

OPERATOR'S MANUAL



Power tiller

EL82



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 KUH N dealer can offer a complete line of genuine KUH N 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 its 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 **EL82** power tillers must only be used for the work for which they have been designed::

- Market gardening.
 - Maintenance of green spaces.
 - Seedbed preparation on ploughed or unploughed ground.
 - Use by nurserymen, landscape gardeners and horticulture.
 - Vineyard work.
-

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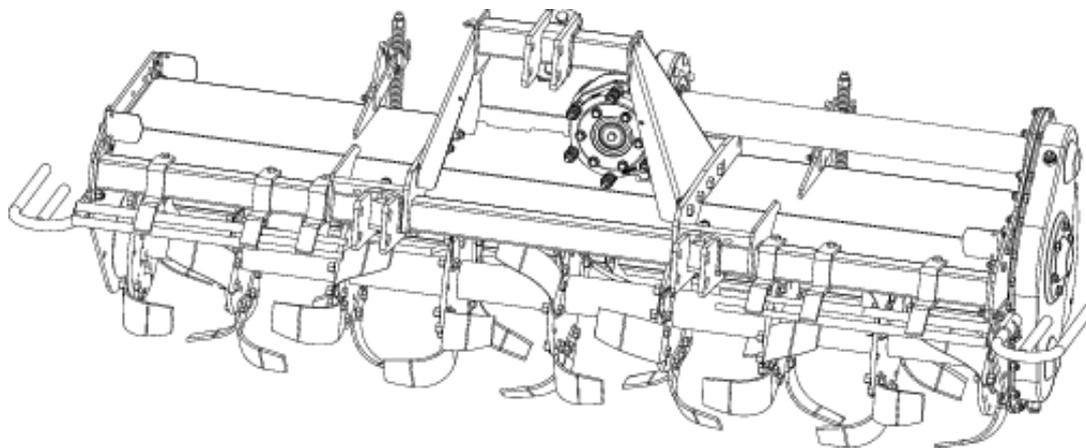
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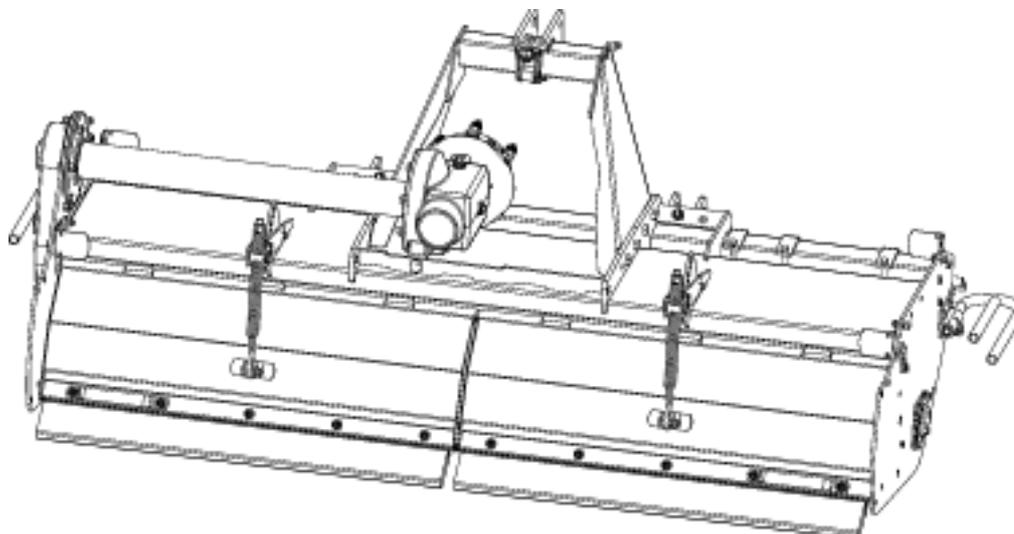
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IDENTIFICATION OF THE MACHINE

1. Front view

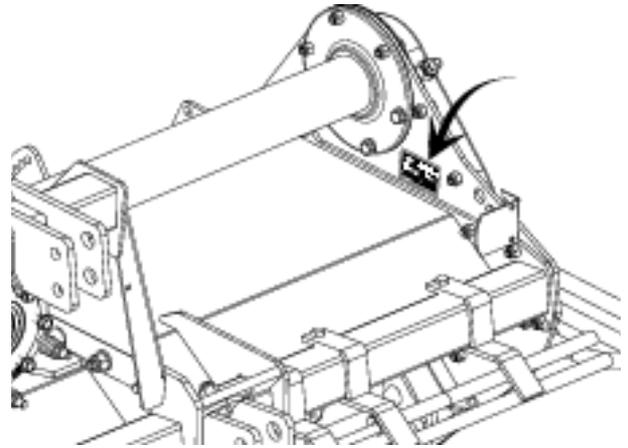


2. Rear view



3. 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: **EL82**

No:



4. Optional equipments

Tick box corresponding to the equipment fitted on your machine:

Models: 130 - 155 - 180 - 205

- Kit no. 4800802: 1 3/8" 21 spline pto shaft.
- Kit no. 1206670: Wheels.
- Kit no. 1206820: Short skids.
- Kit no. 1206990: Standard skids.
- Kit no. 1206250: Side discs.
- Kit no. 1206550: Track eradicators.

Models: 130 - 155 - 180

- Kit no. 1209240: Lighting and signalling.

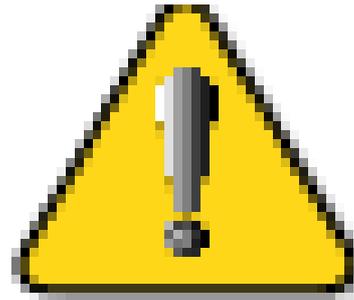
Model: 205

- Kit no. 1209260: Lighting and signalling.

SAFETY

1. Description of symbols used in this document

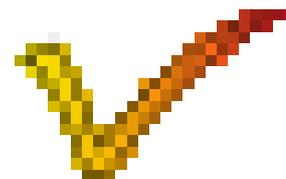
This symbol indicates a potentially hazardous situation that if not avoided, could result in serious bodily injury.



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.

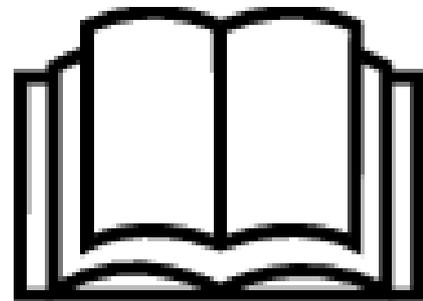
■ Read and follow the safety instructions

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.



■ 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.



■ 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.

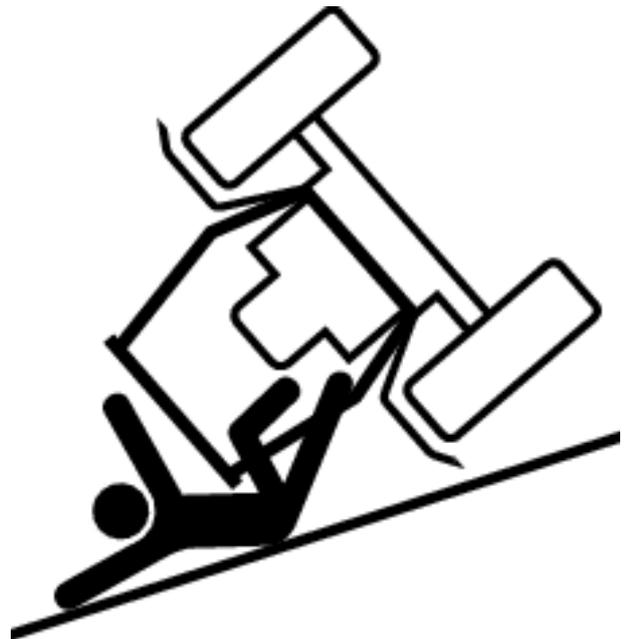
Drive speed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction.

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

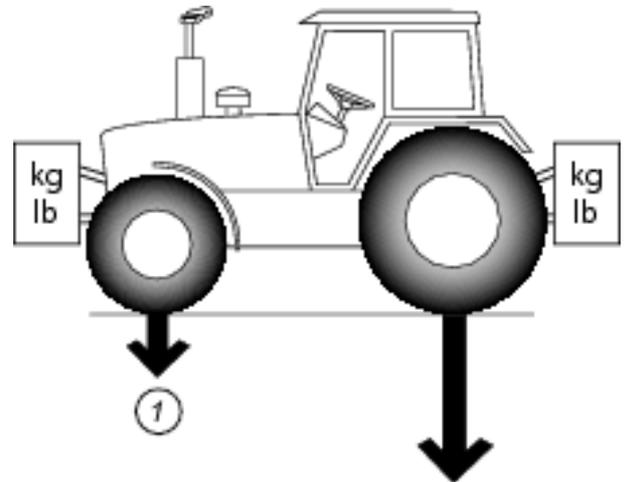
Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.

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. If necessary, add ballast weights to the front or to the rear to preserve the steering and braking efficiency.



Transport position

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

Lights and indicators.

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

Ensure that lights and indicators 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.

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.



■ 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.

■ **Safety decals**

Safety warnings to respect, are placed in safety decal 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.

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.

It is strongly recommended to have your machine checked by your Kuhn dealer after each season, especially tools and their attaching hardware.



■ Precautions for machine use

Before each use, check the soil preparation implements and their attachment hardware in accordance with the instructions given in this manual. Replace any worn, damaged or missing soil preparation implement or fastener immediately. For your safety, only use genuine KUHN parts !

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

Before engaging the PTO drive, lower the machine on 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 machine when the cutting tools are in movement.

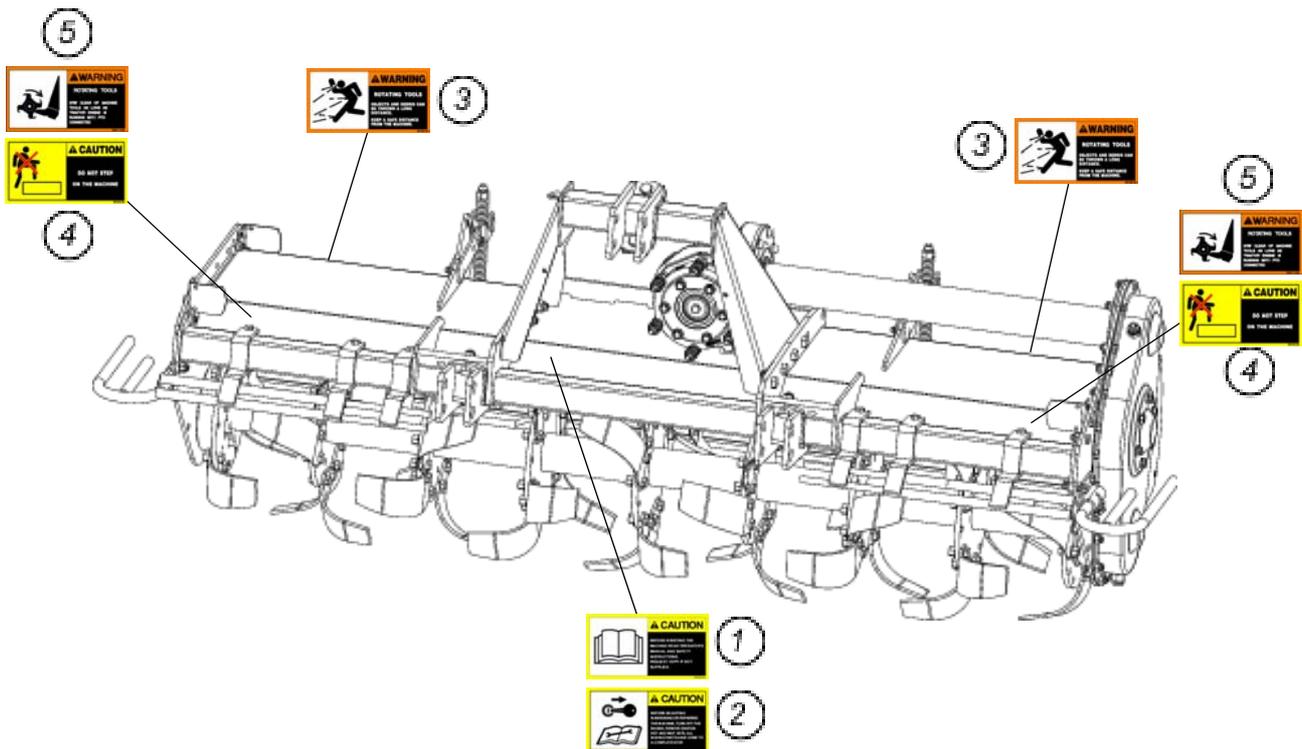
Never work in reverse.

After disengaging the PTO drive, the rotor can continue rotating for some 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

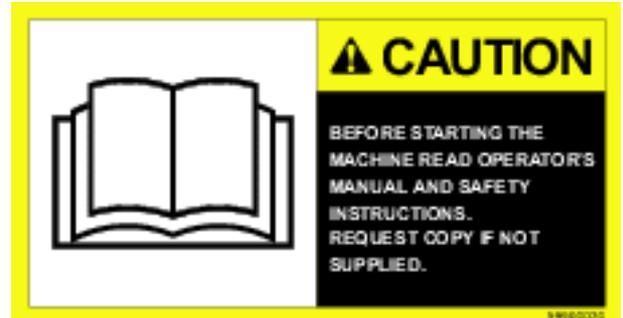
■ Location of safety decals



■ 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.



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.



Do not step on the machine (4)

Do not step on the machine : Risk of falling or damaging the protection device.



Rotary tools 5

Keep away from rotary elements and from the machine all the time the engine is running, the PTO drive is engaged and the rotors are turning.

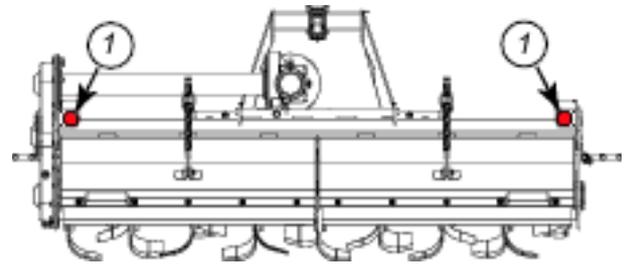


4. Road safety equipment and recommendations

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

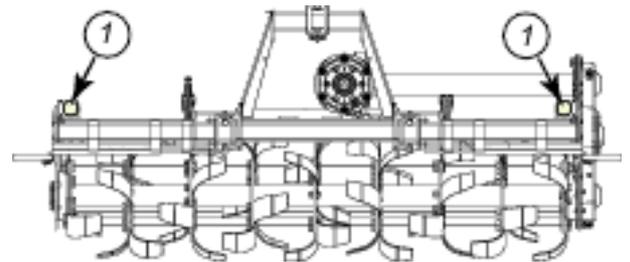
The rear safety device comprises:

- 2 red reflectors (1).



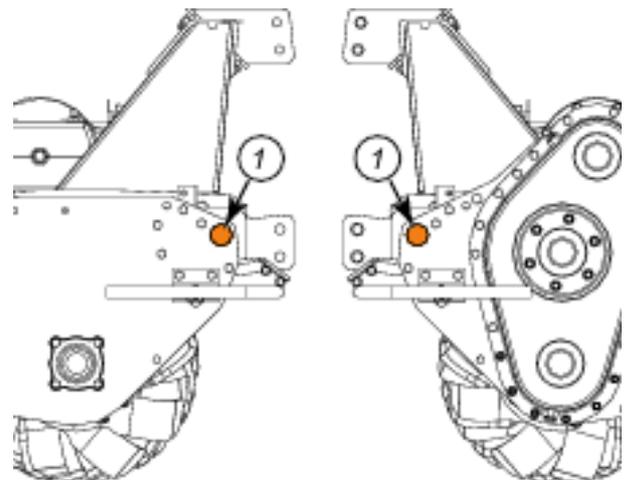
The front safety device comprises:

- 2 white reflectors (1).



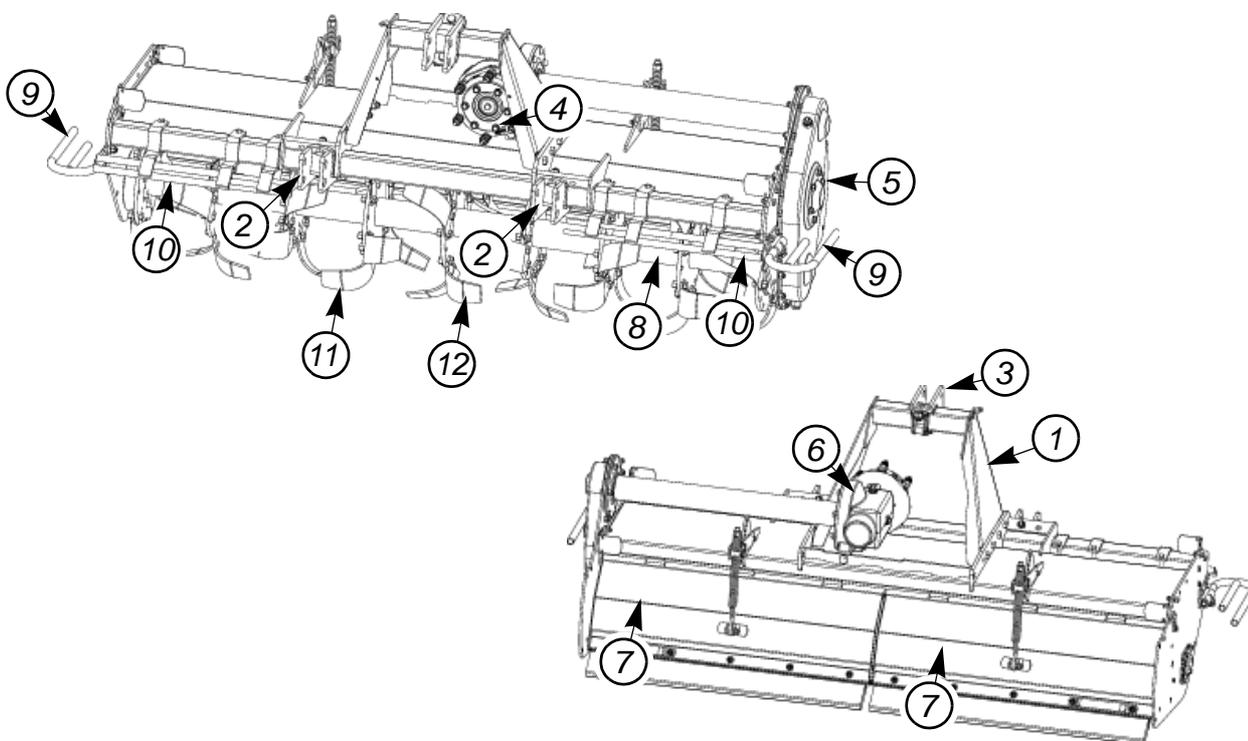
The side device comprises:

- 1 amber reflector (1) on each machine side.



MACHINE SPECIFICATIONS

1. Description and glossary



1 : Headstock
 3 : Top link
 5 : Side gearbox
 7 : Rear hood
 9 : Side guard
 11 : Right C-blade

2 : lower links
 4 : Friction slip clutch
 6 : Central gearbox
 8 : Rotor
 10 : Front guard
 12 : Left C-blade

2. Technical specifications

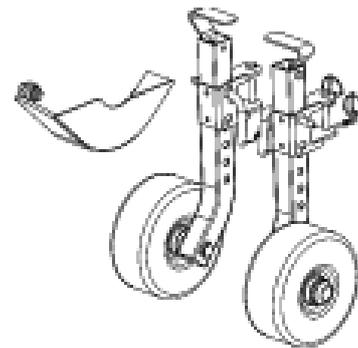
| | EL82 130 | EL82 155 | EL82 180 | EL82 205 |
|---|--|---------------------|---------------------|-------------------------------------|
| Coupling device | 3 point attachment category 1N - 1 and 2 | | | 3 point attachment category 1 and 2 |
| PTO speed | 540 min ⁻¹ | | | |
| Working width | 1.30 m (4'3") | 1.55 m (5'1") | 1.80 m (5'10") | 2.05 m (6'8") |
| Working depth | from 50 to 230 mm (2" - 9") | | | |
| Width in working position: | 1.67 m (5'5") | 1.92 m (6'3") | 2.17 m (7'1") | 2.50 m (8'2") |
| Width in transport position: | 1.47 m (4'9") | 1.72 m (5'7") | 1.97 m (6'5") | 2.30 m (7'6") |
| Power requirement | 24 kW (33 hp) | 29 kW (39 hp) | 33 kW (45 hp) | 38 kW (51 hp) |
| Maximum allowable DIN engine power | 63 kW (85 hp) | | | |
| Weight (with wheels) | 395 kg (870 lb) | 430 kg (948 lb) | 465 kg (1025 lb) | 510 kg (1124 lb) |
| (With short skids) | 395 kg (870 lb) | 430 kg (948 lb) | 465 kg (1025 lb) | 510 kg (1124 lb) |
| (With standard skids) | 395 kg (870 lb) | 430 kg (948 lb) | 465 kg (1025 lb) | 510 kg (1124 lb) |
| (With crumbler roller) | - | - | - | 625 kg (1377 lb) |
| (With Packer roller) | - | - | - | 770 kg (1697 lb) |
| Rotor speed | 212 min ⁻¹ | | | |
| Outer rotor diameter | 525 mm (1'8") | | | |
| Number of blades per rotor | 30 | 36 | 42 | 48 |

3. Required equipment

■ **Wheels:** Models 130 - 155 - 180 - 205.

This equipment adjusts and controls machine working depth.

This equipment has compact dimensions.

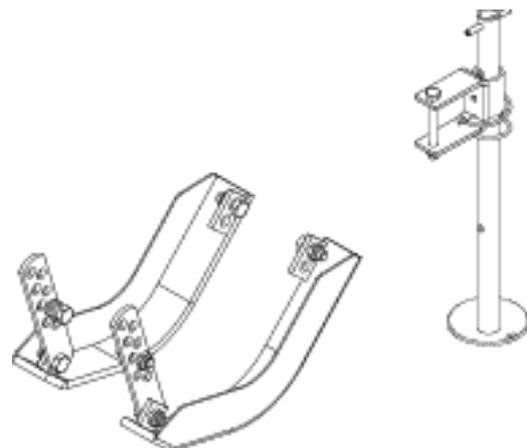


or

■ **Short skids:** Models 130 - 155 - 180 - 205.

This equipment adjusts and controls machine working depth. Short skids allow deeper work compared with standard skids.

This equipment is particularly well adapted for light soils.

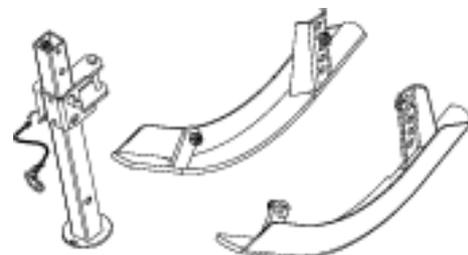


or

■ **Standard skids:** Models 130 - 155 - 180 - 205.

This equipment adjusts and controls machine working depth.

This equipment is adapted for all soil types and particularly for wet soils.

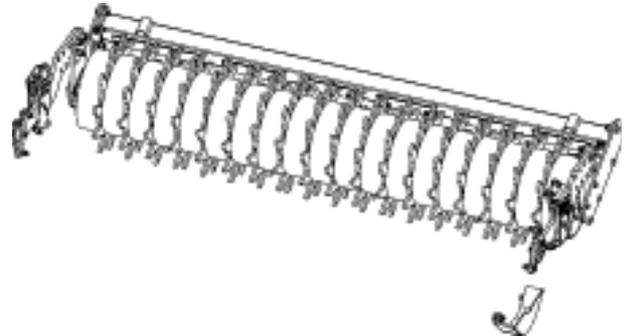


or

■ **Packer roller:** Model 205.

This equipment adjusts and controls machine working depth.

The Packer roller is adapted to all soil types and particularly to wet and sticky soils.

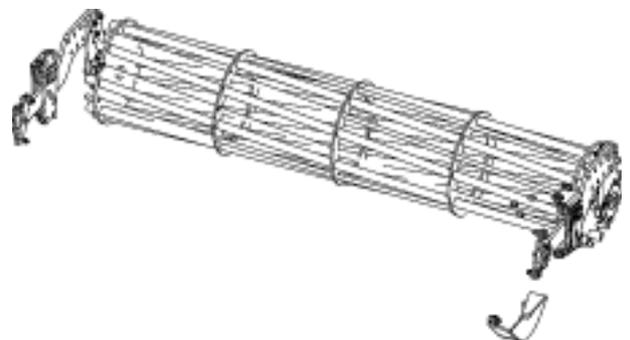


or

■ **Crumbler roller:** Model 205.

This equipment adjusts and controls machine working depth.

The Crumbler roller is adapted to dry or slightly wet soils.



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:

| | | | |
|-------------------|-------------------|-----------------|-------------------|
| 130 | 155 | 180 | 205 |
| 70.2 dB(A) | 70.6 dB(A) | 71 dB(A) | 71.3 dB(A) |

Tractor + machine:

| | | | |
|-------------------|-------------------|-------------------|-----------------|
| 130 | 155 | 180 | 205 |
| 71.6 dB(A) | 71.6 dB(A) | 71.9 dB(A) | 72 dB(A) |

PUTTING INTO SERVICE

1. Coupling and uncoupling

■ Description of coupling elements

- A PTO shaft 1 3/8" - 6 splines.
- A 3-point hitch.

■ Preparing the tractor

Models: 130 - 155 - 180

The machine adapts to tractors fitted with a 3-point hitch coupler category 1N - 1 or 2.

Model: 205

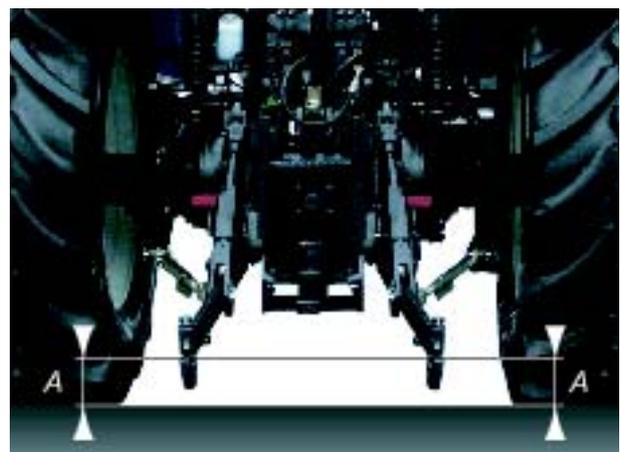
The machine adapts to tractors fitted with a 3-point hitch coupler category 1 or 2.

The tractor nominal PTO speed must be 540 min^{-1} .



Hitch pin parallelism

Adjust tractor lift rods so that hitch pins are parallel to the ground.



■ Preparing the machine

Axial or offset working position



Models: 130 - 155 - 180

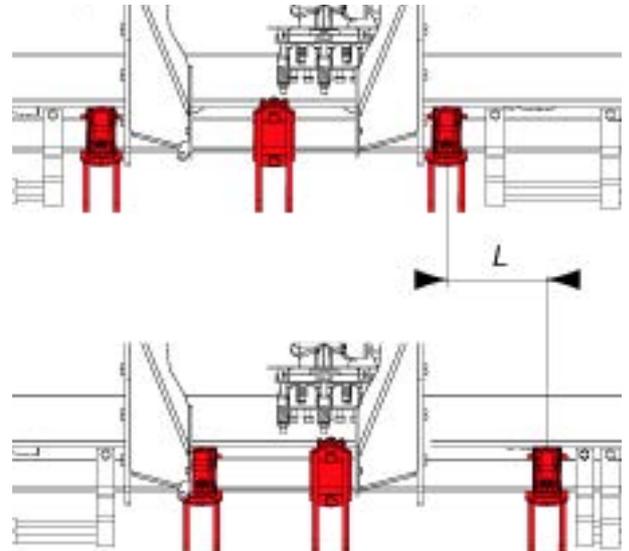
Lateral offset: $L = 220 \text{ mm (9")}$.

Model: 205

No offset.

Axial working position:

Offset working position:



Offset adjustment



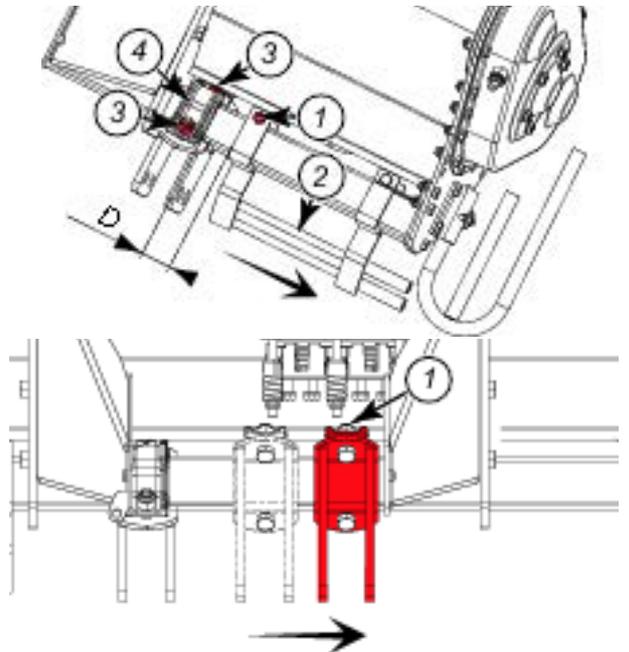
Park the machine on an even fairly level ground.

lower links

- Loosen screw (1).
- Unscrew the 2 nuts (3).
- Slide lower coupling yokes (4) to the required position.
- Tighten the 2 nuts (3).
 - Torque: 21 daN m (155 lbf ft).
- Adjust sliding guard (2) position to fully cover machine front part between lower coupling yokes and machine ends:
 - Distance D between sliding guard and lower coupling yokes must not exceed 60 mm (2.4").
- Tighten screw (1).
 - Torque: 8.5 daN m (63 lbf ft).
- Proceed the same way on the other side.

Top link

- Unscrew the 2 nuts (5).
- Slide upper hitch to the required position.
- Tighten the 2 nuts (5).
 - Torque: 21 daN m (155 lbf ft).

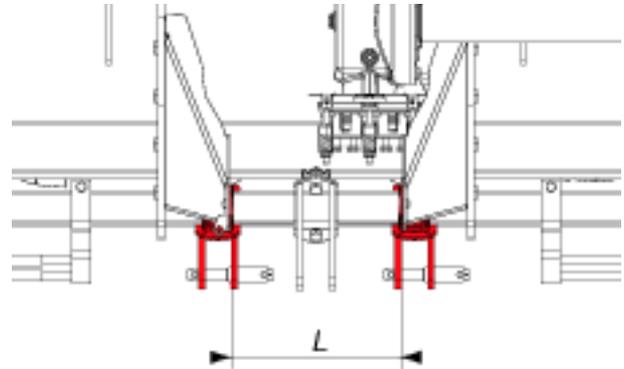


Categories of linkage

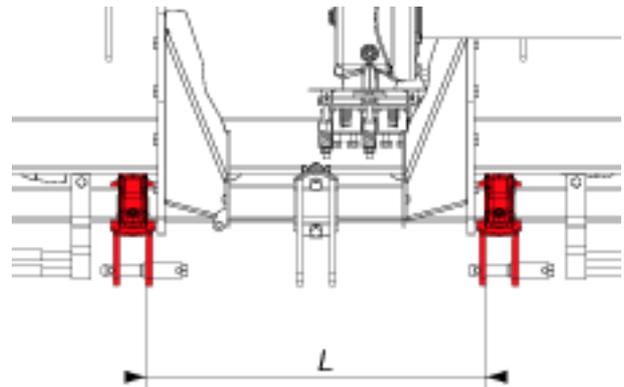
Models 130 - 155 - 180:

The lower coupling yokes can be placed in 3 different positions:

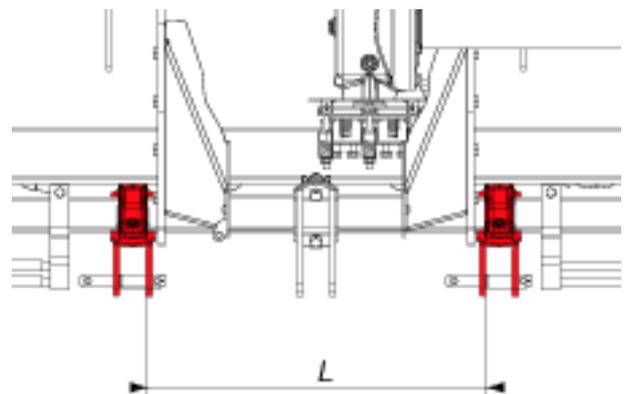
- Category 1N linkage:
 - L = 400 mm (1'3") (approximately).



- Category 1 linkage:
 - L = 683 mm (2'2") (approximately).

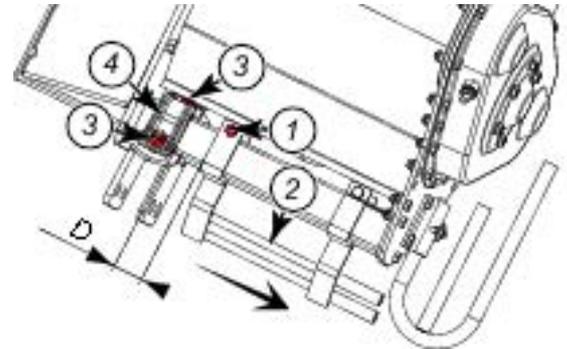


- Category 2 linkage:
 - L = 825 mm (2'8") (approximately).



Adjusting the category

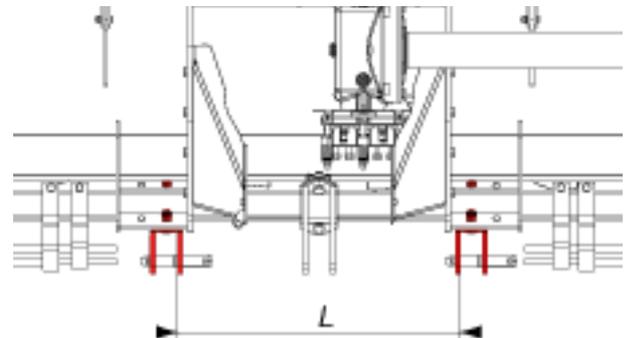
- Loosen screw (1).
- Unscrew the 2 nuts (3).
- Slide lower coupling yokes (4) to the required position.
- Tighten the 2 nuts (3).
 - Torque: 21 daN m (155 lbf ft).
- Adjust sliding guard (2) position to fully cover machine front part between lower coupling yokes and machine ends:
 - Distance D between sliding guard and lower coupling yokes must not exceed 60 mm (2.4").
- Tighten screw (1).
 - Torque: 8.5 daN m (63 lbf ft).
- Proceed the same way on the other side.



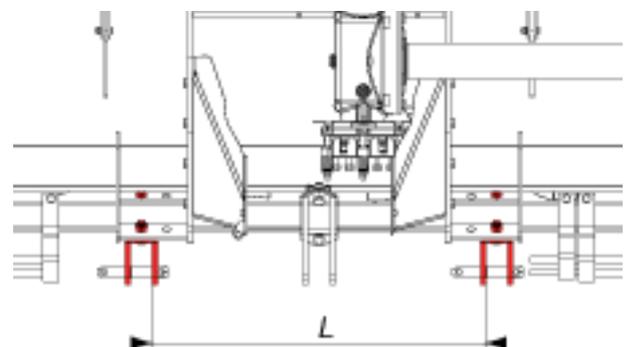
Models 205:

The lower coupling yokes can be placed in 2 different positions:

- Category 1 linkage:
 - L = 683 mm (2'2") (approximately).

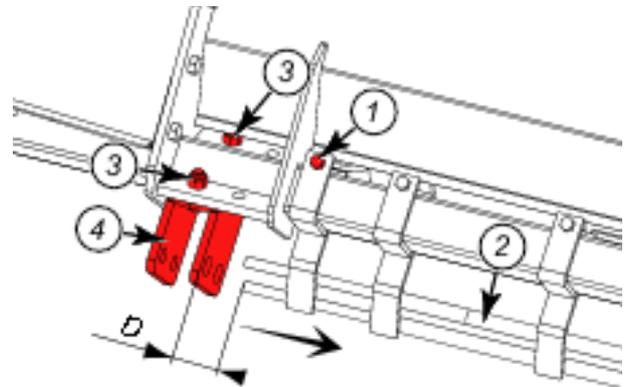


- Category 2 linkage:
 - L = 825 mm (2'8") (approximately).



Adjusting the category

- Loosen screw (1).
- Remove the 2 nuts (3).
- Position lower coupling yokes (4) opposite free holes.
- Tighten the 2 nuts (3).
 - Torque: 21 daN m (155 lbf ft).
- Adjust sliding guard (2) position to fully cover machine front part between lower coupling yokes and machine ends.
 - Distance D between sliding guard and lower coupling yokes must not exceed 60 mm (2.4").
- Tighten screw (1).
 - Torque: 8.5 daN m (63 lbf ft).
- Proceed the same way on the other side.



Coupling the machine

- Park the machine on an even fairly level ground.
- Lower the tractor three-point linkage.
- Insert lower hitch pins and secure them with lynch pins.
- Attach the top link to the hitch pin.
- Secure hitch pin with lynch pin.
- Adjust the top link length so that the machine is horizontal with regards to the ground.

■ Primary PTO shaft



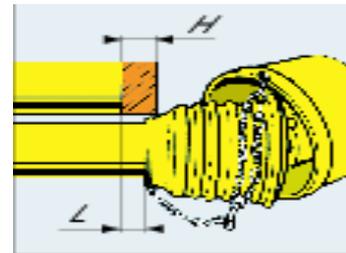
Make sure that the PTO shaft is correctly adjusted, to avoid premature wear and tear.

The tractor PTO stub must rotate at a speed of 540 min^{-1} .

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:

- 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:

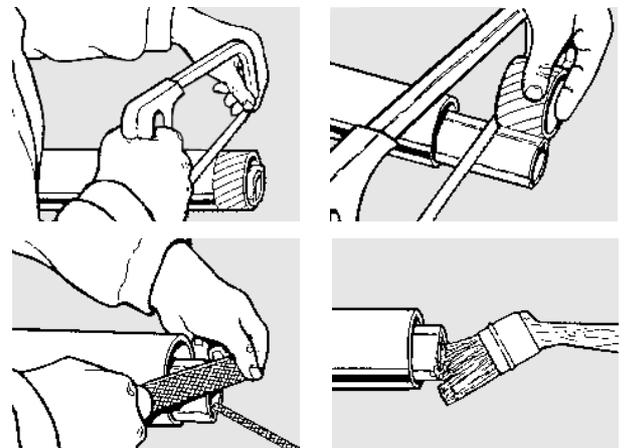
- Mark length (H) to cut when the transmission is the maximum overlap position.



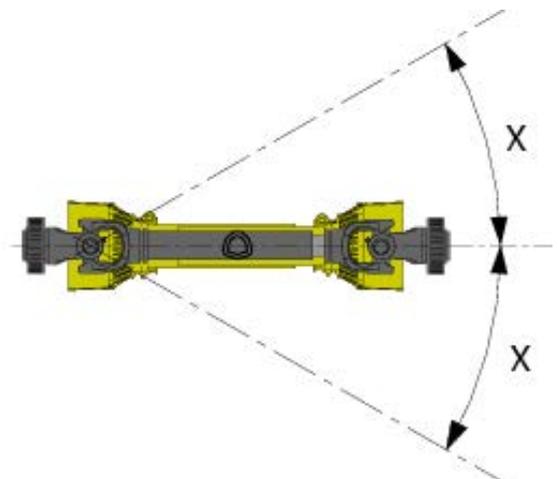
Models: 130 - 155 - 180

Check overlap of PTO shaft after a change in hitch frame 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.



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.

On the machine side, attach PTO shaft guard chain (1) around the frame tube.



Immediately replace any worn or damaged guard.

■ Friction slip clutch

Check the condition of the friction slip clutch:



When the friction slip clutch is properly adjusted, it only heats up slightly.



The friction slip clutch may slip when:

- The springs are not tight enough.
- The machine hits an obstacle.
- the friction slip clutch overheats.
- Etc . . .

Readjust if necessary.

Adjustment

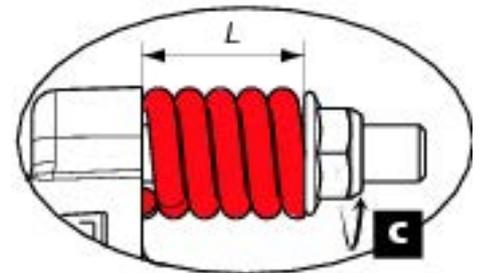
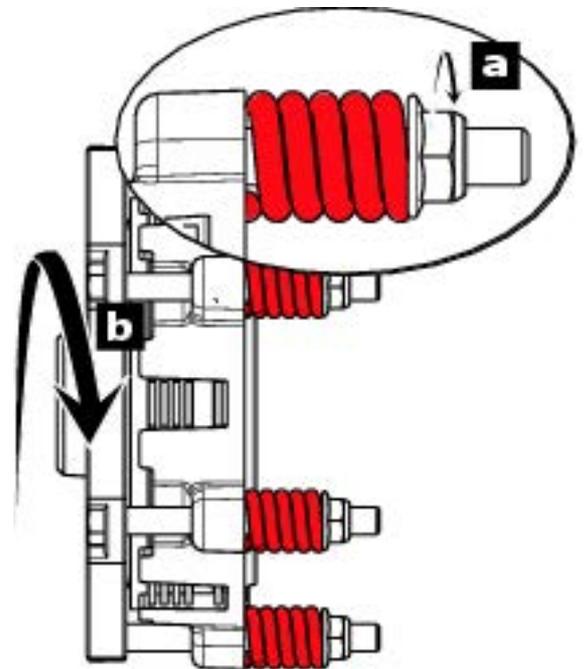
- Loosen nuts to release friction discs (a).
- Rotate the torque limiter's hub a few turns (b).
- Tighten nuts until mark (L) at 32 mm (1.25").



Never fully tighten springs to prevent damage on drive components.

Loosen at least by 1/2 turn.

Overheating causes premature wear on slip clutch components.



The friction slip clutch is ready to function.

■ Uncoupling the machine

- If skids are fitted on the machine, lower and lock parking stand (1).
- Lower the tractor three-point linkage.
- Park the machine on an even fairly level ground.
- Uncouple the PTO shaft from the tractor.
- Put the PTO shaft into its support (2).
- Detach the top link from the machine end.
- Uncouple the lower links.

The machine is uncoupled.



■ Handling



When lifting this equipment, use appropriate lift straps, chains or any other equipment, in perfect working order, complying with safety standards in force for this type of equipment, and with capacities that exceed the total weight of the unit, as listed in this manual.

The location of lifting points is indicated by a pictorial:
Part no. 09905510.

Use lifting point (1).



INSTRUCTIONS FOR TRANSPORT



Before placing the machine into transport position:

Wait until the rotating parts have come to a complete stop.

1. Putting the machine into transport position

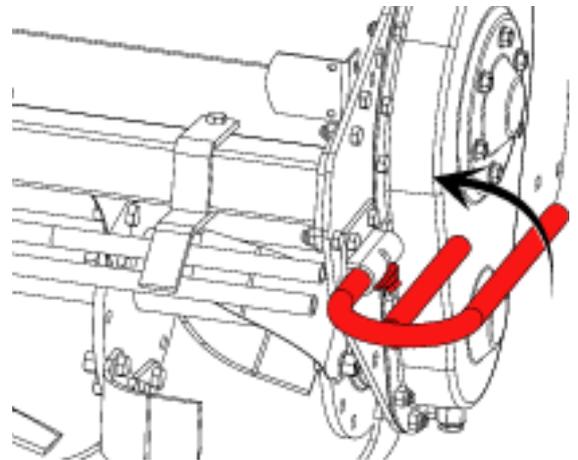
The transport position is obtained by raising the tractor's three-point linkage.



Side guards can be folded upwards to reduce the machine width for transport.



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



2. Conformity with the road regulations

Check that reflectors are clean.



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

INSTRUCTIONS FOR WORK

1. Putting the machine into work position

From the transport position:

- Check that side guards are lowered.
 - Engage the tractor PTO and slowly increase the speed up to 540 min⁻¹
 - Lower the tractor lift completely.
-

2. Adjustments in working position

■ Working depth

The EL 42 is supplied as standard with one of the following depth control equipment:

All models:



- Wheels.
- Short skids.
- Standard skids.

Only on model: 205

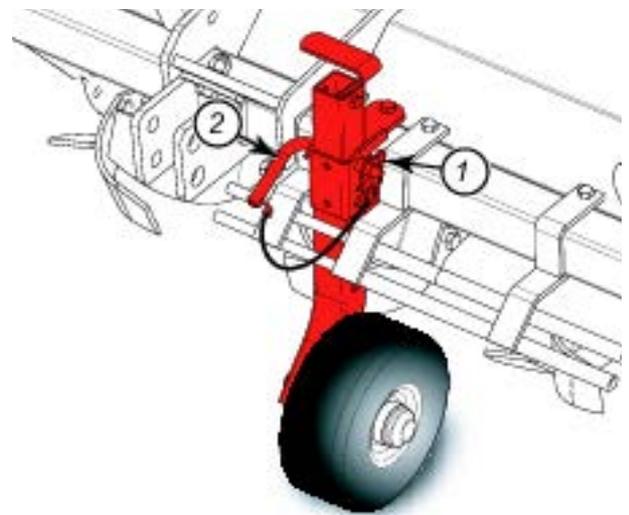
- Packer roller.
- Crumbler roller.

Working depth adjustment:

with wheels

The working depth is set by the wheel height:

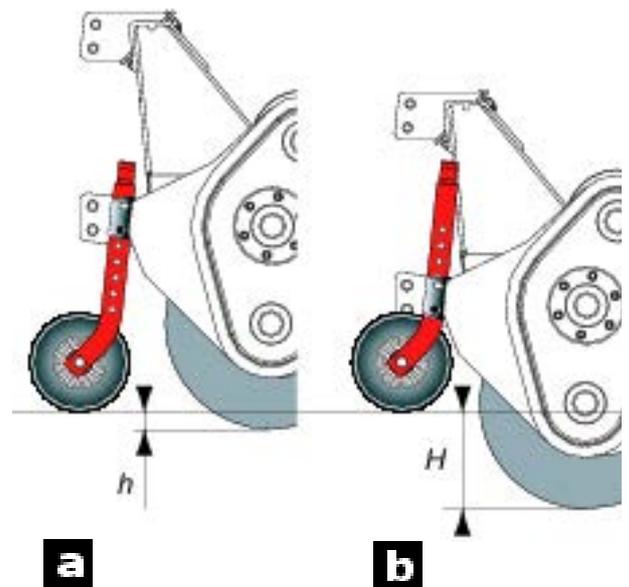
- Lift the machine slightly off the ground.
- Unlock and remove lynch pin (1).
- Remove pin (2)
- Position wheel arm in hole corresponding to the required setting.
- Insert pin (2).
- Secure with lynch pin.
- Proceed the same way on the other side.
- Adjust both sides to the same setting.



Relations between the working depth and the position of the wheels:

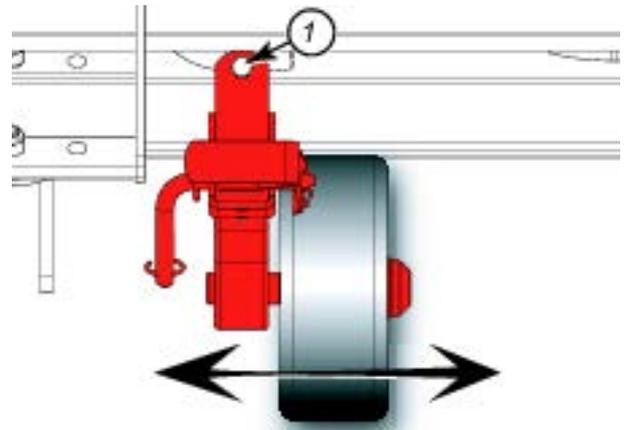


- (a) minimum: $h = 50 \text{ mm}$ (2") (approximately).
- (b) max. : $H = 250 \text{ mm}$ (10") (approximately).



Adjusting the distance between wheels:

- Lift the machine slightly off the ground.
- Loosen screw (1).
- Slide the unit to position the wheel in line with the tractor wheel track.
- Tighten bolt (1):
 - Torque: 8.5 daN m (63 lbf ft).
- Proceed the same way on the other side.

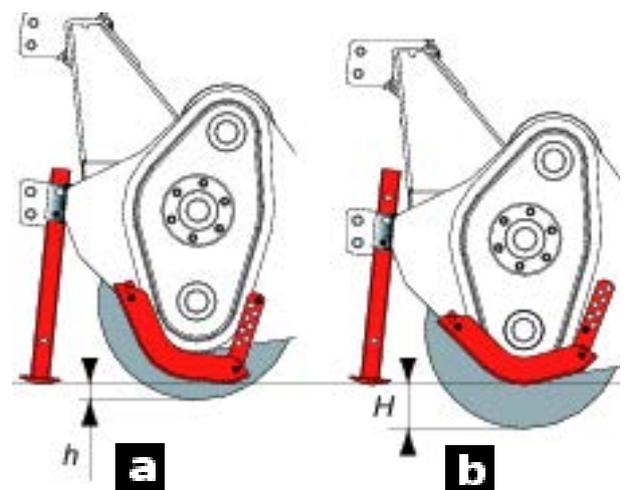
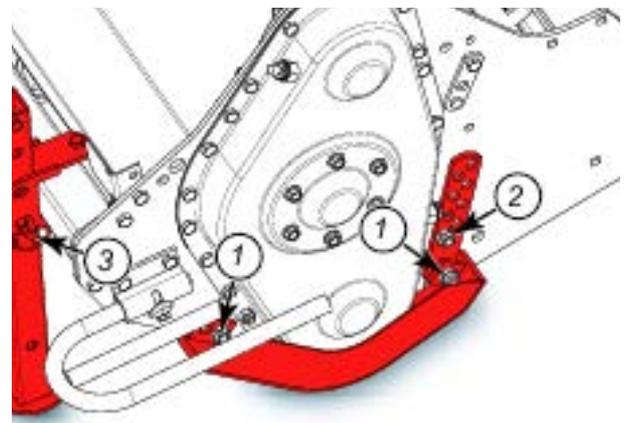


With short skids

The working depth is set by the skid height.

The skids can be adjusted in 8 different positions:

- Lift the machine slightly off the ground.
- Lower and lock parking stand (3).
- Unscrew the 2 nuts (1).
- Remove screw (2).
- Position skid in hole corresponding to the required adjustment.
- Reinstall screw (2).
- Tighten the 3 nuts (1) (2).
 - Torque: 21 daN m (155 lbf ft).
- Proceed the same way on the other side.
- Adjust both sides to the same setting.



Relations between the working depth and the skid position:



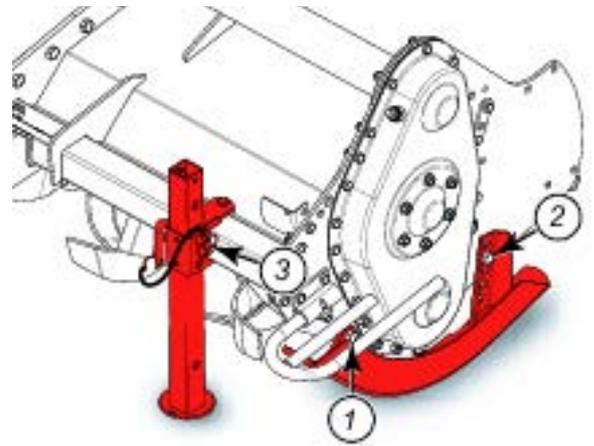
- (a) minimum: $h = 40 \text{ mm (1.5")}$ (approximately).
- (b) max. : $H = 180 \text{ mm (7")}$ (approximately).

With standard skids

The working depth is set by the skid height.

The skids can be adjusted in 5 different positions:

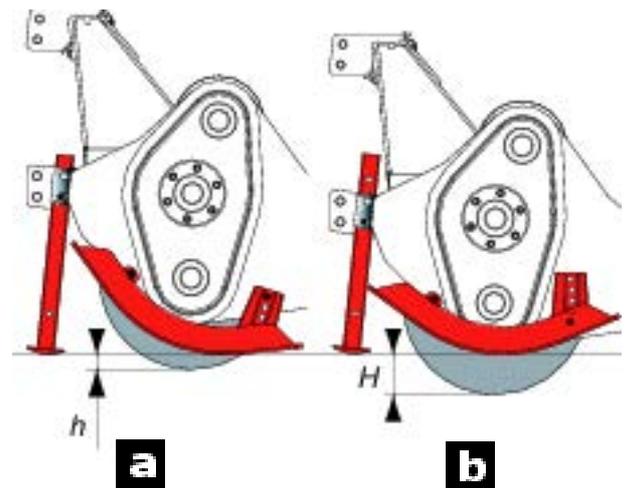
- Lift the machine slightly off the ground.
- Lower and lock parking stand (3).
- Loosen nut (1).
- Remove screw (2).
- Position skid in hole corresponding to the required adjustment.
- Reinstall screw (2).
- Tighten nut (1).
 - Torque: 21 daN m (155 lbf ft).
- Proceed the same way on the other side.
- Adjust both sides to the same setting.



Relations between the working depth and the skid position:



- (a) minimum: $h = 40 \text{ mm}$ (1.5") (approximately).
- (b) max. : $H = 120 \text{ mm}$ (5") (approximately).



With crumbler roller

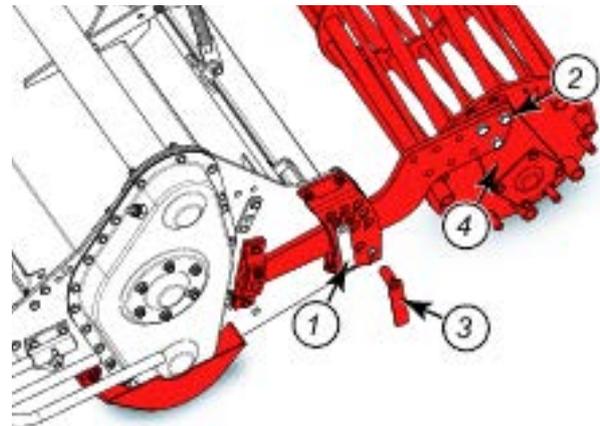
The working depth is set by the roller height.

Overhang.

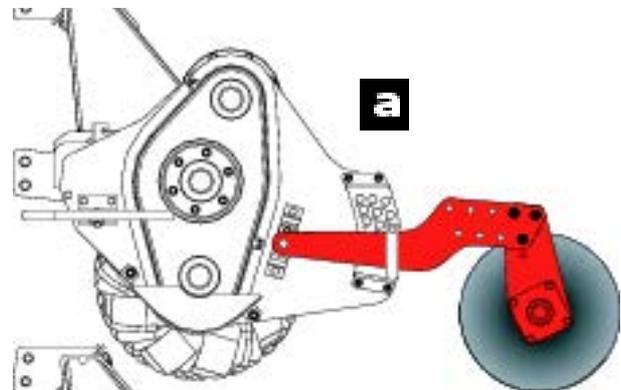
The roller can be adjusted in 4 different positions.

From the working position:

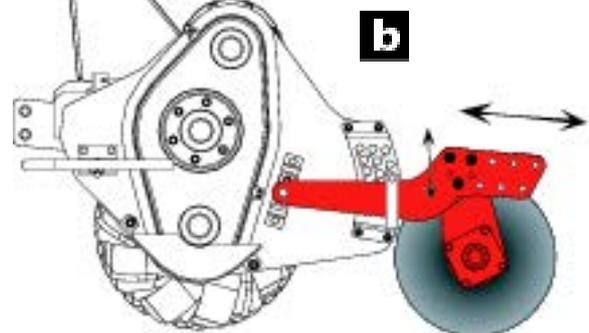
- Remove 6 bolts (2). (3 on each machine side).
- Position roller in holes corresponding to the required adjustment.
- Reinstall bolts (2).
- Torque: 21 daN m (155 lbf ft).



- During deep work, the hood travel range can require the roller to be fitted further to the rear.



- When working at shallow depth, the hood travel range allows fitting the roller in fully advanced position.



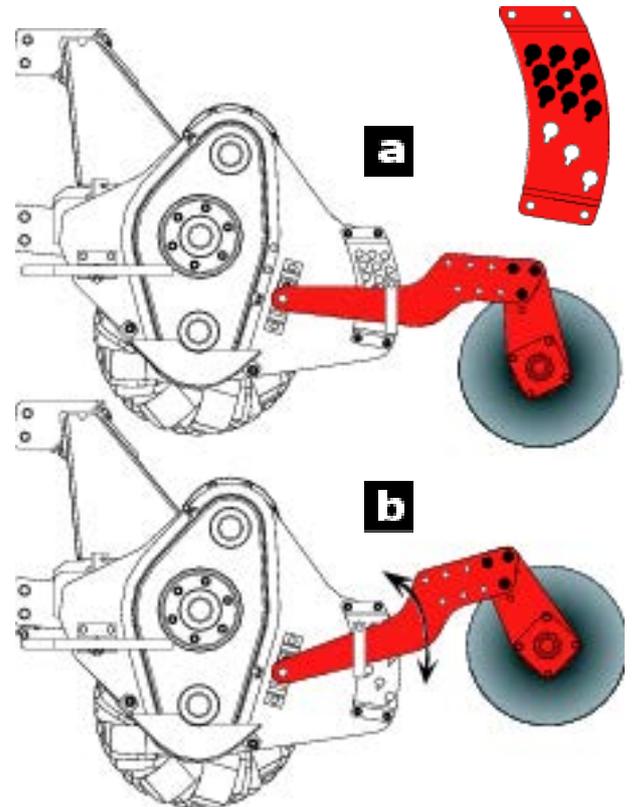
Working depth adjustment

- Lift the machine using the tractor's lift linkage.
- Position pins in adjustment plate holes that correspond to the required setting.
- Adjust both sides to the same setting.



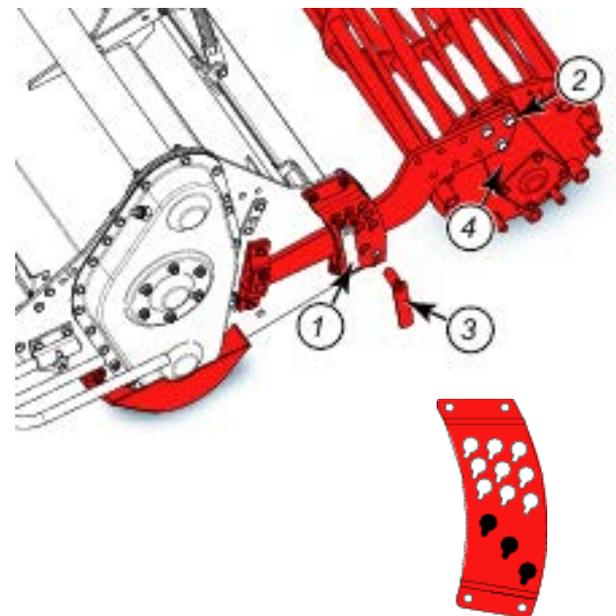
Relations between the working depth and the position of the roller:

- (a) minimum: 50 mm (2") (approximately).
- (b) max. : 230 mm (9") (approximately).



A second pin (3) can be inserted to limit the roller travel when making headland turns.

- Additional pins are available through KUHN PARTS:
Part no. 51707000.



With Packer roller

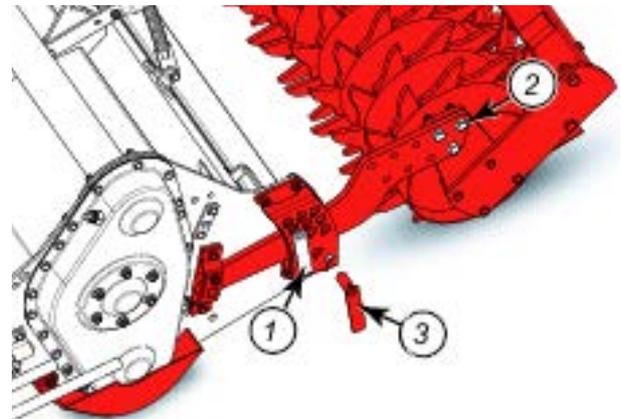
The working depth is set by the roller height.

Overhang.

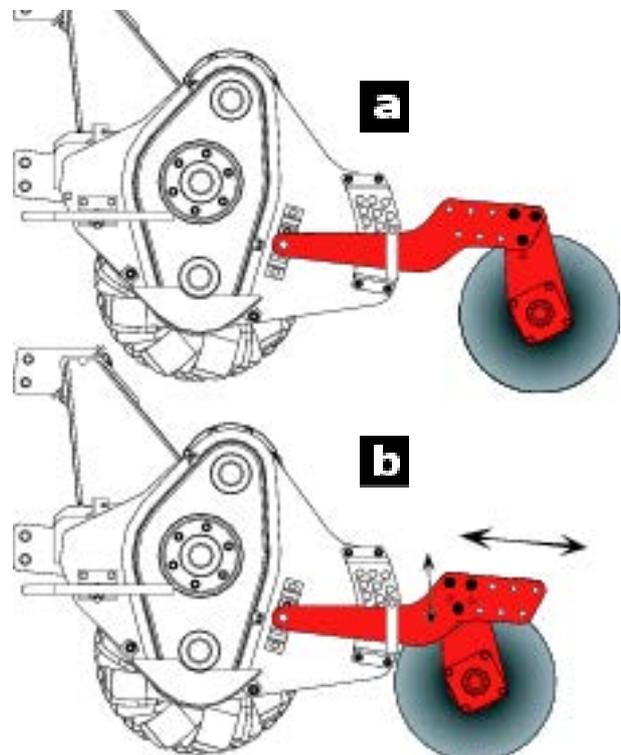
The roller can be adjusted in 4 different positions.

From the working position:

- Remove 6 bolts (2). (3 on each machine side).
- Position roller in holes corresponding to the required adjustment.
- Reinstall bolts (2).
- Torque: 21 daN m (155 lbf ft).



- During deep work, the hood travel range can require the roller to be fitted further to the rear.



- When working at shallow depth, the hood travel range allows fitting the roller in fully advanced position.

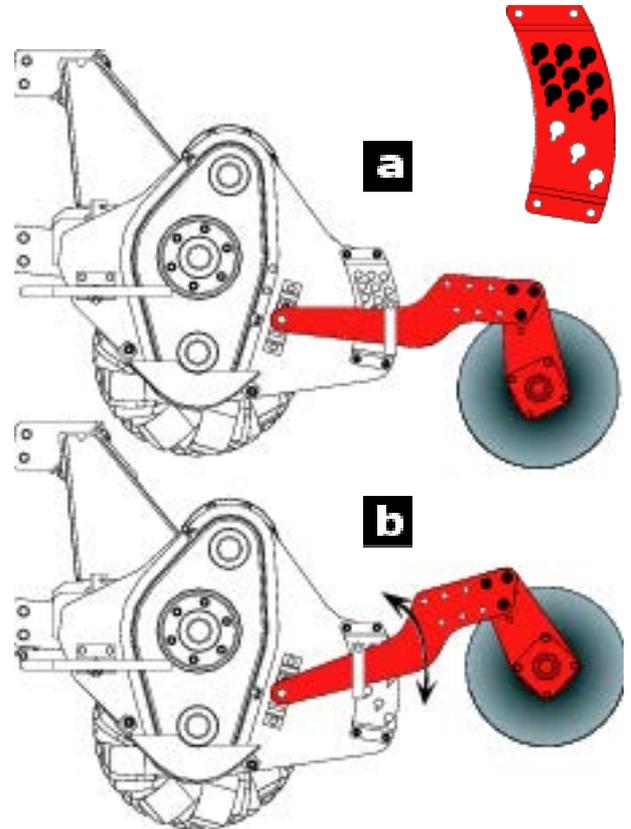
Working depth adjustment

- Lift the machine using the tractor's lift linkage.
- Position pins in adjustment plate holes that correspond to the required setting.
- Adjust both sides to the same setting.



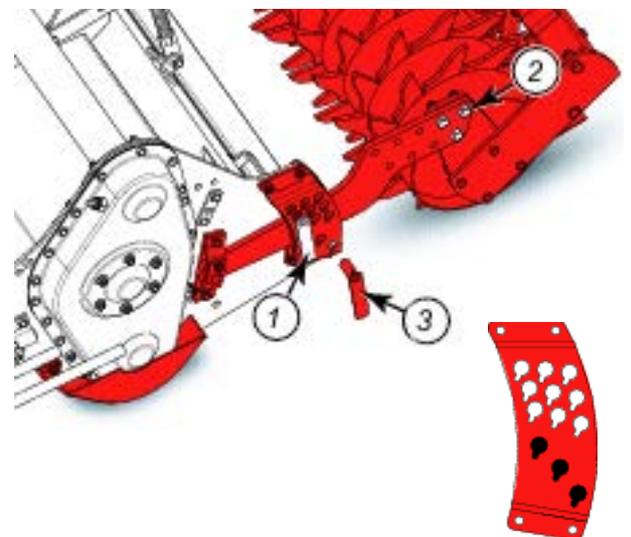
Relations between the working depth and the position of the roller:

- (a) minimum: 50 mm (2") (approximately).
- (b) max. : 230 mm (9") (approximately).



A second pin (3) can be inserted to limit the roller travel when making headland turns.

- Additional pins are available through KUHN PARTS Part no. 51707000.



Adjusting the roller scrapers

Standard scraper plates (a)

The scraper plates are factory preset on a reference roller.

The scraper bar is factory fitted with standard scraper plates:

- Part no. 52532130.

For abrasive soils, hard coated plates are available through KUHN PARTS:

- Part no. 52560010.

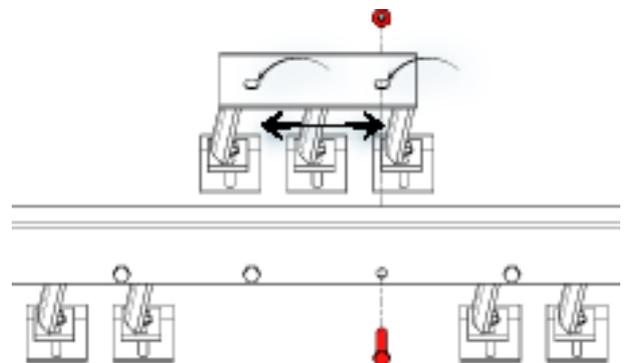
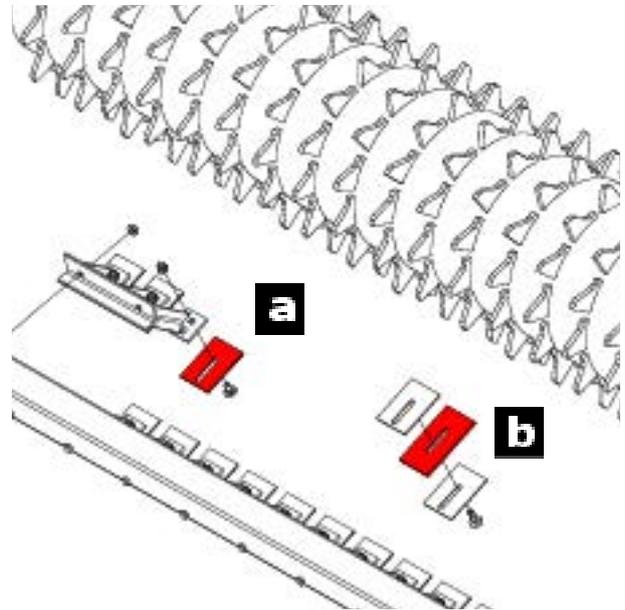


When the machine is attached, check that the roller can rotate freely.

Adjusting the scraper plates:

- Loosen scraper plate mounting bolt.
- Adjust scraper plates to bring them closer to the roller. Check that they do not contact by giving one turn to the roller.
- Tighten nut.
 - Torque: 8 daN m (59 lbf ft).

- Make sure the scraper plates are well centred with regards to the stud rows.
- The oblong holes in the scraper plate supports enable crosswise recentring:
 - Torque: 10 daN m (67 lbf ft).



Respect the scraper plate mounting direction: Ensure that the scraper coating is towards the front and downwards.



Nylon scraper plate (b)

The nylon scraper plate is permanently in contact with the roller tube for cleaning it.

The nylon scraper plate is particularly well suited for light, silty or chalky soils, or soils with a small amount of plant residues or stones.

Fitting and adjusting the nylon scraper plate:

- Fit the nylon scraper plate between:
 - Two special metal scraper plates (Part no. 52598910).
 - The nylon scraper plate must protrude the metal scraper plates by approximately 10 mm (0.4").
- The nylon scraper plate is reversible for longer service life.

■ Rear hood adjustment

Rear hood

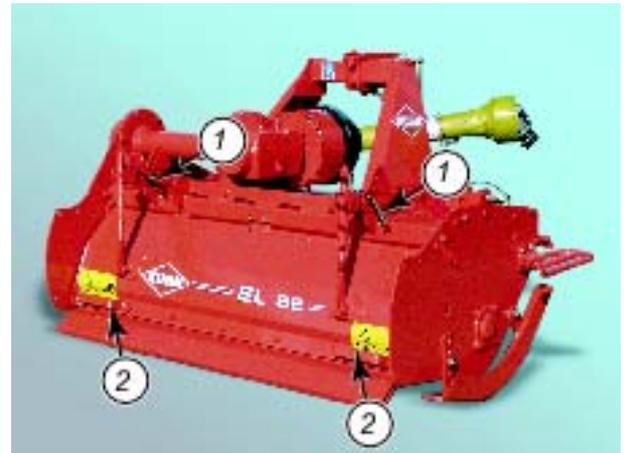
The rear hood adjustment is one of the factors governing the tilth degree.

The hood can be adjusted in 7 different positions.



To obtain a coarser tilth, the hood can be raised.

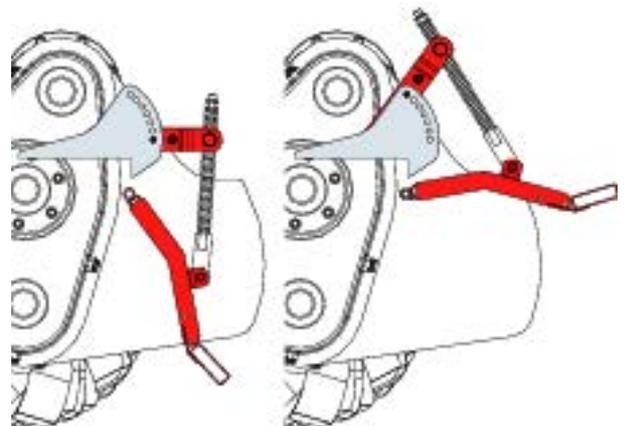
To obtain a finer tilth, the hood can be lowered.



- Unlock and remove lynch pin.
- Remove pin (1).
- Using handle (2), position hood in hole corresponding to the required adjustment.
- Insert pin (1).
- Secure with lynch pin.

Model: 205

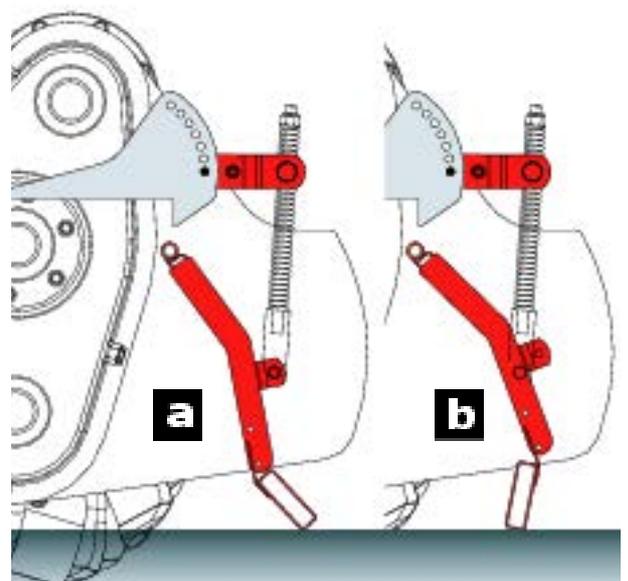
- Proceed the same way on the other side:
- Adjust both sides to the same setting.



Hood extension

The hood extension can be adjusted in 2 different positions:

- (a) A "trailing" position to increase the mixing effect and obtain a good soil crumbling.
- (b) A "leading" position to limit soil mixing and obtain a more coarse tilth.



- Park the machine on an even fairly level ground.
- Remove nuts and washers (1).
- Remove bolts (1).
- Turn over hood extension (2).
- Reinstall bolts (1).
- Reinstall washers and nuts (1).
 - Torque: 8 daN m (59 lbf ft).

Model: 205

- Proceed the same way on the other side:
- Adjust both sides to the same setting.



3. Machine use



Before engaging the machine in the ground:

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



Pay particular attention if working on very uneven grounds.



If using a tractor with a cab that is not sound-proofed or pressurized, the operator must use individual protection equipment:

Ear protections, if the noise exceeds normal exposure limits.

Anti-dust mask if working in very dry conditions or when large quantities of dust are lifted.

- Before engaging the machine in the ground.
 - Engage the tractor PTO and slowly increase the speed up to 540 min⁻¹.
 - Wait until this rotation speed is reached.
- Work only in straight lines, raise the machine from the ground before changing direction.



Check tool condition before each use or immediately after hitting an obstacle.

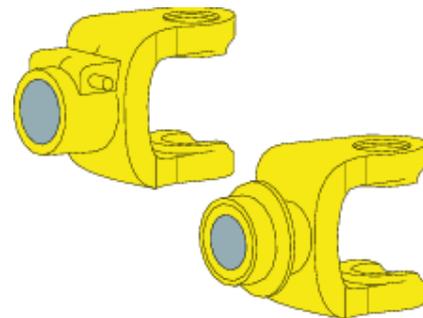
■ Drive speed

Drive speed must be adapted to the encountered working conditions.

OPTIONAL EQUIPMENTS

1. 1 3/8" - 21 spline pto shaft

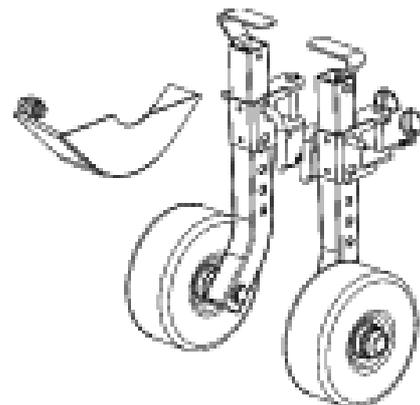
Kit no. 4800802



2. Wheels

Models: 130/155/180/205

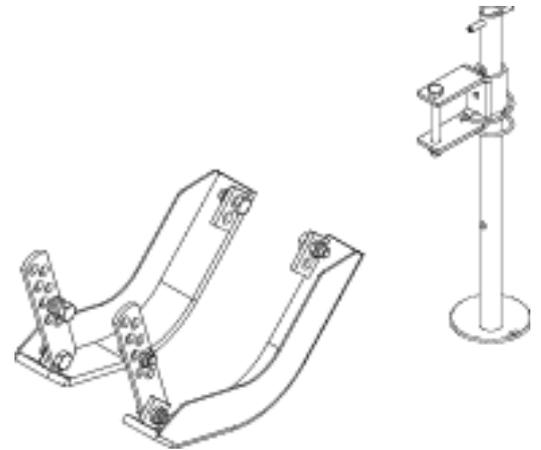
Kit no. 1206670



3. Short skids

Models: 130 - 155 - 180 - 205

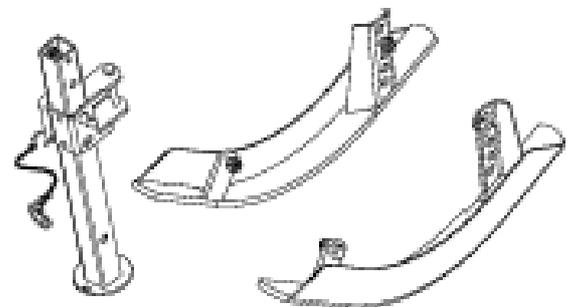
Kit no. 1206820



4. Standard skids

Models: 130 - 155 - 180 - 205

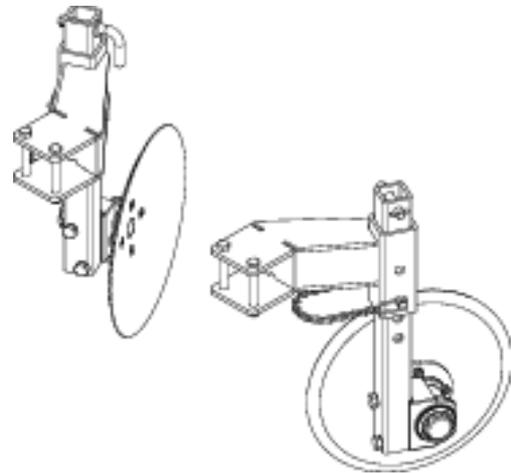
Kit no. 1206990



5. Side discs

Models: 130 - 155 - 180 - 205

Kit no. 1206250



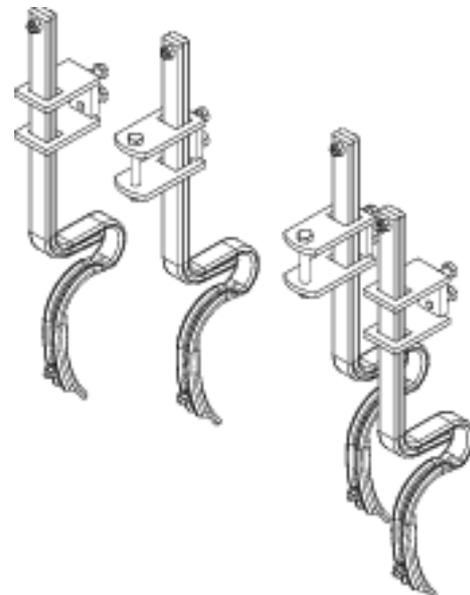
6. Track eradicators

Models: 130 - 155 - 180 - 205

Kit no. 1206550



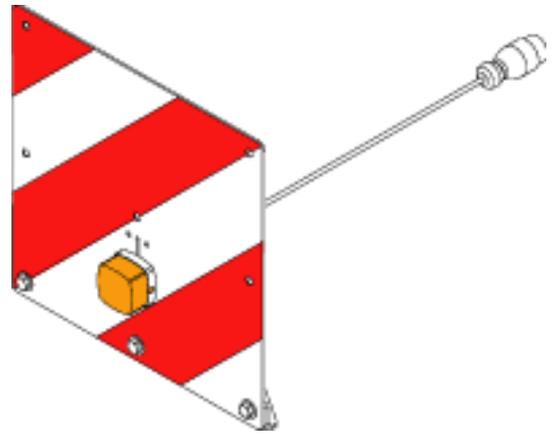
Only use track eradicators for secondary tillage work.



7. Lighting and signalling

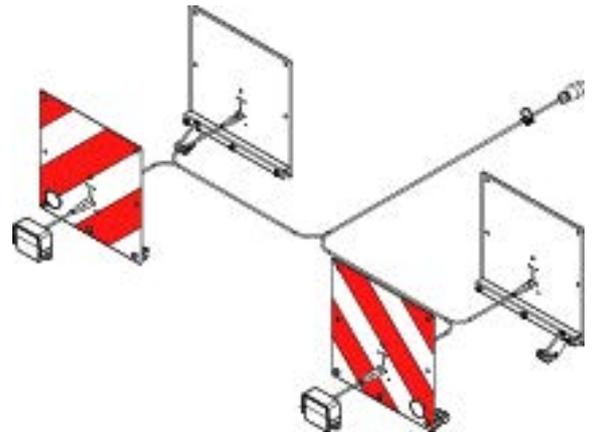
Models: 130 - 155 - 180

Kit no. 1209240



Model: 205

Kit no. 1209260



MAINTENANCE AND STORAGE



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.



■ Frequency chart

| | After the first 8 hours of use | After the first 10 hours of use | Every 100 hours or at the end of the season |
|---|--------------------------------|---------------------------------|---|
| Lubrication | | | |
| - Draining the central gearbox. | | ✓ | ✓ |
| - Drain side gearbox. | | ✓ | ✓ |
| Maintenance | | | |
| - Check the tightness of machine headstock bolts. | ✓ | | ✓ |

■ Cleaning the machine

Regularly clean the rotor and the machine inner panels.

1. Lubrication

Clean grease nipples before greasing.

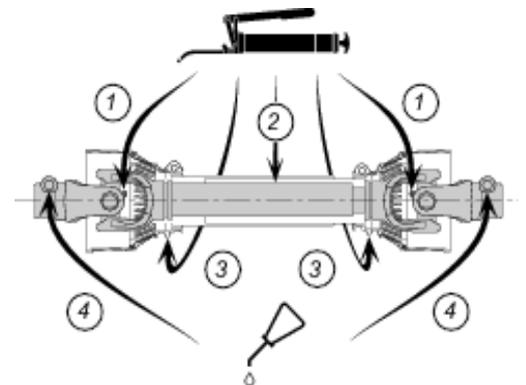


Lubricate with SHELL multi-purpose grease grade NLGI 2.



■ PTO shaft

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



Lubricate with SHELL multi-purpose grease grade NLGI 2.

Draining the central gearbox



Before draining oil, operate the machine for a few minutes so that the oil warms up.

The main gearbox is lubricated with 1.65 L (0.43 US gal) of SHELL SPIRAX A extreme-pressure gear oil with viscosity grade 80W90 and API grade GL5.

When draining it is recommended to use:

For normal use:

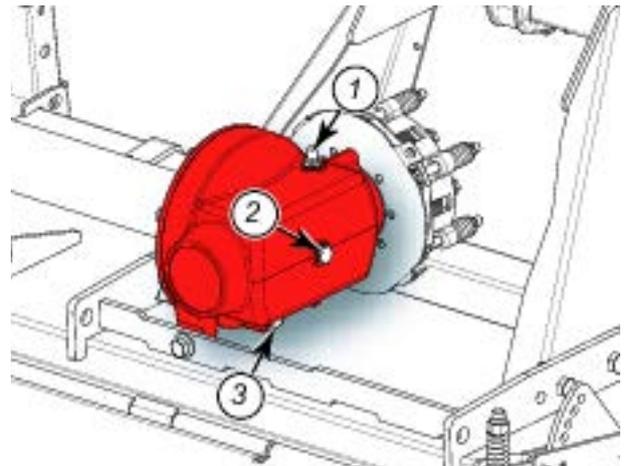


- A mineral base oil with viscosity grade SAE 80W90 or 85W140 and API grade GL5 (SHELL SPIRAX A 80W90 or SHELL SPIRAX A 85W140).

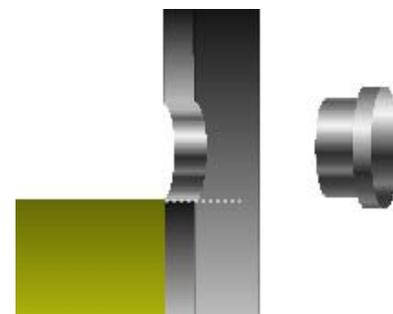
For intensive use:

- A synthetic base oil, type PAO (Poly-Alpha-Olefins) with a viscosity grade equivalent to SAE 80W90 or 85W140 and API grade GL5 (SHELL SPIRAX ASX 75W90).

- Park the machine on an even fairly level ground.
- Remove filler plug (1) and its washer.
- Place a container of sufficient capacity under drain plug.
- Remove drain plug (3) and its washer.
- Allow oil to drain completely.
- Wait for dripping to stop.
- Clean and reinstall drain plug (3) and its washer. Replace if necessary.
- Pour the correct oil quantity and quality through the opening of the filler plug (1).



- Checking the oil level:
 - The oil level must reach hole lower part (2).
- Clean and reinstall filler plug (1) and its washer. Replace if necessary.



Drain side gearbox



Before draining oil, operate the machine for a few minutes so that the oil warms up.



The angle gearbox is lubricated with 0.85 L (0.232 US gal) of SHELL SPIRAX A extreme-pressure oil for mechanical transmissions with viscosity grade 80W90 and API grade GL5.

When draining it is recommended to use:

For normal use:

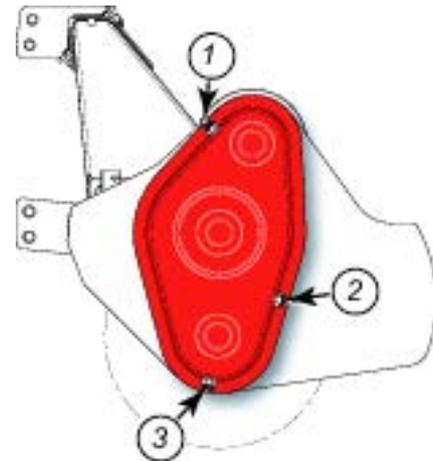


- A mineral base oil with viscosity grade SAE 80W90 or 85W140 and API grade GL5 (SHELL SPIRAX A 80W90 or SHELL SPIRAX A 85W140).

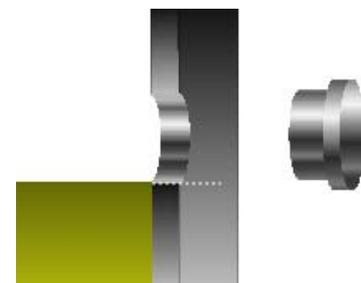
For intensive use:

- A synthetic base oil, type PAO (Poly-Alpha-Olefins) with a viscosity grade equivalent to SAE 80W90 or 85W140 and API grade GL5 (SHELL SPIRAX ASX 75W90).

- Place the machine on flat ground.
- If the machine is fitted with skids:
 - Remove skid on side gearbox side.
- Remove filler plug (1) and its washer.
- Place a container of sufficient capacity under drain plug.
- Remove drain plug (3) and its washer.
- Allow oil to drain completely.
- Wait for dripping to stop.
- Clean and reinstall drain plug (3) and its washer. Replace if necessary.
- Pour the correct oil quantity and quality through the opening of the filler plug (1).
- Reinstall skid: See section "Adjustments in working position".



- Checking the oil level:
 - The oil level must reach hole lower part (2)
- Clean and reinstall filler plug (1) and its washer. Replace if necessary.



2. Maintenance

Headstock

Check the tightness of machine headstock bolts.

- Torque: 21 daN m (155 lbf ft).
-

■ Tool replacement

Immediately replace worn or damaged parts with genuine KUHN parts.



Right C-blades:

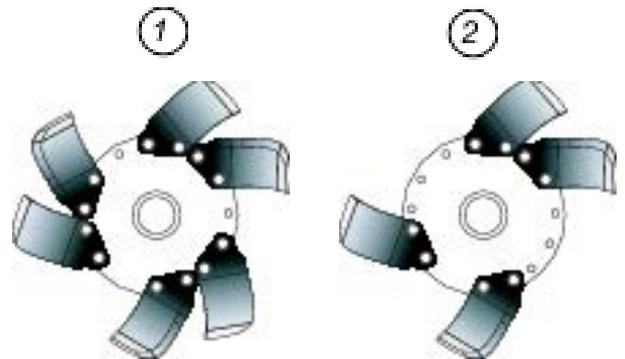
- Part no. K1620010.

Left C-blades:

- Part no. K1620000.

Tool replacement

- Lower the machine.
- Uncouple PTO shaft on machine side.
- The machine rotor is factory set with C-blades.
- According to the work to carry out, there are two blade layouts:
 - Fitting of 3 pairs of blades per flange: 3 right blades and 3 left blades (factory fitted) (1).
 - Fitting of 2 pairs of blades per flange: 2 right blades and 2 left blades (2).
- Partial replacement:
 - Replace concerned tools

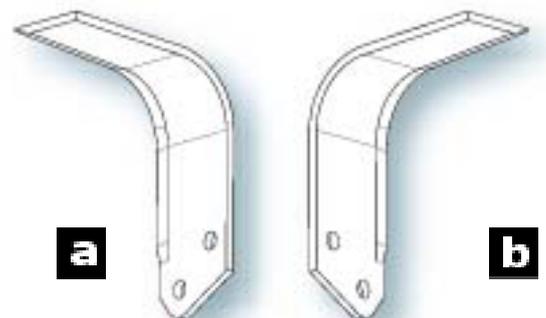


To distinguish right blades from left blades, note that the sharp edge faces the rotor direction of rotation (1).



For shallow depth work, the machine can be fitted with L-blades available through KUHN PARTS:

- (a) Left L-blades:
 - Part no. K1601930.
- (b) Right L-blades:
 - Part no. K1601940.



Blade mounting chart.

| | | EL 82 130 | EL 82 155 | EL 82 180 | EL 82 205 |
|-------------------------------------|-----------------------|-------------------------|--------------|--------------|--------------|
| Number of rotor flanges | | 5 | 6 | 6 | 9 |
| Type of fitting | Type of blades | Number of blades | | | |
| 2 pairs of blades per flange | Right blades | 10 | 12 | 14 | 16 |
| | Left blades | 10 | 12 | 14 | 16 |
| 3 pairs of blades per flange | Right blades | 15 | 18 | 21 | 24 |
| | Left blades | 15 | 18 | 21 | 24 |

Fitting instructions to position blades in helical layout

- Begin by fitting a left blade.
- Position blade opposite mark on the first flange.
- Fit bolts on blade side.
- Fit washers and nuts on flange side.
 - Torque: 16 daN m (118 lbf ft).
- Proceed the same way on the other flanges.



All blades are fitted on the left flange side except the right end flange on which they are fitted on the right side. (Model : 205).

Rotors

Models: 130 - 155 - 180.



Model: 205.



3. Storage

■ At the end of each season

- Clean the machine thoroughly:
 - The rotor.
 - The inner panels.
- Drain and refill gearboxes with new oil.
- Make all necessary paint touching ups.
- Put the machine under cover in a dry place.
- Remove and service the PTO shaft. Follow the instructions in the PTO shaft's operator's manual.
- Check all tools and their fasteners.

■ At the start of each season

- Read through the operator's manual again.
 - Check the condition of the friction slip clutch.
 - Check that all nuts and bolts are sufficiently tightened.
 - Make sure all the guards are in place.
-

TROUBLE SHOOTING GUIDE

| ■ Problem | ■ Cause | ■ Remedy |
|---|--|---|
| Noisy drive when lifting the machine. | Top link of 3-point hitch badly positioned/adjusted. | Position top link parallel to the lower links. |
| | Excessive lifting height. | Limit the lift linkage stroke. |
| Noisy drive during work. | Machine tilted to the front or rear (excessive pitch angle). | Lengthen or shorten top link to set the machine horizontally during work. |
| | Insufficient machine side to side stabilization. | Adjust stabilizers of lower links to prevent machine side to side or up and down movements. |
| Excessive power requirement. (Very wet working conditions). | Working depth too deep. | Set and control the working depth. |
| | Excessively worn tools. | Replace the whole set of tools to ensure rotor balance. |
| Important ground projections to the rear. | Incorrect hood positioning. | Adjust hood position. <ul style="list-style-type: none"> - 1 Hood: <ul style="list-style-type: none"> • Models 130 - 155 - 180 - 2 Hoods: <ul style="list-style-type: none"> • Model 205. |
| Excessive power requirement. (Dry working conditions). | Working depth too deep. | Set and control the working depth. |
| | Incorrect hood positioning. | Adjust hood position. <ul style="list-style-type: none"> - 1 Hood: <ul style="list-style-type: none"> • Models 130 - 155 - 180 - 2 Hoods: <ul style="list-style-type: none"> • Model 205. |
| Tilth is too coarse. | Excessive ground speed. | Reduce ground speed. |

| ■ Problem | ■ Cause | ■ Remedy |
|----------------------------------|-------------------------------|---|
| | Incorrect hood positioning. | Adjust hood position. - 1 Hood: • Models 130 - 155 - 180 - 2 Hoods: • Model 205. |
| Irregular mix of plant residues. | Working depth insufficient. | Set and control the working depth. |
| Ridging accross the path width. | tractor-machine unit swaying. | Modify one or several adjustment parameters: Reduce ground speed. Increase working depth. Adjust hood position. - 1 Hood: • Models 130 - 155 - 180 - 2 Hoods: • Model 205. |

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 original retail purchaser of new KUHN equipment of its own manufacture from an authorized KUHN dealer, that such equipment is, at the time of delivery to such purchaser, free from defects in material and workmanship, 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 original retail purchaser and during this period up to a limit of 500 hours of use.

The date of invoice to the original retail purchaser and the return of the warranty/product registration form by the dealer to the address indicated on the warranty/product registration form are taken as evidence of delivery of the machine to the original retail purchaser.

■ **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.
- Labor charges other than originally agreed, incurred in the removal or replacement of components.
- 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 warranty/product registration form has been correctly completed by the dealer and the retail purchaser, dated, signed by the dealer and the retail purchaser and returned to the address indicated on the warranty/product registration form as soon as the machine had been put in service.
- The warranty claim is submitted on a KUHN warranty claim form, and is sent to the Company (preferably via extranet - www.kuhnsa.com) within one month after the date of failure or the date of problem becoming apparent.
- The claim must be filled in legibly 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.



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Société Anonyme au Capital de 19 488 000 Euros

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Société Anonyme au Capital de 2 530 000 Euros

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Société Anonyme au Capital de 4 800 000 Euros

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Société Anonyme au Capital de 4 800 000 Euros