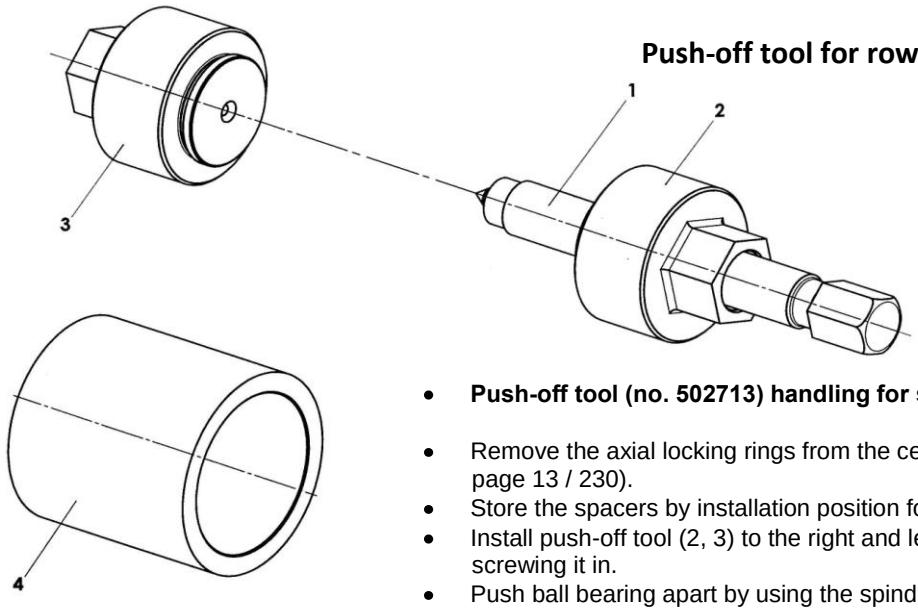
Chain dismounting tool
Order No.: 519005



Minimum starting torque for screwing grade II in conformity with 1c

Current for bolts. Use suitable tool for reaching the required fastening torques.

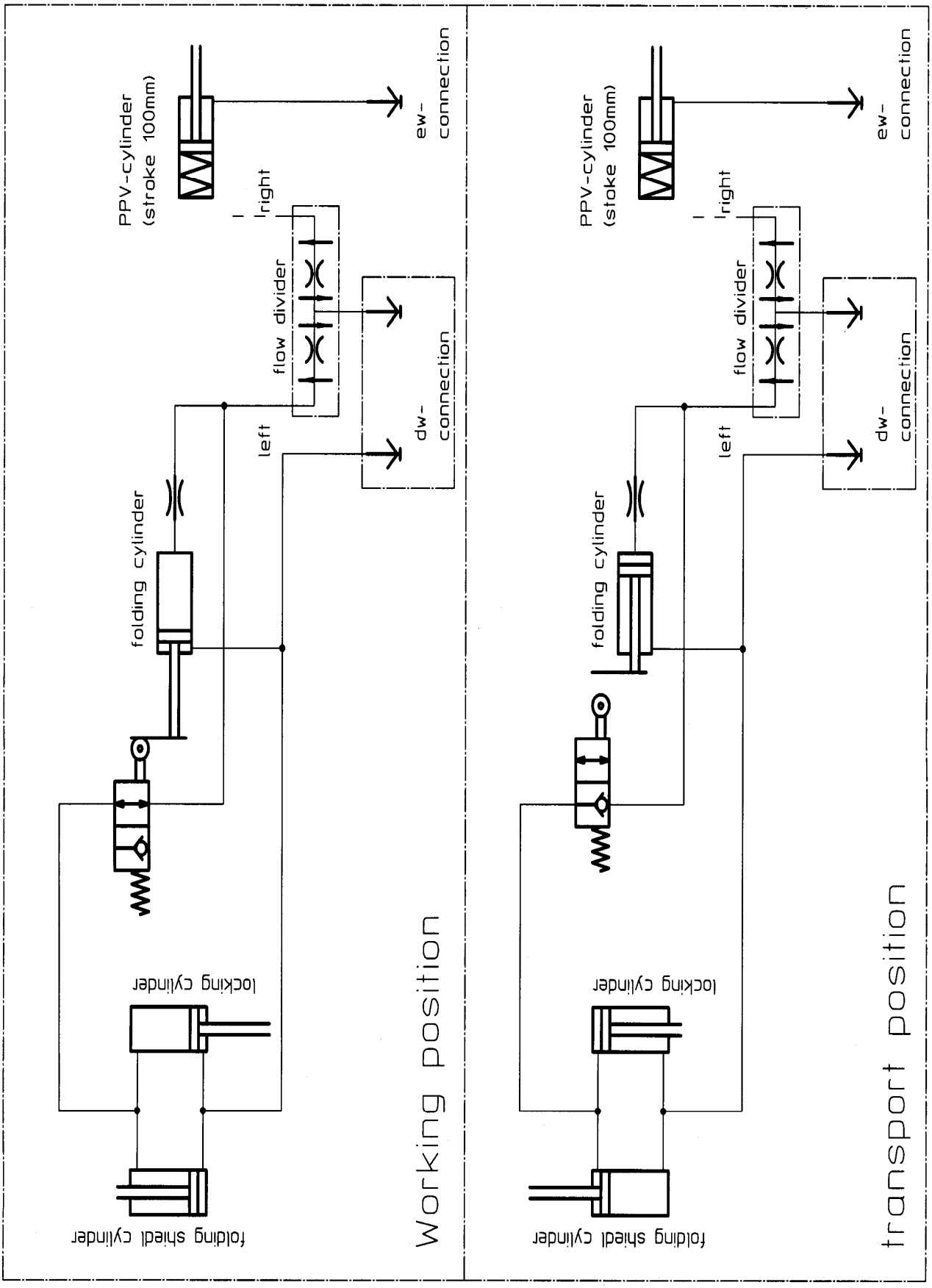
Dimension size	M rated in Nm **degree of firmness 8.8**	M rated in Nm **degree of firmness 10.9**	M rated t in Nm **degree of firmness 12.9**
M4	2,7	3,8	4,6
M5	5,4	7,6	9,1
M6	9,2	13,0	15,5
M8	22,0	31,0	37,5
M8 x 1	24,0	33,5	40,0
M10	43,5	61,0	73,5
M10 x 1,25	46,0	65,0	77,5
M10 x 1	50,0	70,0	84,0
M12	76,0	106,0	127,0
M12 x 1,5	79,0	111,0	133,0
M12 x 1,25	82,5	116,0	139,0
M14	120,0	168,5	202,0
M14 x 1,5	130,0	183,0	219,0
M16	187,0	262,0	314,0
M16 x 1,5	198,0	278,0	333,0
M18	257,5	362,0	433,0
M18 x 2	272,0	382,0	457,5
M18 x 1,5	287,0	403,0	483,0
M20	362,5	509,0	610,0
M20 x 2	381,0	535,0	641,0
M20 x 1,5	400,0	562,0	673,0



Push-off tool for row unit safety clutch

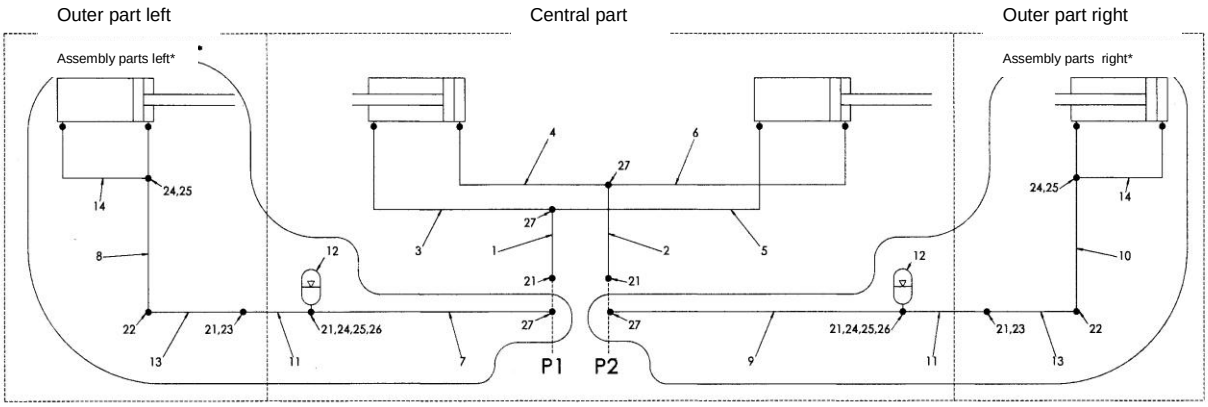
- **Push-off tool (no. 502713) handling for slip clutch disassembly**
- Remove the axial locking rings from the centre sill (figure MS 405 on page 13 / 230).
- Store the spacers by installation position for later reassembly.
- Install push-off tool (2, 3) to the right and left in the centre sill by screwing it in.
- Push ball bearing apart by using the spindle (1), only until the mitre gear including the slip clutch can be removed.
- For reassembly, use sleeve (4) for driving the ball bearing in.
- Check for smooth run.
- Reinstall the locking rings. Reinstall the spacers, if required.

Hydraulic circuit diagram for foldable headers from 6 – 12 rows



In case of queries o r possible troubles on the hydraulic control of the maize header, please get in touch with our customer service at: Phone no. ++49-2382-981452 Fax ++49-2382-981456

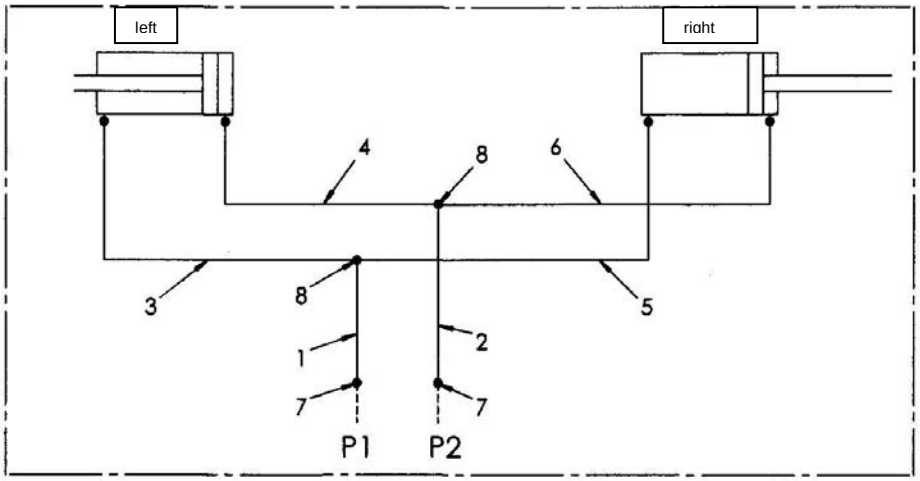
Double acting plate adjustment of folding picker



P1 = Open picker plates

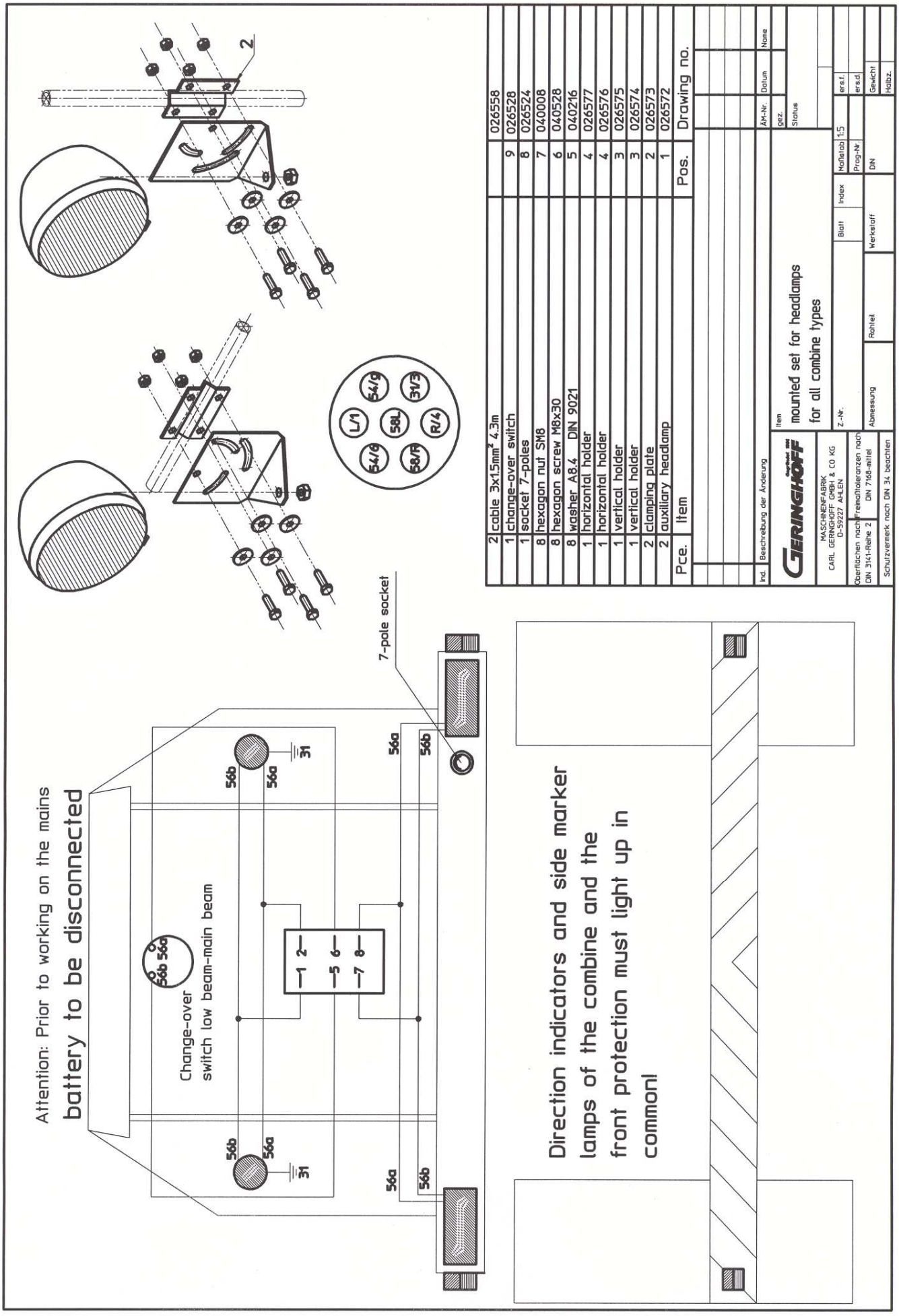
P2 = Close picker plates

Double-acting plate adjustment of rigid picker



P1 = Open picker plates

P2 = Close picker plates



Pos.	Item	Drawing no.
2	cable 3x1,5mm² 4,3m	026558
1	change-over switch	9 026528
1	socket 7-poles	8 026524
8	hexagon nut SM8	7 040008
8	hexagon screw M8x30	6 040528
8	washer A8,4 DIN 9021	5 040216
1	horizontal holder	4 026577
1	horizontal holder	4 026576
1	vertical holder	3 026575
1	vertical holder	3 026574
2	clamping plate	2 026573
2	auxiliary headlamp	1 026572

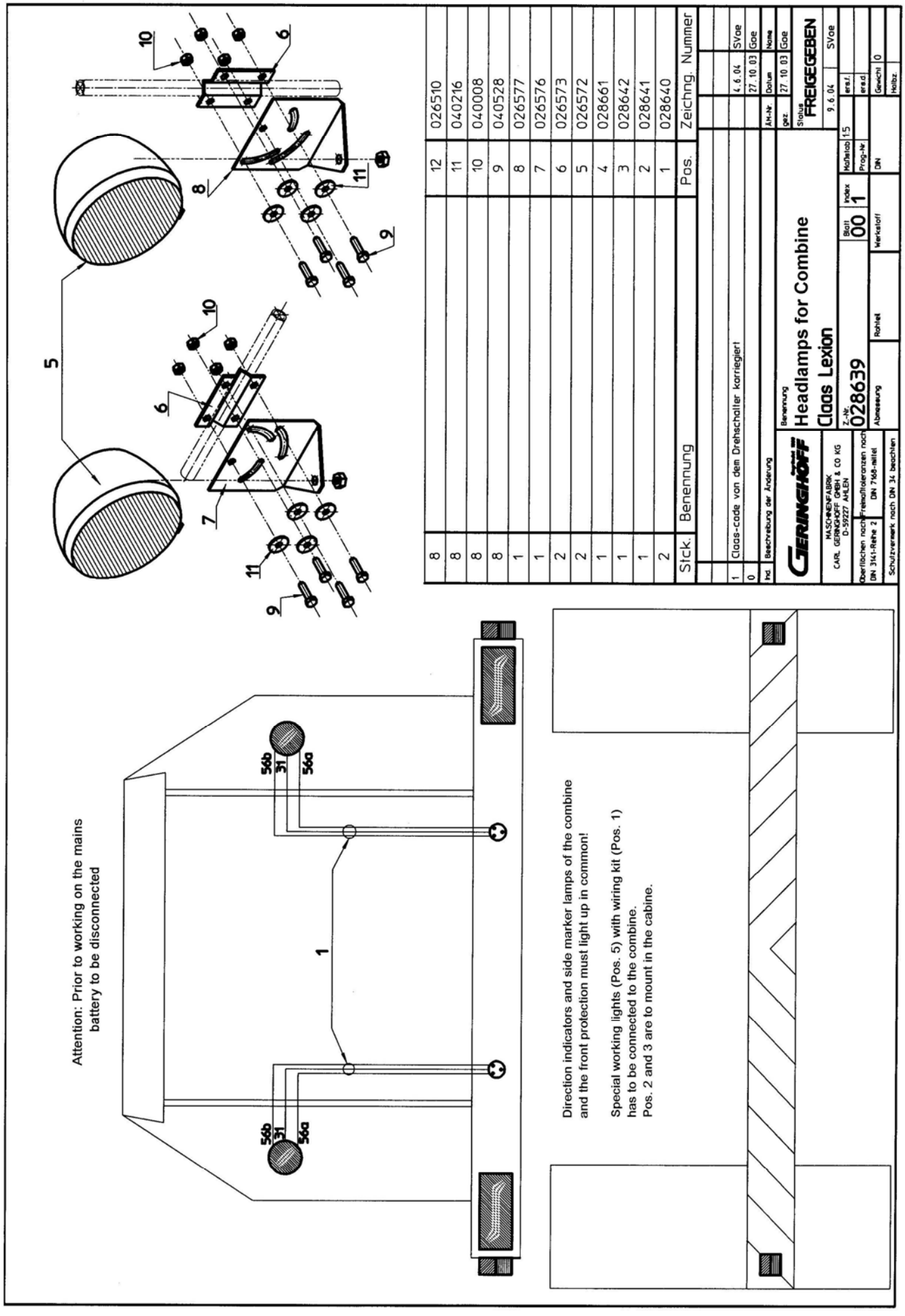
Ind. Beschreibung der Änderung — AM-Nr. Datum Name

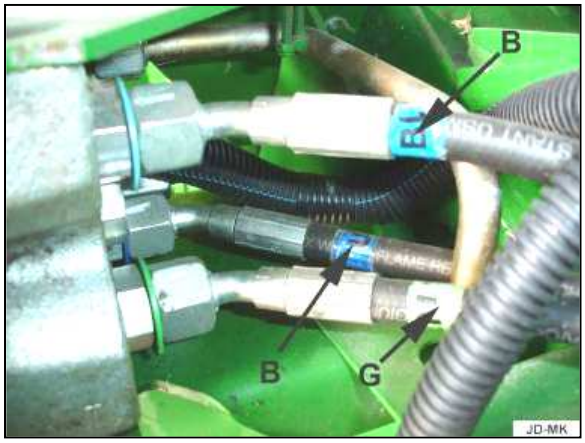
GERINGHOFF — Item: mounted set for headlamps for all combine types — gez. — Status

MASCHINENFABRIK CARL GERINGHOFF GMBH & CO KG D-59227 AHLEN — Z.-Nr. — Blatt — Index — Maßstab 1:5 — ers.f. — Prog-Nr. — ers.d.

Oberflächen nach DIN 3141-Reihe 2 — Freimaßtoleranzen nach DIN 7168-mittel — Abmessung — Rohteil — Werkstoff — DIN — Gewicht

Schutzvermerk nach DIN 34 beachten


Attention: Prior to working on the mains battery to be disconnected
Direction indicators and side marker lamps of the combine and the front protection must light up in common!
Special working lights (Pos. 5) with wiring kit (Pos. 1) has to be connected to the combine.
Pos. 2 and 3 are to mount in the cabine.
Pos. Zeichng. Nummer Benennung Stck.
12 026510
11 040216
10 040008
9 040528
8 026577
7 026576
6 026573
5 026572
4 028661
3 028642
2 028641
1 028640
Benennung Headlamps for Combine
Claas Lexion
Z.-Nr. 028639
Blatt 00 Index 1
FREIGEGEBEN
9.6.04 SVoe
MASCHINENFABRIK CARL GERINGHOFF GMBH & CO KG D-59227 AHLEN
Claas-code von dem Drehschalter korrigiert 4.6.04 SVoe
27.10.03 Goe
Beschreibung der Änderung
Schutzvermerk nach DIN 34 beachten



Hydraulic connection to adapt to maize header

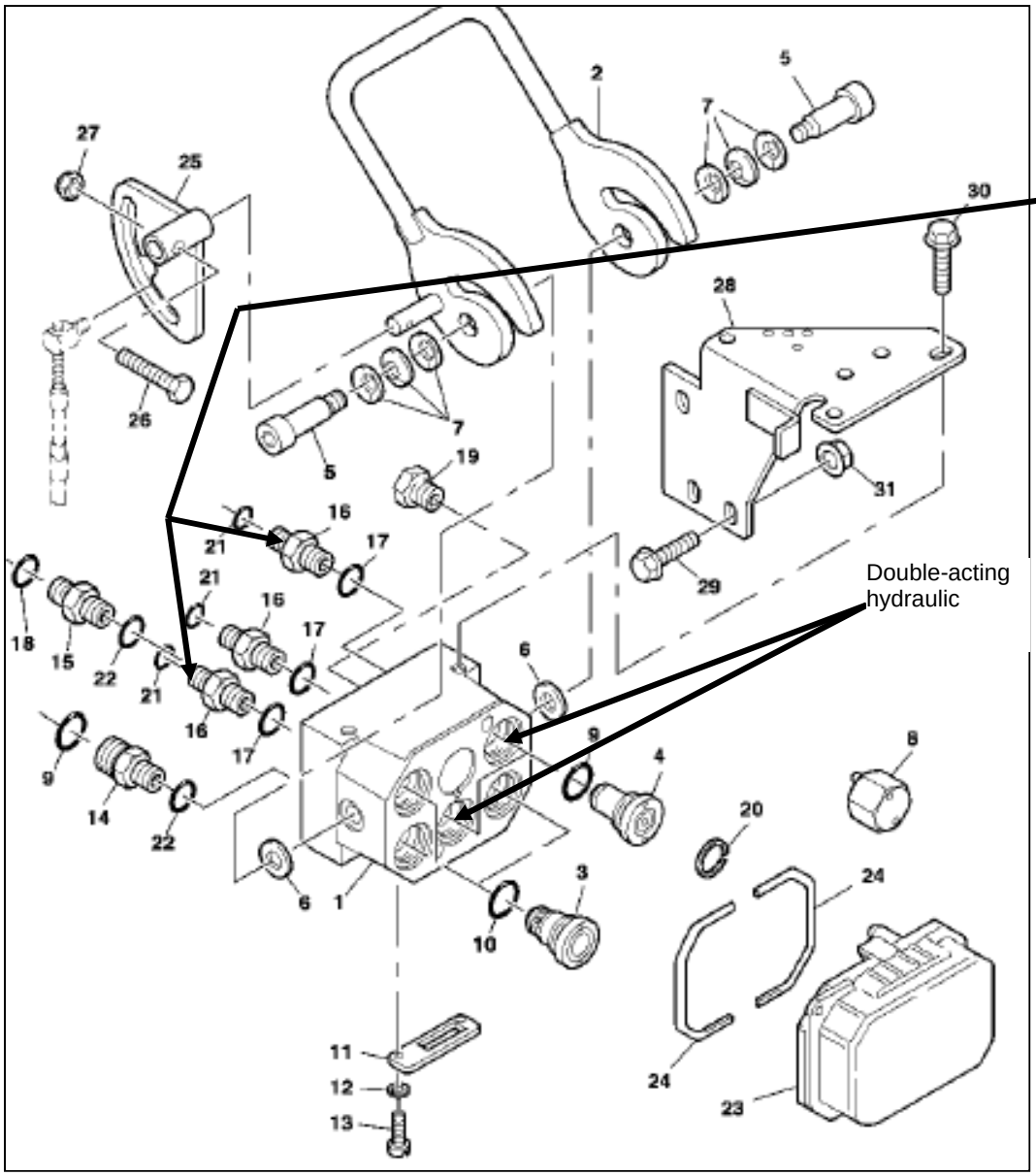
In order to obtain the best "folding" operation of the header, the following modification is recommended.

Unscrew both blue-marked hydraulic hoses (B). (Reel back-and-forward horizontal adjustment)

Unscrew both matching threaded bushes, (Pos. no. 16 in J.D. catalogue)

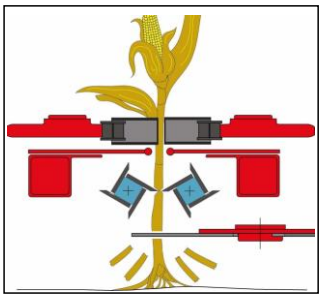
Enlarge orifices to 3mm (drilling)

Assemble all connections.



IMPORTANT
For the operation of the J.D. Wheatheader, original threaded bushes with the original size orifices must be used to obtain the optimum reel-adjustments.

Standard / Special equipment



Electronic speed indicator / control	:	Serie
Stripping plate adjustment hydraulically	:	Serie
Change-speed gearbox for speed reduction	:	Optional
Sunflower harvester	:	Optional
Down maize augers	:	Optional
Stripping system	:	2 stripping rollers plus 1 straw cutting roller
Straw cutting system	:	Active horizontal cutting system
Cutting length of the straw chopping system	:	200 mm
Framework (covering caps and divider noses)	:	Throughout dyed, double-walled synthetic

Framework (covering caps and divider noses)

Type	Rigid Models	Transport widths mm	Transport widths ft.	Weight apr. kg	Weight apr. lbs
MSH 470	4-rows, 70cm	3109	10,20	1500	3300
MSH 475	4-rows, 75cm	3150	10,33	1510	3322
MSH 430	4-rows, 30"	3186	10,45	1520	3344
MSH 480	4-rows, 80cm	3250	10,66	1535	3377
MSH 570	5-rows, 70cm	3759	12,33	1800	3960
MSH 575	5-rows, 75cm	3900	12,80	1850	4070
MSH 580	5-rows, 80cm	4100	13,45	1900	4180
MSH 670	6-rows, 70cm	4400	14,44	2100	4620
MSH 675	6-rows, 75cm	4692	15,39	2150	4730
MSH 630	6-rows, 30"	4710	15,45	2150	4730
MS-H 680	6-rows, 80cm	4900	16,08	2200	4840
MSH 870B	8-rows, 70cm	5800	19,03	2700	5940
MSH 875B	8-rows, 75cm	6209	20,37	2780	6116
MSH 830B	8-rows, 30"	6227	20,43	2780	6116
MSH 880B	8-rows, 80cm	6500	21,33	2850	6270
MSH 970B	9-rows, 70cm	6500	21,33	2900	6380
MSH 975B	9-rows, 75cm	6900	22,64	2900	6380
MSH 1270B	12-rows, 70cm	8600	28,22	4100	9020
MSH 1275B	12-rows, 75cm	9150	30,02	4150	9130
MSH 1230B	12-rows, 30"	9150	30,02	4150	9130

Type	Foldable Models	Transport widths mm	Transport widths ft.	Weight apr. kg	Weight apr. lbs
MSH 670F	6-rows, 70cm	3000	9,84	2400	5280
MSH 675F	6-rows, 75cm	3000	9,84	2400	5280
MSH 680F	6-rows, 80cm	3050	10,01	2450	5390
MSH 870FB	8-rows, 70cm	3000	9,84	3250	7150
MSH 875FB	8-rows, 75cm	3300	10,83	3300	7260
MSH 830FB	8-rows, 30"	3350	10,99	3300	7260
MSH 880FB	8-rows, 80cm	3300	10,83	3350	7370
MSH 970FB	9-rows, 70cm	3800	12,47	3450	7590
MSH 975FB	9-rows, 75cm	3800	12,47	3500	7700
MSH 930FB	9-rows, 30"	3800	12,47	3500	7700
MSH 1270FB	12-rows, 70cm	4800	15,75	4400	9680
MSH 1275FB	12-rows, 75cm	4800	15,75	4500	9900
MSH 1230FB	12-rows, 30"	4800	15,75	4500	9900

Special models even with changing row distances on request.