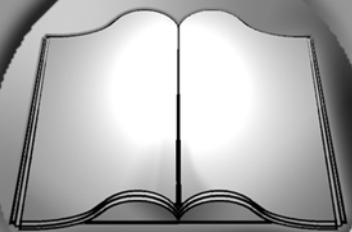


OPERATOR'S MANUAL



Gyrorake

GA6522



DEAR OWNER

In buying a Kuhn machine you have chosen wisely. Into it have gone years of thought, research and improvements. You will find, as have thousands of owners all over the world, that you have the best that engineering skill and actual field testing can produce. You have purchased a dependable machine, but only by proper care and operation can you expect to receive the performance and long service built into it.

This manual contains all the necessary information for you to receive full efficiency from your machine. The performance you get from this machine is largely dependent on how well you read and understand this manual and apply this knowledge. Please **DO NOT ASSUME YOU KNOW HOW TO OPERATE AND MAINTAIN YOUR MACHINE** before reading this manual carefully. **KEEP THIS MANUAL AVAILABLE FOR REFERENCE.** Pass it on to the next owner if you re-sell the machine.

Your KUHN dealer can offer a complete line of genuine KUHN service parts. These parts are manufactured and carefully inspected in the same factory that builds the machine to assure high quality and accurate fitting of any necessary replacements.

■ About improvements

We are continually striving to improve our products. It therefore reserves the right to make improvements or changes when it becomes practical to do so, without incurring any obligations to make changes or additions to the equipment sold previously.

■ Designated use of the machine

The **GA 6522** Gyrorake must only be used for the work for which it has been designed: raking on the ground and forming windrows of pre-mowed fodder and straw.

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IDENTIFICATION OF THE MACHINE

1. General view (working position)



2. Model identification plate

Please write below the type and serial number of the machine. This information is to be indicated to the dealer for all spare parts orders.



Type: **GA6522**

Serial no.:



3. Optional equipment

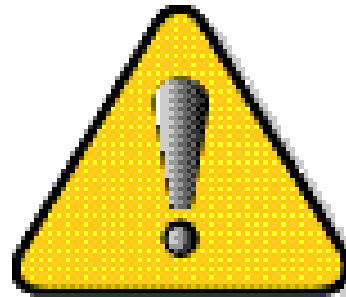
Tick box corresponding to the equipment fitted on your machine:

- ☐ **Kit no. 1146590:** Front windrow curtain.
- ☐ **Kit no. 1146600:** Prop wheel.
- ☐ **Kit no. 1146580:** Complementary axle.
- ☐ **Kit no. 1146630:** Bogie axles.
- ☐ **Kit no. 1146860:** Safety chain.

SAFETY

1. Description of symbols used in this document

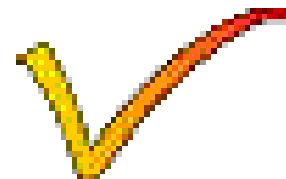
This symbol indicates a potentially hazardous situation that if not avoided, could result in serious bodily injury.



This symbol is used to identify special instructions or procedures which, if not followed strictly, could result in machinery damage.



This symbol is used to communicate technical information of particular interest.



2. Safety instructions

■ Introduction

The machine must only be operated, maintained and repaired by competent persons who are familiar with machine specifications and operation and aware of safety regulations for preventing accidents.

The operator must imperatively respect safety instructions in this manual and in the warnings posted on the machine. The operator is also obliged to respect current legislation concerning accident prevention, work safety and public traffic circulation.

Designated use of the machine also means following operation, maintenance and repair recommendations given by the manufacturer, and using only genuine spare parts, equipment and accessories, as recommended by the manufacturer.

The manufacturer is not held liable for any damage resulting from machine applications other than those specified by the manufacturer. Any use other than the designated operation is at the risk and responsibility of the operator.

The manufacturer is not held liable for any damage or accidents resulting from machine modifications carried out by the operator himself or by a third party without previous written agreement from the manufacturer.

■ Read and follow the safety instructions

Before using the machine, carefully read all the safety instructions in this manual and the warnings placed on the machine.

Before starting work, the operator must be familiar with all machine controls, handling devices and their functions. It is too late to learn once work has been started!

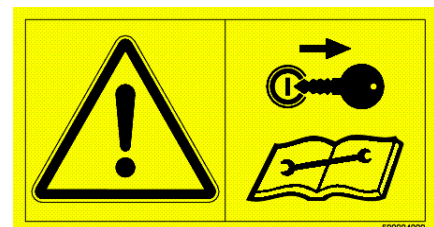
Never let anyone operate the machine who is not trained to do so.

Should you have any difficulties in understanding certain parts in this manual, please contact your KUHN dealer.



■ Precautions to be taken before carrying out any operations on the machine

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.



■ Precautions to take before using the machine

Do not wear loose clothing which could become caught up in moving parts.

Wear the appropriate protective clothing for the work in hand (gloves, shoes, goggles, helmet, ear-protectors, etc.).

Make sure that all operating controls (ropes, cables, rods, etc) are placed so that they cannot be set off accidentally, risking accident or damage.

Before operating the machine, check tightness of nuts and bolts, particularly on fixing elements (tines, forks, blades, knives, etc). Retighten if necessary.

Before operating the machine, ensure that all the safety guards are firmly in place and in good condition. Immediately replace any worn or damaged guard.



■ Precautions when driving

Precision steering, tractor adherence, road holding and efficient braking are influenced by the type of implement, weight, ballast of front axle, ground or road conditions. It is therefore of the utmost importance to be cautious in every given situation.

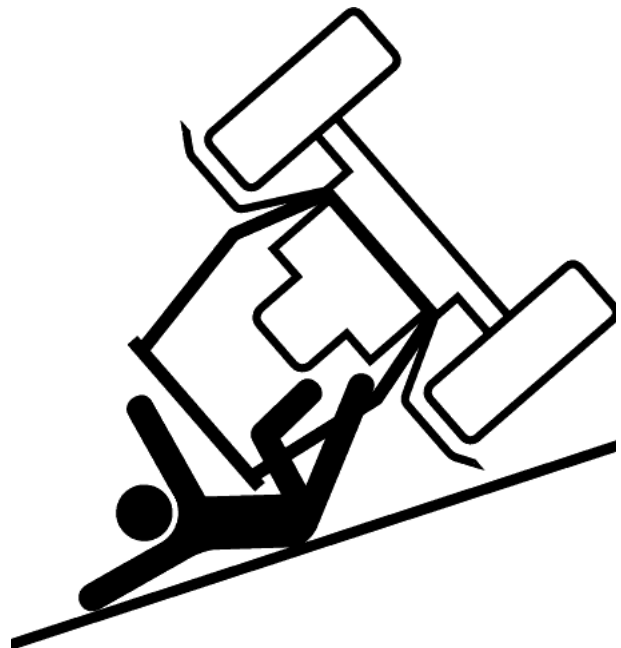
Groundspeed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction.

Be particularly cautious when turning corners, paying attention to machine overhang, length, height and weight.

Never use a narrow track tractor on very uneven or steeply sloping ground.

Never leave the tractor seat while the machine is operating.

Carrying people or animals on the machine when working or in transport is strictly forbidden.



■ Precautions when driving on public roads

Dimensions

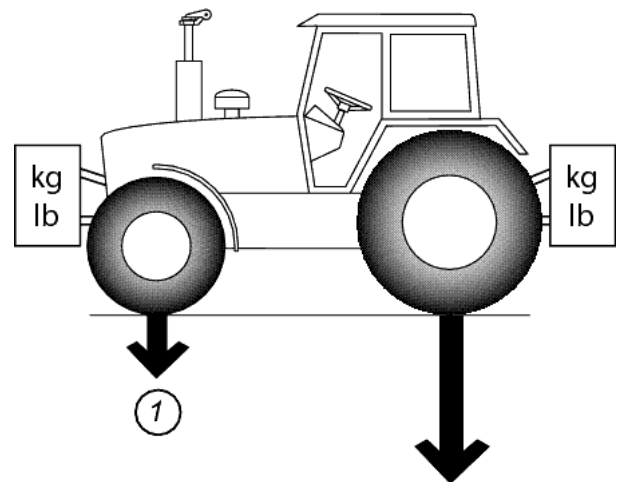
Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.

If the machine is over the maximum legal size, follow the local regulations for special transports of oversize equipment.

Gross weight and weight per axle

Check that the tractor's authorized gross weight as well as its lift capacity and maximum weight per axle are not surpassed.

The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight.



Transport position

Before transporting the machine on public roads, place the machine into its transport position, according to the instructions in this manual.

Lightings and signallings.

Before transporting the machine on public roads, ensure that all legally required lightings and signallings are in place.

Ensure that lightings and signallings are clean and in good working order. Replace any missing or broken equipment.



Always obey current regulations for driving on roads.



■ Maximum speed

Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.

■ Precautions when coupling

Before attaching the machine, make sure that it cannot accidentally start moving (chock the wheels) and that the parking stand is in the right position.

The machine must only be attached to the hitch points provided for this purpose.

Never stand between the tractor and the machine when operating the rear remote control lever of the three point linkage.

Do not stand between the tractor and the machine without ensuring that the parking brake is applied.



■ Hydraulic circuit

Beware! The hydraulic circuit is under pressure. Maximum pressure at work: 200 bar.

Before connecting hoses to the tractor hydraulics, ensure that tractor and machine circuits are not under pressure. Before disconnecting a hose, depressurize the hydraulic circuit.

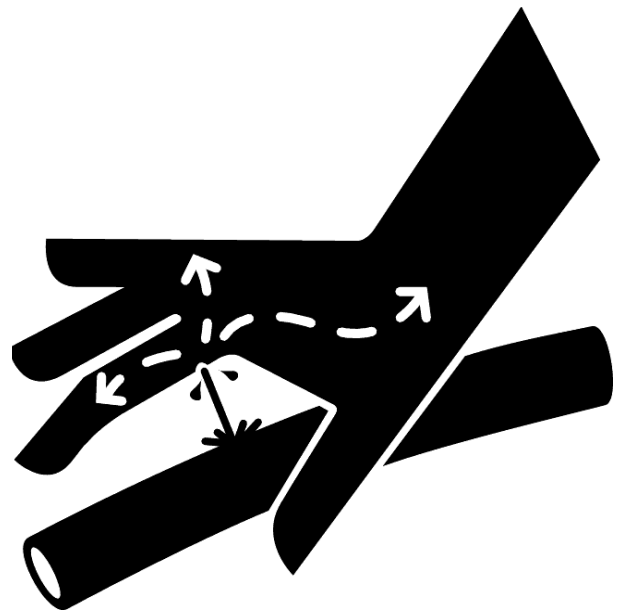
To avoid making wrong connections, mark hydraulic couplers and corresponding hoses with colours. **WARNING!** Functions could be reversed (for example: lift/lower) and cause accidents.

Regularly check the hydraulic hoses. In case of normal wear, replace the hydraulic hoses every 5 years. Damaged or worn hoses must immediately be replaced. When replacing the hydraulic hoses, make sure to use hoses with the specifications and quality recommended by the manufacturer of the machine.

To locate a leak, use appropriate means. Protect body and hands from liquid under pressure.

Any liquid under pressure (particularly oil from hydraulics) can penetrate the skin and cause severe injury. If injured, see a doctor immediately, there could be danger of infection.

Before any adjustments, maintenance or repairs are carried out, lower the machine on the ground, depressurize the hydraulics, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop.



■ PTO shaft

Use only PTO shafts supplied with the machine or recommended by the manufacturer.

The protective shield of the tractor PTO stub, the PTO shaft guards and the protective covering of the machine input shaft must always be in place and in good condition.

Make sure that the PTO shaft guards are secured with the safety chains provided.

Any worn or damaged protection must be replaced immediately. A worn guard or an unprotected PTO shaft can cause a serious or even a lethal accident.

Do not wear loose clothing that could be caught in the rotating PTO shaft.

Before attaching or removing a PTO shaft, or before doing any work on the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait for all moving parts have come to a complete stop.

If the primary PTO shaft is equipped with a slip clutch or a free wheel, these must be fitted on the machine side.

Ensure that the PTO shaft is always correctly fitted and locked into place.

Before connecting the PTO shaft, ensure that the PTO speed (rotational frequency) and directions of rotation are in line with manufacturer's recommendations.

Before engaging the PTO drive, make sure all people and animals are clear from the machine. Never engage the PTO drive when the tractor engine is stopped.

When uncoupling the machine, rest the PTO shaft on the support specially provided, and replace protective cover on the PTO stub of the tractor.

Read and follow the instructions in the operator's manual provided with the PTO shaft.



■ Precautions during manoeuvres

When moving the machine from the transport position to the working position and vice versa, make sure that nobody is within the machine pivoting area.

■ Remote controlled components

Danger of crushing and shearing can exist when components are operated by hydraulic or pneumatic controls. Keep away from these danger zones.

■ Tyres

Regularly check the tyre pressure. Respect manufacturer's recommendations on pressure. Assembly, disassembly and repair of wheels and tyres must only be carried out by competent persons who are equipped with standardized tools. Before any work is performed on the wheels, ensure that the machine rests on the ground and is perfectly stable so that it cannot move accidentally (put chocks in place).



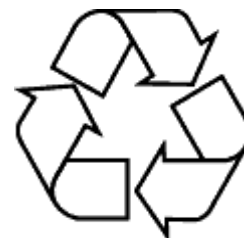
■ Safety decals

Safety warning decals to respect, are placed in pictorial form on various parts of the machine. They are there to warn you of potential dangers and to tell you how to avoid accidents.

Always keep the safety decals clean and readable, and replace them when they are worn, damaged, missing or illegible.

■ Waste disposal

Respect the environment! Never spill pollutants (oil, grease, filters etc.) on the ground neither pour them down the drain or discard them in any other place where they could pollute the environment. Never throw away or burn a tire. Always take waste to specialized recycling or waste disposal centers.



■ Precautions for maintenance and repair work

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

Rest the machine on the ground, release the pressure from the hydraulic circuit and leave the machine to cool down.

Make sure that the parts of the machine that need to be lifted for maintenance or repair work are firmly propped up.

Before any work is done on the electric circuit or before any electric welding is carried out on the attached machine, disconnect the machine from the tractor electrical circuit. Also disconnect alternator and battery terminals.

Repairs on elements under pressure or tension (springs, pressure accumulators, etc.) must only be carried out by competent persons with regulation equipment.

Wear the appropriate protective clothing for the work in hand (gloves, shoes, goggles, helmet, ear-protectors, etc.).

Do not solder, weld or use a blow torch near fluids under pressure or inflammable products.

For your own safety and for correct machine operation, only use original manufacturer parts.



■ Projection of stones and foreign objects

For driver safety, always use a tractor equipped with a cab. Never start a gyrorake when there are people nearby. Even when the machine is used in accordance with its purpose, objects may be projected. Stones and other foreign objects projected by the moving parts can travel a considerable distance. Keep all persons and animals away from the danger zone.



■ Precautions for machine use

Before using the machine, check tools (tines) and their attachment hardware in accordance with the instructions of the present manual.

Check the guards regularly. Immediately replace any damaged or missing element.

Before engaging the pto drive, lower the rotors onto the ground. Make sure all the guards are in place. Keep all persons and animals away from the danger zone.

Stay a safe distance from the Gyrorake when rotors are moving.

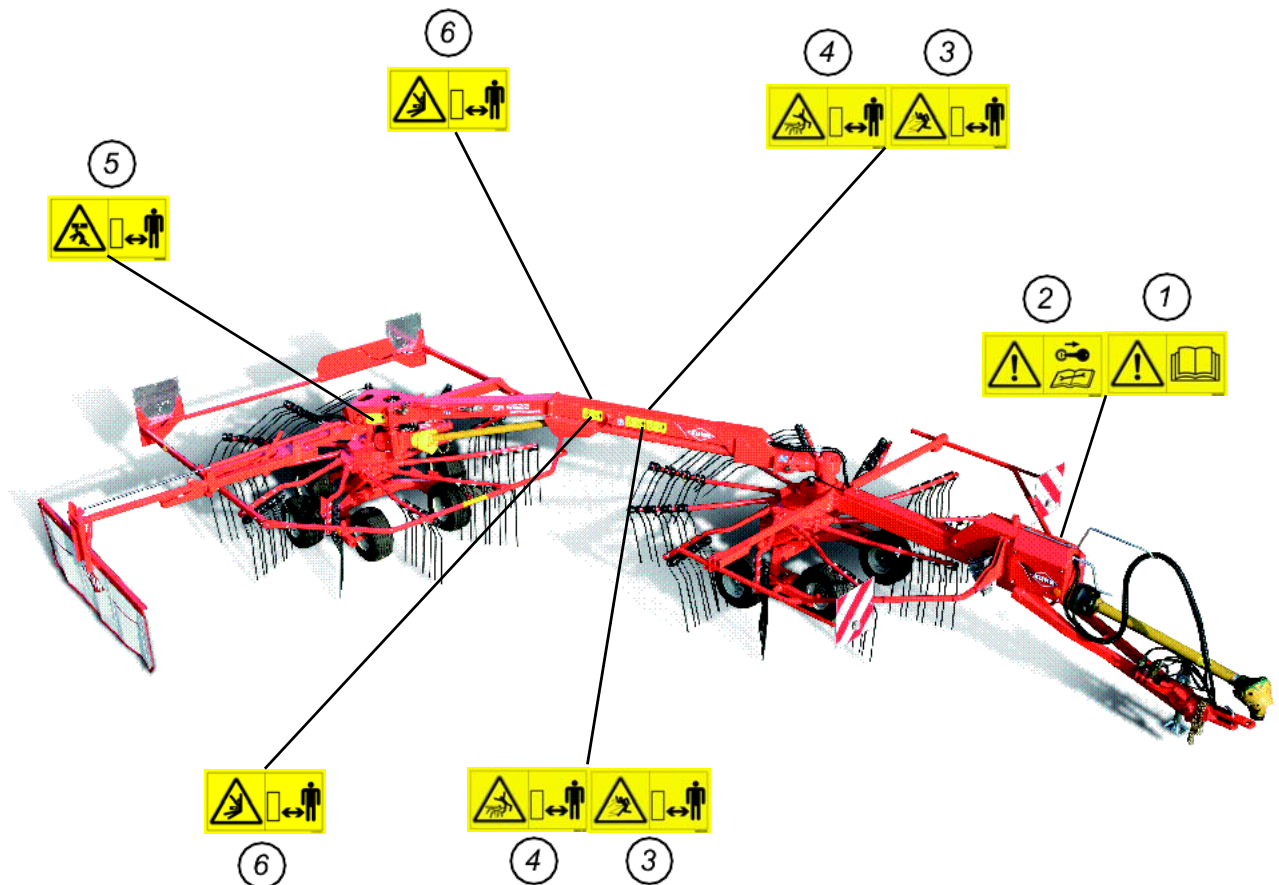
Never reverse while raking.

After the power source has stopped, the rotors can continue turning for a time. Stay away from the machine until all moving parts have come to a complete standstill.

If an obstacle is hit, disengage the PTO drive, stop the tractor engine, remove the ignition key and wait for all moving parts to come to a complete standstill. Check the entire machine for any damage before resuming work.

3. Location and description of safety decals on the machine

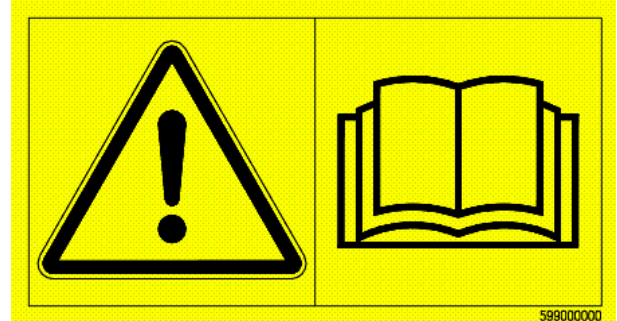
■ Location of safety decals



■ Description of safety decals

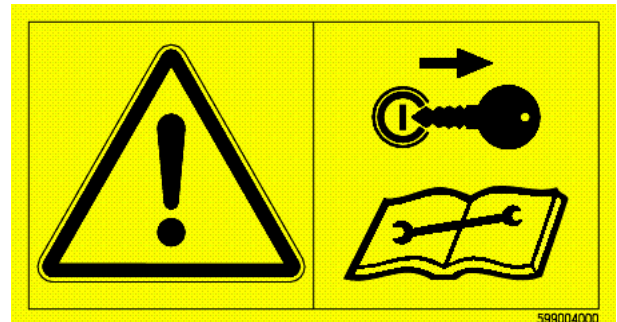
Operating instructions (1)

The operator's manual contains all the information necessary for using the machine safely. It is imperative to read and comply with all instructions.



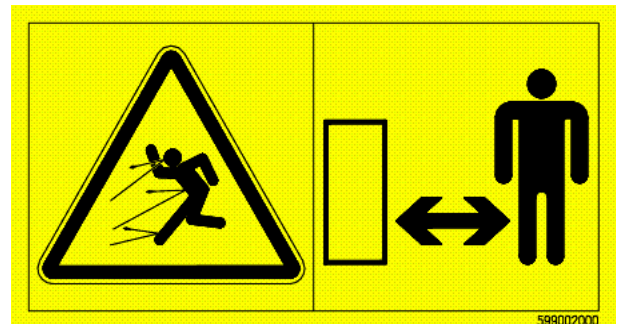
Working on the machine (2)

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.



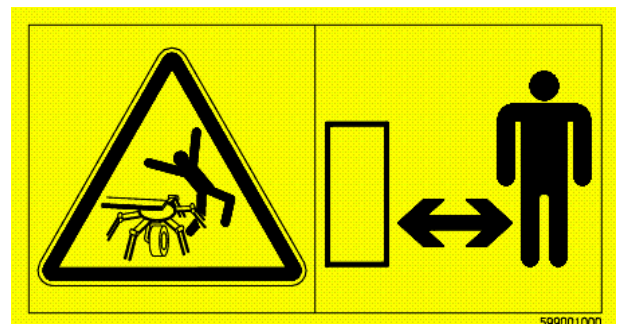
Projections (3)

Stones and other debris projected by the moving parts can travel a long distance. Always stay at a safe distance from the machine.



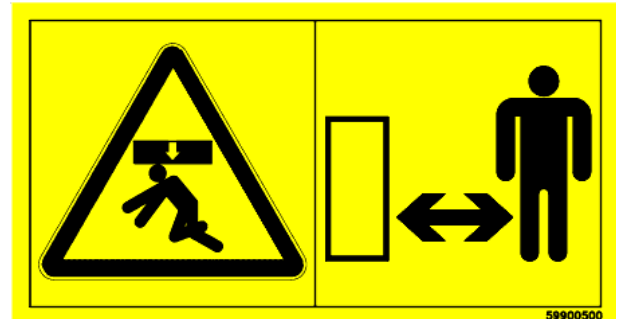
Rotary tools 4

To prevent entanglement keep a safe distance from the machine.



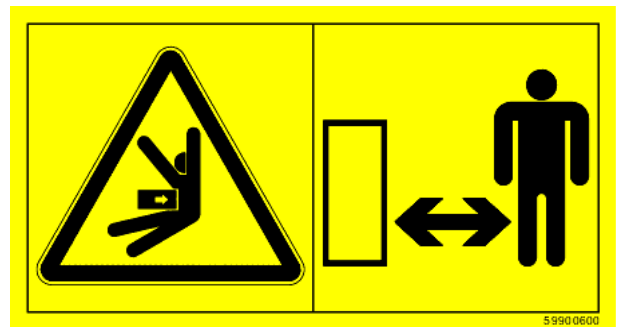
Body crushing (5)

Stay a safe distance from the machine. Crushing hazard.



Manoeuvring area (6)

Stay a safe distance from the machine. Crushing hazard.

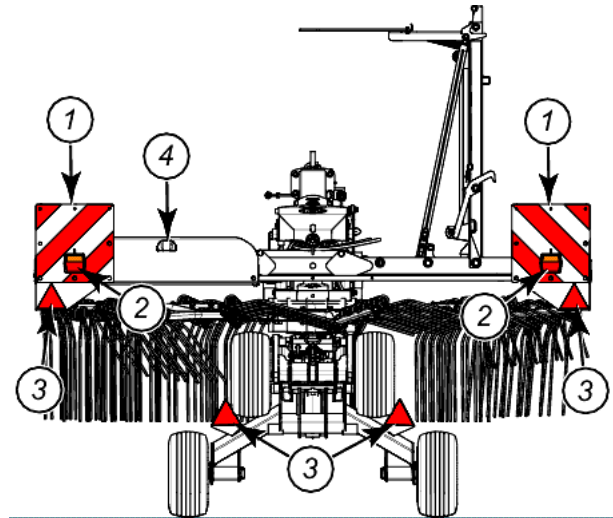


4. Road safety equipment and recommendations

The road safety equipment is mounted in the factory or by your authorized Kuhn dealer according to current safety regulations. Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.

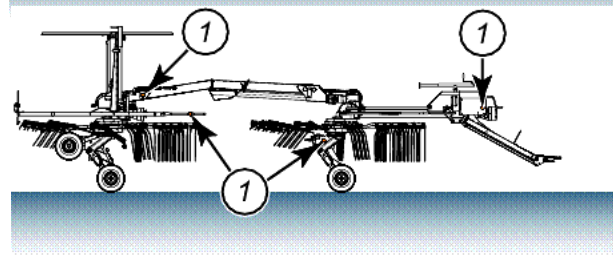
The rear safety device comprises:

- 2 signalling panels (1).
- 2 signalling lights (2) (red light / stop light / turn signal light).
- 4 red reflectors (3).
- 1 identification plate light (4).



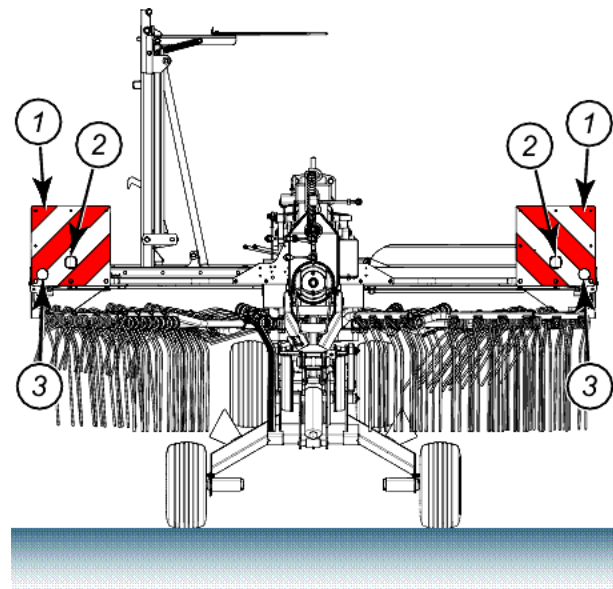
The side device comprises:

- 4 self-adhesive reflectors (1) per machine side.



The front safety device comprises:

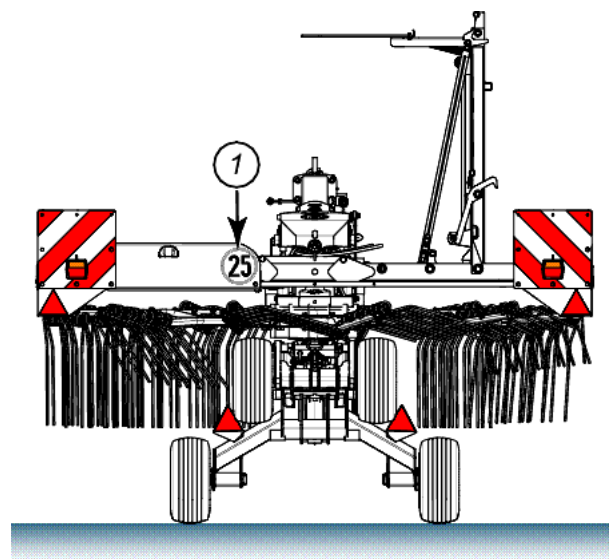
- 2 signalling panels (1).
- 2 white lights (2).
- 2 white reflectors (3)



■ Instructions specific to France

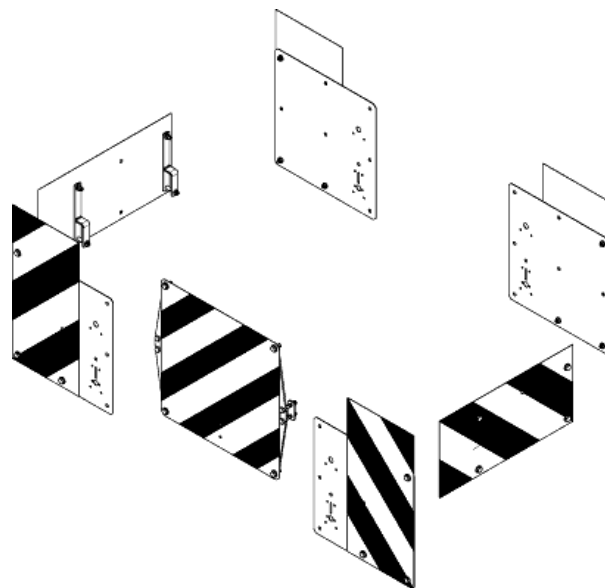
Speed (1)

Always keep to the legal speed limit of 25 km/h for driving a tractor-machine assembly on public roads.



■ Instructions specific to Italy

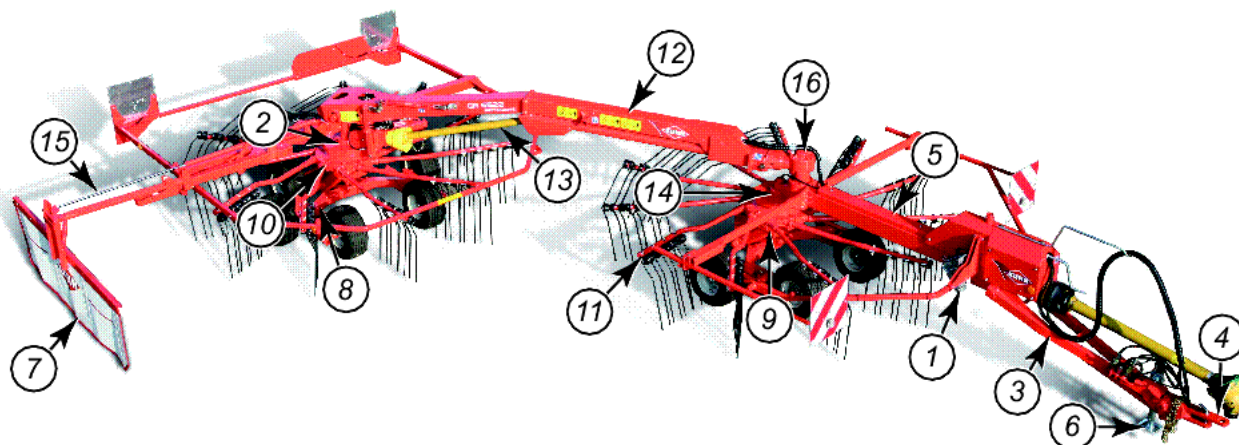
The machine must be fitted with specific signalling panels to comply with the road regulations.



Signalling kit Italy: **Kit no. 1146640.**

MACHINE SPECIFICATIONS

1. Description and glossary



- | | |
|------------------------------------|------------------------------------|
| 1 : Wheel chocks | 2 : Reduction gearbox |
| 3 : Drawbar | 4 : Coupling device |
| 5 : Front frame | 6 : Parking stand |
| 7 : Rear rotor windrow curtain | 8 : Rotor undercarriage and wheels |
| 9 : Front rotor | 10 : Rear rotor |
| 11 : Tine arms | 12 : Mid-frame |
| 13 : Secondary PTO shaft | 14 : Reduction gearbox |
| 15 : Windrow curtain lift cylinder | 16 : Swivel gearbox |

2. Technical specifications

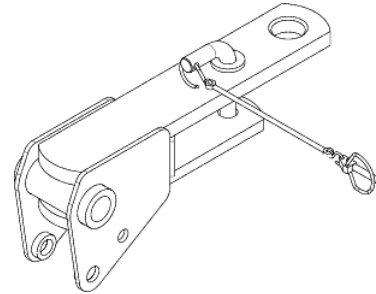
Coupling device	Drawbar attached to the tractor pull bar
Number of rotors	2
Number of arms per rotor	11
Working width (DIN 11220) ("1 windrow" formation)	from 3.80 to 6.30 m (12'5" - 20'8") (approximately)
Working width (DIN 11220) ("2 windrow" formation)	6.50 m (21'4") (approximately)
Swath width	from 0.80 to 1.60 m (2'7" - 5'3") (approximately)
Width in working position ("1 windrow" formation)	from 3.30 to 6.40 m (10'9" - 20'11")
Width in working position ("2 windrow" formation)	6.55 m (21'5")
Length in working position	8.00 m (26'2")
Width in transport position	3 m (9'10")
Length in transport position	9.10 m (29'10")
Power requirement	30 kW (40 hp)
PTO speed (max.)	540 min ⁻¹
Weight	1620 kg (3571 lb)
Tyres	18x8.5-8
Tyre pressure	2.0 bar (29 psi)

3. Required equipment

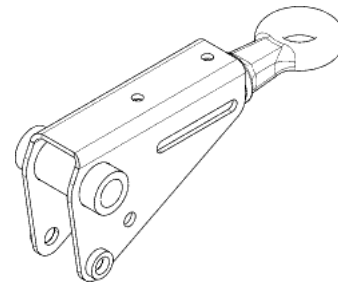
■ Coupling the machine

The country of destination determines the type of coupling device supplied with the machine:

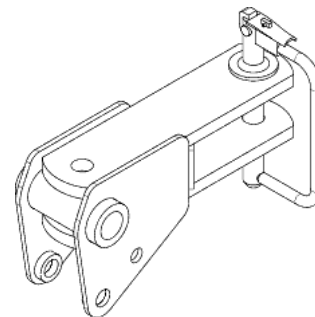
Kit no. 1146670: Standard machine.



Kit no. 1146690: Coupling device (IT).



Kit no. 1146680: Coupling device (US - CA).



4. Sound levels

Sound levels have been measured in accordance with the measuring methods as defined in:

NF EN 1553 "Agricultural machinery - Self-propelled, mounted, semi-mounted and trailed - Common safety recommendations"

Weighted equivalent continuous acoustic pressure level at the driver's seat (closed cabin) L (A) eq:

Tractor only: **69.7 dB(A)**

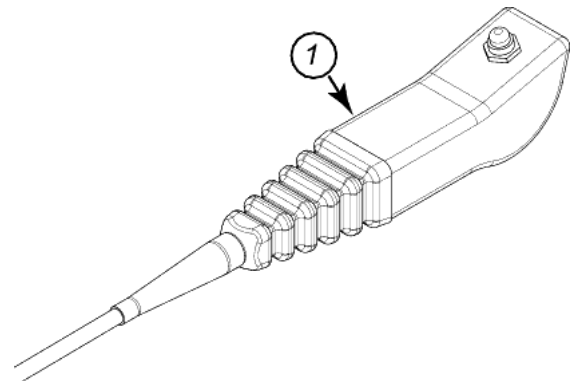
Tractor + machine: **71.7 dB(A)**

PUTTING INTO SERVICE

1. Description of control elements

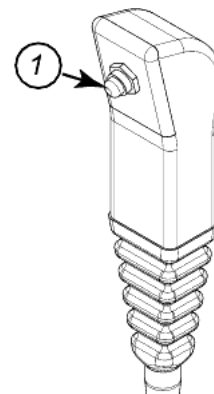
The machine is fitted with one electric control handle (1).
The control handle changes the function of the tractor's double acting valve and enables:

- Pivoting the rear rotor.
- or
- Unfolding or folding the rear windrow curtain.



■ Description of the controls

A push-button switch (1).



■ Description of the connection



Never connect battery charger or perform welding tasks without having previously disconnected the control box.

The control handle is to be plugged into a 3-pin socket.
The control handle is connected to the hydraulic valve bank.

For tractors not fitted with a 3-pin socket, a wiring harness can be ordered under Part no. 83233002.

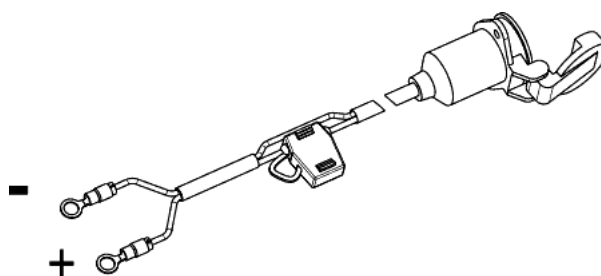
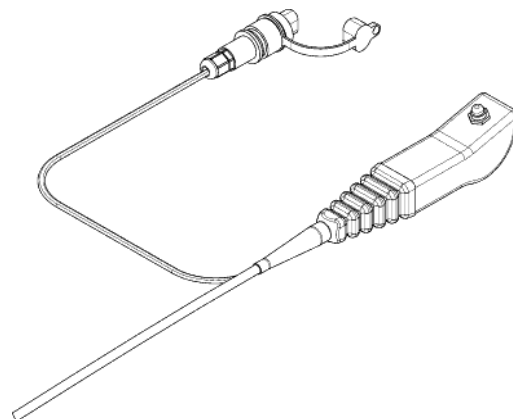


Do not connect the wiring harness to the starter connections.

Check that the connectors are in a good condition and clean.

Connect the wiring harness directly to the battery terminals respecting the polarities.

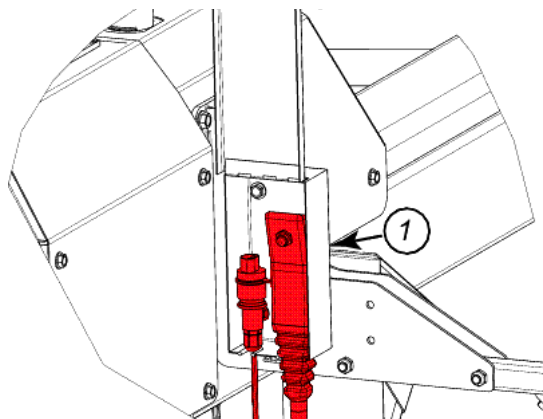
The wiring harness is fitted with a 15 Amp ATO type fuse Part no. 82333017.



■ Positioning and parking

The control handle must be easily accessible from the tractor cab.

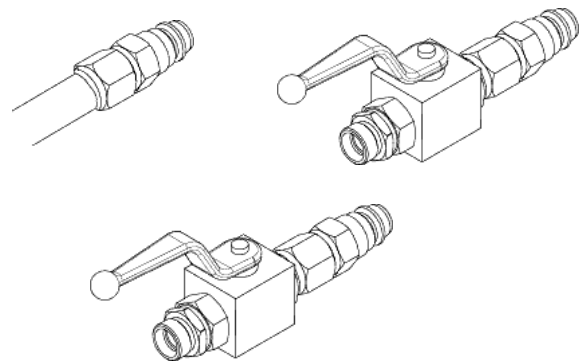
When parking the machine, the control handle must be stored in its support (1).



2. Coupling and uncoupling

■ Description of coupling elements

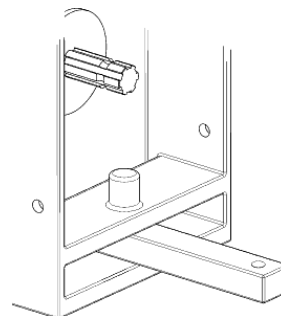
- A PTO shaft 1 3/8" 6 splines.
- A parking stand.
- A 7-pin electric plug for the electrical signalling equipment.
- A 3-pin plug for the control handle.
- Two hydraulic hoses with a 2 position valve that control the transport/work position setting and the rear windrow curtain adjustment.
- One hydraulic hose with a 2 position shut-off valve that controls the rotor height adjustment.



■ Preparing the tractor

The machine adapts to tractors fitted with a pull bar.

The tractor nominal PTO speed must be 540 min⁻¹.

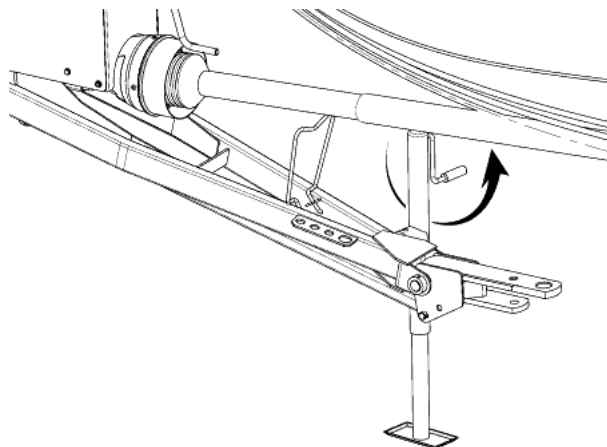


The tractor must be equipped with:

- 1 single acting hydraulic outlet.
- 1 double acting hydraulic outlet.

■ Drawbar height adjustment

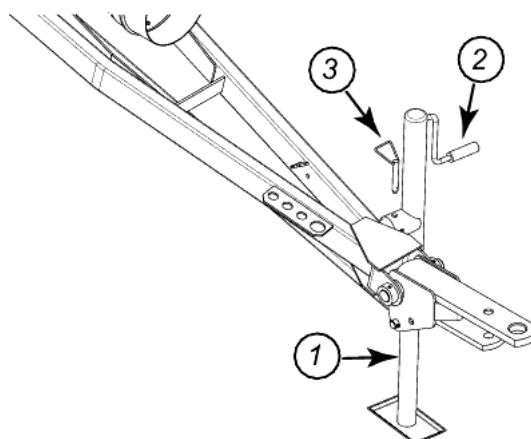
- Adjust drawbar height using the parking stand crank handle according to the height of the pull bar.



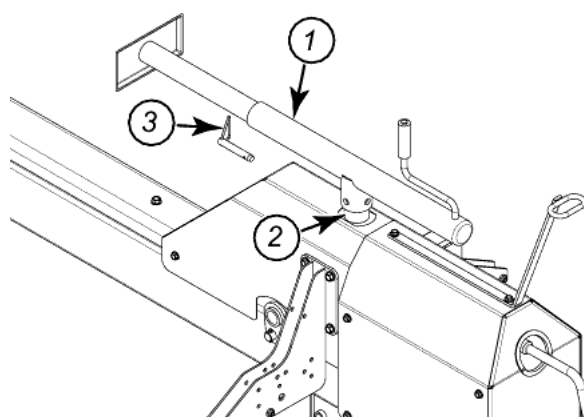
■ Coupling the machine

- Couple machine to tractor and secure hitch pin..

- Raise parking stand (1) using crank handle (2).
- Remove pin (3) and parking stand.



- Attach parking stand (1) onto holder (2).
- Secure parking stand (1) with pin (3).



■ Safety chain



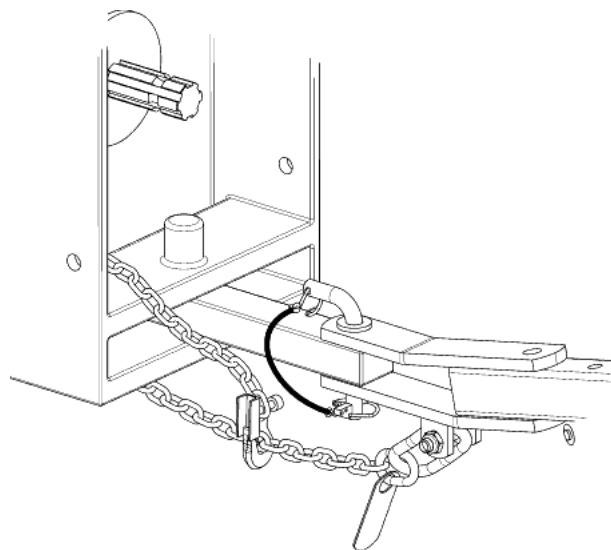
The safety chain is only supplied in countries where it is a required equipment: FR, CA, US.

The machine is supplied with a ANSI/ASAE safety chain type with a minimum ultimate system strength of 45 kN (10100 lbf).



The safety chain is intended to keep the machine under control in the event of a loss or failure of the hitch pin.

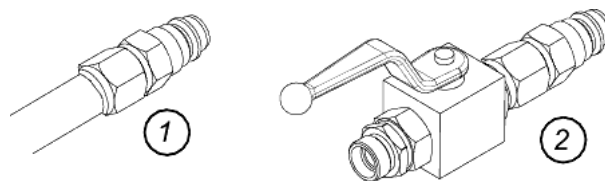
The safety chain must be tied around a tractor attachment point other than the attachment bar.



■ Hydraulic connections

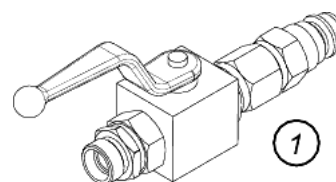
Two hydraulic hoses with a 2 position valve that control the transport/work position setting and the rear windrow curtain adjustment:

- Connect hydraulic hoses (1) and (2) to a double acting outlet.



One hydraulic hose with a 2 position shut-off valve that controls the rotor height adjustment:

- Connect hydraulic hose (1) to a single acting outlet.

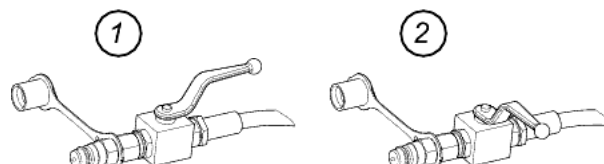


- Open valves on hydraulic hose couplers.



Opened position (1) (adjustment).

Closed position (2) (work and transport).



■ Electrical connections

Connect 7-pin plug to the tractor.

Connect the control handle plug to the tractor 3-pin socket.



■ PTO shaft



Make sure that the PTO shaft is correctly adjusted, to avoid premature wear and tear.

Separate the two half PTO shafts and connect them to the machine's input shaft and to the tractor PTO stub.

Check the length of the PTO shaft:

- Check the maximum overlap when the machine is in transport position and the tractor turned to the direction which provides maximum overlap.
- When the PTO shaft is in its maximum overlap position (retracted), tubes should not butt against the yokes. As a safety measure, a clearance (L) of at least 25 mm (1") must be maintained.
- When the PTO shaft is in its maximum extended position, the tube overlap must be more than 250 mm (10").

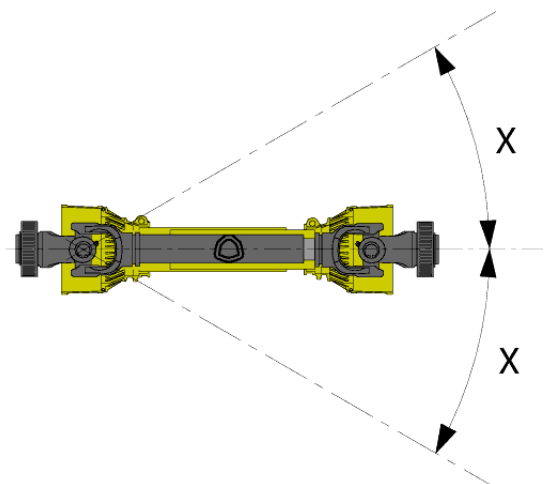
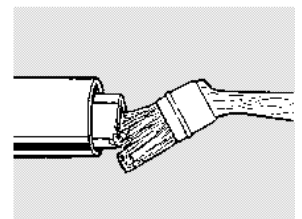
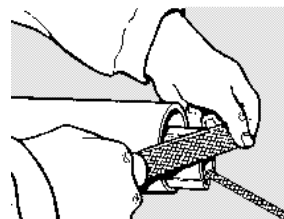
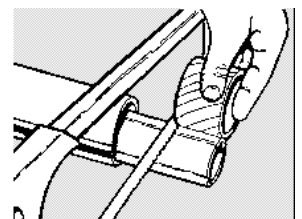
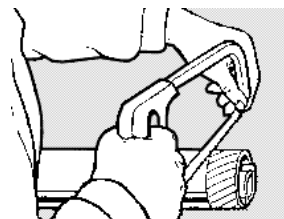
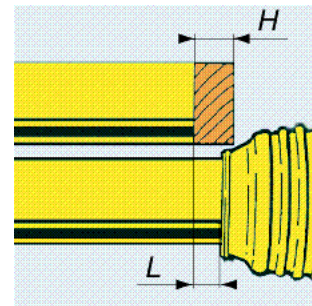
If this is not the case:

- Mark length (H) to cut when the transmission is the maximum overlap position.
- Shorten the guard tubes and the transmission tubes by the same length.
- Bevel and clean the tubes.
- Grease the inside of the outer tube.



Check that there is still a minimum overlap of 250 mm (10") when the machine is in working position and the tractor in line with the machine.

Never operate the PTO shaft at an angle X exceeding 30°.



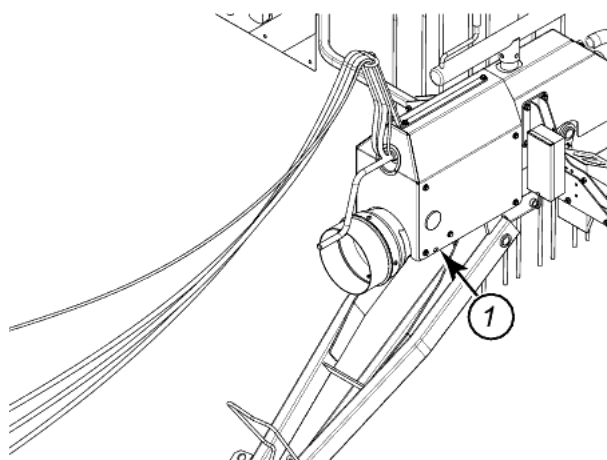


To avoid serious accidents, the PTO drive shaft guards must be properly in place and fixed with the chains provided.

Attach PTO shaft guard chain in hole (1) on machine side.



Immediately replace any worn or damaged guard.



■ Adjusting the machine

Flow limiter adjustment

The flow limiter, located on the rear frame, that adjusts the locking speed of the rear rotor 3D suspension is factory preset.



We recommend not to modify the initial setting: 1.5 turns from the closed position.



■ Uncoupling the machine



Park the machine on an even fairly level ground.



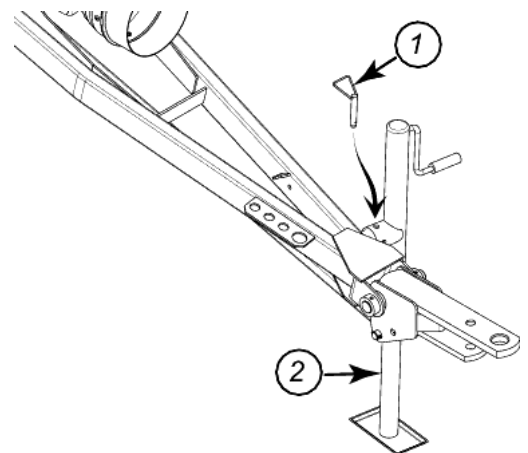
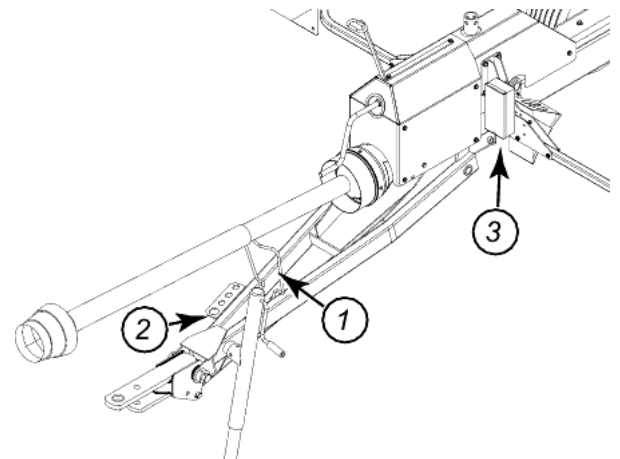
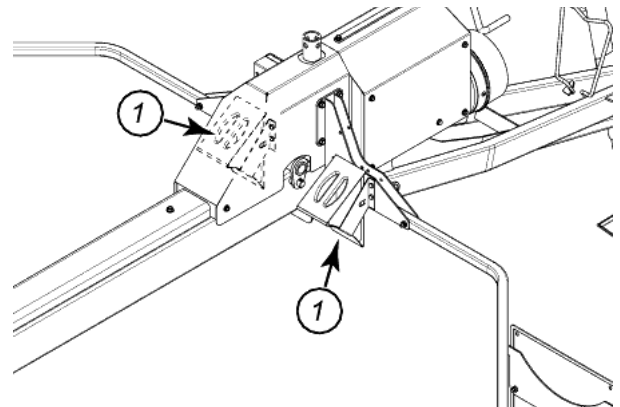
Preferably park the machine in transport position.

- Block machine with wheel chocks (1).
- Uncouple the PTO shaft from the tractor.
- Put the PTO shaft into its support (1).
- Close valves on hydraulic hose couplers.
- Disconnect hydraulic hoses and electric plug.
- Store hydraulic hoses and electric plug in their respective supports (2).
- Disconnect and store control handle in holder (3).
- Remove pin (1) and parking stand (2) from its holder.
- Install parking stand (2) on drawbar.
- Secure parking stand (2) with pin (1).
- Lower parking stand using crank handle to raise the drawbar slightly.
- Remove hitch pin.

The machine is uncoupled.



When parking the machine for a long period, we recommend lowering the rotors until they butt against their stop in order to depressurize the hydraulic circuit.

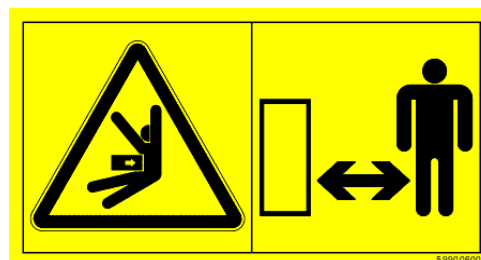


INSTRUCTIONS FOR TRANSPORT



Before placing the machine into transport position:

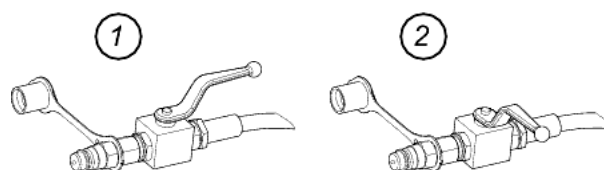
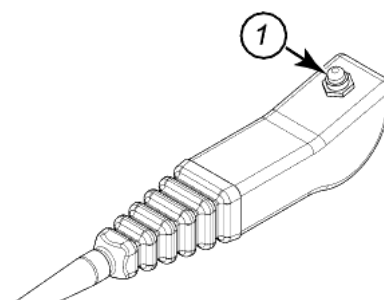
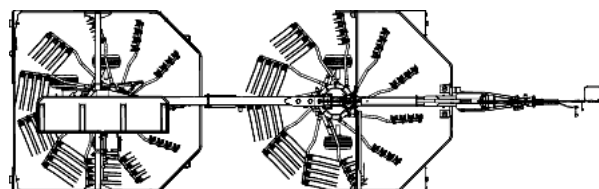
- Wait until the rotating parts have come to a complete stop.
- Check and move away any person located in the rotor pivoting area.



1. Putting the machine into transport position

From the working position:

- Activate the tractor single acting valve to raise the rotors.
- Move forward and operate the double acting valve to put the rotors in line with the tractor.
- Press push-button switch (1) on control handle and activate the double acting valve to raise the rear windrow curtain.
- Close valves on hydraulic hose couplers.



Opened position (1) (adjustment).

Closed position (2) (work and transport).



When optional equipment is used, follow specific procedures mentioned in the related section: "Optional equipment".

The machine is in transport position.



Never engage the tractor PTO drive when the machine is in transport position.

2. Conformity with the road regulations



Before driving the machine on public roads, ensure that the machine complies with current highway code regulations.

Check that the signalling panels are clean and that the lighting equipment functions before going on public roads.

Before going on public roads:



- Make sure rotors are in line with the tractor.
- Check that the rotors are fully raised.
- Check that valves on hydraulic hose couplers are closed.



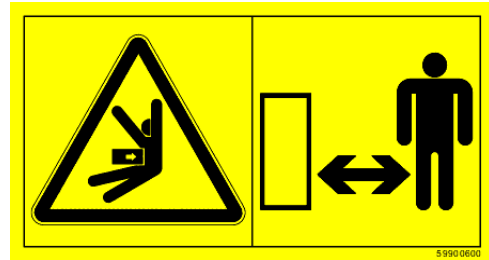
Immediately replace any worn or damaged signalling panels or lights.

INSTRUCTIONS FOR WORK

Before placing the machine in working position:



- Check that nobody is within the machine pivoting area.
- If there is someone, make sure the person moves away.



1. Putting the machine into work position

From the transport position:



When optional equipment is used, follow specific procedures mentioned in the related section: "Optional equipment".

- Open valves on hydraulic hose couplers.



If the tractor is fitted with a hydraulic valve with adjustable flow rate, reduce oil flow to limit pivoting speed.

- Press control handle switch and activate double acting valve to lower the rear windrow curtain.
- Move forward and activate the double acting valve to pivot the rear rotor to the right or left.
- Activate single acting valve to lower the rotors to the desired height.

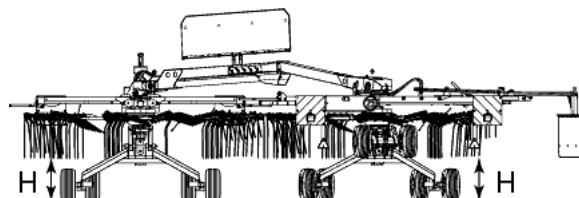
The machine is in working position.

2. Putting the machine in headland turn position

From the working position:

- Activate the tractor single acting valve to raise the rotors, The clearance (H) is then approximately 600 mm (2').

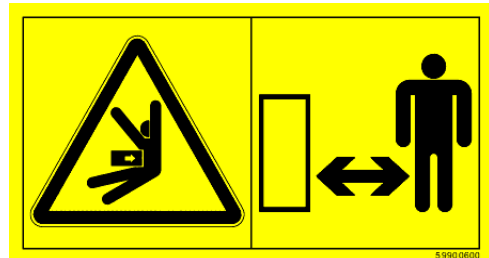
The machine is in headland turn position.



3. Adjustments in working position

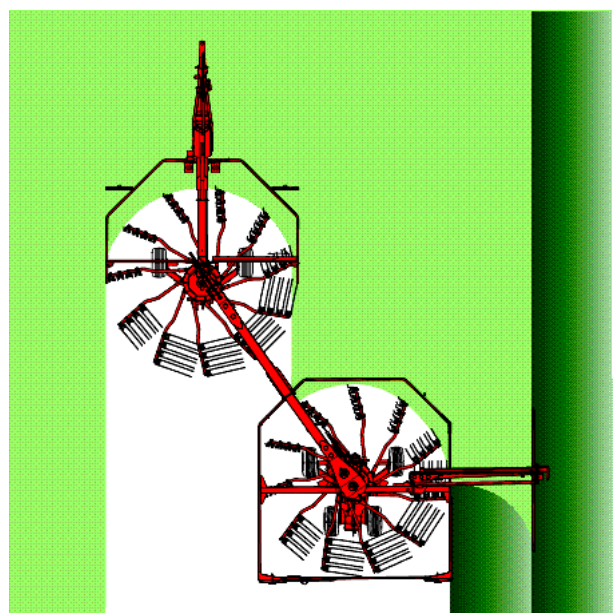
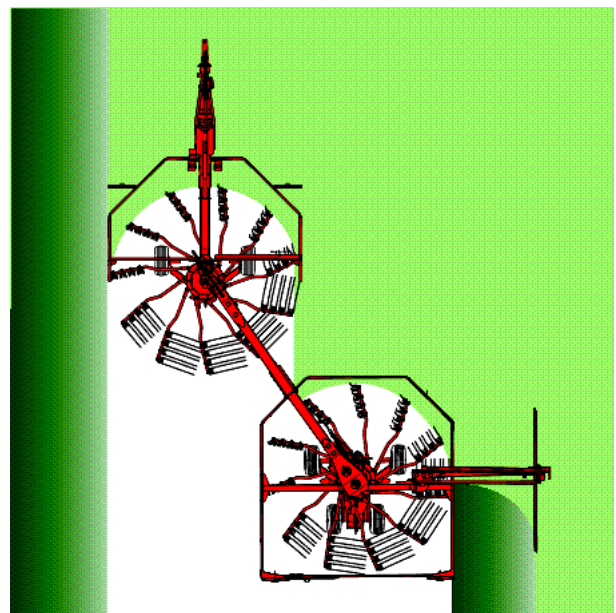


- Check that nobody is within the machine pivoting area.
- If there is someone, make sure the person moves away.



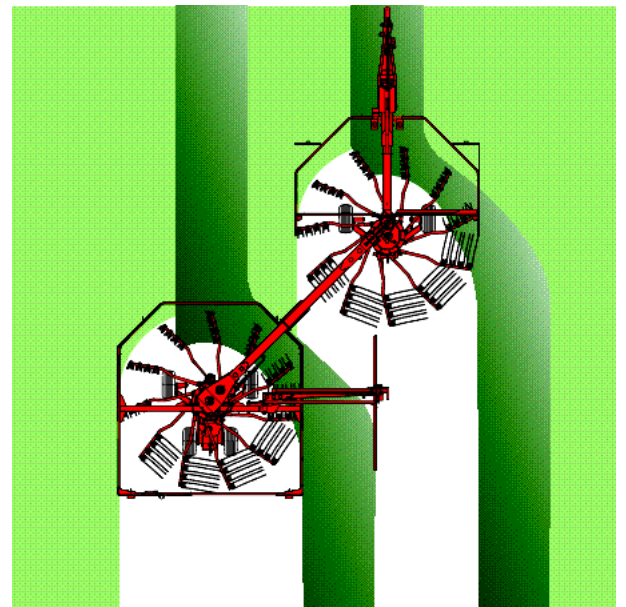
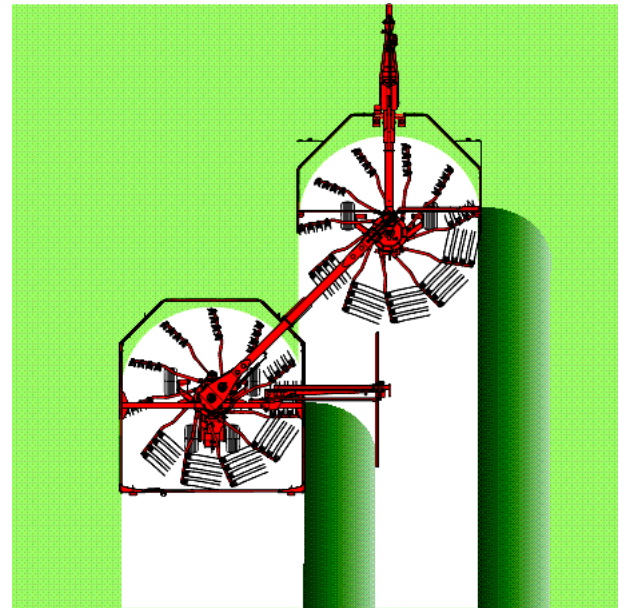
■ "1 windrow" formation

- Move forward and activate the double acting valve to pivot the rear rotor to the right.
- Adjust the working width by altering the rear rotor offset.



■ "2 windrow" formation

- Move forward and activate the double acting valve to pivot the rear rotor fully to the left.
- Adjust the working width by altering the rear rotor offset.



The "2 windrows" configuration requires the use of the optional equipment: Front windrow curtain Kit no. 1146590.

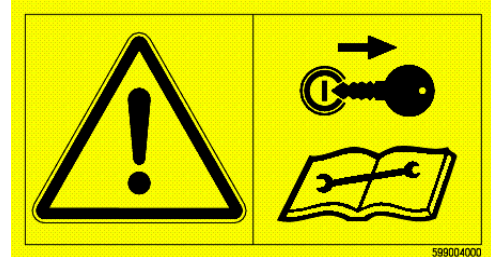
■ Rotor working height

- Activate single acting valve to lower the rotors to the desired height.

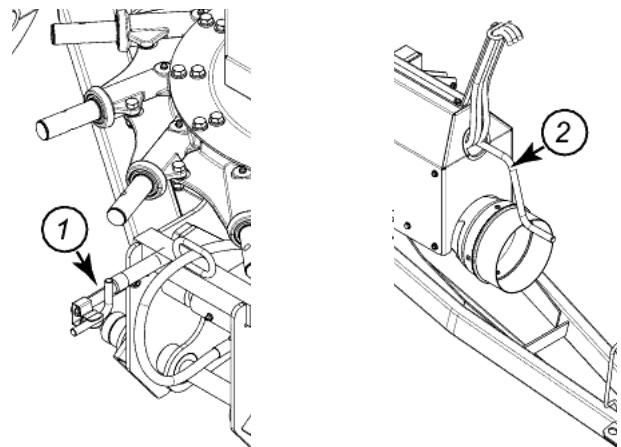


Before carrying out any maintenance or repairs on the machine, switch off the tractor engine, remove ignition key, wait until all moving parts have come to a standstill and apply park brake.

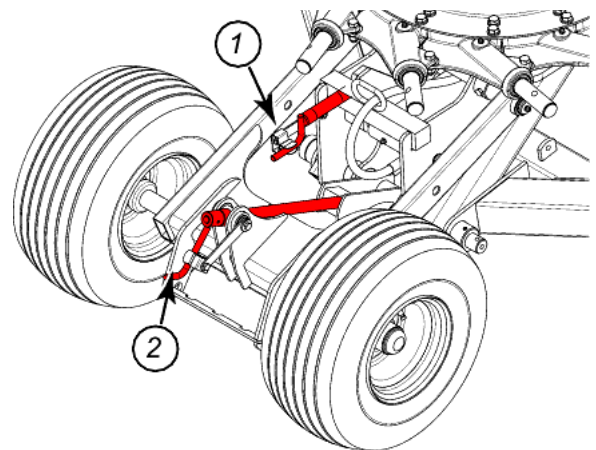
Close valves on hydraulic hose couplers.



- Adjust front rotor low position by turning handle (1) until it butts against its stop.
- Refine the rotor levelling with crank handle (2).



- Adjust rear rotor low position by turning handle (1) until it butts against its stop.
- Refine the rotor levelling with crank handle (2).



The adjustment is correct when :



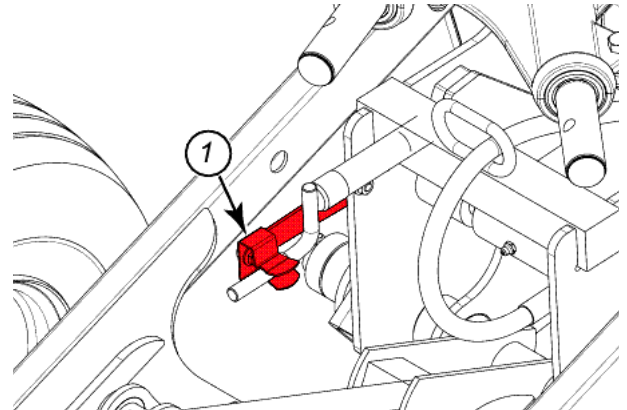
- Tines slightly skim the ground.
- Tine arms are level.



Lock handles in holders (1) to prevent any setting alterations.



Open valves on hydraulic hose couplers.



■ Rear rotor windrow curtain

There are 3 windrow curtain adjustment possibilities.

Swath width adjustment:



The windrow width adjustment and transport/work position setting are controlled by the same double acting valve.

With the windrow curtain in raised position:

- Activate the double acting valve to place the windrow curtain in working position.
- Activate the double acting valve to alter the lateral position of the windrow curtain.

Vertical adjustment:

The windrow curtain can be adjusted in 5 positions:

- The high position is used on very irregular grounds.
- The low position is used in low density crop.

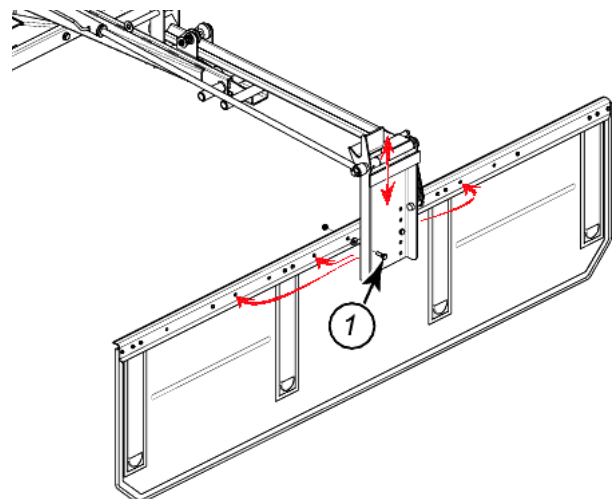
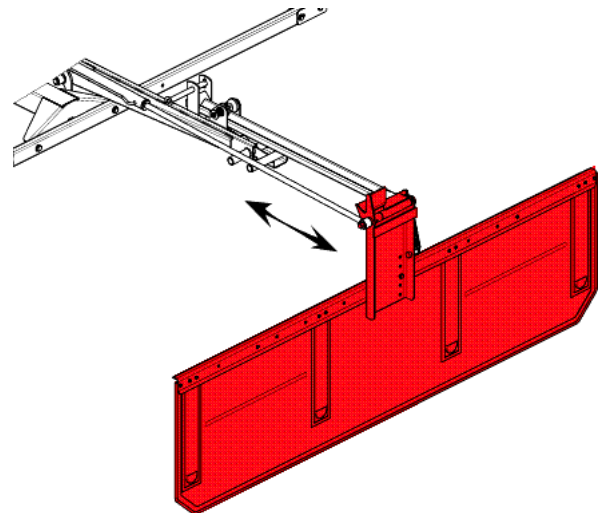
Lengthways adjustment:

The windrow curtain can be set forwards or backwards according to the crop density and the windrow width adjustment.

- The forward position is used for green fodder and narrow windrows.

To adjust the windrow curtain:

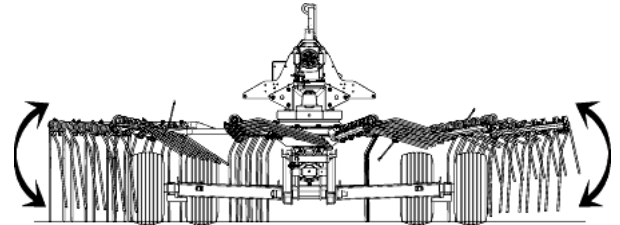
- Remove the mounting bolts 1.
- Adjust the curtain position.
- Reinstall attachment bolts (1).
- Tightening torque: 4.9 daN m (37 lbf ft).



■ Rotor wheel eccentrics

The rotor wheel eccentrics are mounted and adjusted either at the factory or by your Kuhn dealer, an adjustment may be required.

The eccentric adjustment enables setting the rotor Levelling.

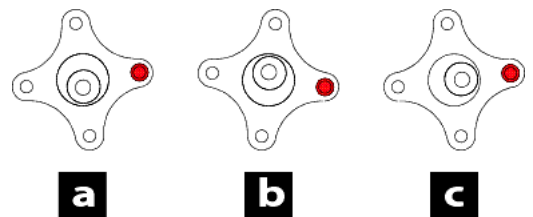
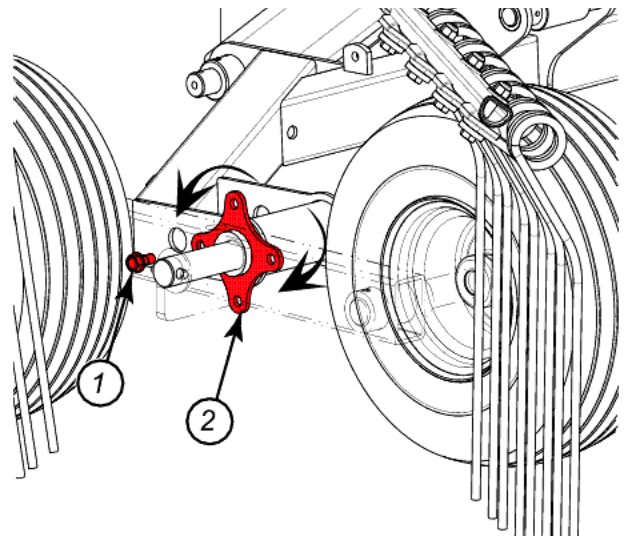


Before adjusting, maintaining or repairing the machine, turn off ignition key and wait until all moving parts have come to a complete stop.

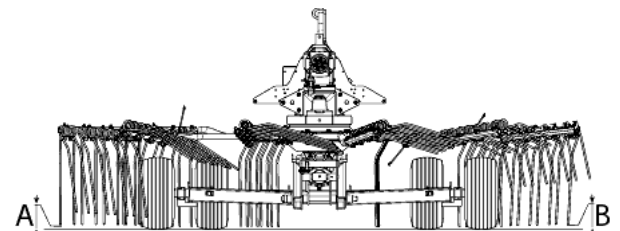
From the working position:

- Remove attachment screw (1).

- Pivot eccentric (2) into positions (A), (b) or (C) to obtain distance $A=B$ between left/right rotor tines and the ground.



- Refit screw (1).
- Torque screw (1) to 8.5 daN m (63 lbf ft).



Adjust second rotor eccentrics if necessary.

4. Machine use



Before engaging the tractor PTO drive:
Keep all persons and animals away from the machine danger zone.

- Place the machine in working position.
- Before the machine engages the crop:
 - Engage the tractor PTO drive and accelerate progressively up to the desired PTO speed. This speed must never exceed 540 min^{-1}



The rotor speed must be adapted to the working conditions.

- The machine is changed from working position to headland turn position by raising rotors with the tractor's single acting valve.

■ Groundspeed

Groundspeed must be adapted to the encountered working conditions.

OPTIONAL EQUIPMENT

1. Front windrow curtain

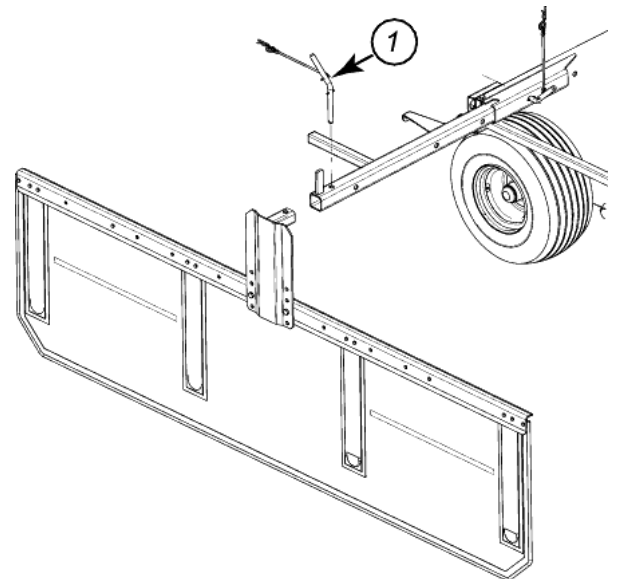
Kit no. 1146590

The front windrow curtain enables forming 2 windrows.
Fit front windrow curtain on the front guard frame.

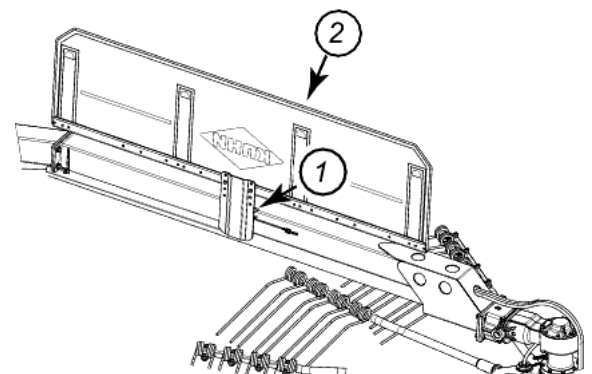
■ Putting the machine into transport position

From the working position:

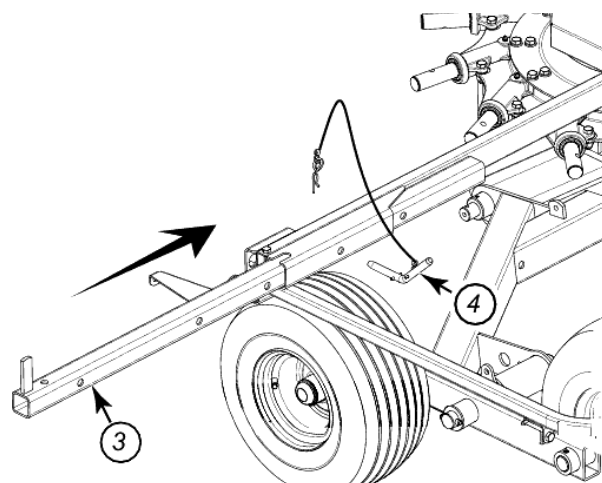
- Remove R-clip and pin (1).



- Remove and store front windrow curtain (2) in its holder on the mid-frame.
- Secure the front windrow curtain using pin (1) and R-clip.



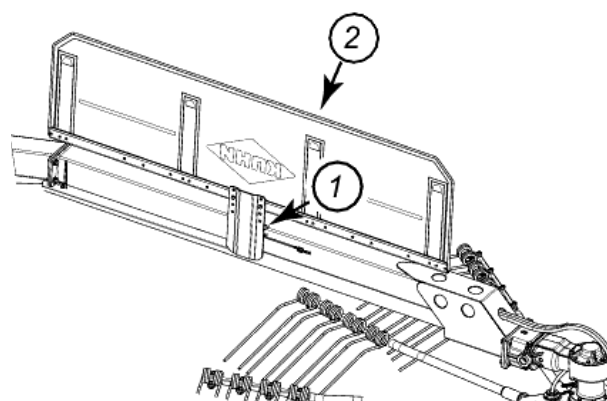
- Push windrow curtain arm (2) towards the machine.
- Secure windrow curtain arm using pin (1) and R-clip.



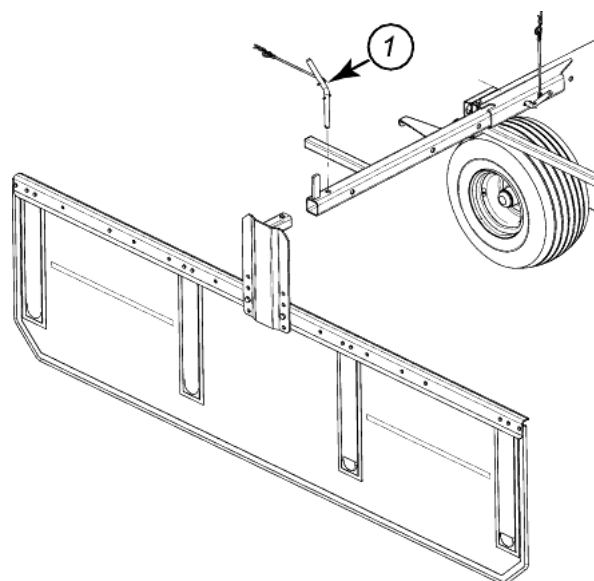
■ Putting the machine into work position

From the transport position:

- Remove R-clip and pin (1).
- Remove front windrow curtain (2) from its holder.



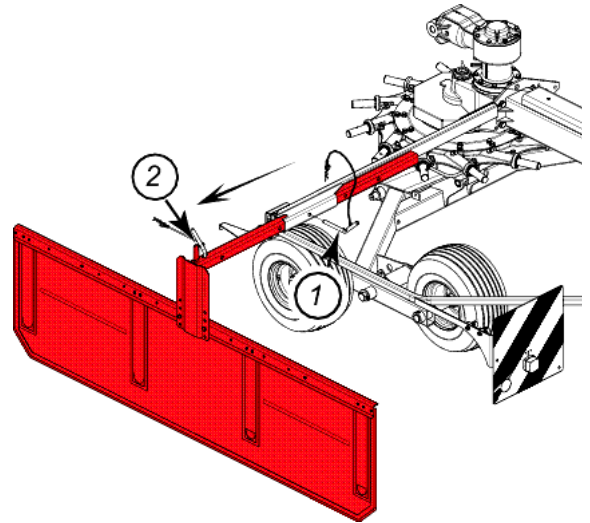
- Secure front windrow curtain on the deflector arm using pin (1) and R-clip.



■ Machine use

Swath width adjustment:

- Remove R-clip and pin (1).
- Slide windrow curtain arm using pin to reach the required position.
- Secure windrow curtain arm using pin (2) and R-clip.



There are 2 windrow curtain adjustment possibilities.

Vertical adjustment:

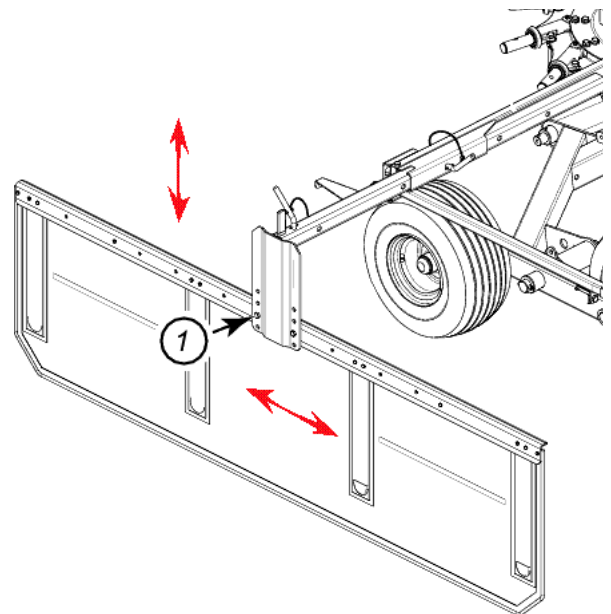
The windrow curtain can be adjusted in 5 positions:

- The high position is used on very irregular grounds.
- The low position is used in low density crop.

Lengthways adjustment:

The windrow curtain can be set forwards or backwards according to the crop density and the windrow width adjustment.

- The forward position is used for green fodder and narrow windrows.



To adjust the windrow curtain:

- Remove the mounting bolts 1.
- Adjust the curtain position.
- Reinstall attachment bolts (1).
- Tightening torque: 4.9 daN m (37 lbf ft)

2. Prop wheel

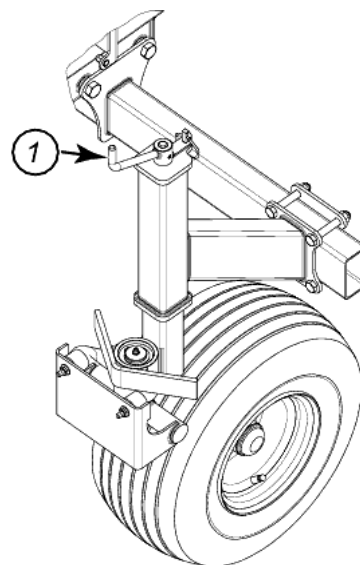
Kit no. 1146600

The prop wheel provides better adaptation to irregular ground contours.

The prop wheel can be fitted either on the right or left side of the front frame.

■ Machine use

- Place the machine in working position.
- Lower the prop wheel using handle (1) until it touches the ground.
- Give a few additional handle turns to ensure that the additional support wheel is always in contact with the ground.

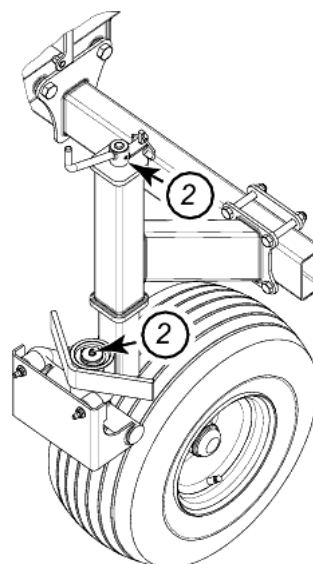


■ Lubrication

Every 50 hours

Grease:

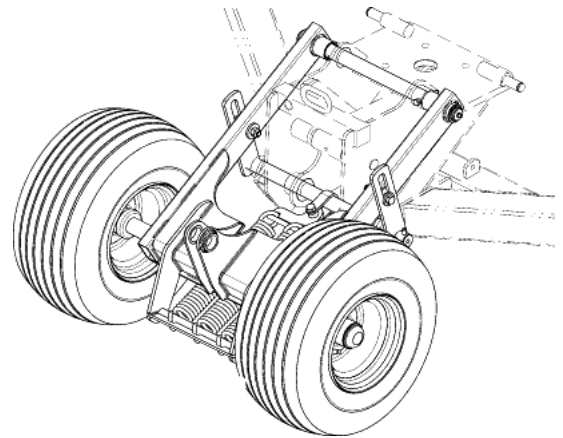
- Pivot points (2).



3. Complementary axle

Kit no. 1146580

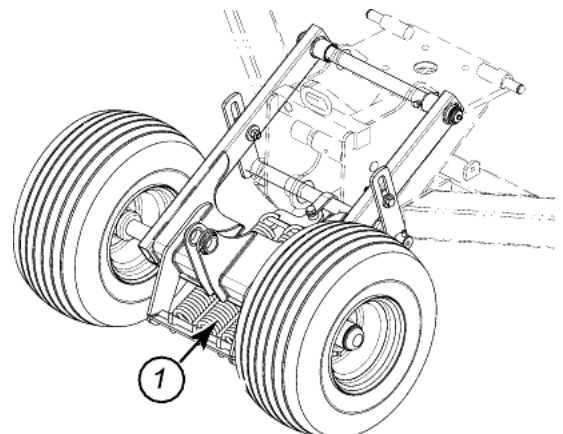
The additional undercarriage improves the machine stability on very steep slopes.



■ Complementary axle adjustment

No particular adjustment is required for the complementary axle.

The 3 traction springs (1) ensure that the wheels are always in contact with the ground.

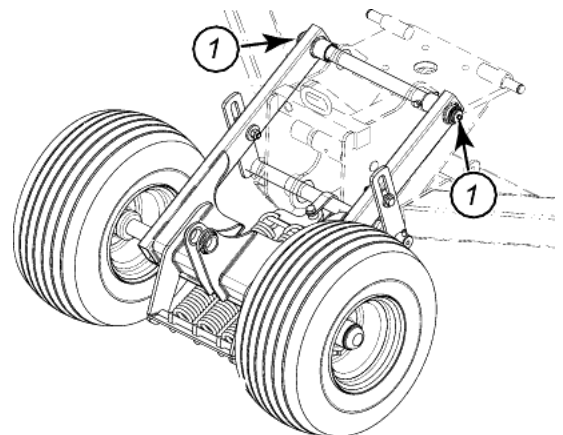


■ Lubrication

Every 50 hours

Grease:

- Pivot points (1).



4. Bogie axles

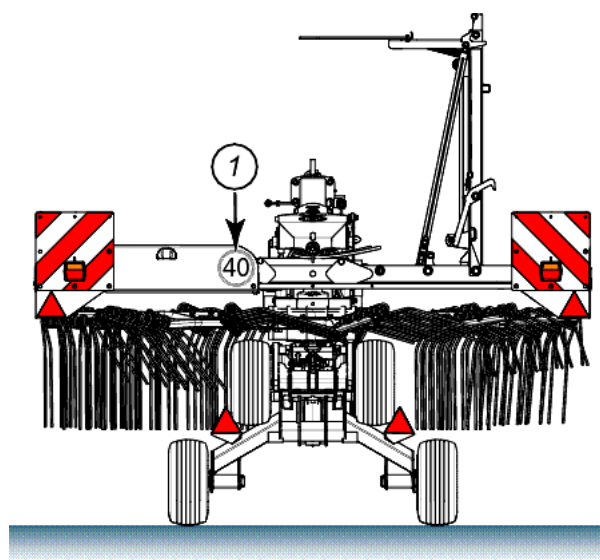
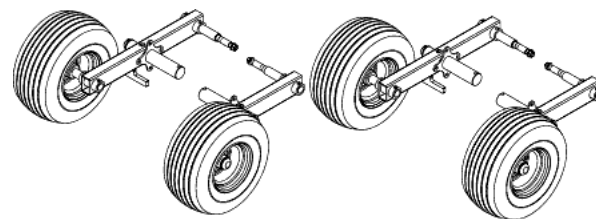
Kit no. 1146630

The bogie axles improve the machine's floatation when working on irregular grounds.

■ Specific requirements for Germany

Speed (1)

Always keep to the legal speed limit of 40 km/h for driving a tractor-machine assembly on public roads.

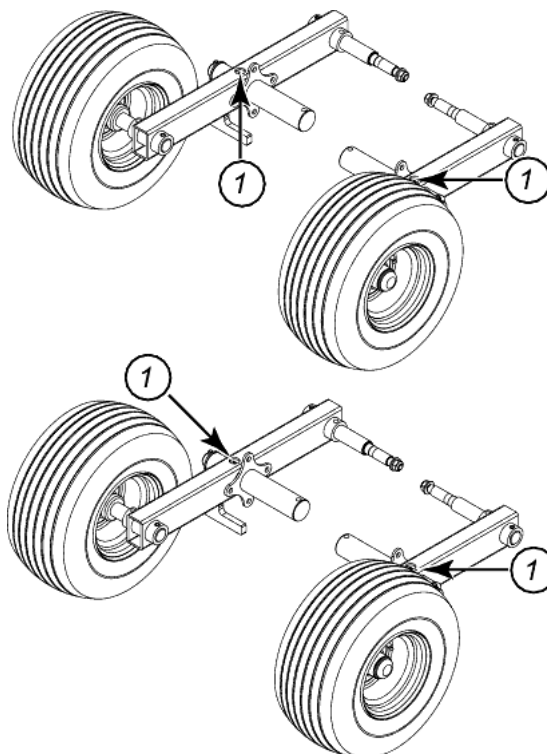


■ Lubrication

Every 50 hours

Grease:

- Pivot points (1).

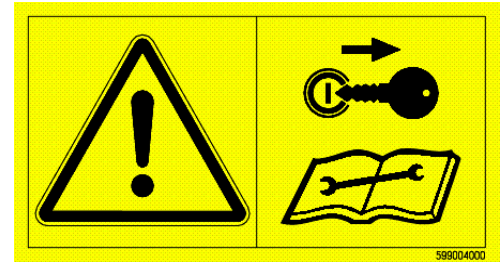


MAINTENANCE AND STORAGE



Before carrying out any maintenance or repairs on the machine, switch off the tractor engine, remove ignition key, wait until all moving parts have come to a standstill and apply park brake.

Check that valves on hydraulic hose couplers are closed.



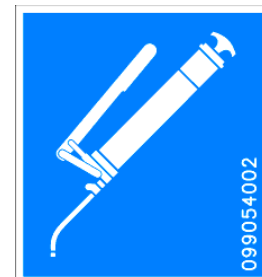
1. Lubrication

The pictorials show the points to be greased.
Clean grease zerks before greasing.



Lubricate with SHELL multi-purpose grease grade NLGI 2

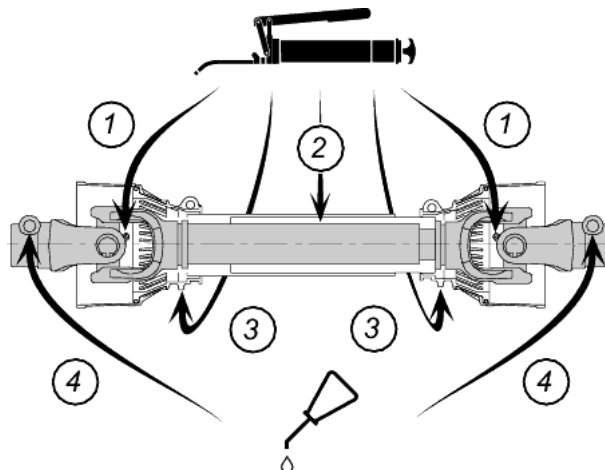
Lubricate with SHELL SAE 90 EP (GL4) gear oil



■ PTO shaft

Primary PTO shaft

- Every 8 hours:
 - U-joints (1).
- Every 20 hours:
 - transmission tube (2).
- Every 40 hours:
 - guide rings (3).
 - locking pins (4).



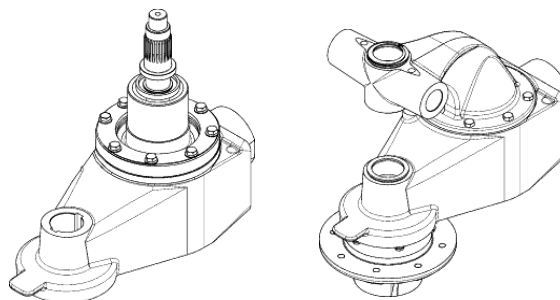
Secondary PTO shaft

- Every 8 hours:
 - U-joints (1).
- Every 20 hours:
 - transmission tube (2).
- Every 40 hours:
 - guide rings (3).
 - locking pins (4).

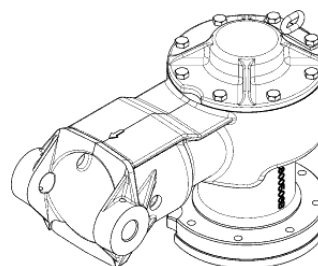
■ Rotors



Each reduction gearbox is lubricated for life with 1.5 kg (3.3 lb) kg of SHELL multi-purpose semi-fluid grease NLGI grade NLGI 0.



The swivel gearbox is lubricated for life with 0.5 kg (1.1 lb) kg of SHELL multi-purpose semi-fluid grease NLGI grade NLGI 0.

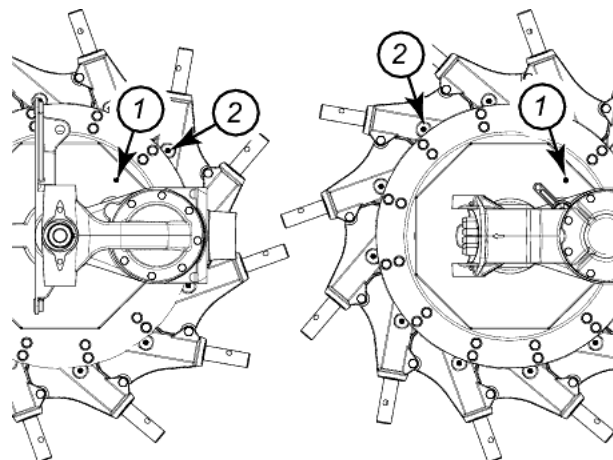




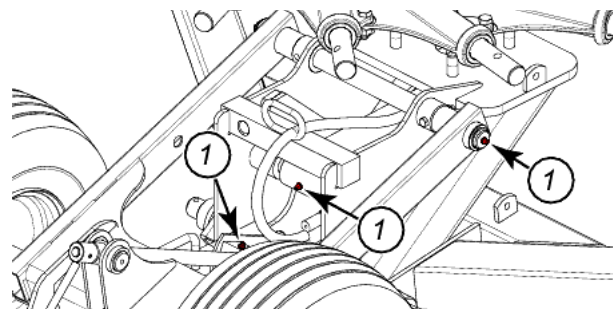
Lubricate with SHELL multi-purpose grease grade NLGI 2.

Grease:

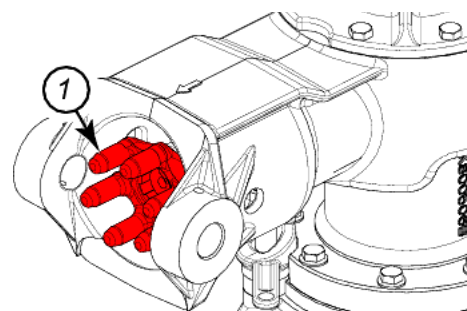
- Rotor gears (1).
- Rotor arm housings (2).



- Pivot points (1).



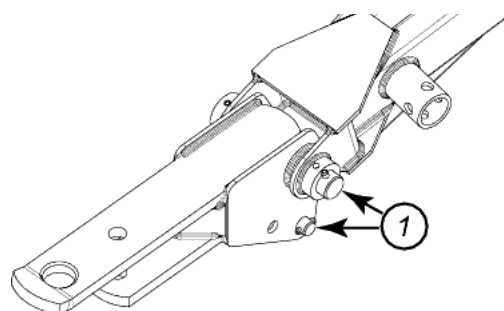
- The "DIGIDRIVE" coupling fingers (1).



Lubricate with SHELL SAE 90 EP (GL4) gear oil.

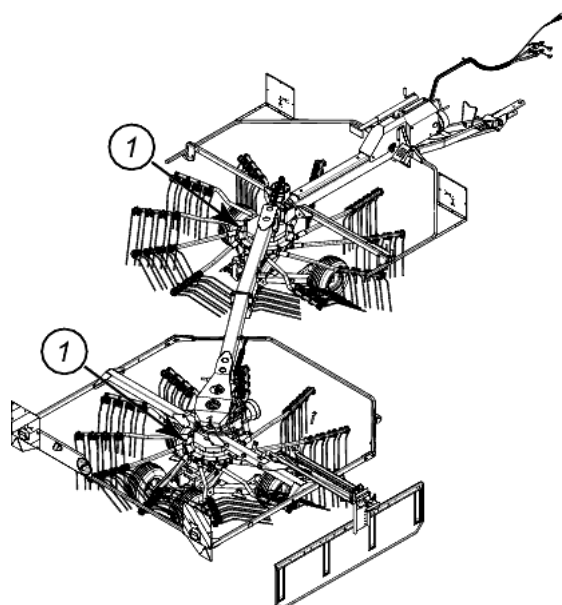
Oil:

- The pivot pins of coupling device (1).



2. Maintenance

Check tightness of all bolts and nuts, particularly on rotors (1).



3. Storage

■ At the end of each season



Avoid high pressure water jets on rotors and pivot points.

- Clean the machine thoroughly.
 - Put the machine under cover in a dry place.
 - Clean and pack the connections between rotor arms and removable tine arms with never-seize grease..
 - Check good sealing:
 - Reduction gearboxes.
 - Swivel gearbox.
-

■ At the start of each season

- Read through the operator's manual again.
 - Check tyre pressure:
 - Rotor wheels: 2 bar (29 psi).
 - Make sure all the guards are in place.
-

LIMITED WARRANTY

KUHN S.A. 4, Impasse des Fabriques, 67706 SAVERNE Cedex FRANCE (hereinafter called "the Company") warrants, in accordance with the provisions below, to each retail purchaser of a new KUHN equipment from an authorized KUHN dealer, that such equipment is, at the time of delivery to such purchaser, free from defects in material and workmanship, and that such equipment is covered under this Limited Warranty providing the machine is used and serviced in accordance with the recommendations in the Operator's manual.

This Limited Warranty covers the equipment for a period of one year starting from the date the equipment is delivered to the retail purchaser and during this period up to a limit of 500 hours of use.

The date of invoice to the retail purchaser and the registration of the machine by the dealer are taken as evidence of delivery of the machine.

This Limited Warranty covers the reimbursement (or repair) of components as well as labor charges incurred, based on the Company warranty labor rate and allowable time for repair.

■ **These conditions are subject to the following exceptions:**

- Parts of the machine which are not of KUHN manufacture, such as tires, PTO shafts, slip clutches, hydraulic cylinders, etc. are not covered by this Limited Warranty, but are subject to the warranty of the original manufacturer.

Warranty claims applying to these types of parts must be submitted in the same way as if they were parts manufactured by KUHN. However, compensation will be paid in accordance with the warranty agreement of the manufacturer concerned, in as much as the latter justifies such a claim.

- This Limited Warranty does not apply to failure through normal wear and tear, to damage resulting from negligence or from lack of inspection, from misuse, from lack of maintenance and/or if the machine has been involved in an accident, lent out or used for purposes other than those for which it was intended by the Company.
- This Limited Warranty will not apply to any product that has been altered or modified in any way without the express permission of the Company, or if parts and/or equipment not approved by Kuhn are used on a machine manufactured by the Company and/or if repairs have been carried out by anyone other than an authorized KUHN dealer.
- The Company shall not be responsible for any damage to the machine or its equipment in transit or handling by any common carrier, within or without the Warranty period. Machines, equipment and parts are transported at owner's risk.
- The Company cannot be held responsible for any claims or injuries to the owner or to any third party, nor to any resulting responsibility.
- Also, on no account can the Company be held liable for incidental or consequential damages (including loss of anticipated profits) or for any impairment due to a failure, a latent defect or a breakdown of the machine.

■ **The customer will be responsible for and bear the costs of:**

- Normal maintenance such as greasing, maintenance of oil levels, minor adjustments, etc.
- Dealer travel time, or travelling costs to and from the machine.
- Transporting machines, equipment or parts to the repair site and returning them to the user site.
- Parts defined as normal wearing items such as, but not limited to belts, blades, discs, knives, shares, tines, tine holders, slip clutches, etc. that are not covered by the Limited Warranty.

■ **The Limited Warranty is dependent on the strict observance of the following conditions:**

- The machine has been put in service by the dealer according to our instructions.
- The machine has been registered on line via extranet - www.kuhnsa.com or the warranty/product registration form has been completed and returned to the address indicated on the form as soon as the machine had been delivered to the retail purchaser.
- The warranty claim is completed on line via extranet - www.kuhnsa.com or submitted on a KUHN warranty claim form and returned to the Company within one month after the date of failure or the date of problem becoming apparent.
- The claim must be completed by the dealer and following information must be mentioned.
 - **Dealer's name and address**
 - **Name and address of retail purchaser**
 - **Exact type of machine**
 - **Machine serial number**
 - **Date of delivery to the retail purchaser**
 - **Date of failure**
 - **Number of hours of use or area (hectares, acres) worked**
 - **Power of tractor used**
 - **PTO speed (if applicable)**
 - **Detailed description and estimated cause of the failure**
 - **Quantity, reference number and name of the damaged parts**
 - **Invoice number and invoicing date for replacement parts.**
- The dealer has stored the damaged parts safely and labelled them clearly so that they can be recognised and returned to the Company if requested. They must be retained until a credit note has been issued to cover the parts. Carriage charges for the return of said parts are borne by the sender.
- The machine has been used and maintained according to the instructions in the operator's manual. The quality and quantity of lubricants used must always be in accordance with Company specifications.
- The safety measures mentioned in the Operator's manual and on the machine itself have been followed, and all the guards and protective elements, of whatever nature, have been inspected regularly and maintained in perfect working order.
- The judgment of the Company in all case of claims under this Limited Warranty shall be final and conclusive and the retail purchaser agrees to accept its decisions.
- If damaged parts have been returned to the Company and Warranty is refused, the dealer is allowed a period of 1 month from the date of receiving our letter of decision to request the return of the damaged parts to the dealer site.

■ **Further conditions: limits of application and responsibility**

- This Limited Warranty can not be assigned or transferred to anyone without the prior written consent of the Company.
- Authorized KUHN Dealers have no right or authority to assume any obligation or take any decision on the Company's behalf, whether expressly or tacitly.
- Technical assistance given by the Company or its agents for repairing or operating equipment does not lead to any responsibility on the Company's behalf and cannot under any circumstances bring novation or derogation to the conditions of the present Limited Warranty.
- The Company reserves the right to incorporate changes in its machines without prior notice and without obligation to apply these changes to machines previously manufactured.
- Moreover, because of the constant progress in technology, no guarantee is given to the descriptions of equipment published in any document by the Company.
- The present Limited Warranty excludes any other responsibility, whether legal or conventional, express or implied, and there are no warranties extending beyond those defined herein.



KUHN S.A. B.P. 50060 F - 67706 SAVERNE CEDEX (FRANCE)

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www.kuhnsa.com - E-mail : info@kuhnsa.com

Société Anonyme au Capital de 19 488 000 Euros

KUHN-AUDUREAU S.A. B.P. 19 F - 85260 LA COPECHAGNIERE (FRANCE)

Tél. : + 33 (0) 2 51 41 47 00 - Fax : + 33 (0) 2 51 41 41 03

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Société Anonyme au Capital de 2 530 000 Euros

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Tél. : + 33 (0) 2 40 55 77 00 - Fax : + 33 (0) 2 40 55 77 10

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Société Anonyme au Capital de 4 800 000 Euros

KUHN KNIGHT INC P.O. Box 167 Brodhead - Wisconsin 53520 (USA)

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