



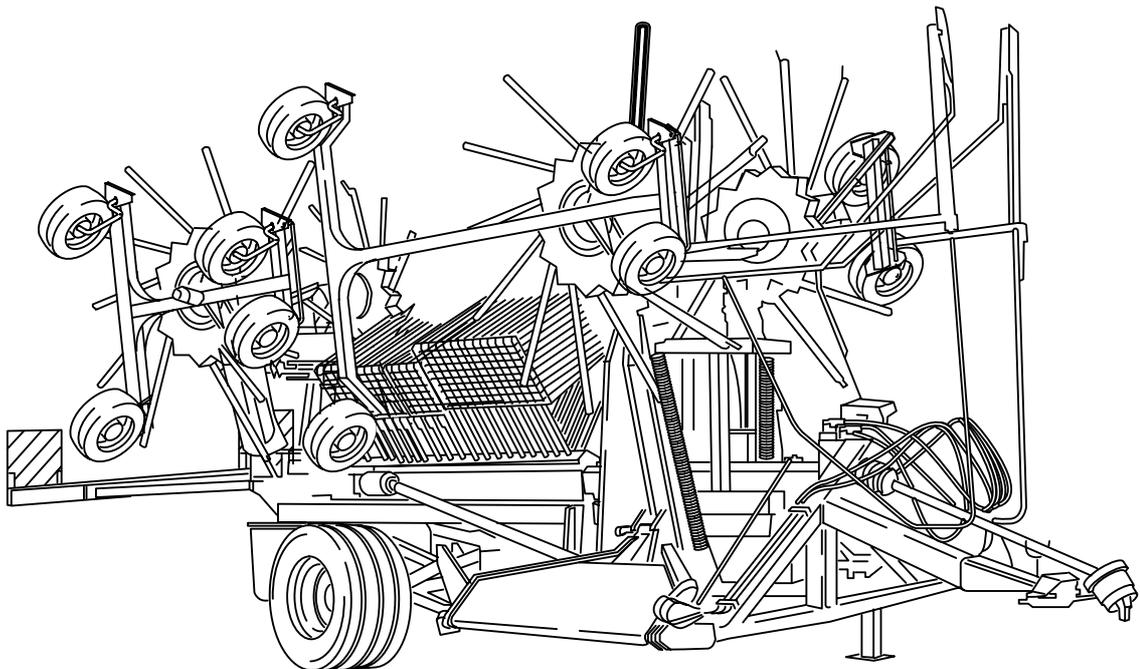
# Operating Instructions

## 150 000 027 00 EN

### Rotary Swather

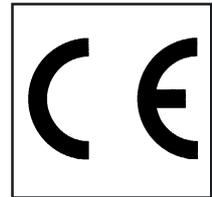
#### Swadro 1250

(beginning with serial number 488 000)





**EC Declaration of Conformity**  
corresponding to the EC Directive 98/37/EC



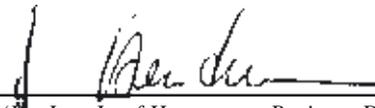
We **Maschinenfabrik Bernard Krone GmbH**  
**Heinrich-Krone-Str. 10, D-48480 Spelle**

declare in our sole responsibility that the product

**Rotary swather**  
**Models: Swadro 1250**

to which this declaration refers corresponds to the relevant basic safety and health requirements of the EC Directive 98/37/EC.

Spelle, 02.05.2005

  
\_\_\_\_\_  
(Dr.-Ing. Josef Horstmann, Business Director)

  
\_\_\_\_\_  
(ppa. Dr.-Ing. Klaus Martensen, Engineering Director)

**Dear customer,**

Here are the operating instructions for the KRONE product you purchased.

This operating manual contains important information for the proper use and safe operation of the machine.

If this operating manual should for any reason become wholly or partially unusable, you can obtain a replacement operating manual for your machine by stating the number given on the following page.

# I. Foreword

Dear customer!

We thank you for the trust which you have placed in us by purchasing this machine.

When you received this machine, our dealer gave you instructions on the operation, maintenance and adjustment of the machine.

However this brief introduction is no substitute for a detailed acquaintance with the different tasks and functions of the machine and how to handle it properly.

These operating instructions are designed so that you are extensively informed of the activities required in each area, from commissioning and operation right to the care and maintenance of the machine. The structure of the individual chapters in text and illustrations corresponds to the sequence of work procedures when you use the machine.

Read these operating instructions carefully before you use the machine and pay special attention to the safety instructions.

**Important: To avoid accidents and to ensure optimum results, no alterations may be made to the machine without the manufacturer's permission. Similarly, the machine must only be used under the conditions prescribed by Krone.**



**This sign denotes special safety instructions. Follow these instructions in order to avoid accidents.**

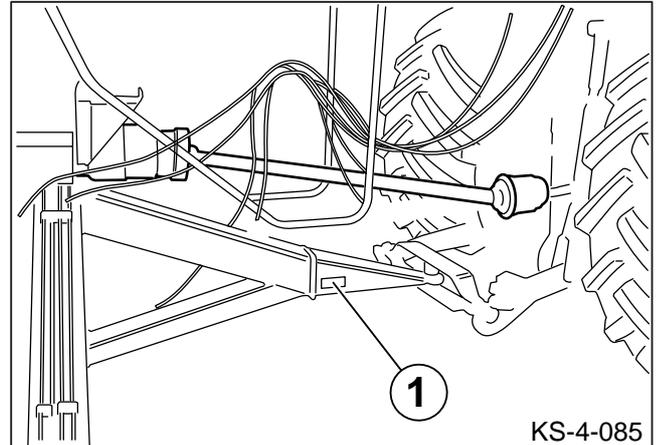


**This sign indicates special handling which must be taken into account when using the machine.**

All information, illustrations and technical statements in this operating manual correspond to the current status at the time of going to press. We always reserve the right to construction changes without necessarily providing a reason for such.

## Serial number

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



Model

Vehicle ID No.

Year of manufacture

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

## Ordering replacement parts

When ordering replacement parts, the type designation, the machine number and the year of manufacture must be given. These details can be found on the type plate on the machine.

We recommend that these details be entered in the above boxes so that they are readily available.

And please remember: imitations and copies of parts, especially of wearing parts, often do not perform according to their appearance! Material quality is difficult to test visually, therefore special care is required when purchasing cheap offers and imitation parts!

The best solution – purchase only **original KRONE parts!**



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### III. General safety instructions

#### Designated Use

The swather is designed solely for normal agricultural use (use in accordance with specifications).

Any use of the machine for other purposes is deemed not to be in accordance with specifications. The manufacturer bears no responsibility for any resulting damage – such use is entirely at the operator's risk.

Use in accordance with specifications also includes observing the operating, maintenance and service instructions prepared by the manufacturer.

The swather must only be used, maintained and repaired by personnel who are acquainted with the machine and have been informed of the dangers involved.

The applicable accident prevention regulations and all other generally recognized safety, health and road traffic regulations must be observed.

Any unauthorized alterations to the machine render any liability for damage undertaken by the manufacturer null and void.

#### Basic rule:

	<p><b>Before travelling on public roads and before the machine is started, check the swather and tractor for roadworthiness and operational safety!</b></p>
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#### Safety and accident prevention regulations

1. Take note of both the regulations in this operating manual and also the general safety and accident prevention regulations!
2. The attached warning and information signs give important advice for safe operation. Observing them will increase your own safety!
3. When using public roads, make sure that you observe the relevant traffic regulations!
4. Make sure you are familiar with all equipment and controls, as well as their functions before you begin working with the machine. It is too late to learn this when you are operating the machine!
5. The operator's clothes should be tightly fitting. Avoid wearing loose or baggy clothing.
6. Keep the machine clean to prevent the danger of fire!
7. Before starting up, ensure that nobody is in the vicinity of the machine! (Watch for children!) Make sure that your field of vision is adequate!
8. Carrying passengers during operation and transport on the working implement is not permitted.
9. Couple implements according to regulations and only attach them to the prescribed devices!
10. When attaching and removing, place the supporting devices in the appropriate positions!
11. Use extreme caution when attaching or detaching implements onto or from the tractor!
12. Always attach ballast weights properly to the fixing points provided!
13. Observe permitted axle loads, gross weight and transport dimensions!
14. Check and attach transport equipment - such as lighting, warning devices and possibly safety devices!
15. Actuation devices (cables, chains, linkages etc.) for remote controlled devices must be positioned in such a way that no movements are unintentionally triggered at any transport or working positions.
16. Put implements in the prescribed condition for on-road travel and lock according to the manufacturer's instructions!
17. Never leave the driver's seat when the vehicle is moving!
18. Always drive at the correct speed for the prevailing driving conditions! Avoid sudden turning movements when travelling uphill, downhill and traversing slopes!
19. Attached implements and ballast weights affect the driving, steering and braking response of the machine. Hence ensure that the steering and braking available are sufficient!
20. Take into account the extension radius and/or inertia of an implement when turning corners!



21. Start up implements only when all protective devices have been attached and set in the required position!
22. Keep clear of the working range of the machine at all times!
23. Do not stand within the turning and slewing range of the implement!
24. Never operate the hydraulic folding frames if anyone is inside the slewing range!
25. Parts operated by external power (e.g. hydraulics) can cause crushing and shearing injuries!
26. Before leaving the tractor, lower the implement onto the ground, switch off the engine and remove the ignition key!
27. Nobody should stand between the tractor and the implement, unless the vehicle has been secured against rolling by the handbrake and/or wheel chocks!

## Trailer Implements

1. Secure implements against rolling.
2. Observe the maximum supported load on the trailer coupling, swing drawbar or hitch!
3. If a drawbar coupling is used, make certain that there is enough play at the coupling point.

## PTO shaft operation

1. Do not use universal drive shafts other than those specified by the manufacturer!
2. The guard tube, the guard cone of the universal drive shaft, as well as PTO shaft guard must be attached – also on the implement – and must be in a proper condition!
3. Observe the tube overlap prescribed for universal drive shafts in transport and operating positions!
4. Before installing or removing universal drive shafts, disengage the PTO, switch off the engine and remove the ignition key!
5. When using universal drive shafts with overload or free-running clutch mechanism, which are not covered by the guard on the tractor, overload and free-running clutch mechanism must be installed on the implement!

6. Always ensure that the universal drive shaft is properly installed and secured!
7. Attach chains to secure the universal drive shaft guard against rotating with the shaft!
8. Before engaging the PTO shaft, make sure that the selected PTO speed of the tractor matches the permissible implement speed!
9. Before engaging the PTO shaft, make sure that there is no one in the danger area around the implement!
10. Never engage the PTO shaft if the engine is switched off!
11. No one should be in the vicinity of the rotating PTO or universal drive shaft when it is in use.
12. Always switch off PTO shaft when the angle is too large or when it is not required!
13. Caution! The flywheel will continue to rotate for some time even after the PTO shaft has been disengaged! Keep clear of the implement during this time. Be sure that the implement has come to a complete stop before starting any work on it.
14. Disengage the PTO shaft, stop the engine and remove the ignition key before cleaning, lubricating and adjusting the PTO shaft driven implement or the universal drive shaft!
15. Place the disconnected universal drive shaft onto the bracket provided!
16. After removing the universal drive shaft, attach the protective cover to the PTO shaft end!
17. If damage occurs, correct this immediately before using the implement!

## Hydraulic System

1. The hydraulic system is pressurized!
2. When connecting hydraulic cylinders and engines, make sure that the hydraulic hoses are connected according to specifications!
3. When connecting the hydraulic hoses to the tractor hydraulics, make sure that all hydraulic pressure has been released from both the tractor and the implement!
4. In the case of hydraulic connections between tractor and implement, the coupling sleeves and plugs should be marked to ensure a proper connection! If the connections are switched, the function will be reversed (e.g. raising/lowering) – danger of accidents!
5. Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The new hoses must fulfill the technical requirements set by the manufacturer of the implement!
6. When searching for leaks, suitable aids must be used, due to the risk of injuries!
7. Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury! Seek medical help immediately should injuries occur! Risk of infection!
8. Before working on the hydraulic system, lower the implement, depressurize the system and switch off the engine!

## Tyres

1. When working on tyres, ensure that the implement has been safely set down and secured against rolling away (wheel chocks).
2. Installing wheels and tyres requires adequate knowledge and suitable tools!
3. Repair work on the tyres and wheels should be done by specially trained personnel using appropriate installation tools only!
4. Check air pressure at regular intervals! Inflate the tyres to the recommended pressures!

## Maintenance

1. Repair, maintenance and cleaning work as well as the rectification of malfunctions may only ever be carried out when the drive is switched off and the engine is at a stand still! Remove the ignition key!
2. Regularly check that nuts and bolts are properly seated and tighten if necessary!
3. When doing maintenance work to a raised implement, always use suitable means to secure it against falling.
4. When changing working implements with cutting edges, use appropriate tools and gloves!
5. Dispose of oils, greases and filters according to regulations!
6. Always disconnect the power supply before working on the electrical system!
7. If protective devices and guards are subject to wear, check them regularly and replace them in good time!
8. When doing electrical welding on the tractor and attached implements, disconnect the alternator and battery cables!
9. Spare parts must at the very least comply with the technical requirements set by the implement manufacturer!  
This is ensured e.g. by using original spare parts!
10. Only use nitrogen for filling pneumatic accumulators - **risk of explosion!**



# 1. Introduction

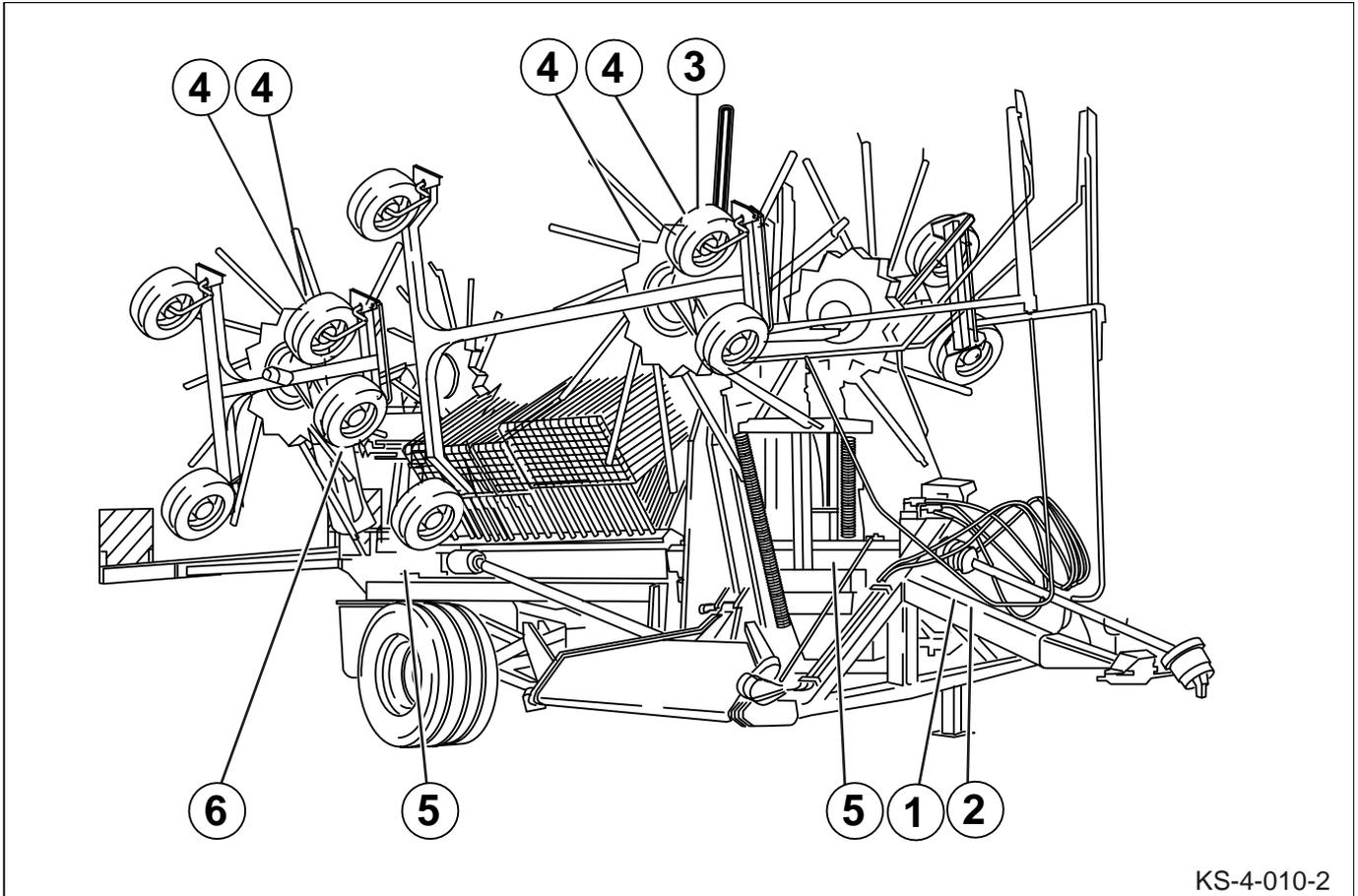
The KRONE rotary swather is equipped with all necessary safety devices (protective equipment). Not all potentially dangerous positions on this implement can be fully secured, as this would be incompatible with full functional capability. You will find appropriate danger notification (= warning signs in yellow/black), indicating these residual risks.

The safety instructions are provided in the form of so-called warning pictograms. Important information on the location of these safety signs and what they mean is given below!



**Familiarize yourself with the meaning of the warning signs opposite. The text beside them and their location on the machine indicates the machine's particularly dangerous areas.**

### 1.1 Location of the safety labels on the machine, containing technical safety information on the machine

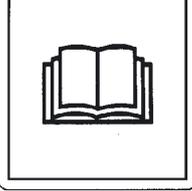


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①

Before starting up, read and follow the operating manual and safety instructions.

Order no. 939 471-1 (1x)

②



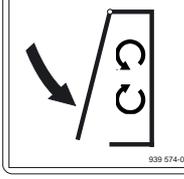

The PTO speed may not exceed 540 r.p.m.!

Order no. 939 100-4 (1x)

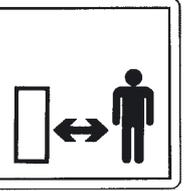
③

Pull the guard bar down into protection position before carrying out work (fold down).

Order no. 939 574-0 (2x)

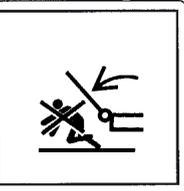
④

Danger in swather disk operating area - keep your distance!

Order no. 939 472-2 (8x)

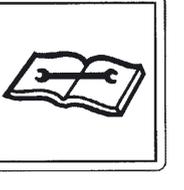
⑤

Do not remain in the slewing range of the deployment arms. Keep your distance!

Order no. 939 469-1 (4x)

⑥

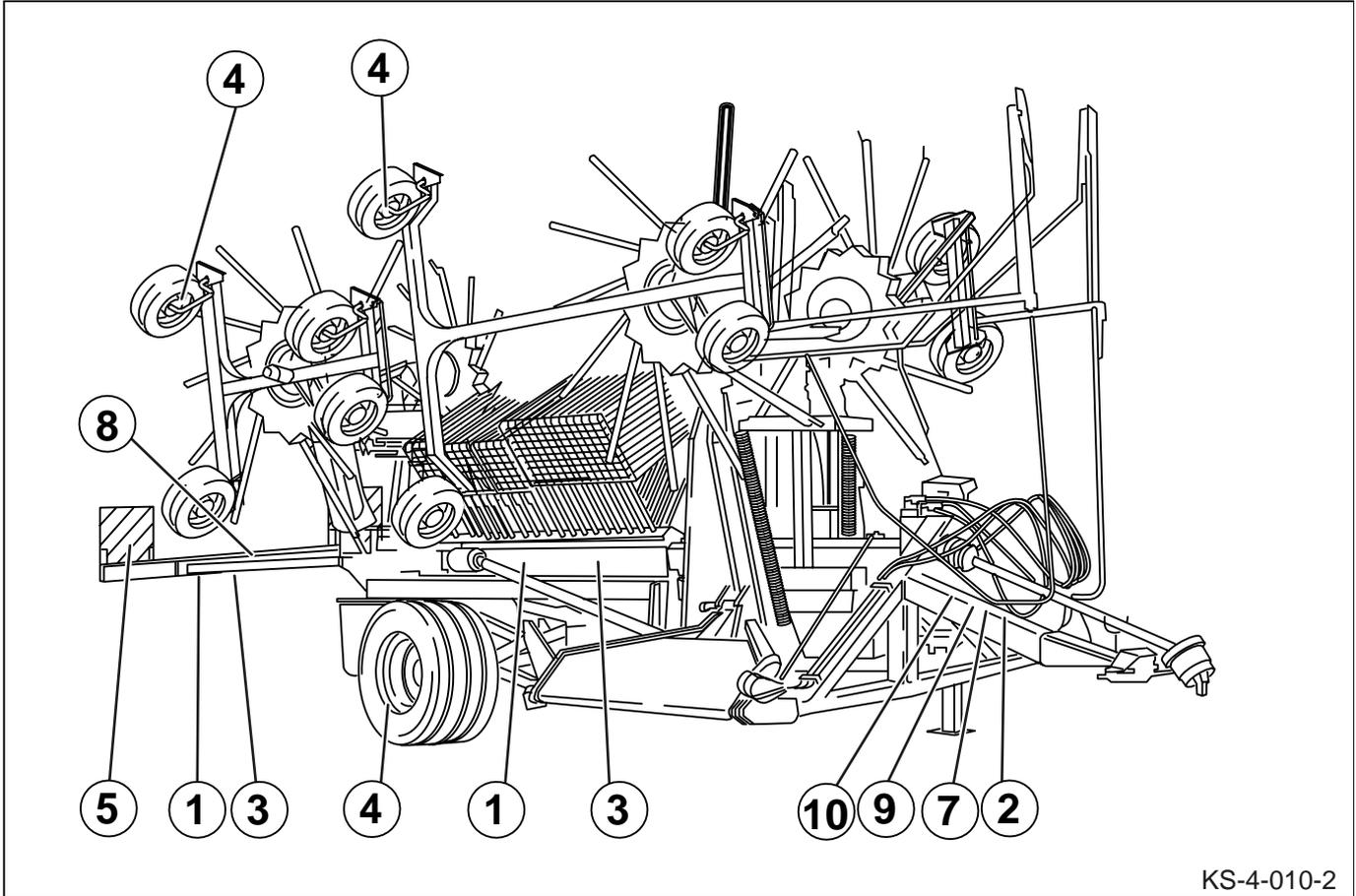



The accumulator is subject to gas and oil pressure. Disassemble and repair in strict accordance with the instructions in the technical handbook.

Order no. 939 529-0 (2x)

**Note:**  If the safety signs are damaged or missing, they must be replaced with new signs. The order numbers are stated next to the warning signs!

## 1.2 Location of the General Information Signs on the Machine



KS-4-010-2

**SWADRO 1250**



① 942 239-2 (3x)

② 939 428-2 (1x)

**KRONE**

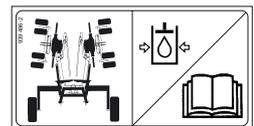
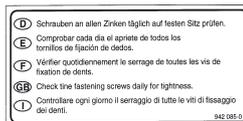
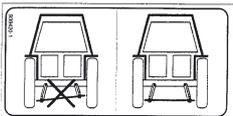
1,0 bar



③ 942 295-0 (1x)  
942 320-0 (2x)

④ 441 071-2 (2x) 3.0 bar  
939 183-1 (4x) 1.0 bar

⑤ 924 569-0 (4x)



⑦ 939 420-1 (1x)

⑧ 939 145-1 (1x)

⑨ 942 085-0 (1x)

⑩ 939 486-2 (1x)

### 1.3 Technical Data

<b>Model</b>		<b>Swadro 1250</b>
Lower link arm arm hitch		standard
Number of swather disks	Piece	4
Number of arms/swather disks	Pieces	13
Number of double tines/arm	Piece	4
Working width	approx. m	11.00 –12.50
Swather disk diameter	front approx.	3600
	rear approx.	2950
Height with tine bars	approx. mm	4400
Height with lowered tine bar	approx. mm	3800
Height in Working Position	approx. mm	1900
Length	approx. mm	7800
Width in transport position	approx. mm	2950
Power requirement	approx. kW/hp	59/80
PTO speed	rpm max.	540
Equivalent continuous sound level		below 70 db(A)
Acreage capacity approx. hectares/h		12
Tyres	Chassis	500/50-17/10 PR
	Running wheels under the swather disk	16x6.50-8 PR
Tyre pressure	Chassis	3.0
	Running wheels under the swather disk	1.0

## 2. General Preparation for Use

### 2.1 Special Safety Instructions



It is essential for all care, maintenance, repair and assembly work on the rotary swather that the PTO shaft is switched off . Shut down the engine and remove the ignition key. Secure tractor and rotary swather against rolling away!

The maximum drive speed is 540 r.p.m.

Actuating components such as ropes, drawing cables and hydraulic hoses as well as electrical cables should be laid in such a way that they cannot be activated unintentionally or come into contact with the tractor wheels. Risk of accidents!

Nobody should be between the tractor and the rotary swather during raising and lowering operations or below the raised swather arms. Extreme risk of injury!

Before switching on the PTO shaft, ensure that there is no-one in the danger area around the rotary swather. Risk of accidents!

Check that the protective devices are fitted in accordance with the guidelines for operation and for using public highways! Check that the lighting is functioning properly.

The operating personnel may not leave the tractor during operation! Ensure other persons leave the danger area!

### 2.2 Preconditions at the Tractor

The swather is fitted with a receiving drawbar for three-point linkage (cat.II).

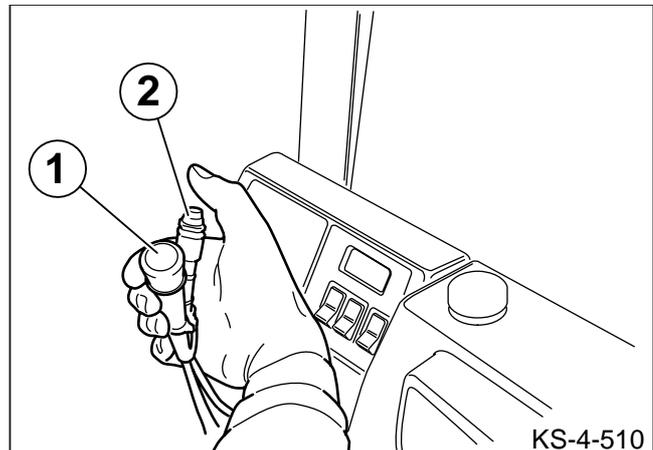
The tractor requires:

- lower link arm cat.II
- two-line compressed air brake system
- a single-acting and a double acting hydraulic line
- Mounting for the electric operation terminal in the tractor cab (a clear view of the operation terminal should be ensured)
- Constant current socket



If the tractor is not equipped with a constant current connection, order the socket and connecting cable from the Replacement Parts Service. (Part no. 0302-068-0)

- Fix switch S9 (2) on actuating lever for the single-acting control device (1) of the hydraulic system.



### 3 Installation



When attaching the rotary swather ensure that nobody is between the implement and the tractor.  
Nobody should be within the slewing range of the swather disk arms!

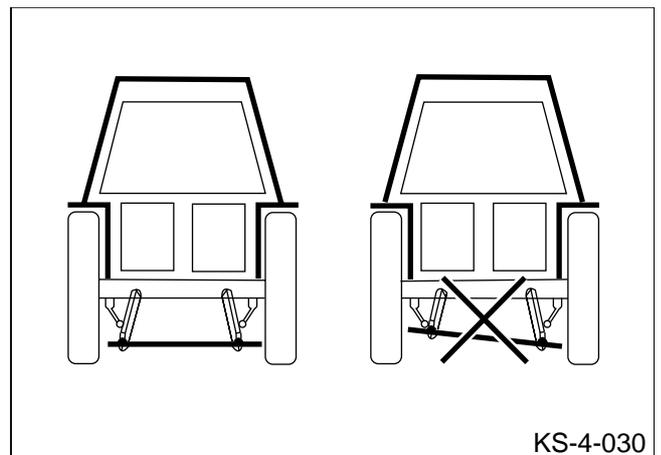
Check that the transport lock is properly engaged before each transport journey.

Actuating mechanisms (ropes, cables, etc.) for remote controlled devices must be positioned in such a way that no movements are unintentionally triggered at any transport or working positions or that they suffer damage.

#### 3.1 Connection to the Tractor



The tractor's lower link arm must always be in a horizontal position and fixed using limiting chains or rods so that the implement cannot slew neither to the side nor to the top during transport or during work.

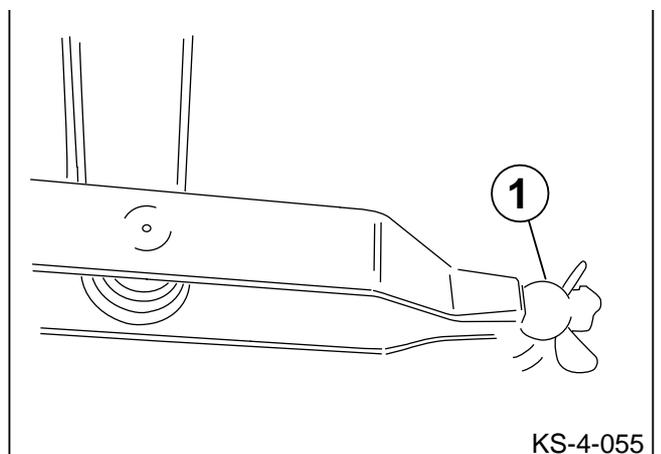


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##### 3.1.1 Drawbar

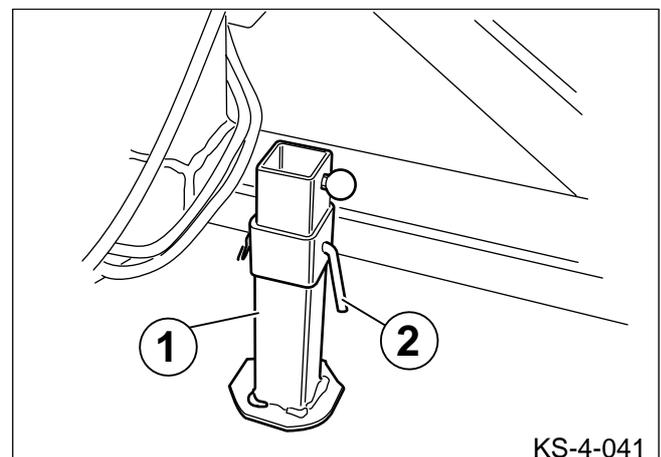
The swather is in transport position.

- Attach hitch (1) for lower link arm
- Couple swather with lower link arm pins to tractor and secure



KS-4-055

- Lift swather until support (1) is freed.
- Pull out the retaining pin (2).
- Lift support (1) and lock in upper position with locking pin (2)

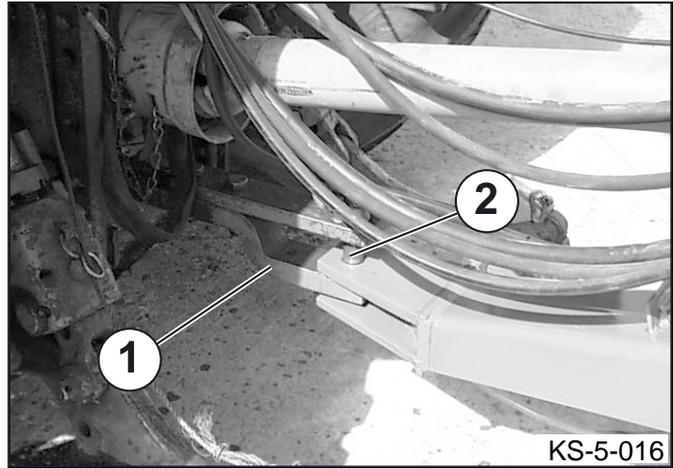


KS-4-041

## 3.1.2 Swinging drawbar (optional)

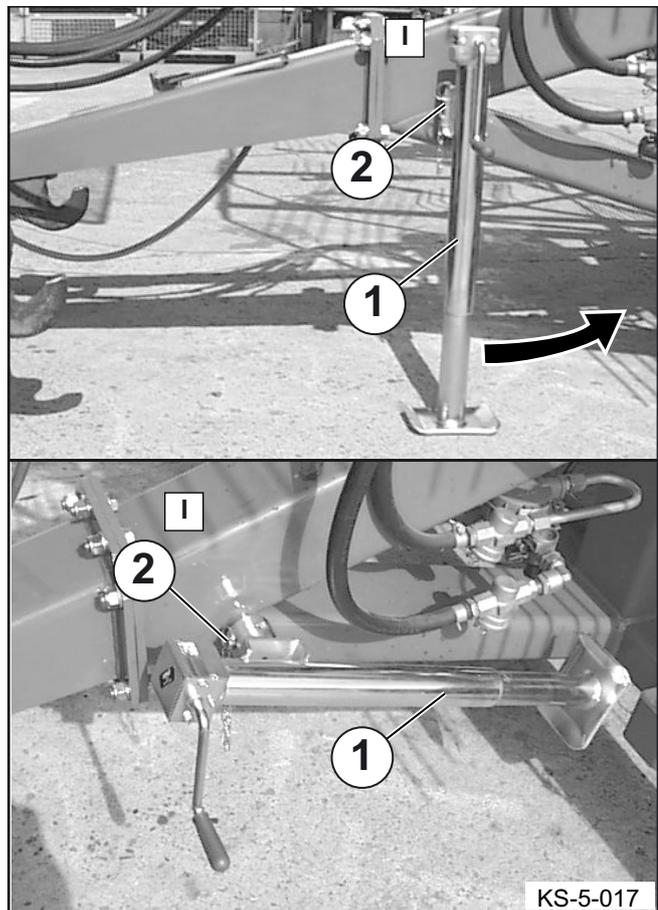
For attachment of the rotary swather to the tractor, the tractor must be fitted with a swinging drawbar.

- Fit the rotary swather to the swinging drawbar (1) and secure using pin (2).



The rotary swather is fitted with a jack stand (1) which can be swung clear to the rear. Prior to operation the jack stand must be swung to the rear as follows:

- Pull pin (2) out of **position I**.
- Swing jack stand (1) to the rear.
- Install pin (2) in **Position I** again.



## 3.2 Connecting the Supply Lines

### Hydraulic Connections (1)

- Hydraulic hoses with red caps = double-acting (front width adjustment)
- Hydraulic hose with blue cap = single-acting (operating function)

### Electrical Connections (2)

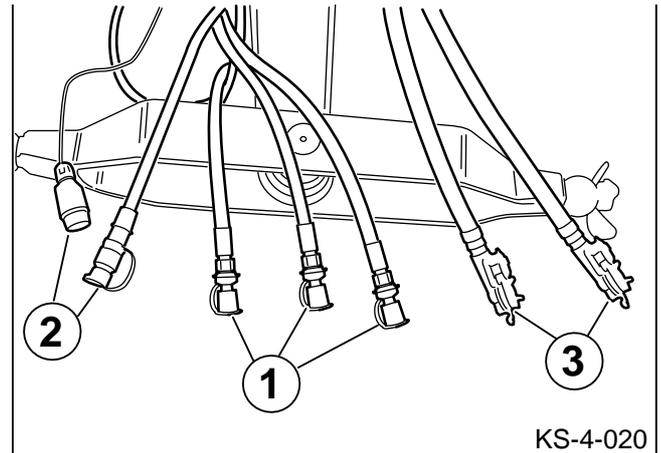
- Connect lighting cable to 7-poles
- Connect electro-magnetic controls.

### Connection of the pneumatic brake system (3)

- Connect brake hose with “yellow” coupling head (brake pipe)
- Connect brake hose with “red” coupling head (reserve line)



**Always insert and lock the yellow air brake coupling first. Disconnect the couplings in reverse order (i.e. red first).**



KS-4-020

### 3.2.1 Hydraulic System



**When connecting the hydraulic hoses, it should be ensured that the hydraulic systems, both in the tractor and unit, are not pressurized! Ensure cleanliness!**

The swather requires a single and a double acting hydraulic connection to the tractor.

The hydraulic lines should be connected to the tractor in the following manner:

- Hydraulic line (blue cap) to single-acting hydraulic line
- Both hydraulic lines (red cap) to double-acting hydraulic line

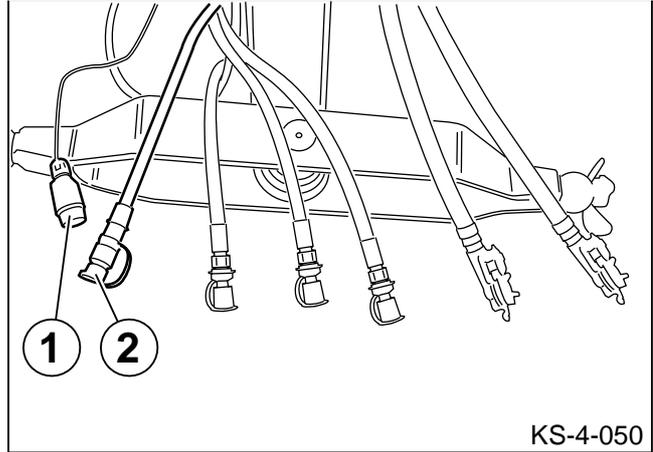
## 3.2.2 Electrical Supply

Electrical connection occurs using three plug connections.



**If necessary, the constant current socket and the support for the control unit should first be on the tractor.**

- Insert the lighting equipment plug (1) into the lighting equipment socket of the tractor.
- Insert the plug from the electric current supply cable (2) into the constant current socket of the tractor.



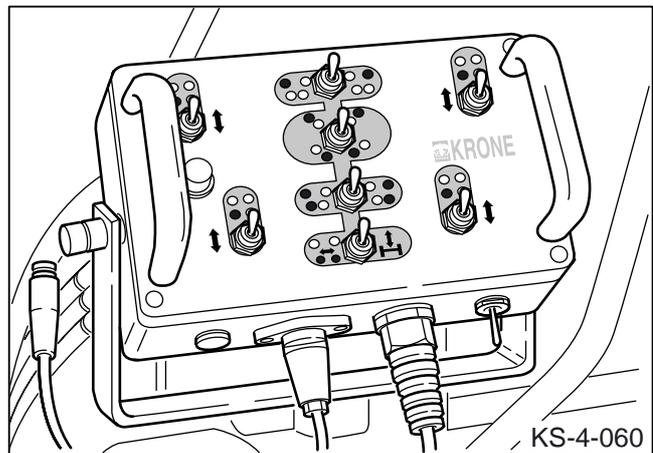
KS-4-050



**When inserting the plug, ensure that plugs and sockets are dry and clean. Dirt and moisture can lead to short-circuits!**

**If there is a power cut in the electrical system, check the fusing first!**

- Mount the electrical control unit in the tractor in such a way that this may be easily reached during work.

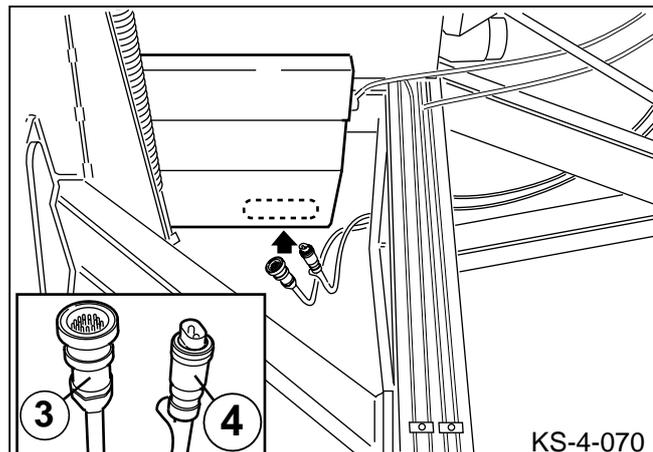


KS-4-060

Insert plug for control cable (3) and the plug (4) for the electric power supply control unit in the switching distributor socket.



**Caution!**  
**During welding and repair work on the implement or tractor, both the current supply from the tractor to the implement and the control cable between the operation device and the swather must be disconnected.**  
**(Pull out the plug)**



KS-4-070

### 3.3 Universal Drive Shaft



Check the slewing range and clearance for the universal drive shaft! Contact between the universal drive shaft and the tractor and equipment may lead to damage (e.g. drawbar, trailer block). Make sure that the universal drive shaft is the correct length when changing tractors!



Protective gear must be installed on the tractor and on the machine. Only the universal drive shaft supplied may be used.

**Important: The swather has been designed for a PTO speed of max. 540 r.p.m. and should never be driven at a higher number of revs.**

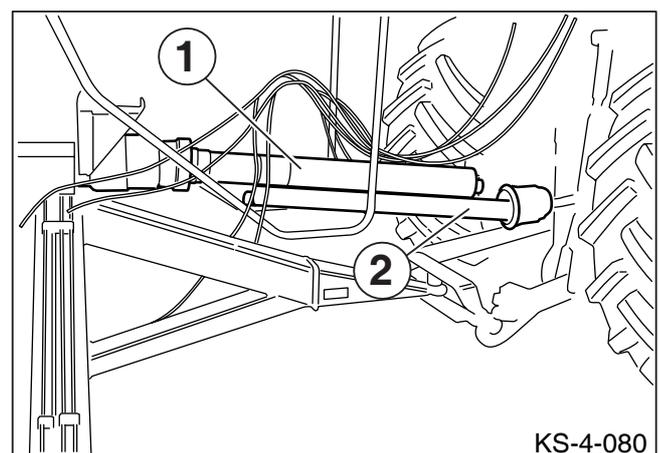
- Observe the correct connection direction.
- Connect the wide-angle universal shaft joint (free running machine) and secure protective tube with the chain
- Adjust the length according universal drive shaft manufacturer's recommendations (see also enclosed operating manual)

#### 3.3.1 Length Adjustment of the Universal Drive Shaft



Adjustment of the universal drive shaft is only required during initial operation of the rotary swather or if the tractor is changed.

- Take apart the universal drive shaft.
- Clip one half (1) and (2) onto the tractor and the other to the implement.
- Move the rotary swather to the position where the universal drive shaft is at its shortest. (**headstock steered up to the limit stop**)
- The rest of the procedure can be found in the manual provided by the universal drive shaft manufacturer.



KS-4-080

## 3.3.2 Overload Safety Devices

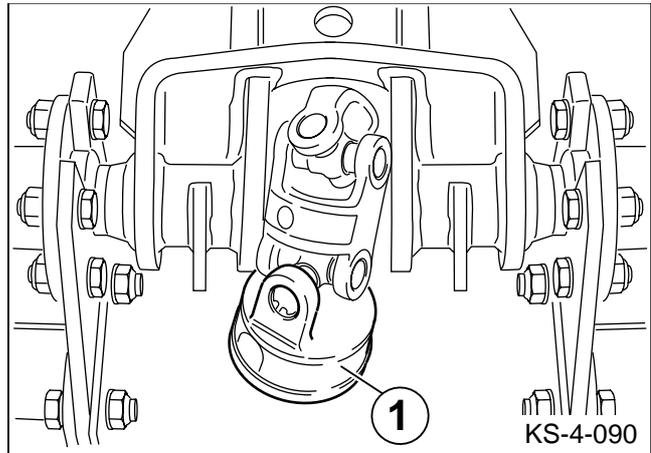


Overload couplings prevent damage to the tractor and equipment. Thus the guarantee will cease to be valid if the overload coupling torque is altered by tampering.

Swather disks are secured against overloading by the star-ratchet couplings.

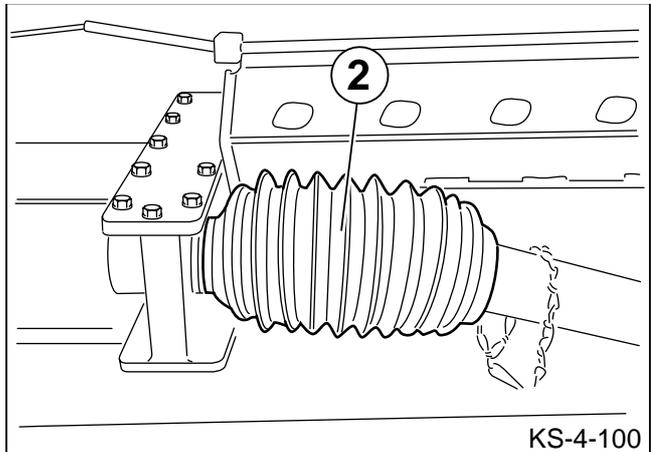
These are, in the case of

- the rear swather disks, on the side output unit (1),



- in the case of the front swather disk, on the connecting universal drive shaft (2) at the transfer gearbox

In the event of overloading, the ratchets produce a scraping noise. Immediately turn off the universal drive shaft to prevent wear and damage.



### 3.4 Electrical Operation Terminal



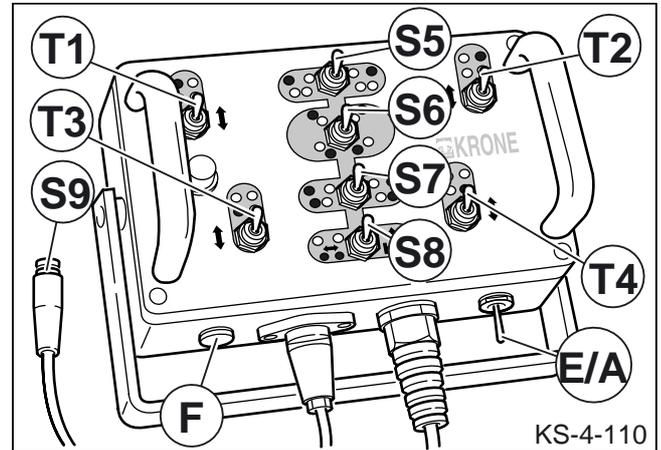
Fix the operation terminal with the aid of the plug-in button within reach of the driver in the tractor cab and connect the cable to the swather. Cable installation should be carried out in such a way that operational safety is ensured.

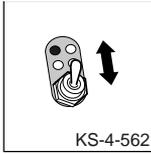
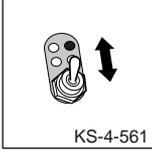
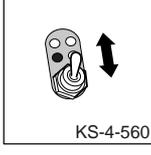
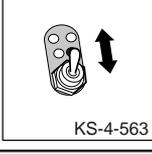
On/off: Switches the operation terminal on or off.  
F: fuse

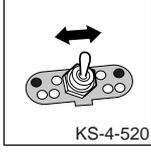
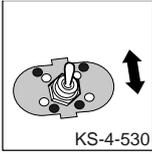
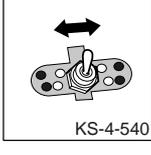
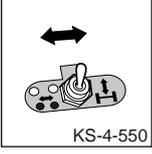
Preselection of the hydraulically actuated machine functions is switched by the operator at the operation terminal. The single-acting control device is then actuated until the function is carried out. The indicator lamp lights up, when a function is switched on.

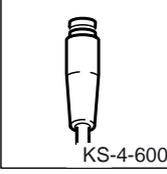


**Only one function may be switched on at each time, at the same time, all other switches must be switched to neutral position = central position!**  
**In the case of electrical failure, operation without the terminal is possible!**



Switch	For working depth	Function	Switch position
T1	swather disk front left	working depth higher neutral working depth deeper	 KS-4-562  KS-4-561  KS-4-560  KS-4-563
T2	swather disk front right	working depth higher neutral working depth deeper	
T3	swather disk rear left	working depth higher neutral working depth deeper	
T4	swather disk rear right	working depth higher neutral working depth deeper	

Pre-selection-switch		Function	Switch position
S5	swather disk front right swather disk front left	RAISE / LOWER neutral RAISE / LOWER	 KS-4-520  KS-4-530  KS-4-540  KS-4-550
S6	both front swather disks both rear swather disks	RAISE / LOWER neutral RAISE / LOWER	
S7	both left swather disks both swather disks right	RAISE / LOWER neutral RAISE / LOWER	
S8	swath width rear axle	WIDER / NARROWER neutral RAISE / LOWER	

S9	If button S9 is pushed only the front swather disk are lifted	 KS-4-600
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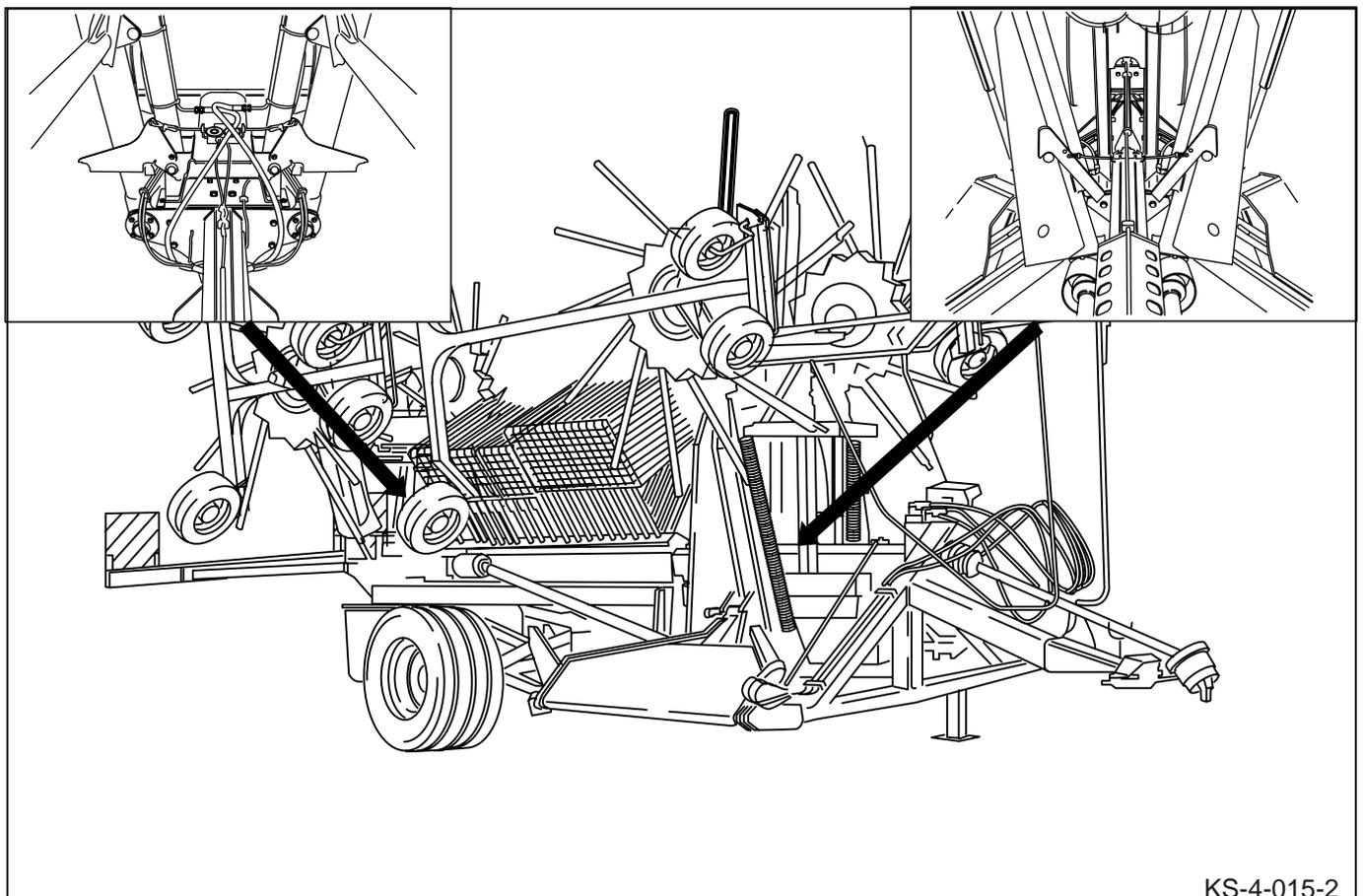
## 4 Regulations for Road Use

### 4.1 Transport of the Swather on Public Roads



Check that the lock is properly engaged before each transport journey.  
When using public roads and paths, the appropriate lighting regulations should be observed.  
Before starting any transport journeys, pressurize the deployment arm hydraulic cylinders so that the deployment arm transport locks are not loaded.

- Tine bars are in transport mounting
- Guard bars are in transport position
- Swather disks are folded in
- Swather disk arms are completely retracted
- Operation terminal is switched off
- Compressed-air brake is connected
- Parking brake has been released
- There is an electrical connection (light)



KS-4-015-2

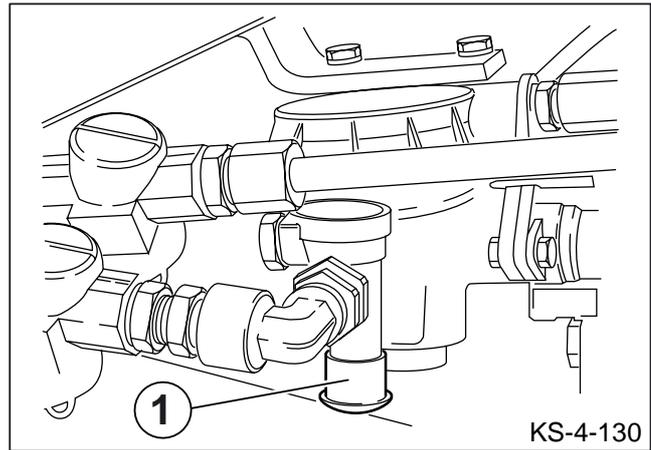
## 4.2 Pneumatic Brake System

The swather is equipped with a two-line compressed air brake system.

- The service line hose couplers are connected to the swather to join the supply line (red) and brake pipe (yellow) of the tractor.
- The release valve (1) for jumping the swather when the compressed air unit is disconnected is located directly on the brake valve.



**Before operating the release valve (1), secure the tractor and/or swather against rolling away.**



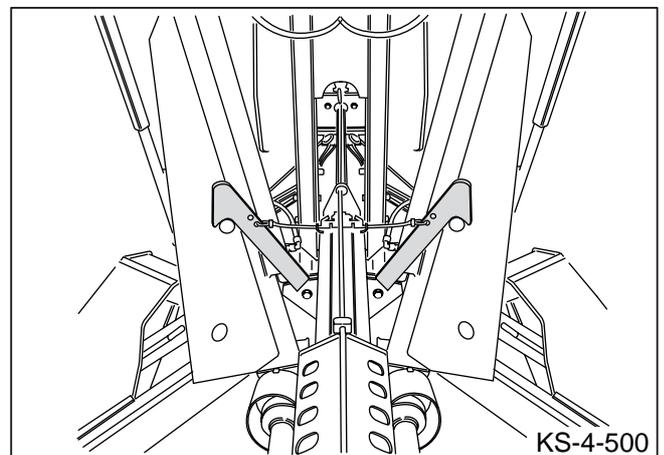
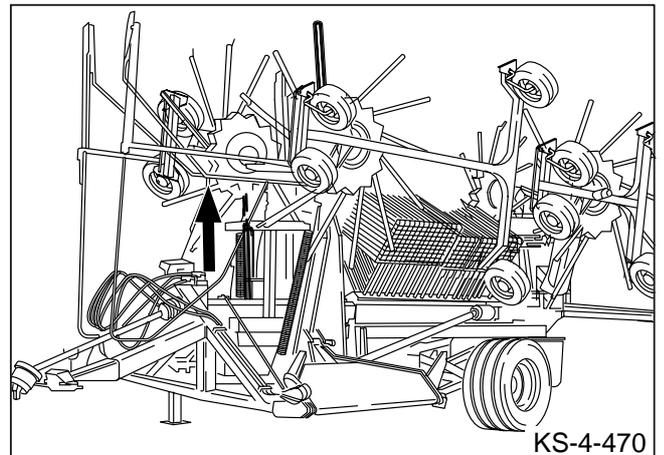
## 5 Use of the Machine

### 5.1 Converting from Transport to Working Position

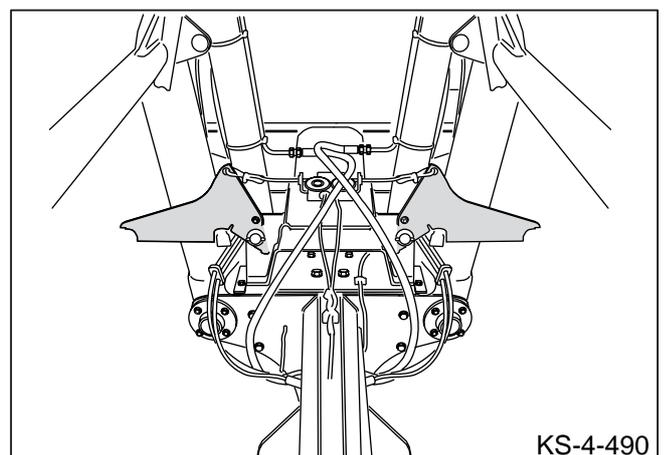


The swather disk arms can be changed from transport to working position, without the electrical operation terminal being switched on. In this event, all swather disk arms are always actuated simultaneously. Before lowering the swather disks, ensure that nobody is in the slewing range of the swather disks!  
Do not run the swather disks in the transport position or with retracted guard bar!

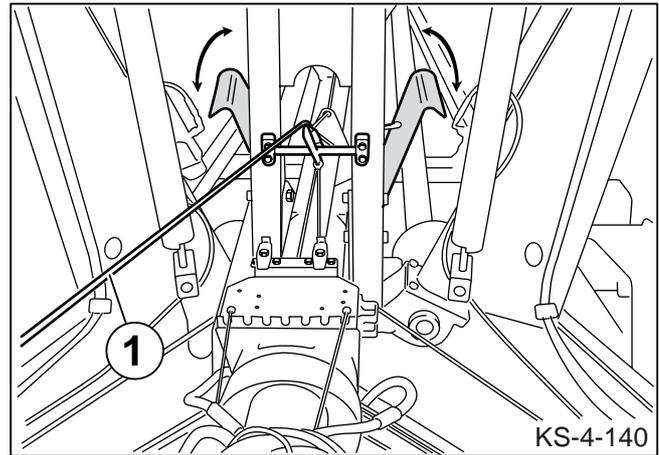
- Raise the front swather disk completely by operating the double-acting control device



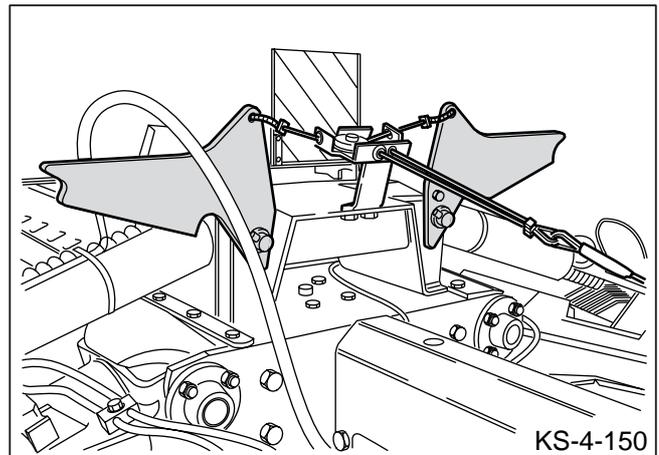
- **Lift** all swather disks by operating the single-acting control device, to relieve the transport lock



- Tighten actuating rope (1) and hold



- Lower all swather disks
- Release actuating cable

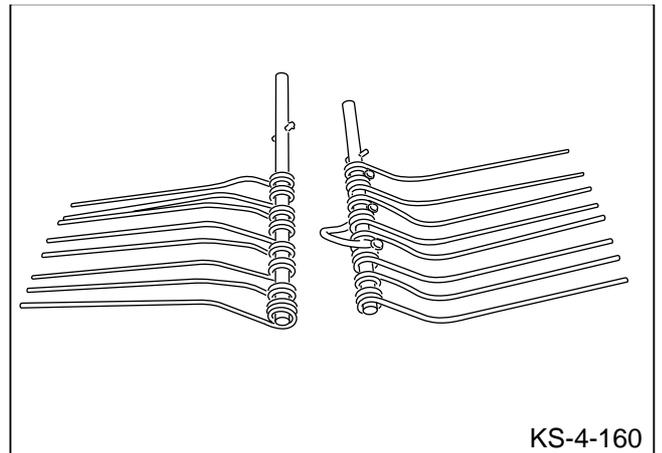


### 5.1.2 Tine Attachment

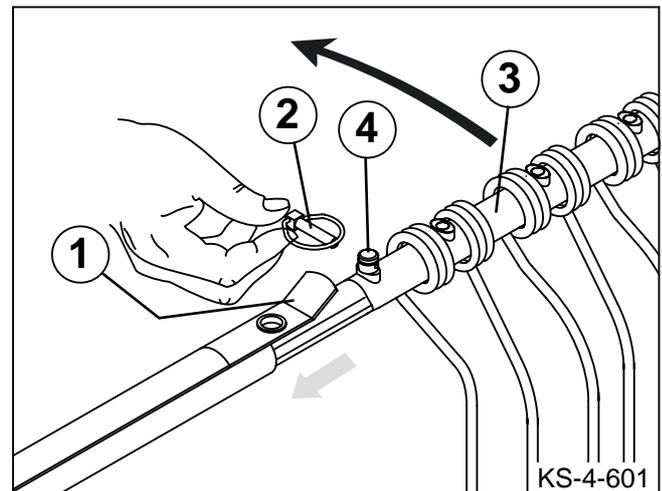


**Only install the tine bars when the drive is switched off and the engine is at a stand still! Remove the ignition key!**

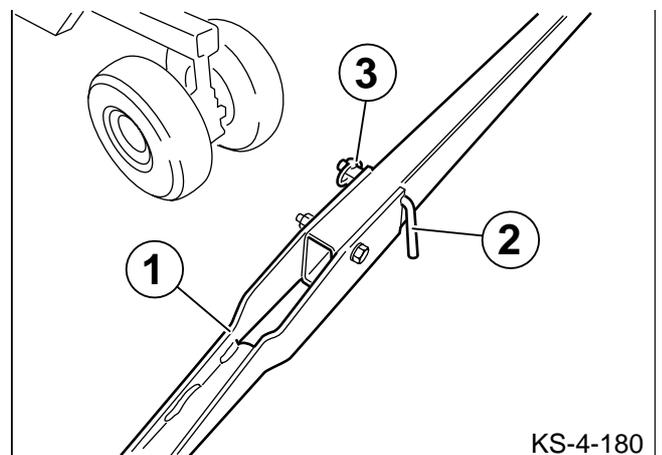
- Remove tine bar from transport mounting and push into the special section tubes on the swather disk
- Do not exchange the front and rear tines
- Put longer tine bars at the front swather disks, shorter tine bars at the rear swather disks



- Assemble left and right tines in succession
- Pull out hinge clip (2).
- Insert tine bar (3) completely into the tine carrier. The safety bolt (4) must engage with the safety hoop (1).
- Reinsert hinge clip (2).



- Fold down outer guard bar (1) and secure with socket pin (2) and hinge clip (3)



## 5.2 Basic Settings



Keep a safe distance from the swather disk when it is turning!  
 Before switching on the PTO shaft, ensure that no one can be caught by the swather disk.  
 When the PTO shaft is running, the swather arms may only be raised to just before their stops.

### 5.2.1 Working Depth

Adjustment of the working depth occurs using electric motors above the swather disks.

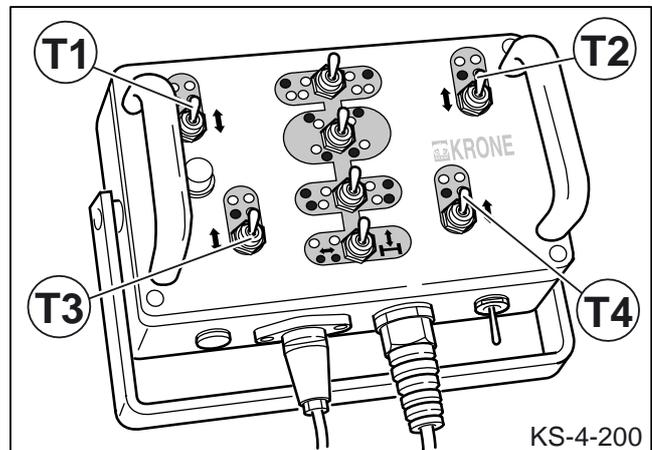


During basic setting of the working depth the rotary swather should be standing on firm, level ground.

- The working depth adjustment is carried out using the operation terminal (switches 1-4).
- The fork points should just touch the ground. Correct during use, if possible during running



- Setting too high = loss of feed
- Setting too deep = feed contamination, turf damage and tine wear

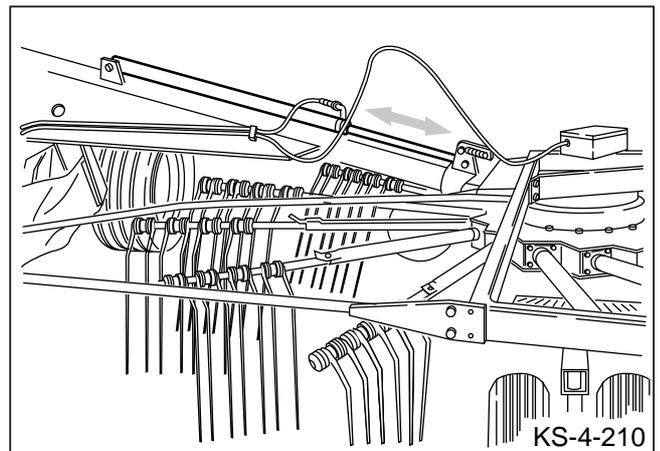


## 5.2.2 Working Width of Front Swather Disks



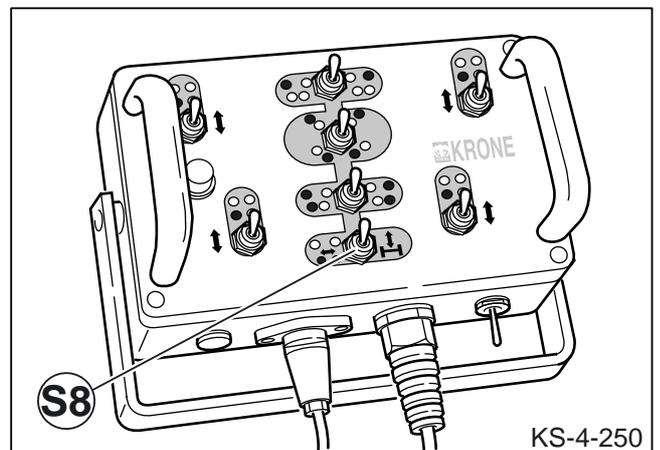
Setting of working and swath widths is dependent on load and condition of the crop as well as the following attachments (e.g. forage wagon, baler or forage harvester).

- Working width adjustment of the front swather disk is carried out at double-acting control device.
- The adjustment of the working width should only take place during running or when in a raised condition.
- The working width may be set at infinitely variables between approx. 11.0 and 12.5 m (see Technical Data).

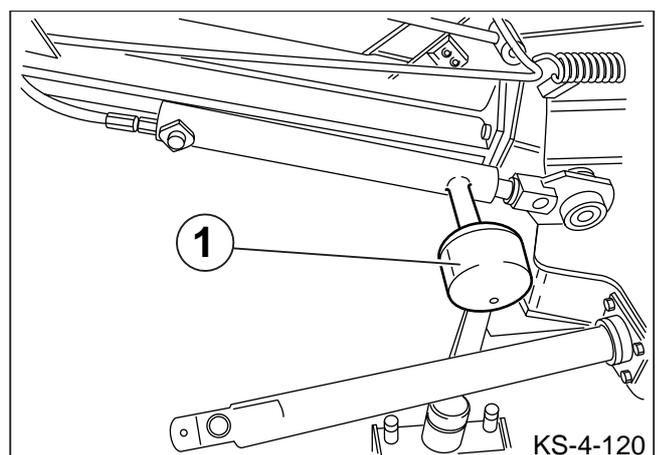


## 5.2.3 Swath Width, Working Width of the Rear Swather Disks

- The rear swather disk swath width setting is carried out using the electrical operation terminal (switch S8) and the single-acting control device.
- Set during use
- Note: distance of rear swather disk to swath rubber: large distance = large amount of crops  
small distance = small amount of crops



When initially actuating the swather width adjustment or after prolonged breaks (e.g. winter storage), fully extend swather disks and put the tractor valves under pressure for at least 15 sec, so that the hydraulic accumulators (1) on the adjusting cylinders are filled.



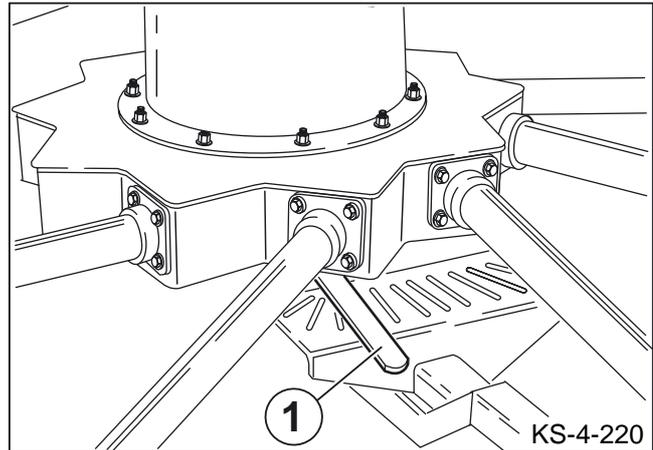
## 5.2.4 Cam Track

The control system of the tine bars may be set using the cam track.



**Before setting the cam track, disengage the PTO, switch off the engine and remove the ignition key!**

- Cam track adjustment is carried out using the adjusting lever (1)
- remove hinge clip, pull adjusting lever upward
- lever set to middle of machine = lift tine out later
- lever set to side of machine = lift tine out earlier
- re-engage and resecure adjusting lever after setting
- In this setting the swath width at the rear swather disk is also affected.



KS-4-220



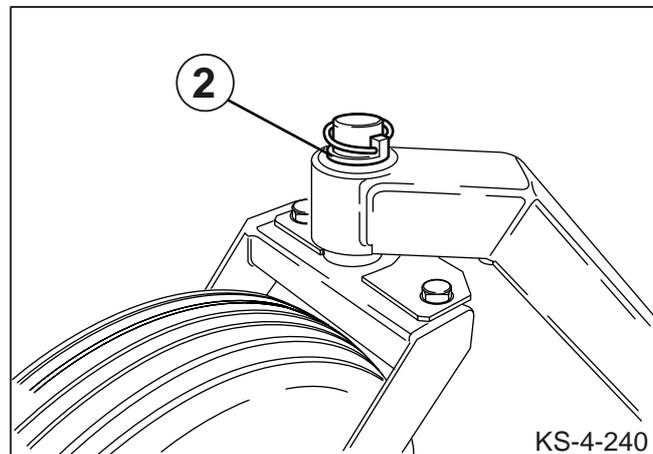
**Heavy, moist crops:**  
lift tine bar later (narrow swather)  
**Light, dry crops:**  
lift tine bar earlier (wide swather)

## 5.2.5 Setting the Inclination of the Swather Disk Chassis

In some conditions of use, it may prove necessary to set the inside of the chassis at a lower level, in order to ensure clean rake work. The plain washers (2) on the wheel bearings can be optionally mounted below or above the chassis wheel bearing for this purpose.

Factory settings:

- inner wheel: one washer below the bearing
- outer wheel: two washers below the bearing



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## 5.2.6 Travel Speed and Drive R.p.m.

The forward speed and the drive speed are dependent on:

- amount of feed
- condition of the ground
- drying rate

Following reference values are valid

- forward speed 6-10 km/h
- PTO speed 450 r.p.m.

## 5.2.7 Front Spring Suspension

The front swather disks have compensation springs to decrease the pressure of support on the individual swather disks.

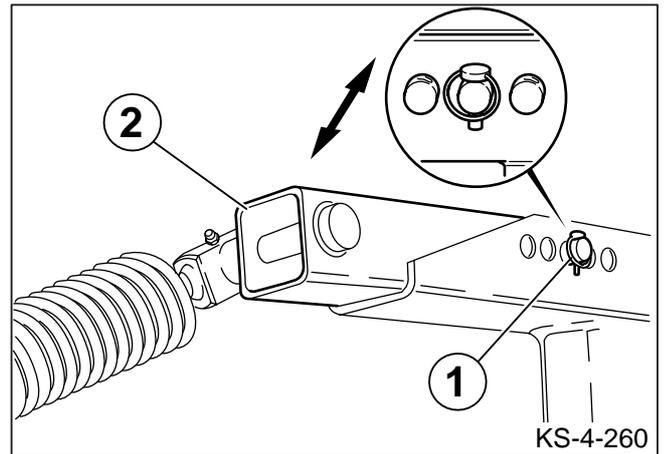


**Before working with the compensation springs, they must be relaxed!**

- Lift the front swather disks until the spring is relaxed and the arm (2) is raised
- The front compensation springs may be set by refitting the fastening pin (1).
- Fastening pin inward = less pressure of support
- The load of the swather disks is factory set for maximum working width.



**When adjusting the working width a correction of the spring suspension may prove necessary.**



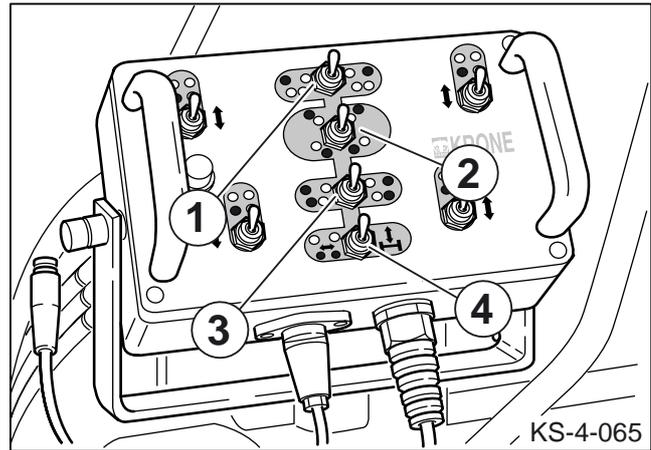
## 5.3 Separate Actuation of the Swather Disk



Do not raise the swather disk arm above the permitted working position when in the transport position, as long as the tractor PTO shaft is switched on. Special care is required when using the swather with a raised rotary disk! Nobody should be within the working range!

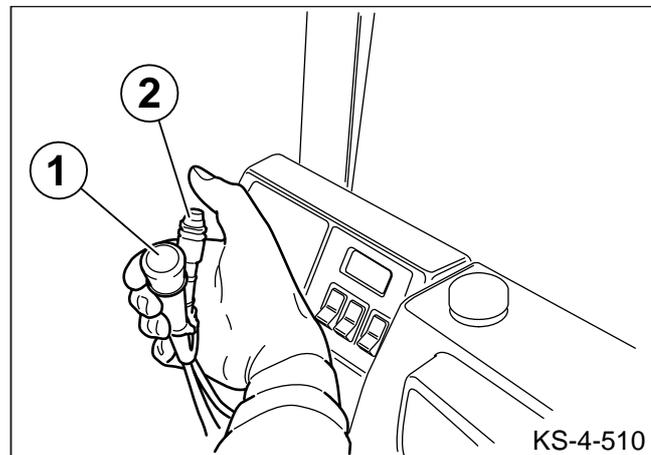
As required the swather disks and the chassis may be electrically preselected using the operation terminal and then lifted or lowered hydraulically:

- four swather disks in operation, basic position
- lifting of the front right or left swather disk (1)
- lifting of the front or rear swather disks (2)
- lifting of the right or left swather disks (3)
- adjustment of the swath width or lifting of the axle (4)



## 5.4 Raising the Swather Disks at the Turning Strip

- Electrical operation terminal
  - Move all switches to neutral
  - Switch S9 (2) and pressurize control hydraulic (1)
- Front swather disks are raised as long as switch (2) is operational.

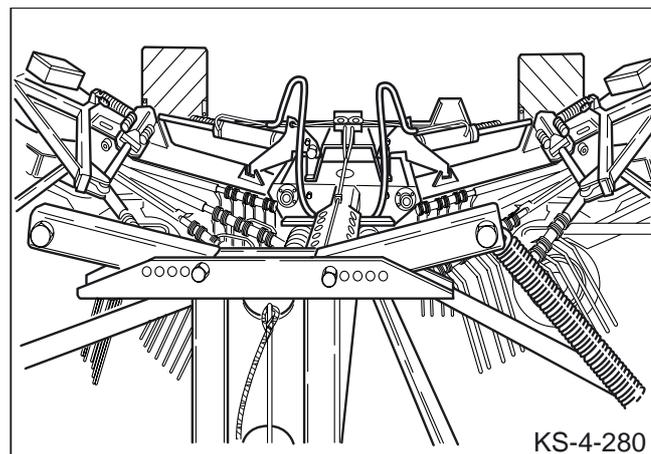


As soon as the rear swather disks have reached the end of the field, do not switch S9 any more and continue to pressurize control hydraulics, rear swather disks and axle are raised.

To lower the rotors set the hydraulic control unit (1) to LOWERING.



Do not activate switch S9 (2) while the rotors are lowering.



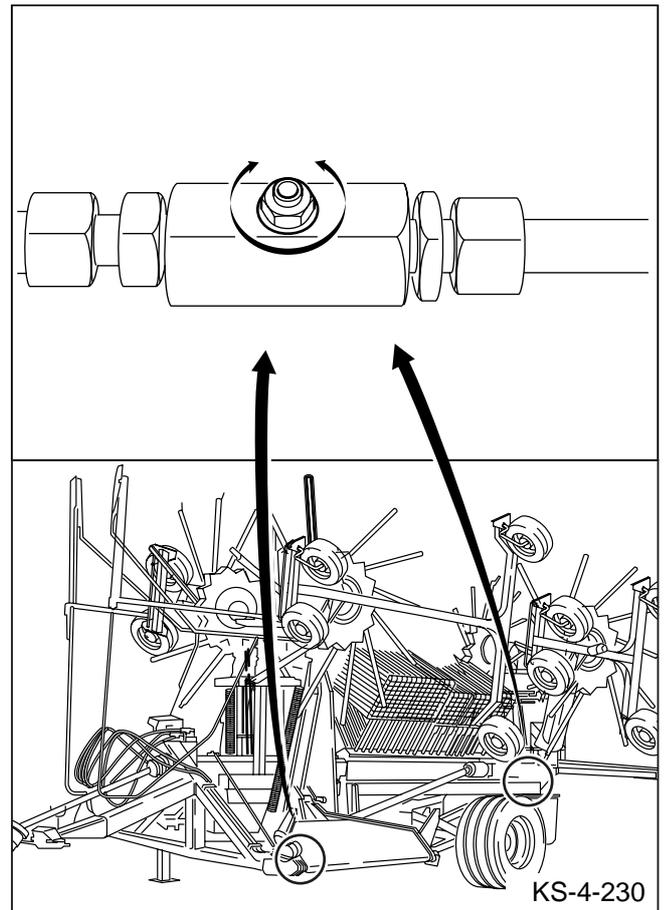
## 5.5 Raising Speed of the Swather Disk Arms

The lifting speed of the individual swather disk arms can be stopped by the throttle.

Slacken the lock nut.

- adjustment nut turned to the right = throttle closed = lifting speed slower
- adjustment nut turned to the left = throttle opened = lifting speed faster

The throttle is factory-set.



## 5.6 Conversion from Working to Transport Position

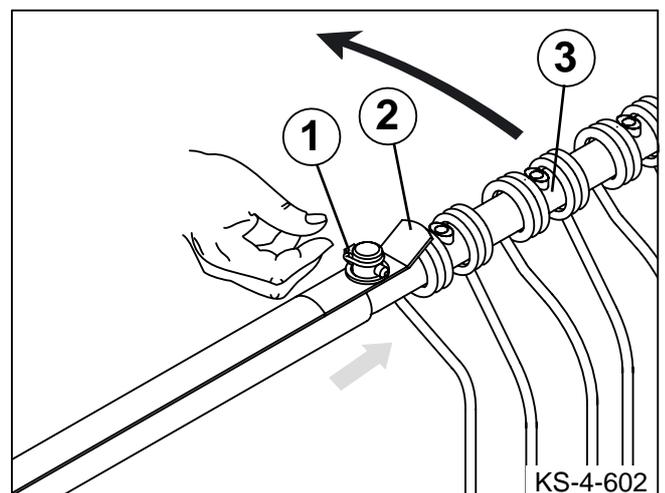
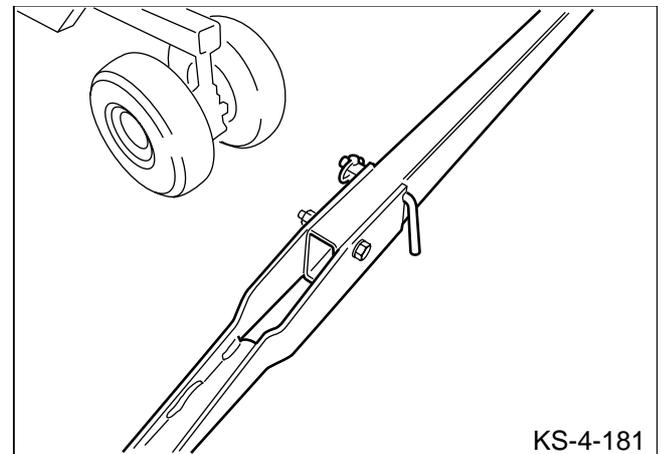


**Before raising the swather disk above the working position, turn off the PTO shaft and wait until the swather disks comes to a standstill!  
Move only onto firm, level ground.**

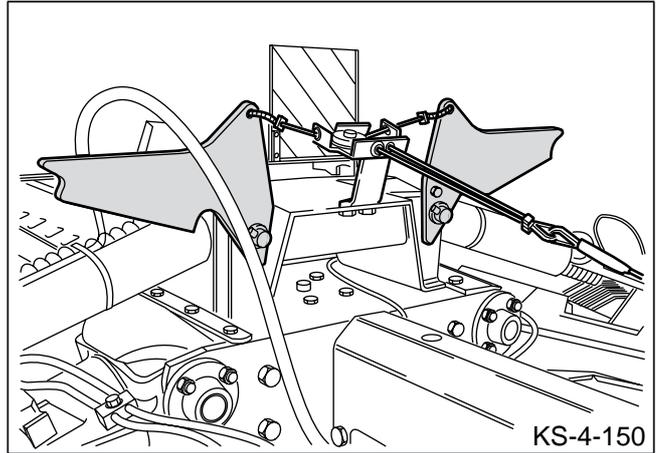
- Put all switches of the electrical operation terminal into the neutral position
- Fold in the front swather disk guard bar

Pull out tine bars and insert into transport mounting.

- Pull out hinge clip (1).
- Lift up safety hoop (2).
- Pull tine bar (3) out of the profile pipe.
- Reinsert hinge clip.

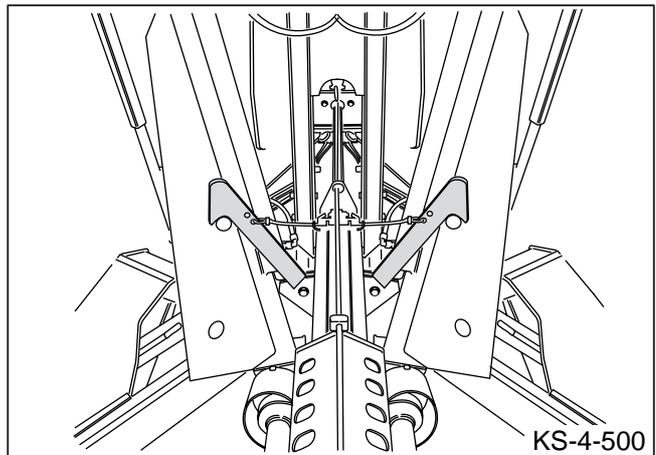


- Tighten actuating rope and hold
- Lift all swather disks at the same time

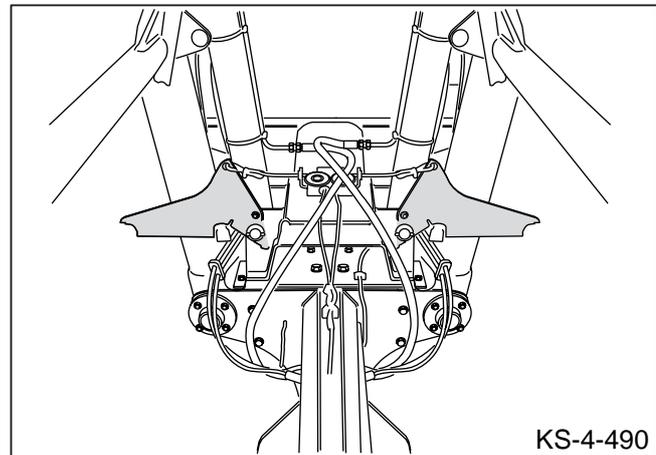


**It should be checked that the swather disk locking is correctly engaged before any on-road driving.**

- Release actuating cable
- Check front swather disk locking



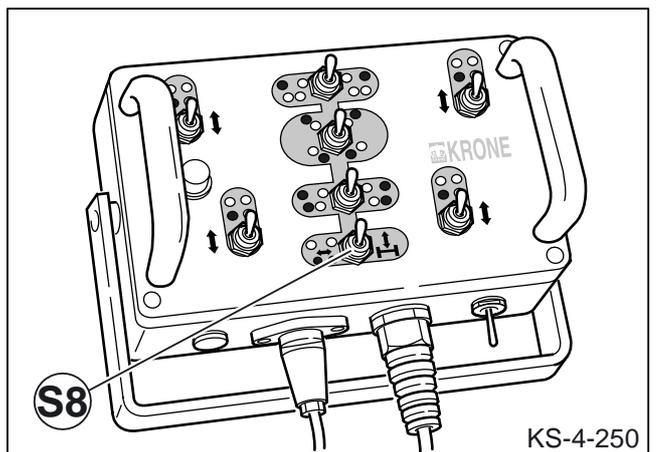
- Check rear swather disk locking



- Preselect switch S8 on the electrical operation terminal and retract rear swather disks with single-acting control device
- Retract the front swather disk with the double-acting control device
- Lower axle to lowest position
- Switch off electrical operation terminal



**Before starting any transport journeys, pressurize the deployment arm hydraulic cylinders and then set the tractor hydraulics to “neutral”, so that the deployment arm transport locks are not loaded.**



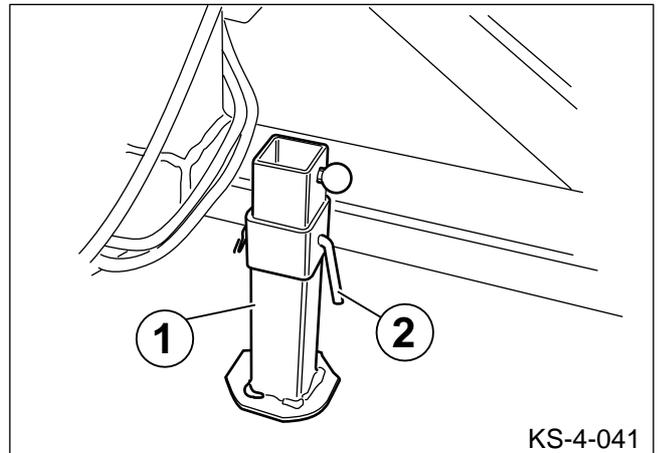
## 6 Disassembly



Ensure that the ground is firm and even, when turning off the rotary swather. Nobody should be between the tractor and the rotary swather during raising or lowering operations.

### 6.1 Drawbar

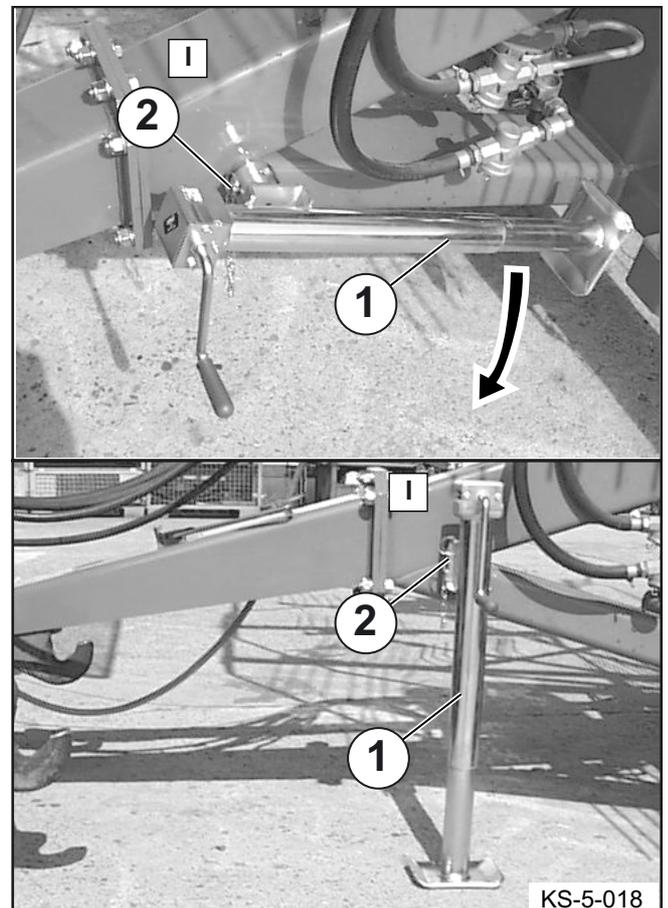
- Lower the parking leg (1) and secure it with an insertion pin (2)



### 6.2 Swinging drawbar (optional)

When storing the rotary swather unfold the jack stand as follows:

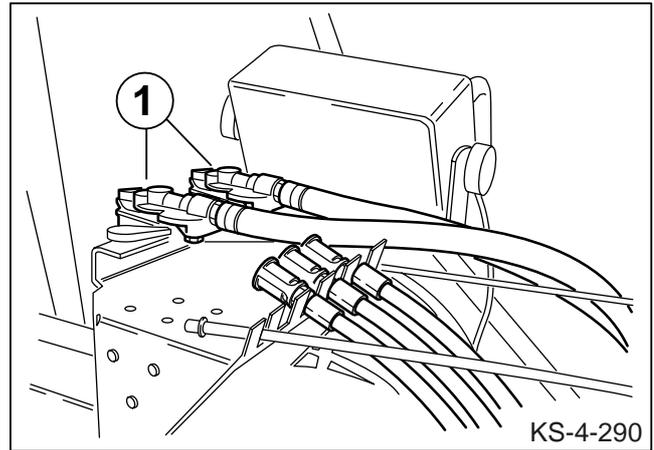
- Pull pin (2) out of **position I**.
- Swing down jack stand (1)
- Install pin (2) in **position I** again.





## Disassembly

- Disconnect the supply lines and insert in the support provided
- Pull off universal drive shaft and put into mount
- Lower lower link arm until the swather is resting on the jack stand and uncouple it

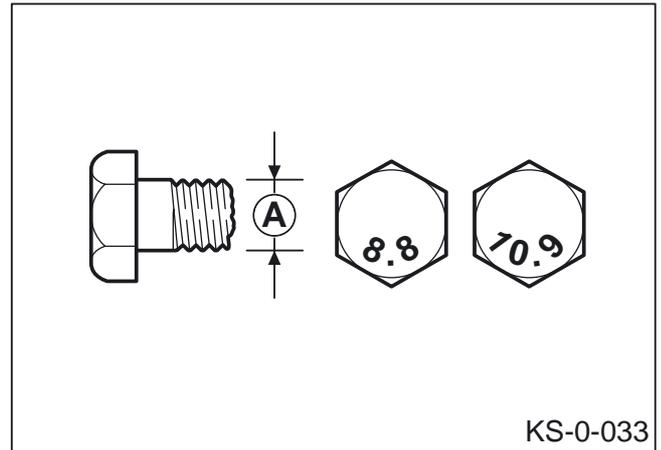


## 7 Care and Maintenance



During welding and repair work on the implement or tractor, both the current supply from the tractor to the electromagnetic operation and the control cable to the machine must be disconnected (pull out plug).

If these safety precautions are not followed, there is a danger of injury during repair work, as the hydraulic systems are still under pressure and thus a starting process may be involuntarily set into action. Furthermore, the electronics may be destroyed during welding work.



KS-0-033

A = thread size  
(Resistance class is given on the bolt head)

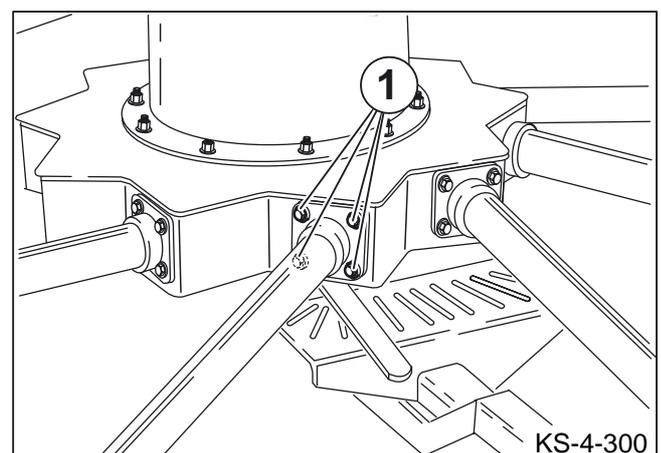


In order to guarantee trouble-free operation of the rotary swather and to minimize wear, definite care and maintenance intervals must be observed. This includes the cleaning, greasing, lubrication and oiling of assemblies and components.

Regularly check that nuts and bolts are properly seated and tighten if necessary! See table opposite for torques.

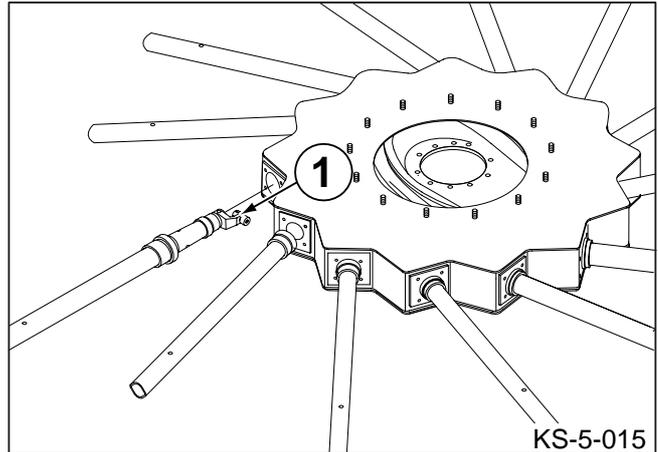
A Ø	5.6	6.8	8.8	10.9	12.9
	M <sub>A</sub> (Nm)				
M 4		2,2	3,0	4,4	5,1
M 5		4,5	5,9	8,7	10
M 6		7,6	10	15	18
M 8		18	25	36	43
M 10	29	37	49	72	84
M 12	42	64	85	125	145
M 14		100	135	200	235
M 14x1,5			145	215	255
M 16		160	210	310	365
M 16x1,5			225	330	390
M 20			425	610	710
M 24			730	1050	1220
M 24x1,5	350				
M 24x2			800	1150	1350
M 27			1100	1550	1800
M 27x2			1150	1650	1950
M 30			1450	2100	2450

At variance to the table above, the following torque M<sub>A</sub> (Nm) applies for the bolts (1) on the bearing arm: 40 Nm



KS-4-300

Tightening torque  $M_A$  (Nm) of the guide roller nuts M16x1,5  
 (1): **90 Nm**

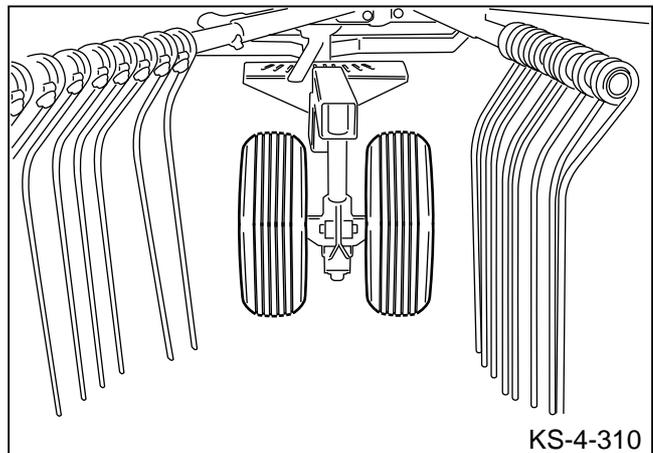


## 7.1 Tyres



**Installation of wheels and tyres requires special knowledge and the availability of proper tools!**  
**Repair work on the tyres and wheels may only be carried out by specialist personnel using appropriate tools!**  
**Set down rotary swather on firm, even ground. Place wheel chocks under the tyres to prevent unintentional rolling.**  
**Regularly check that wheel nuts are properly seated and tighten if necessary!**  
**Regularly check air pressure!**

- check the tyre pressure and tyre condition at regular intervals. (values see Technical Data)

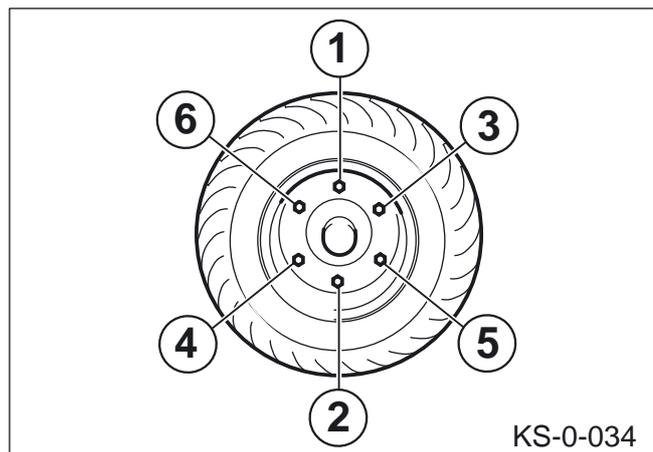


### 7.1.1 Wheel Fixing

- Regularly check that the wheel nuts are seated correctly and tighten, if necessary!  
 Always slacken and tighten the wheel nuts in the sequence shown in the diagram opposite.

Wheel nuts' torque moment: 245 Nm

Check the wheel nuts 10 operating hours after mounting and tighten if necessary.  
 After this, check that the wheel nuts are properly seated every 50 operating hours.



## 7.2 Brakes



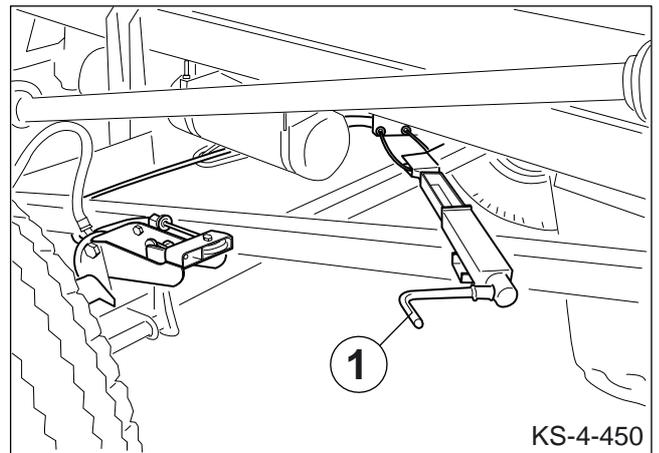
Adjustment and repair work on the axle should only be carried out by specialist workshops!  
Before beginning work on the compressed air unit, ensure that it has been depressurized. Secure the swather from rolling away.

### 7.2.1 Parking Brake

- Activate the parking brake by turning the lever (1)



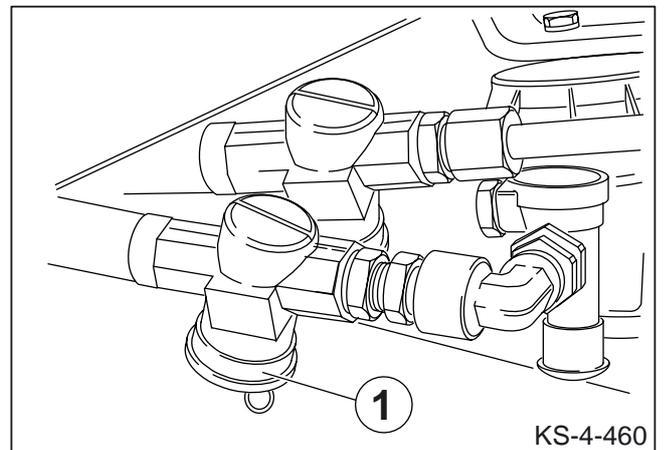
For safety reasons, wheel chocks should be used in addition to the parking brake.



KS-4-450

### 7.2.2 Air Filter

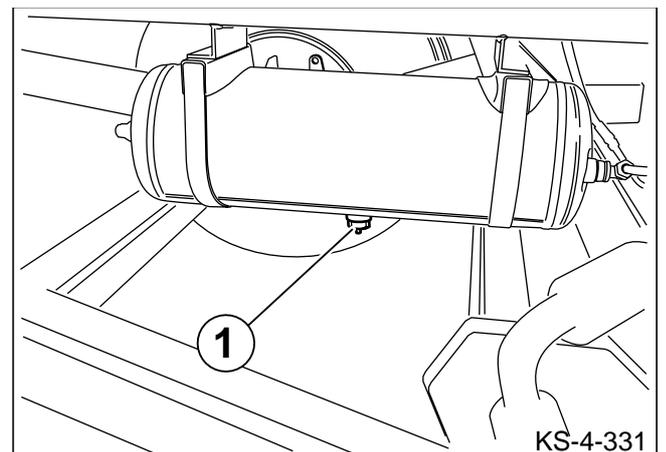
- Clean filter elements (1) at regular intervals



KS-4-460

### 7.2.3 Drain Valve

- the drain valve (1) serves to evacuate air and water from the compressed air reservoir.
- The drain valve (1) should be operated weekly or every 20 hours



KS-4-331

### 7.3 Lubrication



Repair, maintenance and cleaning work as well as the rectification of malfunctions may only be carried out when the drive is switched off and the engine is at a stand-still! Remove the ignition key!  
 Avoid skin contact with oil and grease.  
 In the case of injuries caused by oil escaping, immediately consult a doctor.  
 Follow all further safety instructions, to avoid accidents and injuries.



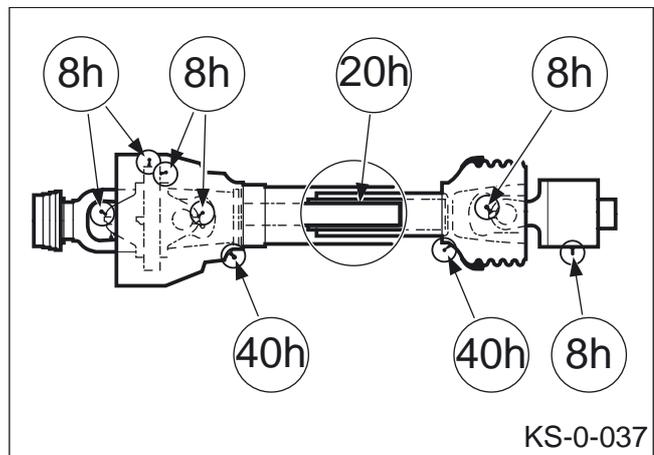
It is preferable to use plant-based oils and greases.



For reasons of clarity, each of the lubricating points are shown at one position of the rotary swather. There are also lubricating points on the other side, at the corresponding positions (mirror-image).

#### 7.3.1 Universal Drive Shaft

- Lubricate centre cross every 8 working hours
- Lubricate protective funnel every 40 working hours
- Lubricate slide profiles every 20 working hours.  
 (see enclosed operating manual)



### 7.3.2 Swather Disk Gearboxes

There is no need for maintenance of the swather disk gearboxes.

### 7.3.3 Swather Disk Housing

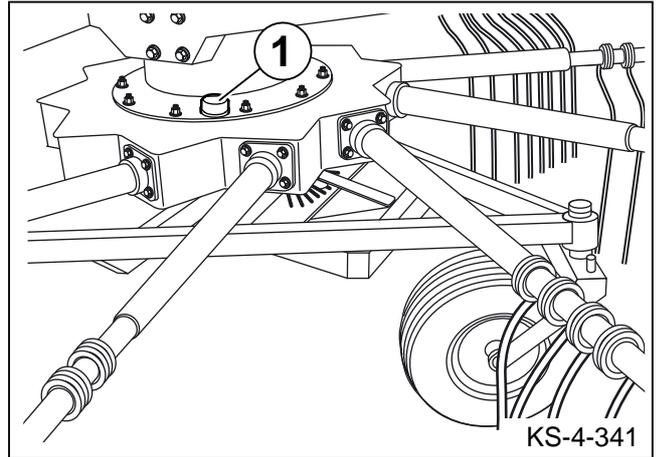
Top up each swather disk housing with approx. 1.5 litres of flowgrease annually.

#### Rear swather disk housing:

Unscrew ventilation filter (1) and pour in flowgrease.

#### Front swather disk housing:

Remove one control arm and pour flowgrease into the aperture thus exposed.



During assembly or disassembly of a control arm using the disassembly tool (1), the control arm behind in the direction of rotation must also be loosened in its bearing, and pulled out by approx. 20 mm. (tine bar should be removed.)

#### Disassembly of control arm:

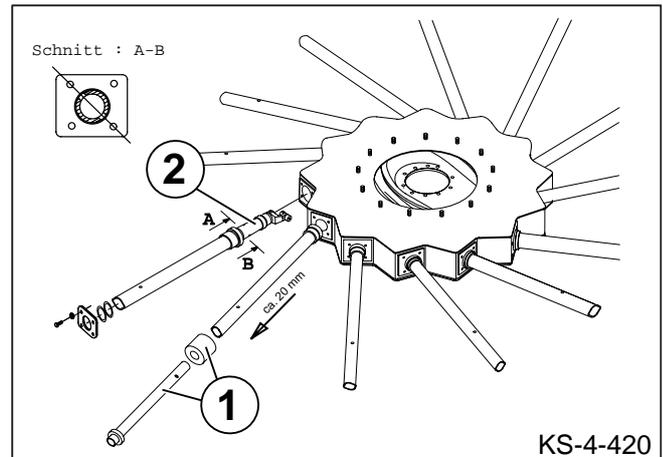
- remove bolts with flange plate
- push disassembly tool into control arm and peg out
- extract control arm from the cone with the tappet outwards and remove.

#### Assembly of control arm:

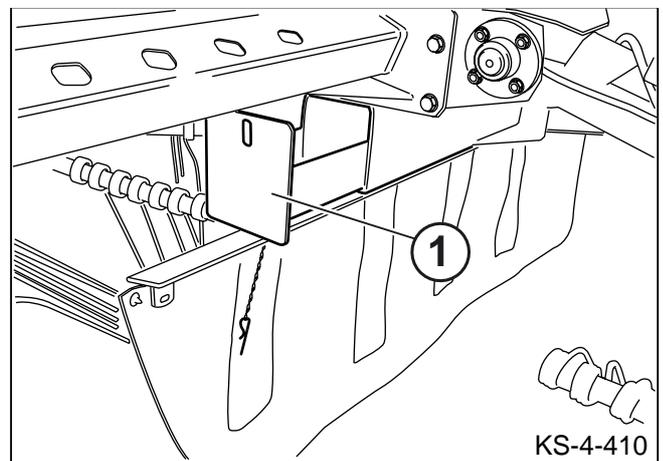
- push control arm through the swather disk aperture
- introduce control roller into the cam track and push into the swather disk cone.

**Note the position of the lubrication holes in the bearing sleeve (2) - see profile AB in diagram KS-4-420**

- Push flange plate over bearing arm and mount bolts. Tighten the bolts crosswise.



The disassembly tools are in the tool box (1) of the rotary swather. This is located at the back end of the swather bar, under the rear tine infeed.

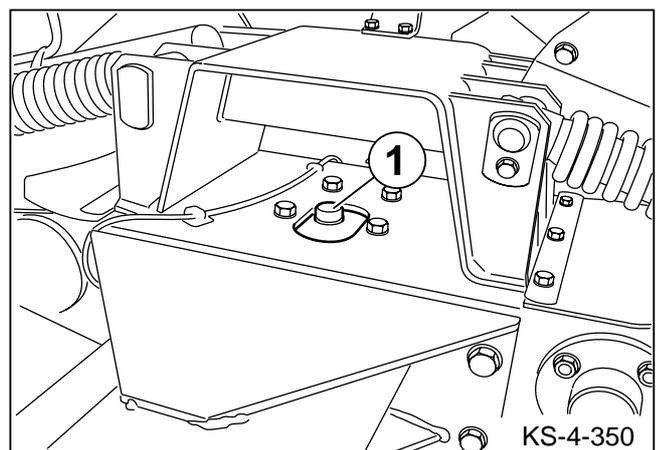


### 7.3.4 Main Gearbox

The oil must be changed at the given intervals in the main gearbox.

Remove used oil by suction!

Inspection and filling screw (1)

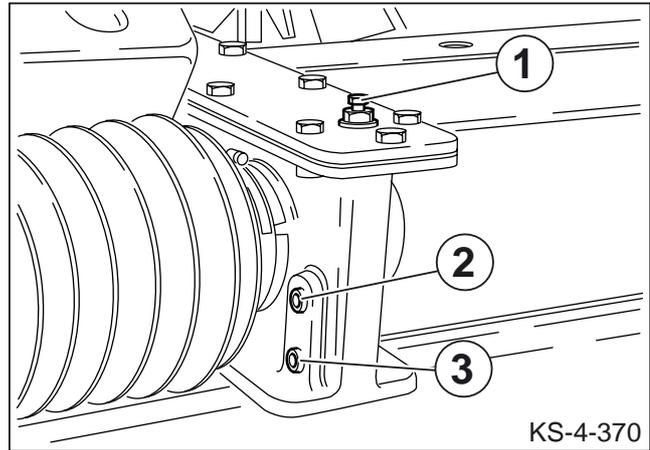


### 7.3.5 Transfer Case

Upper filling screw (1)

Middle check screw (2)

Lower discharging screw (3)



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### 7.3.6 Angle Drive at Boom

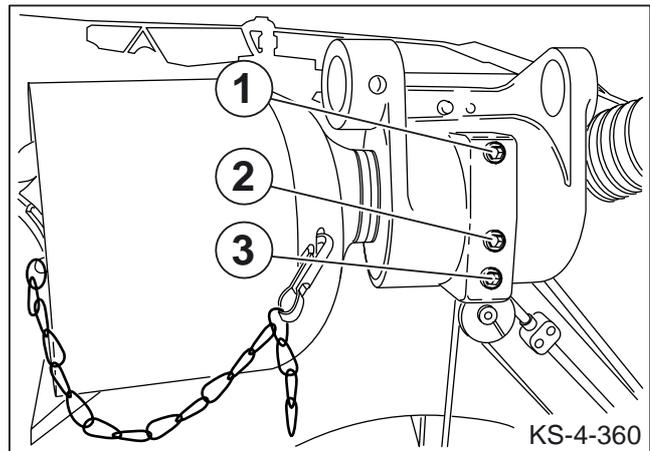
#### Angle Drive at Boom (direction of travel left)

Upper filling screw (1)

Middle check screw (2)

Lower discharging screw (3)

The oil must reach the hole of the check plug. Fill in fresh oil if necessary.



KS-4-360

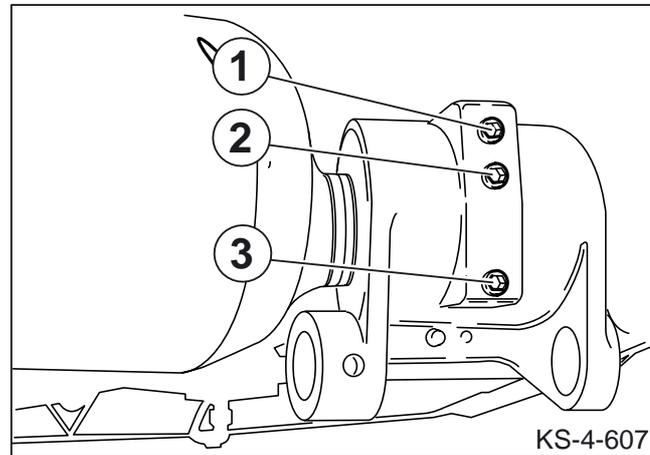
#### Angle Drive at Boom (direction of travel right)

Upper filling screw (1)

Middle check screw (2)

Lower discharging screw (3)

The oil must reach approx. 40 mm under the hole of the check plug. Fill in fresh oil if necessary.



KS-4-607

### Filling quantities and lubricant designations

	Amount in litres	Designation/brand	Oil change/monitoring
rear swather disk gearbox	2.0	gear box flow grease GFO35	greased for service life
front swather disk gearbox	4.0	gear flowgrease GFO35	
swather disk housing	8.0	gear flowgrease GFO35	1.5 l /top up after a year
main gearbox	0.5	SAE 90	after approx. 1000 hectares
transfer gearbox	0.6	SAE 90	oil inspection plug
angle drive	0.9	SAE 90	oil inspection plug

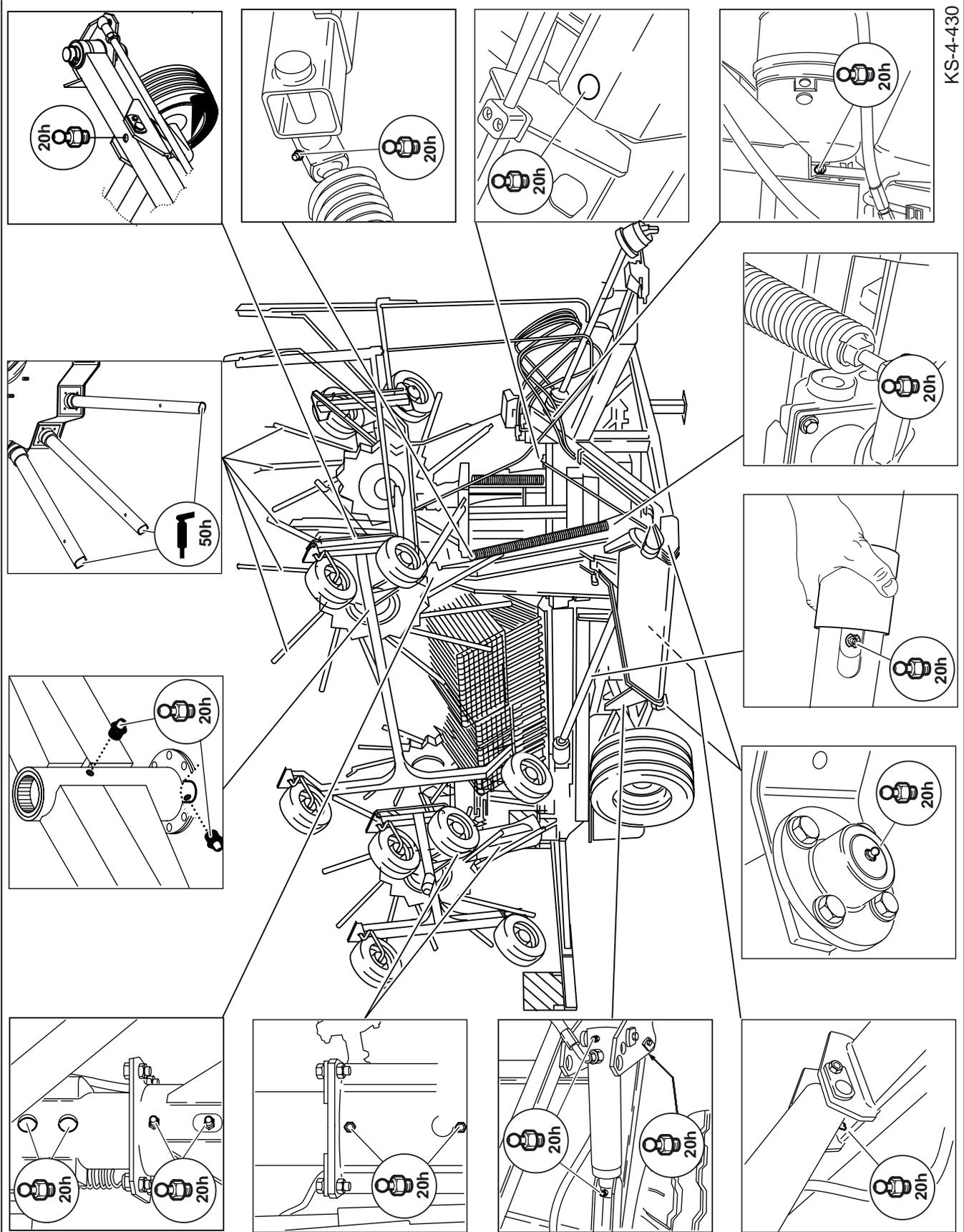
## 7.4 Winter storage

1. Thoroughly clean the rotary swather before winter storage. If a high-pressure cleaner is used, do not aim the water jet directly at the bearing points. Grease all lubricating points after cleaning.
2. Check all moving parts for ease of movement. If necessary, remove, clean and remount after re-greasing. Replace with new parts if necessary. Only use original KRONE spare parts.
3. Lubricate all hinge points.
4. Thoroughly grease machine.
5. Grease the universal drive shaft protecting tubes to keep them from freezing.
6. Set down the rotary swather on a dry site. Do not store near mineral fertilisers.
7. Make good damage to paintwork, thoroughly coat unpainted parts with anticorrosion agent.
8. Grease attachment tube near the sliding seat on the swather disk and on the tine bar.
9. Put the machine on supports to take the pressure off the tyres. Do not let the air out. Protect tyres against sunlight, grease and oil.
10. Make a list of all spare parts required and order in good time. It is easier for your KRONE dealer to supply and install spare parts outside the harvest season. In addition, your machine will be completely ready for operation at the start of the next season.

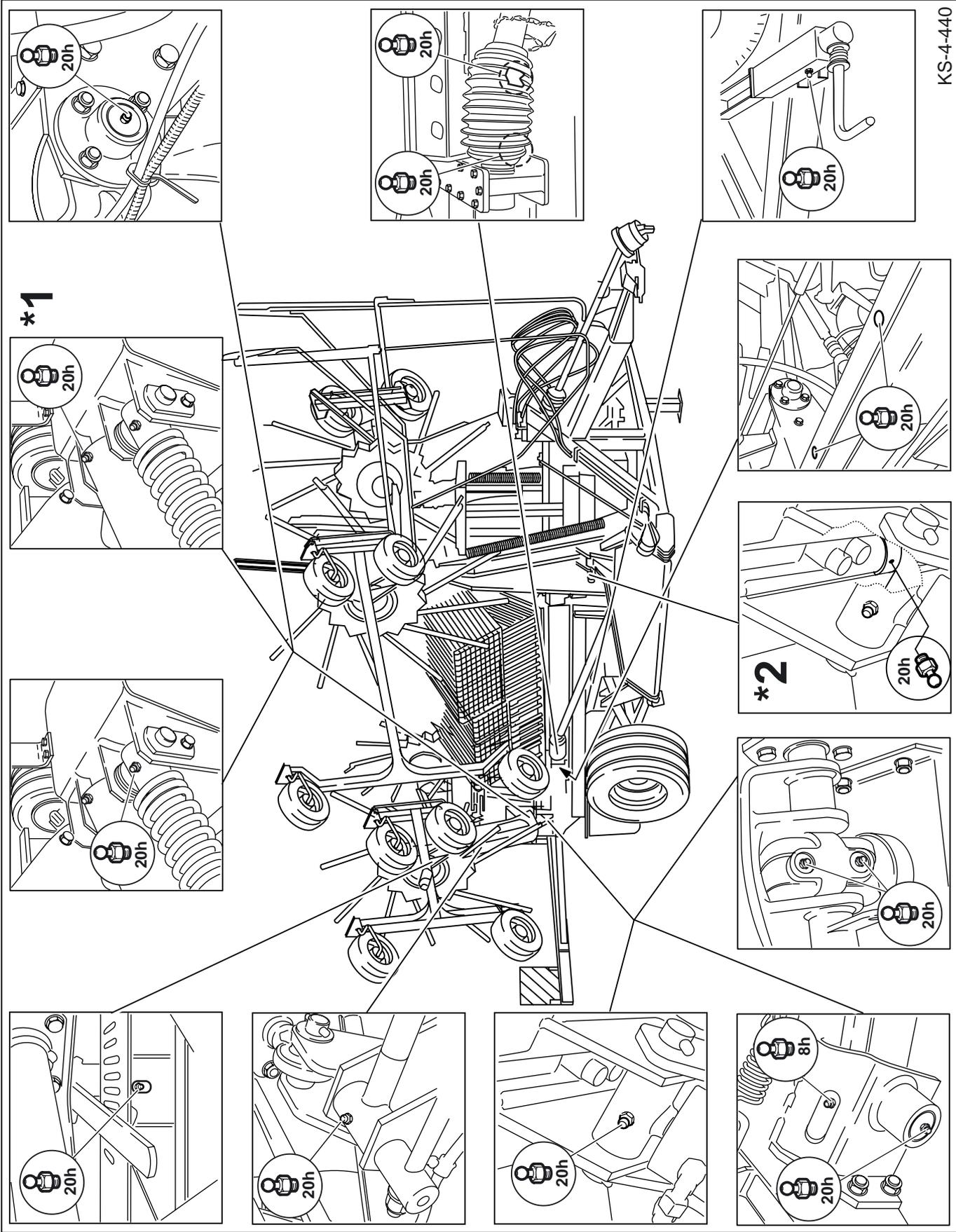
## 7.5. Starting Up Again

1. Wipe off the oil and grease applied as preservative to the machine.
2. Thoroughly degrease the machine. Hence condensation which has possibly collected in the bearings is removed.
3. Check the oil level of the gearboxes, if necessary, top up according to instructions.
4. Retighten all nuts and bolts.
5. Check all machine settings and make any necessary adjustments.
6. Carefully read the operating manual again.

### 7.6 Lubrication Chart



(Specification of lubrication intervals in working hours)



(\*1) NOTE: This lubrication nipple is located on the right-hand side of the machine below the cylinder. The ventilation bore hole of the cylinder is visible, this must never be blocked.  
(\*2) NOTE: Lubricate if the deployment arm is completely retracted.

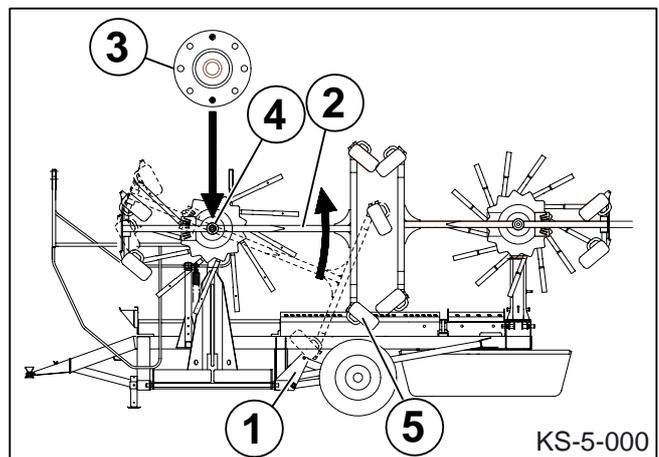
## 8 Appendix – Initial Assembly

Several parts of the machine have not been finally assembled for reasons of transport. In the following, assembly work is listed which must be carried out before initial operation of the machine. As the safety equipment must, in part, also be installed, the machine should not be put into operation until this work has been completed!

**The conversion of the front and rear undercarriages must be carried out with the machine in transport position.**

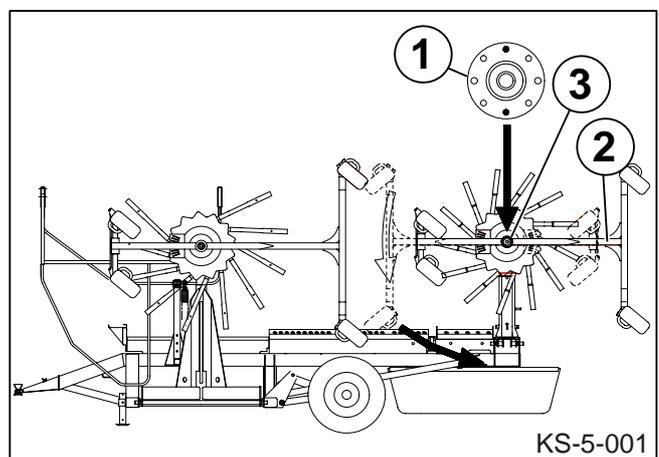
### 8.1 Changing the Position of the Front Swather Disk Chassis

- Remove transport bracket red (1) from main chassis and rotor undercarriage (lock the undercarriage against rotation).
- Fold up rotor undercarriage (2) until the longitudinal arm of the undercarriage is parallel to the longitudinal arm of the swather and the set of holes of flange plate (3) coincides with that of the rotor undercarriage.
- Drive two roll pins 12x12 into the 12 mm holes of the flange plates (3) and secure using bolts M 6x25, two washers 6.4x18x1.6 (for each roll pin) and nuts NM 6.
- Install six bolts M10 x 30, each with a washer A 10.5 and a nut M10, in the remaining holes of flange plate (3).
- Drive grease nipple (4) into the bearing sleeve of the undercarriage.
- Tighten the clamp with thread of the bellows on the bearing sleeve.
- Untie the inner feeler wheels (5).
- The above steps have to be performed at either side.



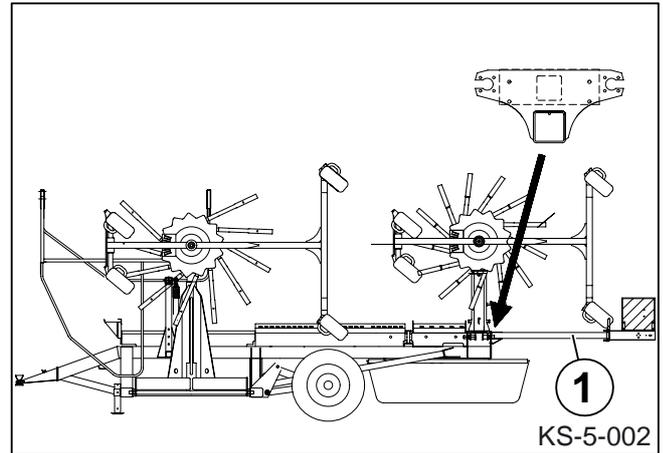
### 8.2 Changing the Position of the Back Swather Disk Chassis

- Remove two bolts M10x30 from flange plate (1) of rotor undercarriage (2) (lock the undercarriage against rotation).
- Fold rotor undercarriage (2) abt. 180° ccw until the longitudinal arm of the undercarriage is parallel to the longitudinal arm of the swather and the set of holes of flange plate (1) coincides with that of the rotor undercarriage.
- Drive two roll pins 12x12 into the 12 mm holes of the flange plate (1) and secure using bolts M 6x25, washers 6.4x18x1.6 and nuts NM 6.
- Install six bolts M10 x 30, each with a washer A 10.5 and a nut M10, in the remaining holes of flange plate (1).
- Drive grease nipple (3) into the bearing sleeve of the undercarriage.
- Tighten the clamp with thread of the bellows on the bearing sleeve.
- The above steps have to be performed at either side.



### 8.3 Installation of the rear lighting bracket

- Secure lighting bracket (1) to the main chassis using four bolts M16x30, two washers SKM 16 each and nuts M 16.
- Connect the lighting equipment using the snap-on connections of the cables.

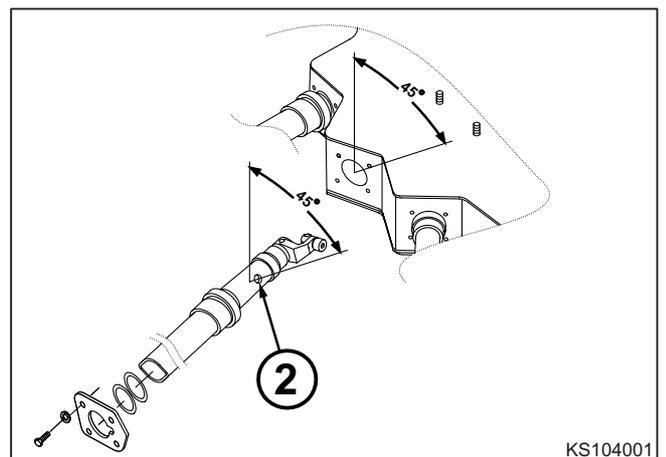
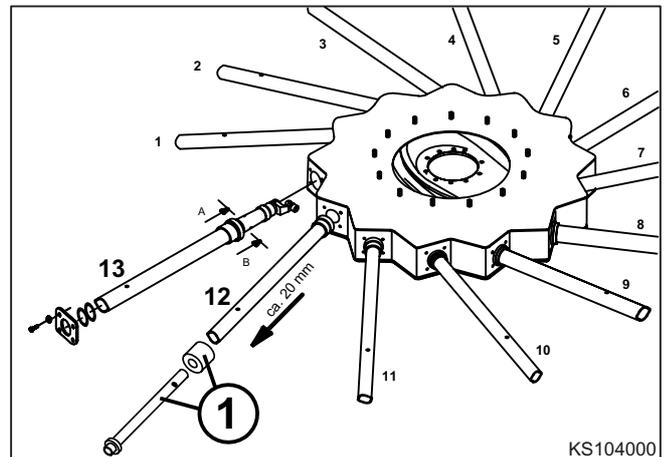


### 8.4 Assembling the Control Arms

1. During assembly or disassembly of a control arm using the disassembly tool (1), the control arm behind in the direction of rotation must also be loosened in its bearing, and pulled out by approx. 20 mm. (tine bar should be removed.)

**Example:** When installing rotor arm (13), rotor arm (12) must be pulled out by approx. 20 mm.

2. Mind the position of the lubricating holes (2) of the rotor arm.
3. When installing the rotor arm, introduce the guide roller into the curved path of the cam track.
4. Turn rotor by hand before operation.

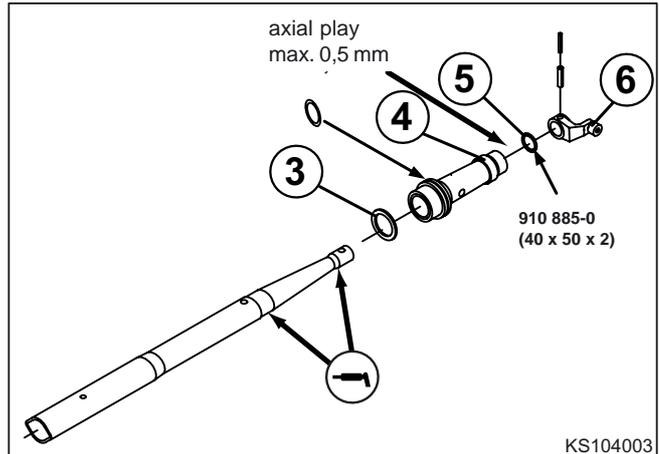


## Assembly:

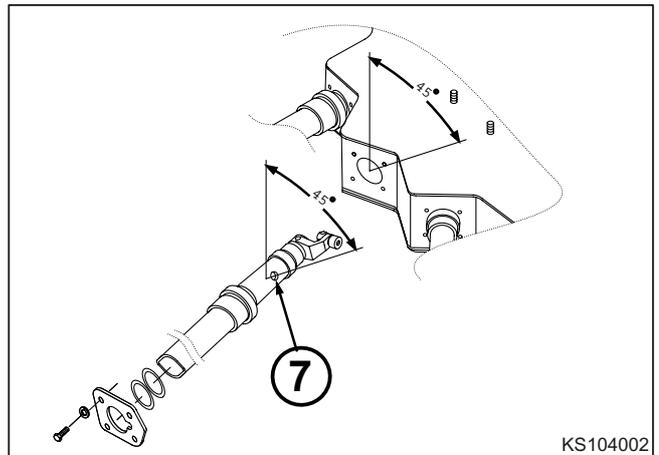
- Put washer (3) onto tine arm
- Grease tine arm in the area of bearing housing.
- Slide bearing housing onto tine arm.
- Install washer (5) on tine arm.
- Fit control arm (6) to tine arm and secure with tension pin and fill pin.
- Please mention not more 0,5 mm axial play.



**When installing complete tine arm please watch lubrication hole position (7).**



KS104003



KS104002

## 8.5 Installation of the Folding Guard Bar

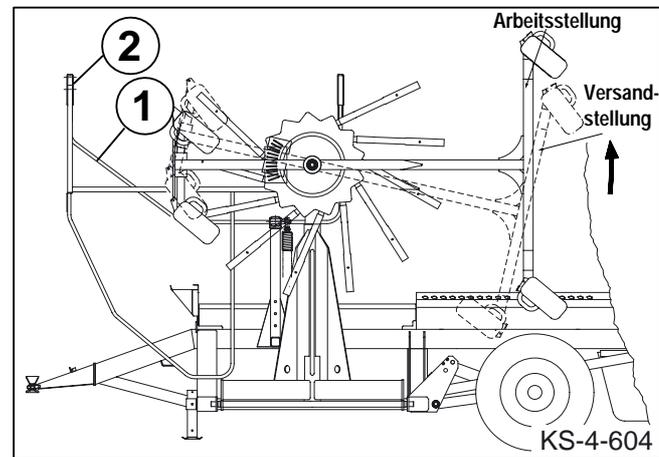
For transportation, the folding guard bar (1) has been mounted in a displaced position at the front swather disk. Remove fastening bolts (2) on hinge and transfer guard bar (1) to outward position.

## 8.6 Installation of Swath Rubber

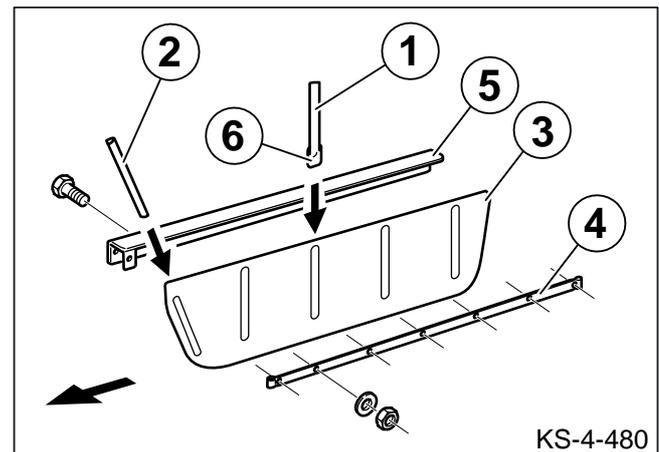
The swath rubber is mounted between the rear swather disks, below the longitudinal frame. The angle rail (5) has been mounted in the factory on the machine.

- Slide protective sleeve (6) onto reinforcement and insert in the pockets of the swath blanket (3) with the steel bar (2).
- Screw the swath blanket (3) onto the angle rail (5) with the steel strip (4).
- Screw steel bar (2) between the angle rail and the clip.

 **Tighten the fixing bolt to such an extent that the steel bar (2) can still swing freely. Note the position of the bar. The arrow in fig. KS-4-480 shows the direction of travel.**



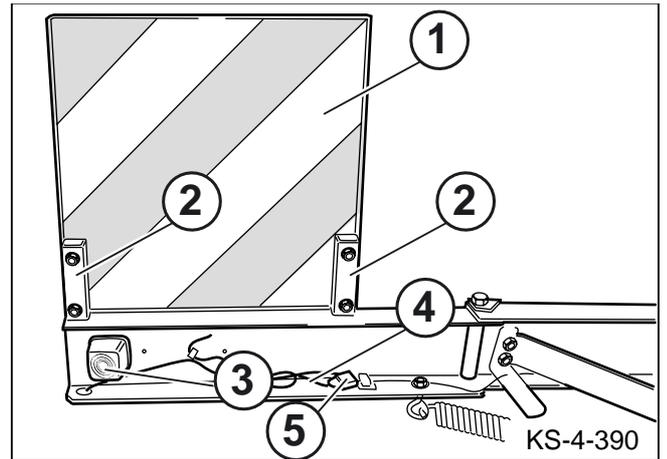
KS-4-604



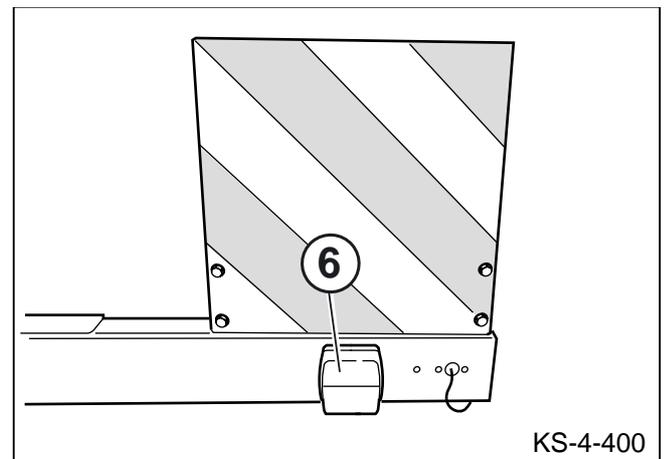
KS-4-480

## 8.7 Warning Panels and Lighting Unit

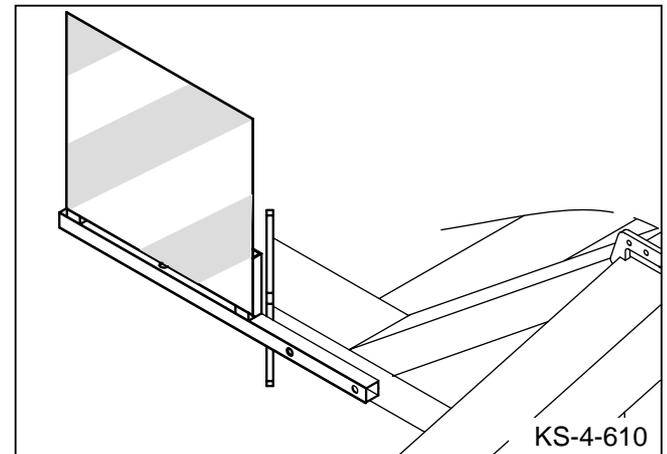
- The warning panels (1) are installed on the appropriate holder (2).
- The lighting unit provided is installed in the holder hole pattern provided.
- Clearance lamps (3), that are visible from the front
- Lay light cables (4) carefully, and connect universal plug (5) – check connections.



- Install tail lamps (6) on the holder in the middle so that they are visible from behind.



- Install warning panels at either side at the front side of the main chassis.

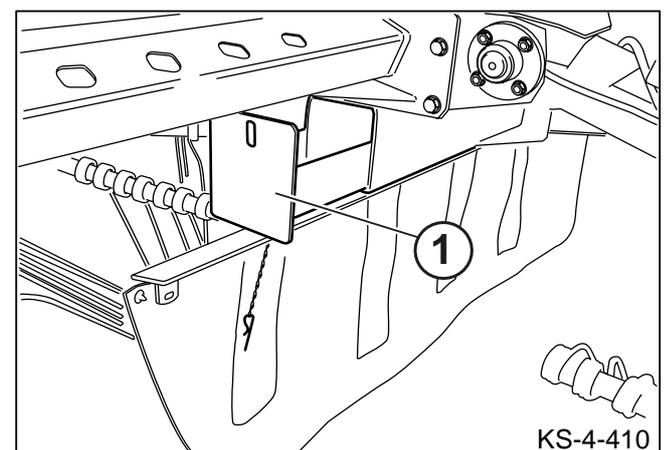


## 8.8 Tool Box

The tool box (1) is located at the end of the machine carrier frame.

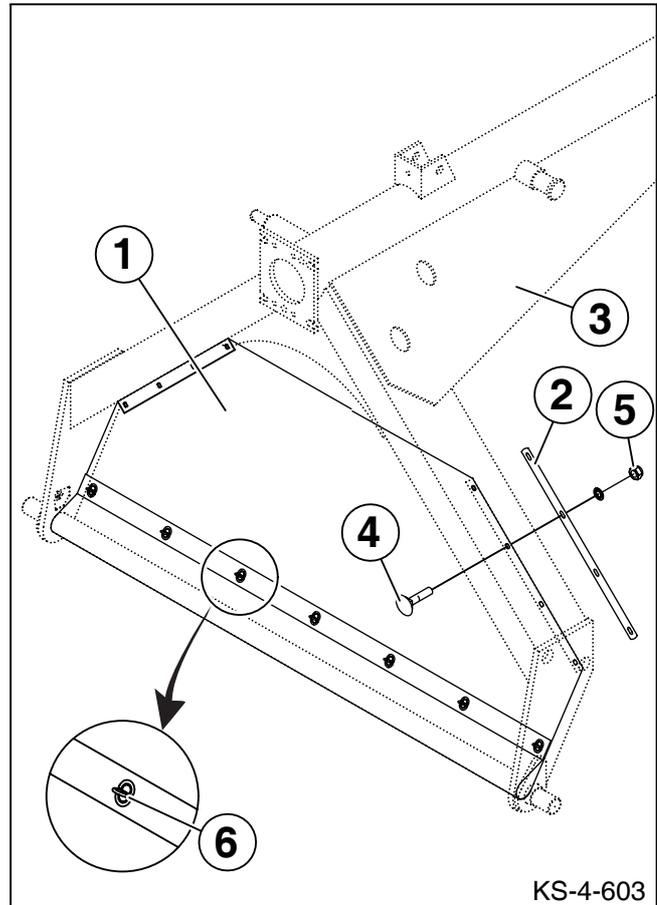
Contents provided by factory:

- 1 set of disassembly tools for the control arms



## 8.9 Installation of Safety Guard to Front Deployment Arms

- Install safety guard (1) with strip steel (2) to the deployment arm (3) on the outside with the carriage bolt M8 x 20 (4) and locknut NM8 (5).
- Put the safety guard around the connecting axle and push the turn-lock fastener (6) through the ring and then secure.



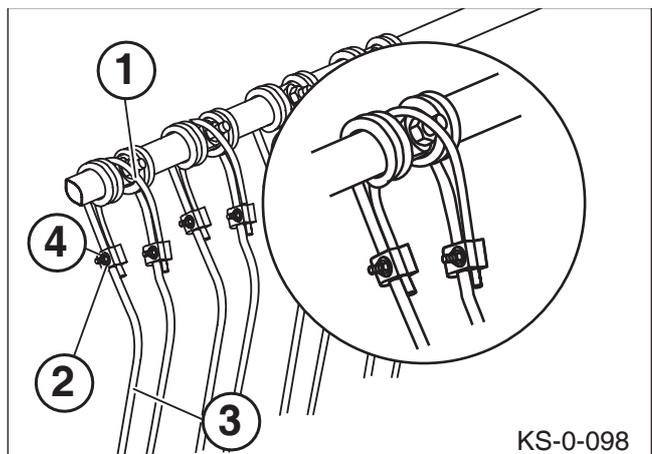
## 8.10 Accessories

### 8.10.1 Tine Loss Prevention Feature

The tine loss prevention feature for the twin-spring tines consists of:

- cable
- two cable clamps each with
- two flat round screws, washers and locknuts

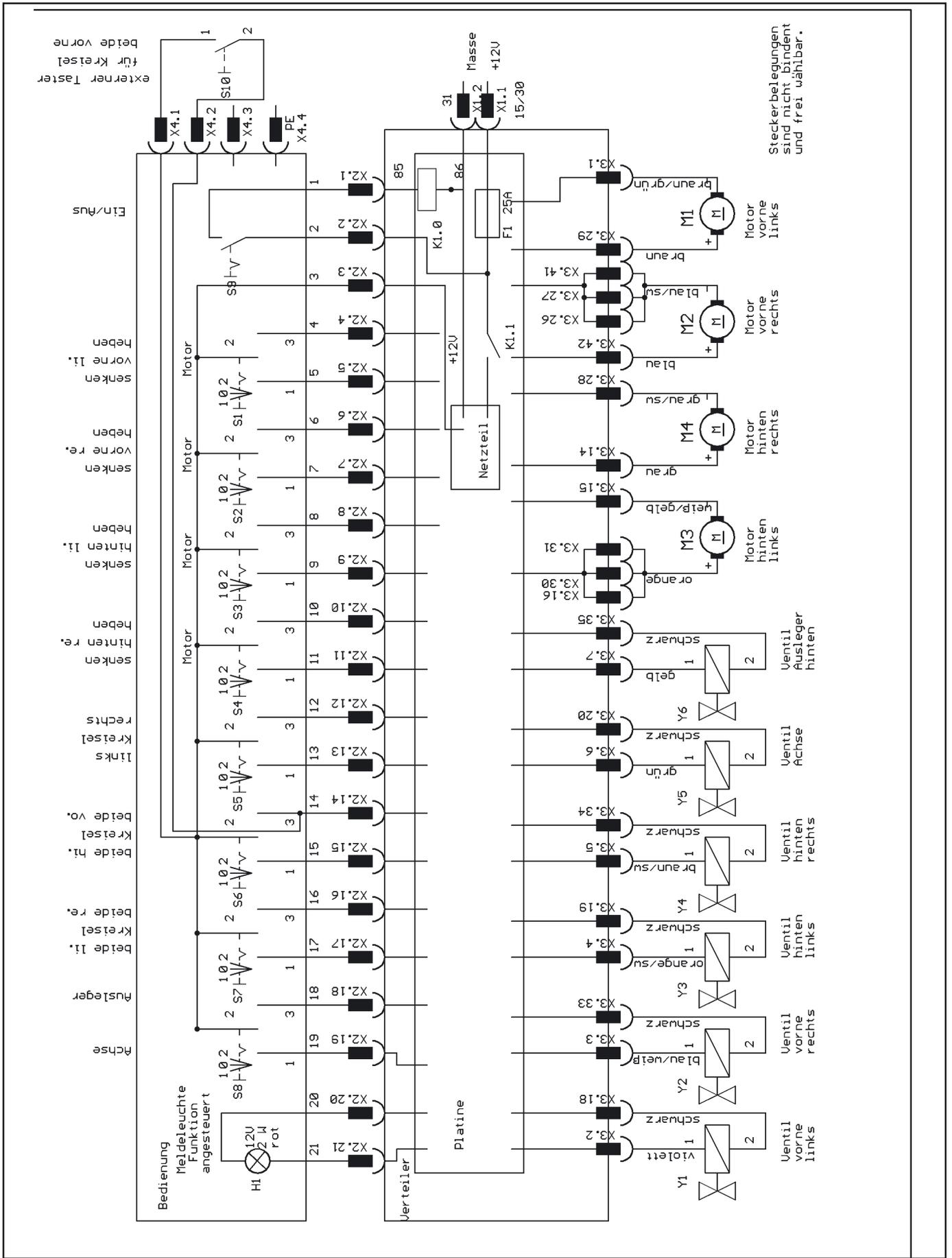
Fix the cable (1) with the cable clamps (2) to the swather disk tines (3).



**The cable must be located behind the swather disk tines relative to the direction of movement. The cable clamp nuts (4) must face outwards.**

**Additional tine loss protection**  
**Order-No.: 153 479 0**

# 9 Electrical Circuit Diagram









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