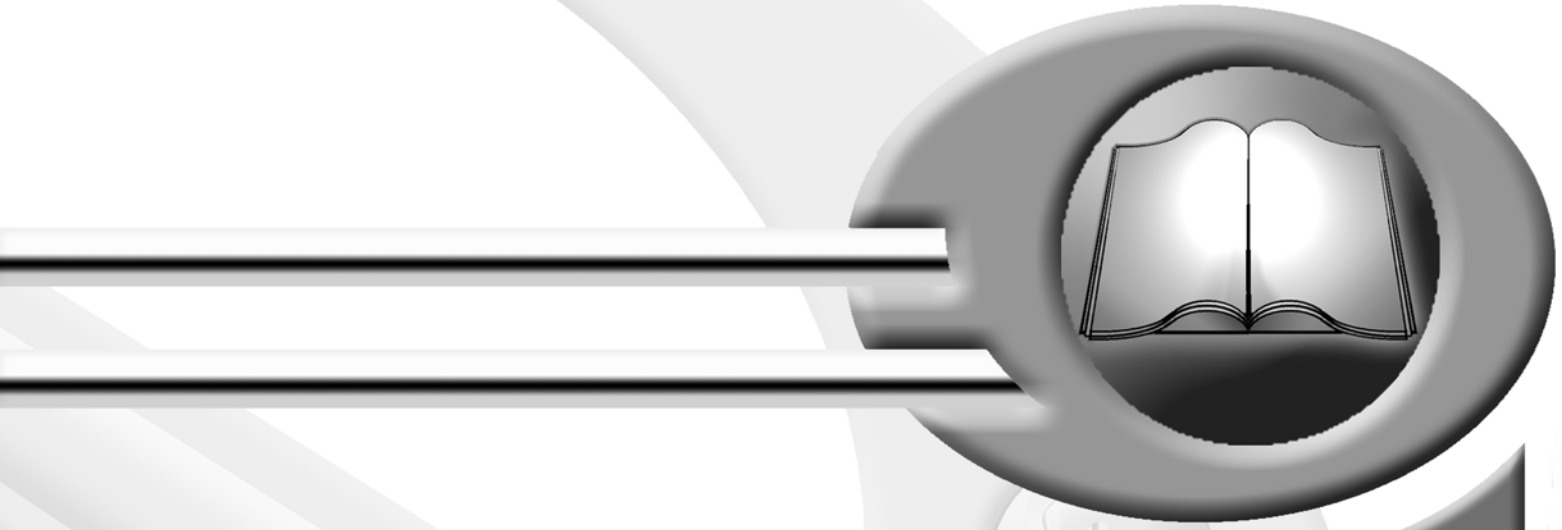
OPERATOR'S MANUAL

KN188BGB B



Precision Seed Drills

MAXIMA 2

Foldable telescopic frame

KUHN

DEAR OWNER

In buying a Kuhn machine you have chosen wisely. Into it have gone years of thought, research and improvement. 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 through 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 **MAXIMA 2** precision seed drill must only be used for work for which it has been designed:

- Precision drilling.
- Mineral fertilizer placement (depending upon equipment).
- Application of microgranules in combination with drilling (depending upon equipment).

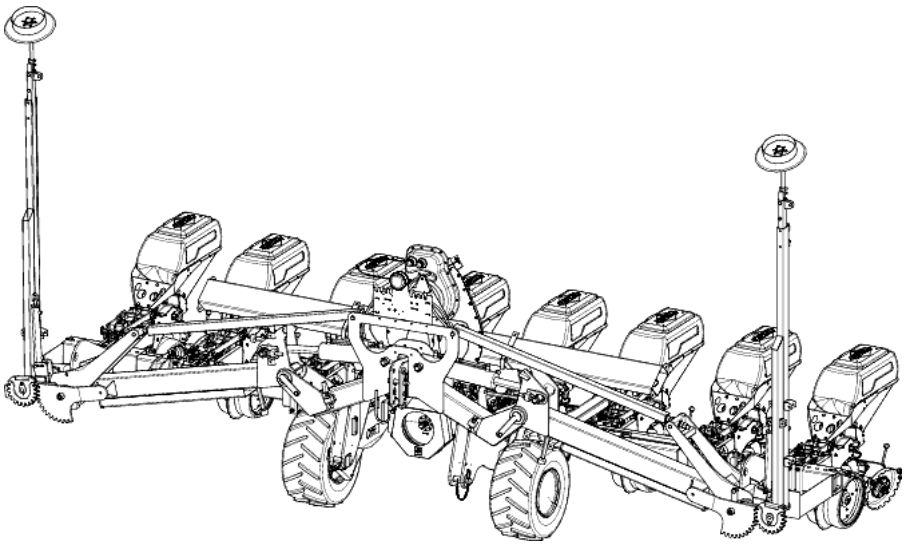
Document illustrations

The illustrations in this manual may be based on one type of machine only. However, all instructions apply to all machines covered in this manual.

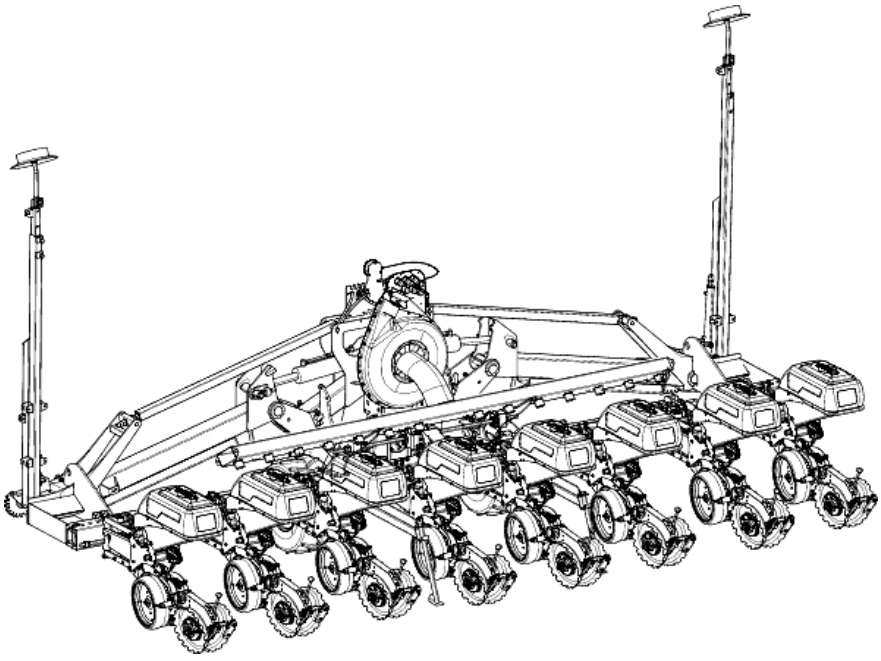
CONTENTS

IDENTIFICATION OF THE MACHINE

1. Front view (Basic machine)

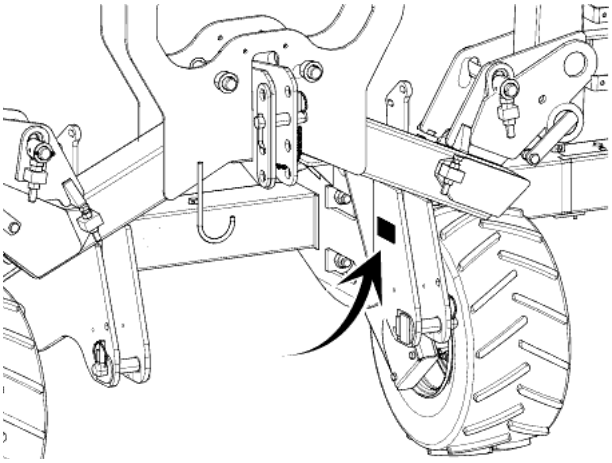


2. Rear view (Basic machine)



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: MAXIMA 2

Serial no.:

4. Optional equipment

Tick box corresponding to the equipment fitted on your machine:

■ Sowing component

- ❑ **Kit no. 1676801**: Clod clearer with disk coulter for * 1 gauge wheels.
- ❑ **Kit no. 1676802**: Clod clearer with disk coulter for * 1 gauge wheels.
- ❑ **Kit no. 1676803**: Spring assisted clod clearer.
- ❑ **Kit no. 1676783**: Star shaped trash remover.
- ❑ **Kit no. 1676775**: Opener disc solo.
- ❑ **Kit no. 1676761**: Covering scraper.
- ❑ **Kit no. 1676762**: Composite intermediate axial press wheel.
- ❑ **Kit no. 1676766**: Stainless steel intermediate axial press wheel.
- ❑ **Kit no. 1676790**: Furrow closing disks.
- ❑ **Kit no. 1677235**: Standard Rubber V roller 25 mm (1'').
- ❑ **Kit no. 1677234**: Standard Rubber V roller 50 mm (2'').
- ❑ **Kit no. 1677237**: Standard smooth steel V roller.
- ❑ **Kit no. 1677236**: Standard notched steel V roller.
- ❑ **Kit no. 1677241**: HD Rubber V roller 25 mm (1'').
- ❑ **Kit no. 1677240**: HD Rubber V roller 50 mm (2'').
- ❑ **Kit no. 1677239**: HD smooth steel V roller.
- ❑ **Kit no. 1677238**: HD notched steel V roller.
- ❑ **Kit no. 1676757**: ø370 x 165 mm (1'2'' x 6.4'') OTIFLEX roller and covering scrapers.
- ❑ **Kit no. 1676859**: ø370 x 165 mm (1'2'' x 6.4'') OTIFLEX roller and furrow closing disks.
- ❑ **Kit no. 1676758**: ø500 x 175 mm (1'7'' x 6.9'') OTIFLEX roller and covering scrapers.
- ❑ **Kit no. 1676863**: ø500 x 175 mm (1'7'' x 6.9'') OTIFLEX roller and furrow closing disks.

■ Micrograniulator

For the following models:

- M2M08RT000A003

First equipment micrograniulator

- ❑ **Kit no. 1677163**: Insecticide micrograniulator 8 rows, 100 L (26 US gal) hopper with front blower and fitting on air duct.
- ❑ **Kit no. 1677164**: Slug pellet micrograniulator 8 rows, 100 L (26 US gal) hopper with front blower and fitting on air duct.
- ❑ **Kit no. 1677165**: Herbicide micrograniulator 8 rows, 190 (50 US gal) hopper with front blower and fitting on air duct.

Second equipment micrograniulator

- ❑ **Kit no. 1677139**: Insecticide micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting on air duct.
- ❑ **Kit no. 1677140**: Slug pellet micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting on air duct.
- ❑ **Kit no. 1677292**: Herbicide micrograniulator 8 rows with 190 L (50 US gal) hopper and fitting on air duct.

For the following models:

- M2M08RT000AG03

First equipment micrograniulator

- ❑ **Kit no. 1677145**: Insecticide micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.
- ❑ **Kit no. 1677146**: Anti-slug pellet micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.
- ❑ **Kit no. 1677147**: Herbicide micrograniulator 8 rows with 190 L (50 US gal) hopper and fitting in high position.

Second equipment micrograniulator

- ❑ **Kit no. 1677145**: Insecticide micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.
- ❑ **Kit no. 1677146**: Anti-slug pellet micrograniulator 8 rows with 100 L (26 US gal) hopper and fitting in high position.
- ❑ **Kit no. 1677147**: Herbicide micrograniulator 8 rows with 190 L (50 US gal) hopper and fitting in high position.

- ❑ **Kit no. 1677228**: Low flow kit for the fertilizer unit.
- ❑ **Kit no. 1677227**: Loading screw for fertilizer unit fitted with a 1350 L (356 US gal) hopper.

■ Fertilizer unit

For the following models:

- M2M08RT000AG03

- ❑ **Kit no. 1677058**: Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with standard Suffolk coulters.
- ❑ **Kit no. 1677059**: Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-stop Suffolk coulters.
- ❑ **Kit no. 1677060**: Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-top disk coulters.

- ❑ **Kit no. 1677227**: Loading screw for fertilizer equiped with 1350 L (356 US gal) hoppers.

■ Distribution disks

SP = Disk without agitator blades.
AP = Disk with agitator blades.

- ❑ **Kit no. N1503620**: Distribution disk 12 holes of diameter 1.5 mm (0.06'') **AP**.
- ❑ **Kit no. N04343B0**: Distribution disk 12 holes of diameter 2.5 mm (0.1'') **AP**.
- ❑ **Kit no. N1502090**: Distribution disk 12 holes of diameter 3.5 mm (0.14'') **AP**.
- ❑ **Kit no. N04286B0**: Distribution disk 18 holes of diameter 1.5 mm (0.06'') **SP**.
- ❑ **Kit no. N00846B0**: Distribution disk 18 holes of diameter 2.5 mm (0.1'') **AP**.
- ❑ **Kit no. N04318B0**: Distribution disk 18 holes of diameter 3 mm (0.12'') **AP**.
- ❑ **Kit no. N00847B0**: Distribution disk 18 holes of diameter 3.5 mm (0.14'') **AP**.
- ❑ **Kit no. N00856B0**: Distribution disk 22 holes of diameter 2.1 mm (0.08'') **SP**.
- ❑ **Kit no. N1503810**: Distribution disk 22 holes of diameter 2.1 mm (0.08'') **AP**.
- ❑ **Kit no. N04341B0**: Distribution disk 22 holes of diameter 2.5 mm (0.1'') **AP**.
- ❑ **Kit no. N03840B0**: Distribution disk 22 holes of diameter 3.5 mm (0.14'') **AP**.
- ❑ **Kit no. N00851B0**: Distribution disk 22 holes of diameter 4.5 mm (0.18'') **AP**.
- ❑ **Kit no. N02511B0**: Distribution disk 22 holes of diameter 5 mm (0.2'') **AP**.
- ❑ **Kit no. N00852B0**: Distribution disk 22 holes of diameter 5.5 mm (0.22'') **AP**.
- ❑ **Kit no. N1503140**: Distribution disk 27 holes of diameter 2.5 mm (0.1'') **AP**.
- ❑ **Kit no. N1500670**: Distribution disk 27 holes of diameter 3 mm (0.12'') **SP**.
- ❑ **Kit no. N03823B0**: Distribution disk 27 holes of diameter 3.5 mm (0.14'') **AP**.
- ❑ **Kit no. N00843B0**: Distribution disk 27 holes of diameter 4.5 mm (0.18'') **AP**.
- ❑ **Kit no. N00905B0**: Distribution disk 27 holes of diameter 5 mm (0.2'') **AP**.
- ❑ **Kit no. N00844B0**: Distribution disk 27 holes of diameter 5.5 mm (0.22'') **AP**.
- ❑ **Kit no. N1500340**: Distribution disk 30 holes of diameter 7 mm (0.28'') **AP**.
- ❑ **Kit no. N00845B0**: Distribution disk 31 holes of diameter 2.1 mm (0.08'') **SP**.
- ❑ **Kit no. N00855B0**: Distribution disk 33 holes of diameter 3.5 mm (0.14'') **AP**.
- ❑ **Kit no. N04107B0**: Distribution disk 33 holes of diameter 4.5 mm (0.18'') **AP**.
- ❑ **Kit no. N04282B0**: Distribution disk 33 holes of diameter 5.5 mm (0.22'') **AP**.

- **Kit no. N1503380**: Distribution disk 35 holes of diameter 3.5 mm (0.14'') **AP**.
- **Kit no. N1503390**: Distribution disk 35 holes of diameter 4.5 mm (0.18'') **AP**.
- **Kit no. N1503400**: Distribution disk 35 holes of diameter 5 mm (0.2'') **AP**.
- **Kit no. N1503410**: Distribution disk 35 holes of diameter 5.5 mm (0.22'') **AP**.
- **Kit no. K3601440**: Distribution disk 48 holes of diameter 1.25 mm (0.05'') **SP**.
- **Kit no. N02951B0**: Distribution disk 48 holes of diameter 2.5 mm (0.1'') **AP**.
- **Kit no. N00848B0**: Distribution disk 48 holes of diameter 3.5 mm (0.14'') **AP**.
- **Kit no. N04305B0**: Distribution disk 48 holes of diameter 4.5 mm (0.18'') **AP**.
- **Kit no. N1503130**: Distribution disk 48 holes of diameter 5.5 mm (0.22'') **AP**.
- **Kit no. N1500061**: Distribution disk 54 holes of diameter 3 mm (0.12'') **SP**.
- **Kit no. N1500681**: Distribution disk 54 holes of diameter 4.5 mm (0.18'') **AP**.
- **Kit no. N1500691**: Distribution disk 54 holes of diameter 5.5 mm (0.22'') **AP**.
- **Kit no. N1500431**: Distribution disk 70 holes of diameter 1.25 mm (0.05'') **SP**.
- **Kit no. N02851B0**: Distribution disk 70 holes of diameter 2.5 mm (0.1'') **AP**.
- **Kit no. N04342B0**: Distribution disk 70 holes of diameter 3.5 mm (0.14'') **AP**.
- **Kit no. N00850B0**: Distribution disk 70 holes of diameter 4.5 mm (0.18'') **AP**.
- **Kit no. N1502170**: Distribution disk 80 holes of diameter 2.5 mm (0.1'') **AP**.
- **Kit no. N1501591**: Distribution disk 80 holes of diameter 3.5 mm (0.14'') **AP**.
- **Kit no. N1501051**: Distribution disk 100 holes of diameter 0.8 mm (0.03'') **SP**.
- **Kit no. N00849B0**: Distribution disk 100 holes of diameter 1.25 mm (0.05'') **SP**.
- **Kit no. N1500701**: Distribution disk 100 holes of diameter 1.75 mm (0.07'') **AP**.
- **Kit no. N04293B0**: Distribution disk 100 holes of diameter 3.5 mm (0.14'') **AP**.

Blower

- **Kit no. 1677287**: 470 min^{-1} pulley and belt unit
- **Kit no. 1676731**: 870 min^{-1} pulley and belt unit
- **Kit no. 1676738**: 1000 min^{-1} pulley and belt unit
- **Kit no. 1676730**: Rear PTO output stub.
- **Kit no. 1676545**: Hydraulic blower drive.

- **Kit no. 1676546**: Hydraulic hose extension.
- **Kit no. 1677223**: Vacuometer.

Control units

- **Kit no. 1676822**: HECTOR 3000 electronic unit.
- **Kit no. 1676659**: Passage control box kit KMS208.
- **Kit no. 1676428B**: Sowing control box kit KMS412.
- **Kit no. 1677299**: Electronic disengagement kit.

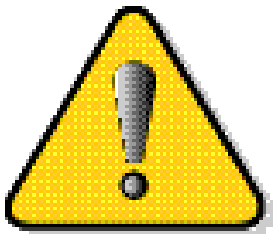
Sundry

- **Kit no. 1676520**: 65 x 400 depth control wheels.
- **Kit no. 1677293**: 45 mm (1.8'') spacer and 5 mm (0.2 '') levelling pad.
- **Kit no. 1676792**: 82 mm (3.2'') spacer and 5 mm (0.2 '') levelling pad.
- **Kit no. 1676821**: Mechanical hectare counter.

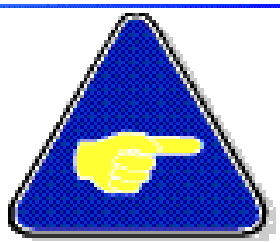
SAFETY

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 machines' 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 accident 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.

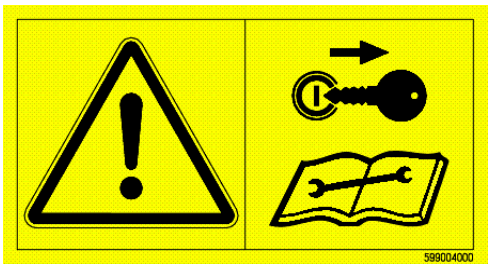
Before starting work, the operator must be familiar with all machine controls, handling devices and their functions. It is too late to learn once work has been started!

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.).

Ensure that all operating controls (ropes, cables, rods, etc) are placed so as they cannot be operated unintentionally and cause damage or injury.

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

Tractor handling, stability, performance and braking efficiency are all affected by weight distribution, trailed or mounted implements, additional ballast and driving conditions. It is therefore of the great importance that the operator exercises caution in every given situation.

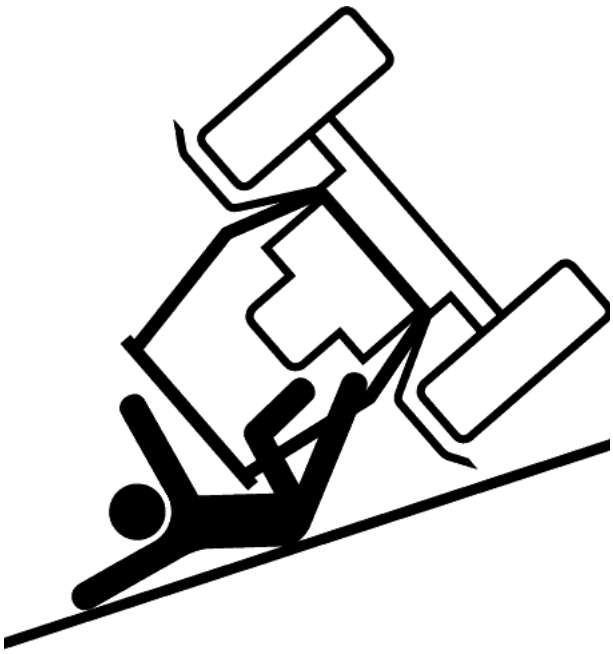
Groundspeed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction.

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

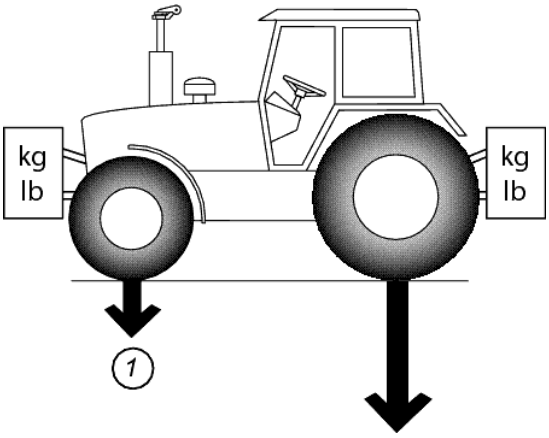
Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.

If the machine is over the maximum legal size, follow the local regulations for special transportation 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 exceeded.

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.

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 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 (2857 psi).

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 incorrect connections, mark hydraulic couplers and corresponding hoses with colors.

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 guards 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 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.

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

Projection of stones and foreign objects

For driver safety, always use a tractor equipped with a cab. Never start the machine 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 use, check the condition of the fasteners in accordance with the instructions contained in this manual.

Keep all persons and animals away from the danger zone. Check that nobody is within the side marker operating area on headlands.

Stay a safe distance from the machine when the cutting tools are in movement.

Never work in reverse.

Stay away from the machine until all moving parts have come to a complete standstill.

Check the entire machine for any damage before resuming work.

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

If the machine hits an obstacle, 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.

Precautions to take with crop protection products

Keep crop protection products away from children.

Do not clean outlets, spreaders, tubes or other small parts by blowing with the mouth. When using crop protection products, never smoke or eat.

All precautions must be taken to prevent hopper from overflowing and products from flowing outside the treatment area.

Booms and tanks are to be drained in all cases over the areas under cultivation in accordance with regulatory provisions.

Keep machine control and handling devices clean and make sure to wash your hands prior to using these devices.

Rinse and pierce packagings to prevent them from being reused.

Find out about and comply with the instructions on the use of crop protection products with regards to their possible harmfulness for insects and wildlife, especially for pollinating insects.

Consulting and respecting the rules given in the operating instructions, the safety files and in the advice documents is the basis of behaving responsibly.

Store crop protection products in a place with a leakproof floor enabling to recover product leaks.

■ Body protection

Wear waterproof clothing whenever there is a risk of splashing from or contact with crop protection products, even in diluted form. Wear specific protective clothing (suit, gloves, boots, glasses, mask) when handling phytosanitary products).

Wear gloves that are resistant to the various components contained in the products (ultranitrile gloves). Neoprene gloves are required in the presence of ketone in the formulations.

Strictly avoid certain materials such as latex or PVC. A watertightness indicator is insufficient.

Replace gloves as soon as they present signs of wear.

Store the gloves in a place well away from the products.

Use special protection suits resistant to the products.

Wear a respiratory protection when preparing the spray mixture or spraying certain products.

Check that the respiratory protections are fitted with filters.

Change cartridges every 40h during intensive use periods.

Replace respiratory protection at least once per year.

Anti-dust masks do not protect sufficiently against phytosanitary products.

Toxic substances

It is recommended to have a first-aid kit within reach.

Avoid all skin, eyes and mouth contact with products such as fuels, oils, solvents, antifreeze and cleaning products. Most of them contain harmfull substances.

In case of an incident, seek medical advice.

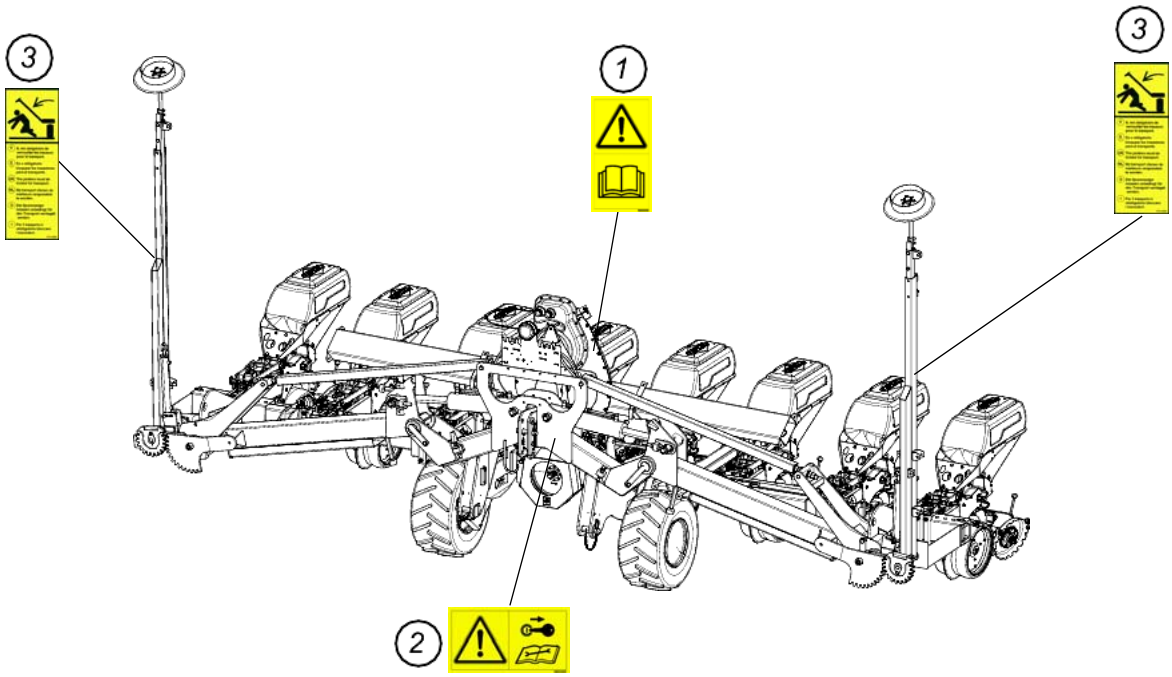
Follow to the letter all instructions given on the safety decals of toxic substance containers.

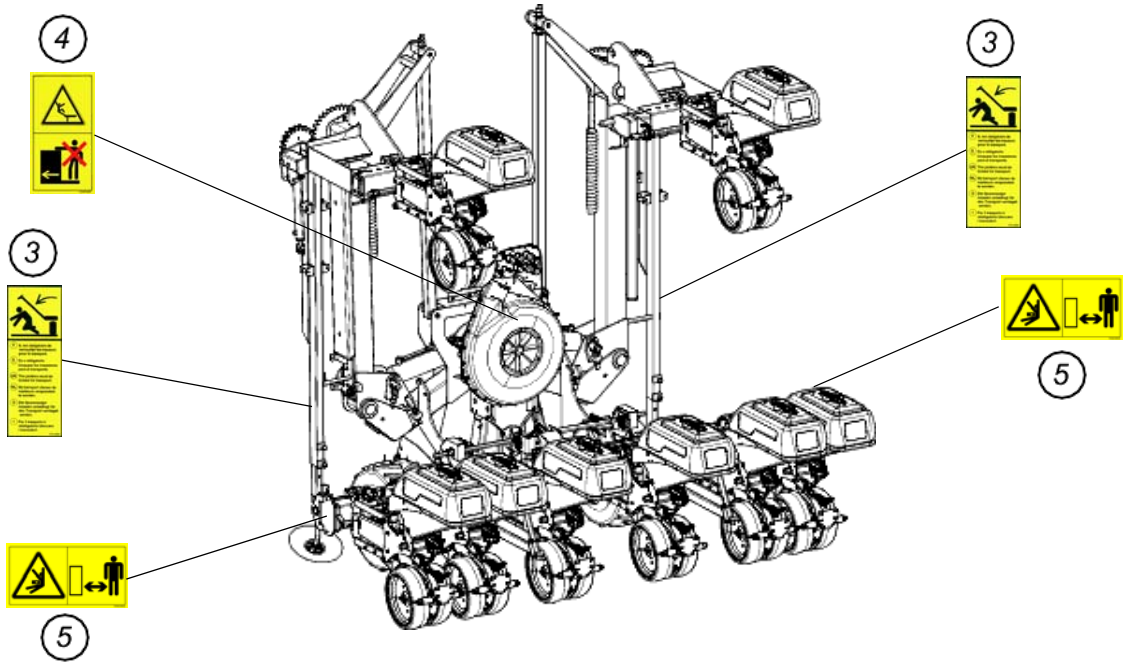
Compatibility of phytosanitary products and microgranulators

There are no known contraindication of incompatibility between solid phytosanitary products and the material used in the microgranulator assembly.

3. Location and description of safety decals on the machine

■ **Location of safety decals**

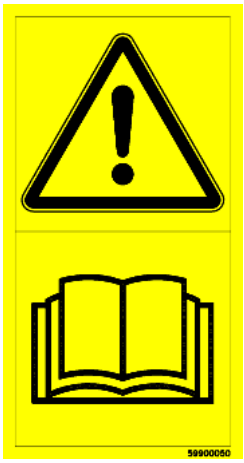




■ Description of safety decals

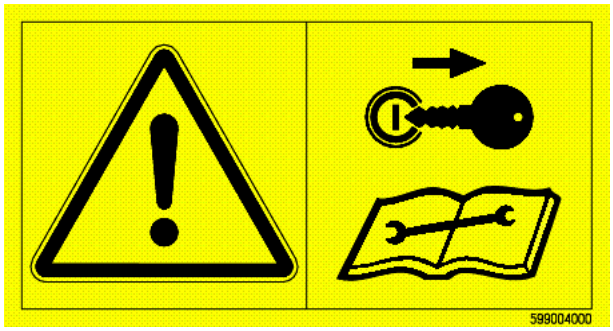
Operating instructions (1)

The operators' 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.



Body crushing (3)

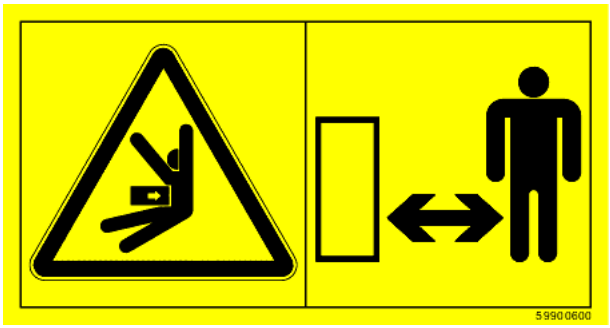
The side markers must always be locked for transport.

Risk of falling (4)

Do not ride on the machine when it is moving. There is a risk of falling.

Manoeuvring area (5)

Stay a safe distance from the machine. Crushing hazard.



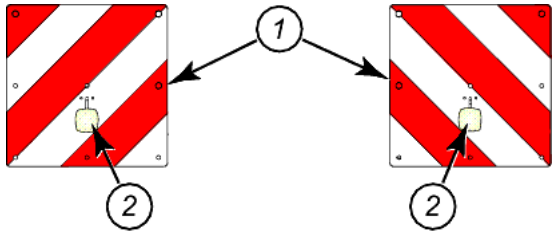
4. Road safety equipment and recommendations

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.

Whatever the speed, we recommend, for everyone's safety, not to exceed a speed of 25 km/h.

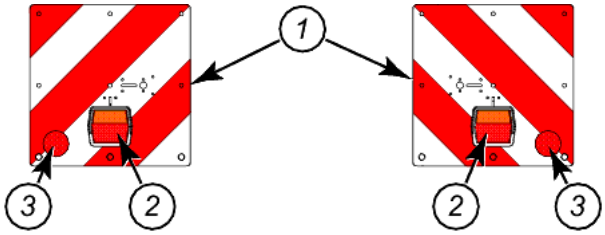
The front safety device comprises:

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



The rear safety device comprises:

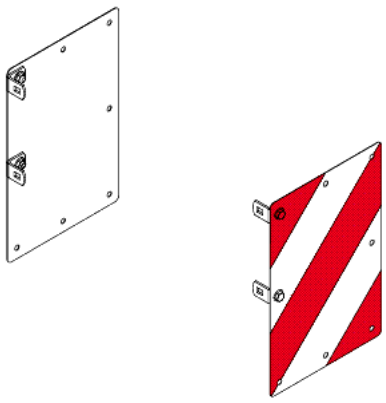
- 2 signalling panels (1).
- 2 red lights (2).
- 2 red reflectors (3).



■ Instructions specific to France

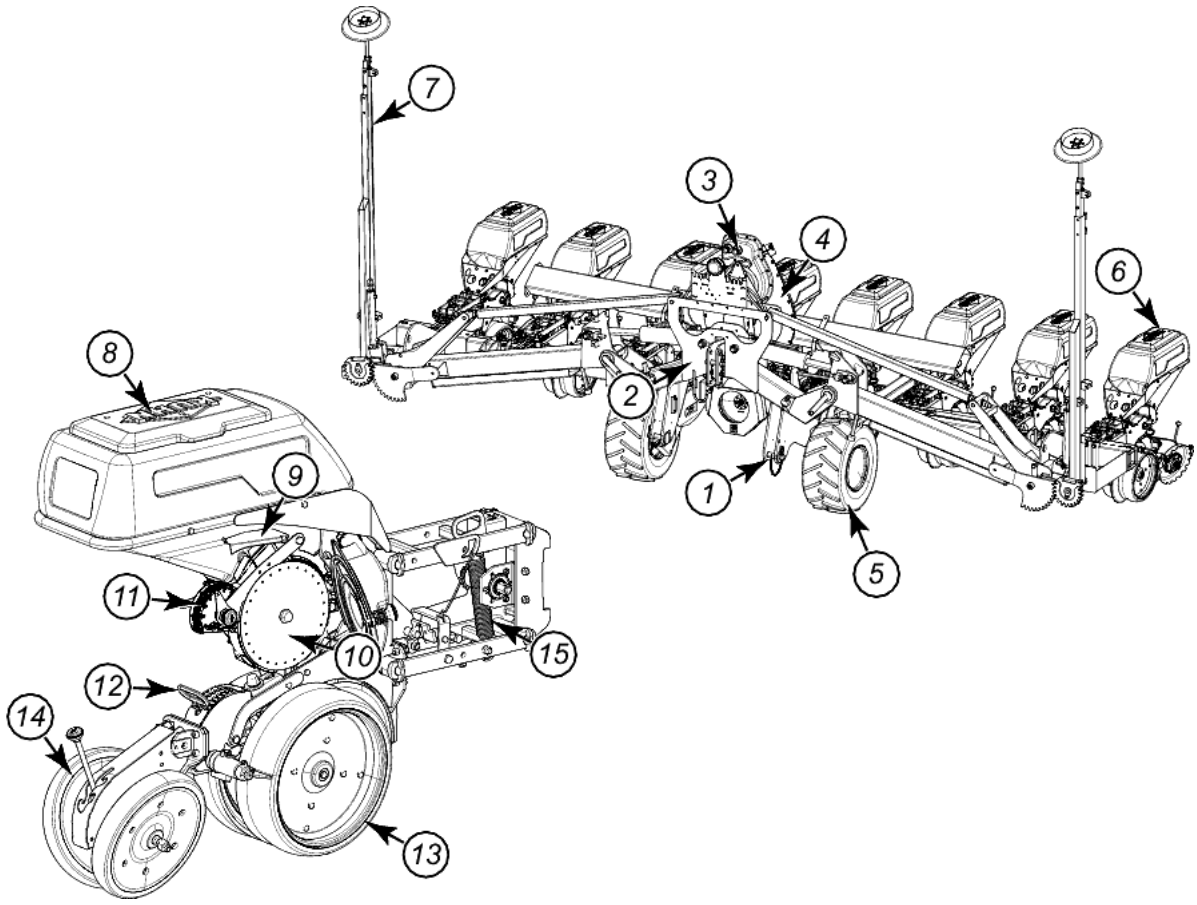
To conform with the current road regulations, the machine must be fitted with specific signalling panels when driving on public roads.

Kit no. 1626691



MACHINE SPECIFICATIONS

1. Description and glossary



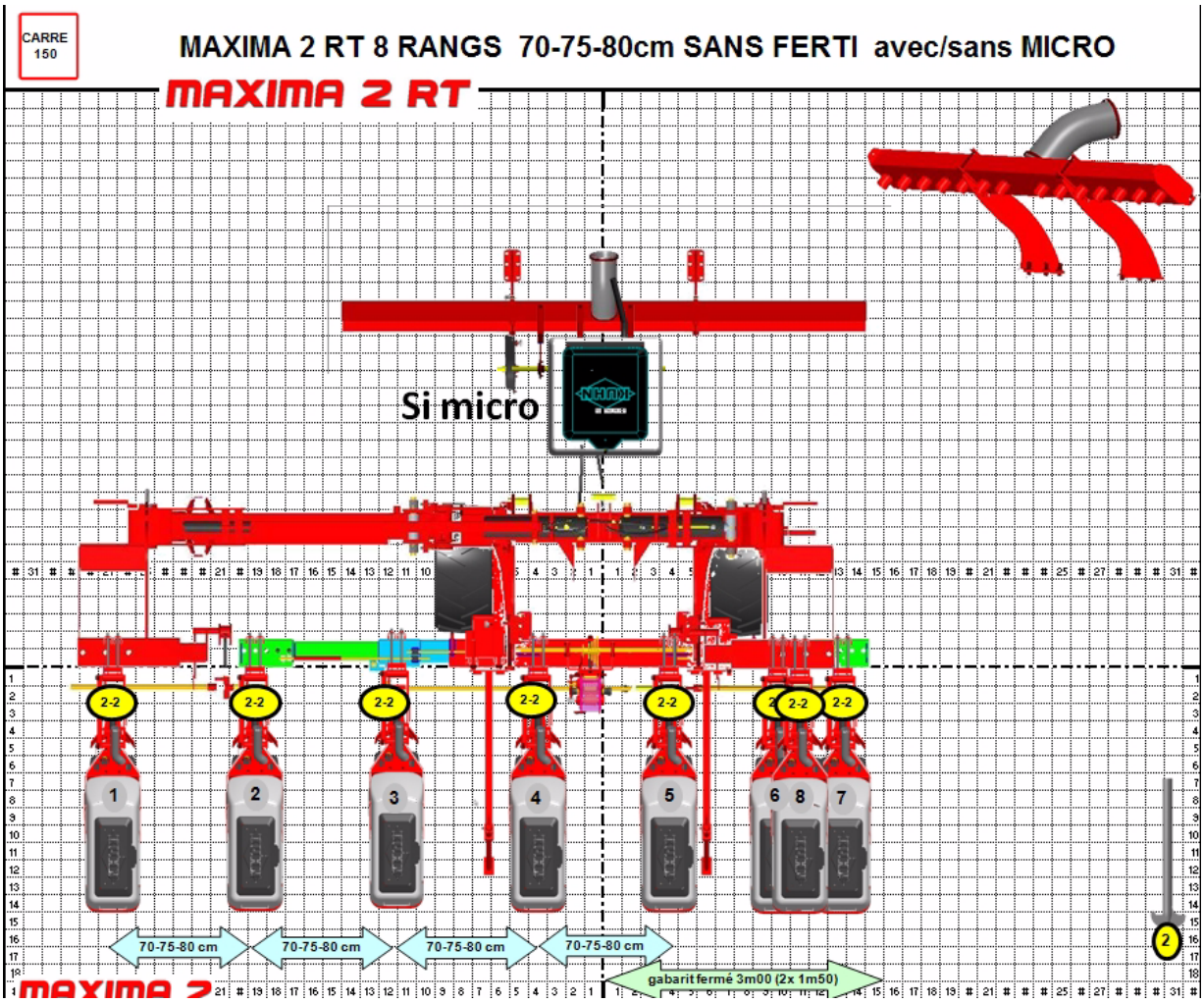
1 :	Coupling device	2 :	Three-point hitch coupler
3 :	Blower	4 :	Vacuum turbine
5 :	Drive wheel	6 :	Sowing component
7 :	Side marker	8 :	Seeding unit hopper
9 :	Control hatch	10 :	Distribution disc
11 :	Selector	12 :	Sowing depth adjustment handle
13 :	Gauge wheel	14 :	Press wheel
15 :	Pressure spring		

2. General technical specifications

	Maxima 2 Foldable telescopic frame
Attachment type	Category 2 linkage
PTO speed	540 min^{-1}
Unit hopper capacity	52 L (3 US gal)
Minimum PTO power requirement	
- When starting the PTO	8.2 kW (11 hp) (approximately)
- At work	4.4 kW (6 hp) (approximately)
Torque	
- When starting the PTO	From 12 to 15 daN m (88 - 110 lbf ft)
- At work	From 8 to 9 daN m (59 - 66 lbf ft)
Tyre pressure	
- 26 x 12	2.7 bar (39 psi)

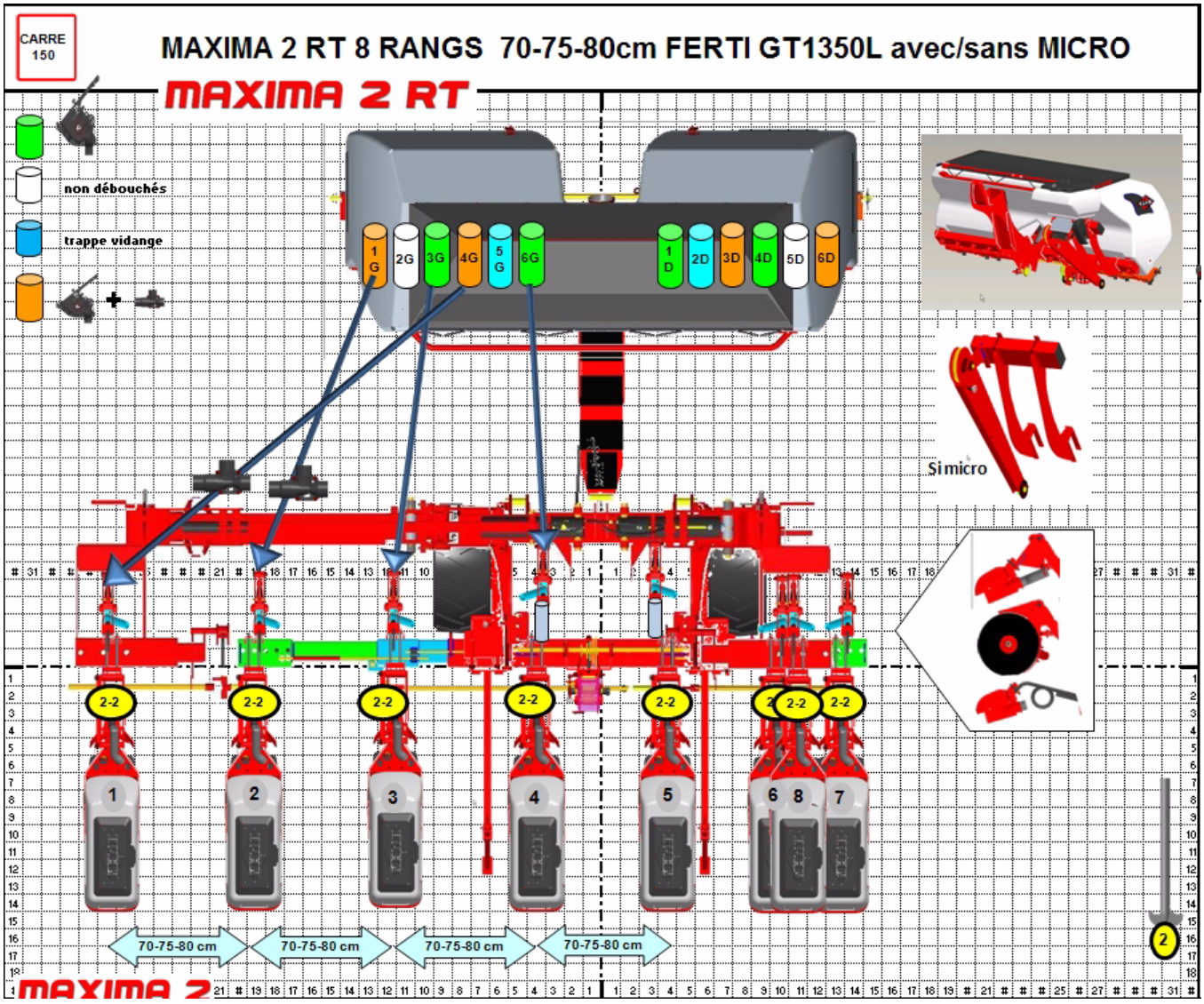
3. Technical specifications per model

■ **M2M08RT000A003**



	M2M08RT000A003
Distance between sowing components	70 - 75 - 80 cm (2’4’’ - 2’6’’ - 2’8’’)
Number of rows	8
Width in transport position	3000 mm (9’10’’)
Length in transport position	2400 mm (7’10’’)
Height in transport position	3400 mm (11’2’’)
Weight	2400 kg (5291 lb)

■ M2M08RT000AG03



	M2M08RT000AG03
Distance between sowing components	70 - 75 - 80 cm (2’4’’ - 2’6’’ - 2’8’’)
Number of rows	8
Width in transport position	3000 mm (9’10’’)
Length in transport position	2400 mm (7’10’’)
Height in transport position	3400 mm (11’2’’)
Weight	2945 kg (6493 lb)

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: **69.4 dB(A)**

Tractor + machine: **70.1 dB(A)**

PUTTING INTO SERVICE

1. Description of control elements

The machine can be fitted with several control boxes to monitor all functions.

2. Control box description

The KMS412 control box enables monitoring the seed population.

The KMS208 control box enables controlling the seed passage.

The KMD112 disengagement control box can only function in combination with control boxes KMS208 or KMS412.

The KMD112 disengagement control box allows electrical disengagement of one or several rows at any time.

The HECTOR 3000 electronic control box is used to::

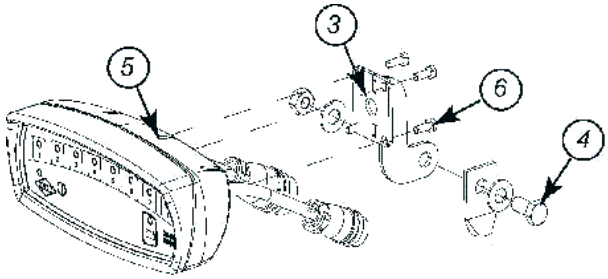
- Count the area sown (daily and total counter).
- Indicate forward speed.

The functioning and setting of the control boxes are indicated in the complementary instructions supplied.

■ Positioning and parking

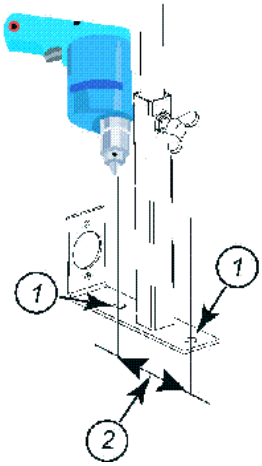
Fitting the control boxes

The control boxes must be easy to access from the tractor cab.



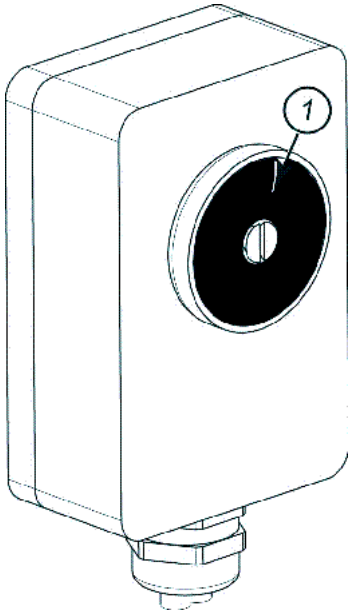
Control boxes KMS412/KMS208 and KMD112:

- Drilling of 2 holes diameter 11 mm (1).
- 100 mm Hole to hole distance (2).
- Fit holder (3) using screws, washers and nuts (4).
- Position control box (5) using screws (6).



Control box HECTOR 3000:

The attachment is ensured by magnet (1).



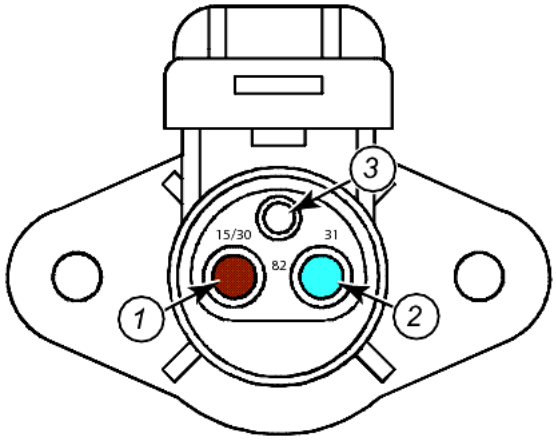
Removing the control boxes

The control boxes must be stored in a dry place free of dust.

3 pin plug

The box is energized by the tractor's 3-pin socket(DIN 9680, ISO 12369) or the battery power cable supplied.

Pin	Wire color	Function
15 / 30 (1)	Brown	+ 12 Volt
31 (2)	Blue	Earth
82 (3)	-	-



Description of the connection

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

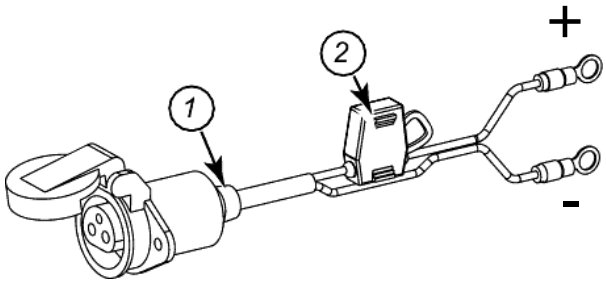
The control boxes are connected to:

- A tractor 3-pin socket.
- A supplied battery power cable.

To use the machine with another tractor, a second tractor-side power harness can be ordered under p/n 83233001.

Do not connect the wiring harness to the starter connections.

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



If the tractor is not fitted with a battery isolation switch

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

If the tractor is fitted with a battery isolation switch:

Connect the wiring harness to the battery isolation switch output.

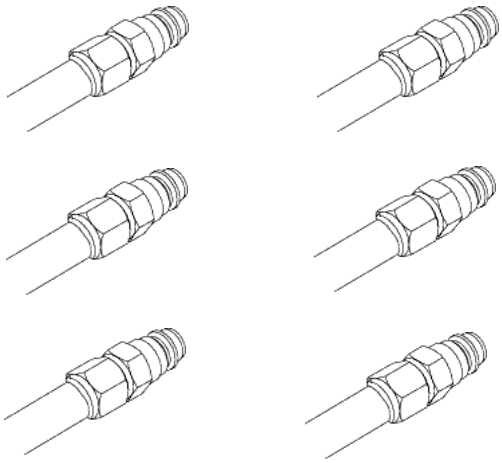
The wiring harness is fitted with a 15 Amp ATO type fuse: Part no. 82333017(2).

3. Coupling and uncoupling

■ Description of coupling elements

The machine is equipped with:

- 1 PTO shaft 1 3/8'' - 6 splines.
- 1 3-pin socket.
- 1 7-pin plug for the signalling equipment.
- 2 hydraulic hoses to supply the side marker cylinders.
- 2 hydraulic hoses to supply the unfolding/folding cylinders.
- 2 hydraulic hoses that pressurize the seeding unit extension/retraction cylinder.



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

- **Filling auger**.
- **Hydraulic blower drive**.

■ Preparing the tractor

The machine adapts to tractors fitted with a 3 point linkage category 2.

The tractor must be equipped with 3 double acting valves.

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

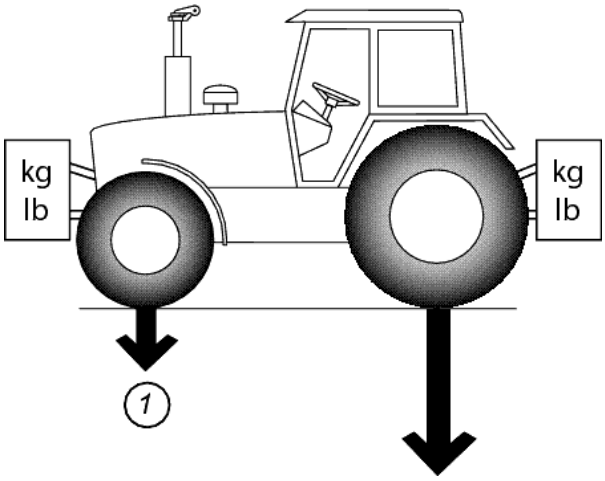
- **Filling auger**.
- **Hydraulic blower drive**.

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

Belt and pulley assemblies are available to adapt the blower speed to the tractor PTO speed.

- *470 min^{-1} pulley and belt unit:* **Kit no. 1677287**
- *870 min^{-1} pulley and belt unit:* **Kit no. 1676731**
- *1000 min^{-1} pulley and belt unit:* **Kit no. 1676738**

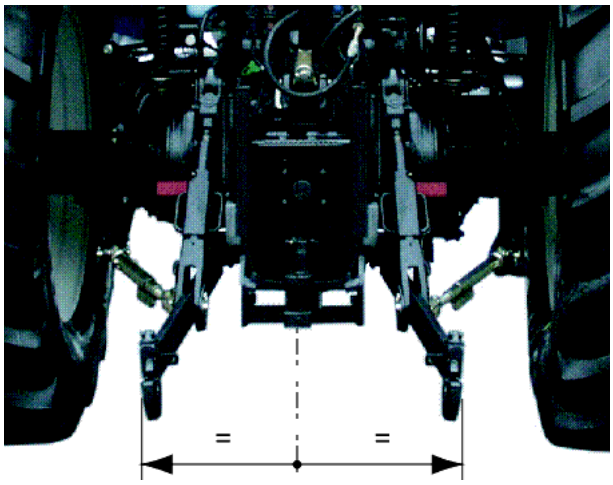
The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight.



The tractor must be fitted with lower link stabilizers.

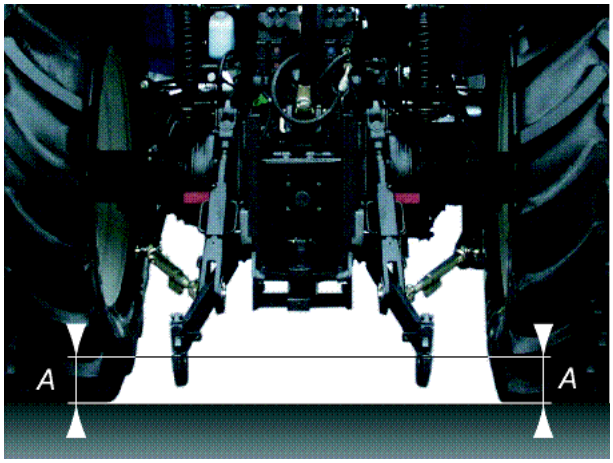
Lateral adjustment of the lower linkage arms

Balance the play on either sides of the lift linkage and lock lower link stabilizers.



Parallelism of lower linkage arms

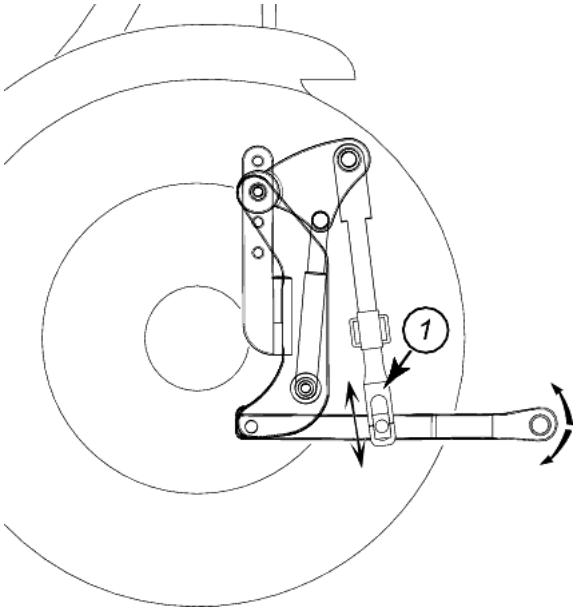
Adjust tractor lift rods so that lower linkage arms are at equal height from ground.



Placing the tractor lift linkage in floating position

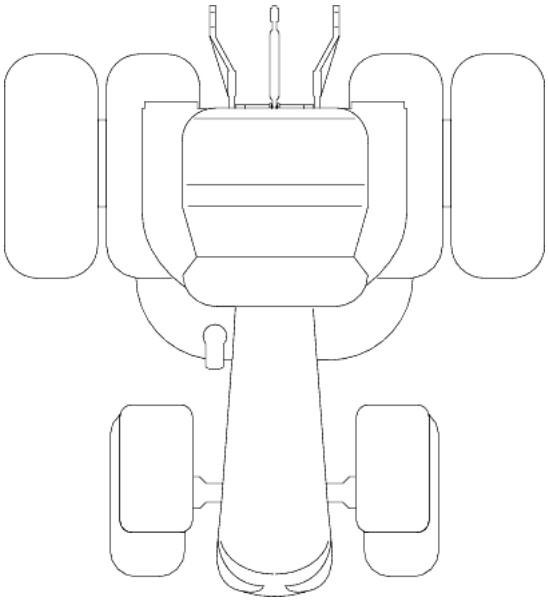
Adjust turn buckles (1) in order to obtain floating position of the lower link arms.

This position enables free machine adaptation to the ground contours.



Tyres

If compatible with the seed drill configuration, we recommended fitting the tractor with dual wheels or extra-wide wheels in order to reduce the ground pressure.



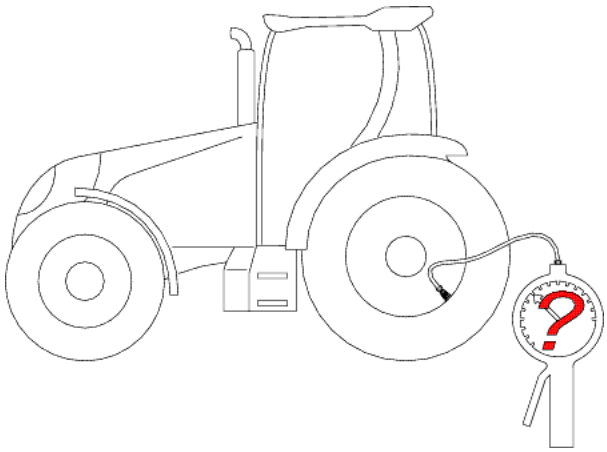
Make sure that the seed drill never interferes with the tractor wheels.

Tractor tire pressure

To ensure that tractor can be driven safely and that machine gives the desired finish, each tyre must be inflated to the correct pressure for the load supported.

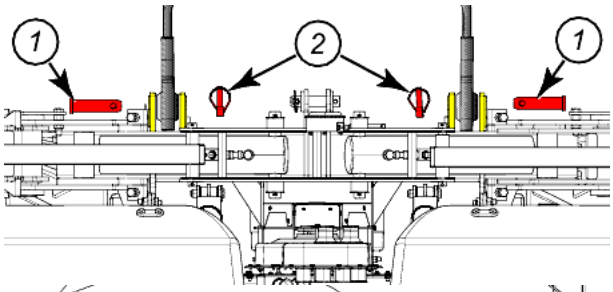
- Slightly lift the machine from the ground.
- Measure the load on each wheel (or the load of one axle divided by 2) using a weight indicator or a scale.
- Refer to the tyre manufacturer's pressure chart.
- Adjust the tyre pressure to the measured loads.

The tyre pressure must be identical on each side of the tractor.



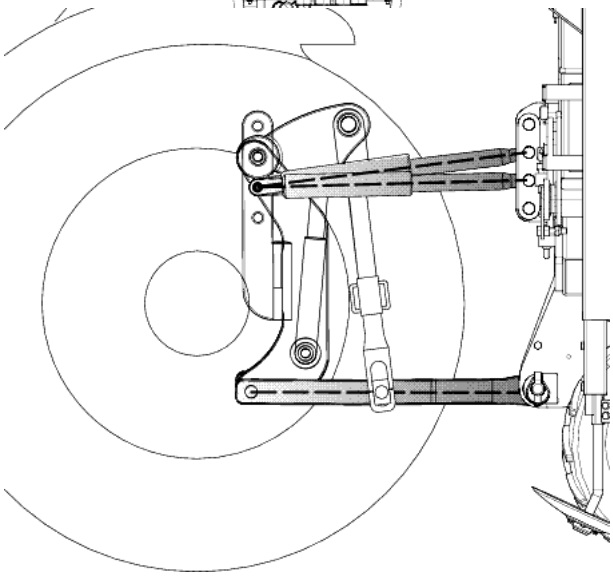
■ Coupling the machine

- Lower the tractor three-point linkage.
- Position ball joints of tractor lower links in line with holes of machine lower yokes.
- Insert pins (1) and lock using lynch pins (2).

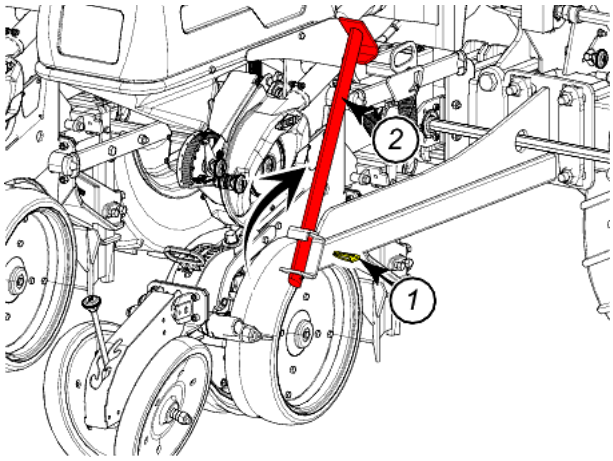


- Attach top link with hitch pin.
- Use tractor and machine attachment holes to adjust the top link position.
- Raise machine using the tractor lift linkage until parking stands no longer rest on the ground.

To obtain optimum PTO shaft angles and tractor lift capacity, the top link must be parallel to the lower links or slightly pointing downwards towards the tractor.



- Raise parking stands:
  - Remove lynch pin (1).
  - Raise parking stand (2).
  - Insert and lock lynch pin (1).
  - Repeat procedure on the other parking stand.



■ Electrical connection

- Connect 7-pin plug to the tractor.
- Connect control box wiring harness to the tractor 3-pin socket.

After making the connections, check that there is no risk of the cables being caught during operation.

■ Hydraulic connections

Connect hydraulic hoses (A) and (B) to a double acting outlet.

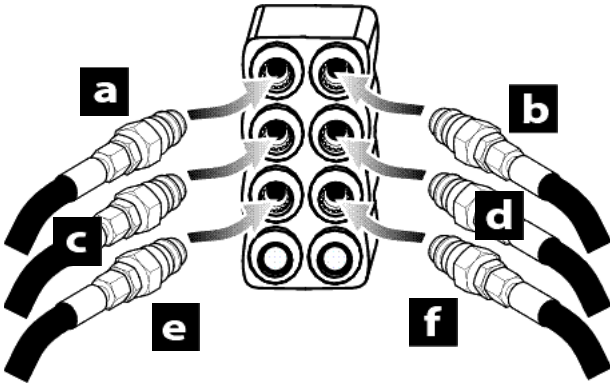
Hoses (A) and (B) supply the side marker folding/unfolding cylinders.

Connect hydraulic hoses (C) and (D) to a double acting outlet.

Hoses (C) and (D) pressurize the machine unfolding/folding cylinders.

Connect hydraulic hoses (E) and (F) to a double acting outlet.

Hoses (E) and (F) pressurize the seeding unit extension/retraction cylinder.



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

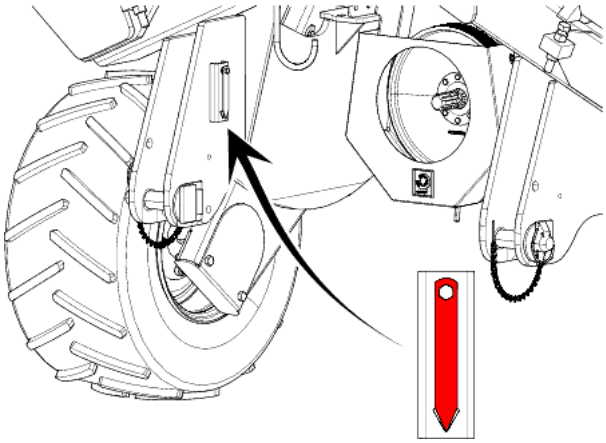
- **Filling auger**.
- **Hydraulic blower drive**.

■ Adjusting the machine

Adjusting the vertical setting

Adjust the top link length so that the machine is horizontal with regards to the ground.

This setting can be checked with the seed drill level gauge.



Check setting over the first few metres sown.

Adjusting the scrapers of the side gauge wheels

The scrapers remove soil build-up on the rubber tread of the side gauge wheels.

- Loosen bolts (1).
- Adjusting scrapers (2):

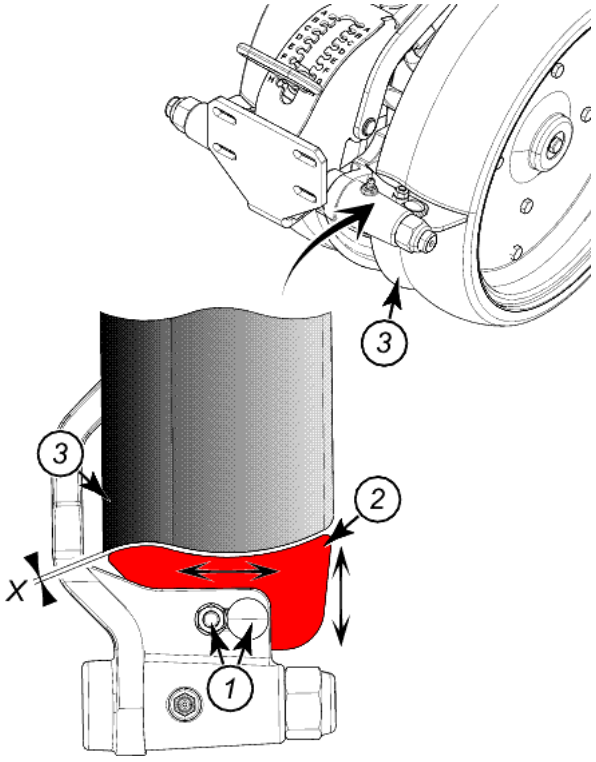
Lateral adjustment

Adjust scraper to obtain play (X) of approximately 3 mm (0.12 '') between scraper (2) and the inside rubber tread of gauge wheel (3).

Lengthways adjustment

Adjust scraper (2) as close as possible to the gauge wheel, without touching it. Rotate gauge wheel once to check that it is not in contact.

- Tighten screws (1).

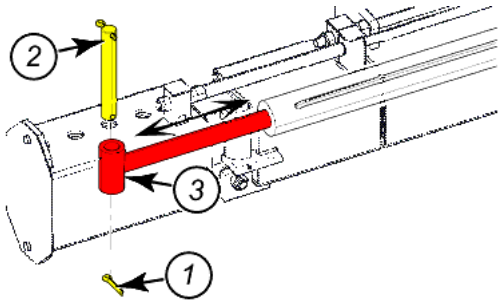


In certain wet conditions with plant debris, it may be necessary to remove the scrapers to continue working without risking stopping the gauge wheels from turning.

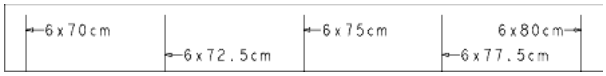
Setting the seed row spacing

Adjusting the telescopic sowing units:

- Raise machine using tractor lift.
- Remove split pin (1).
- Remove pin (2).
- Activate hydraulic hose that control the extension/retraction cylinder of the outer seeding units until each cylinder rod (3) is in line with the hole corresponding to the required setting.

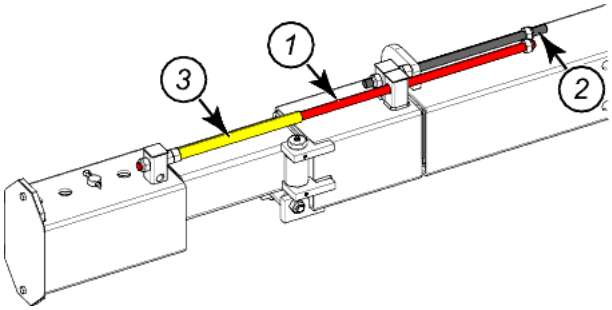


Refer to pictorial fitted on the machine to determine which hole is adequate.



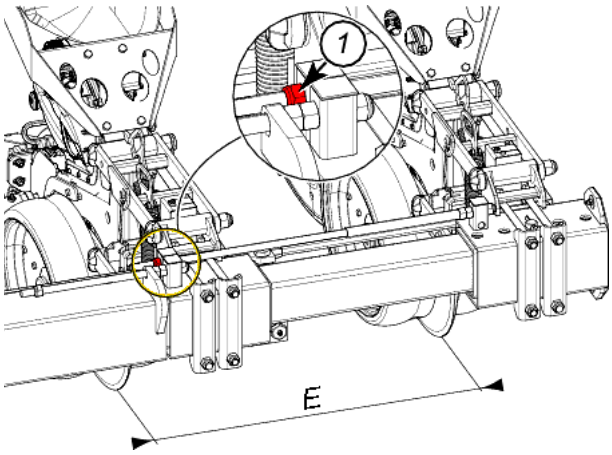
- Insert pin (2).
- Reinstall split pin (1).

- Check that lengths of tie-rods (1), (2) and spacer (3) correspond to those indicated in the chart:



Seed drill configuration	Tie-rod (1)		Tie-rod (2)		Spacer (3)	
	Length	Part number	Length	Part number	Length	Part number
6 rows at 70 cm (2’3’’)	843 mm	N01720A0	386 mm	N01721A0	259.5 mm	N01722B0
6 rows at 72.5 cm (2’4’’)						
6 rows at 75 cm (2’5’’)						
6 rows at 77.5 cm (2’6’’)						
6 rows at 80 cm (2’7’’)						

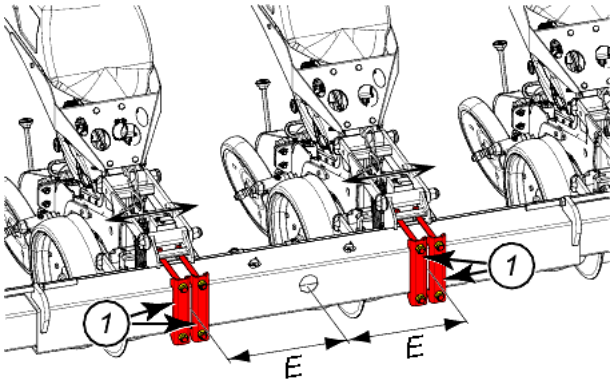
- Adjust position of nut (1) to obtain required spacing between the two outer sowing units.



Proceed the same way on the other side.

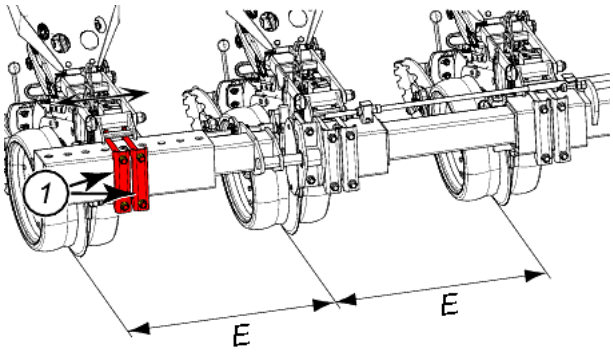
Adjusting the central sowing units:

- Loosen U-bolts (1).
- Adjust position of the two central sowing units in order to obtain a spacing (E) equal to half the spacing required between rows with regards to the frame centre.
- Tighten U-bolts (1).



Adjusting the seeding units of the foldable parts:

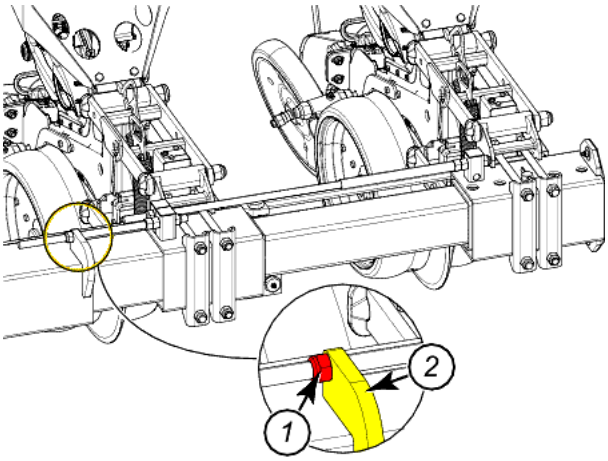
- Loosen U-bolts (1).
- Adjust position of the seeding units to obtain required spacing E between rows.
- Tighten U-bolts (1).



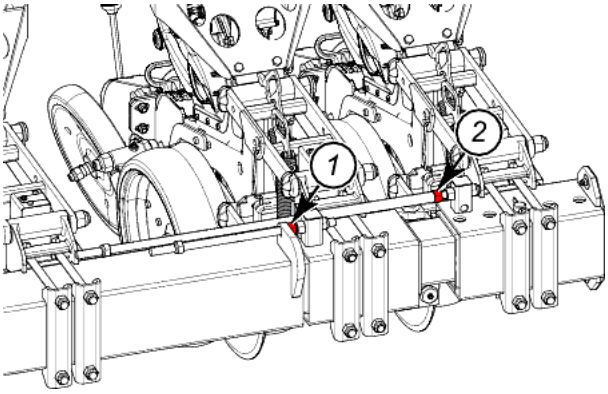
Check frame connections after each modification of the row spacing.

Adjusting the stops:

- When extending the outer sowing units, nut (1) must not come into contact with guide (2) before extension/retraction cylinders have reached their travel end. Loosen nut (1) if necessary.



- Check that there is no interference when retracting the sowing units. If necessary, adjust stops (1) and (2) to increase spacing between sowing units once retracted.

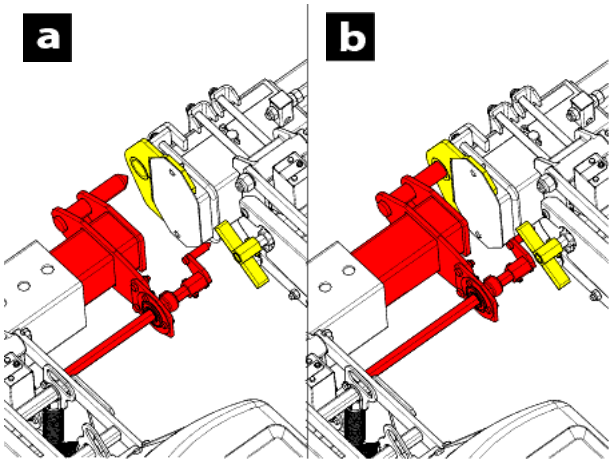


Adjusting the frame connections

Check frame connections after each modification of the row spacing.

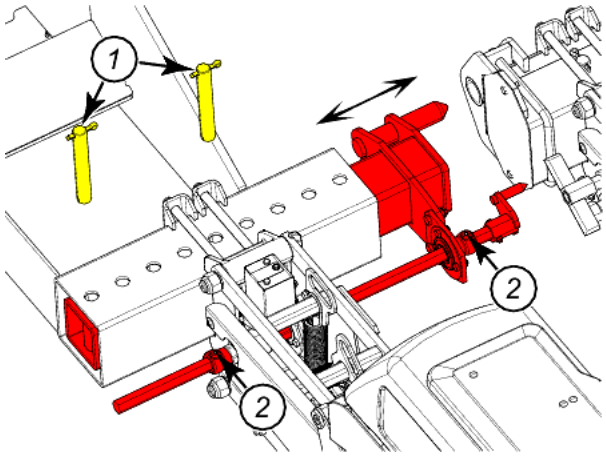
After operating the hydraulic valve that controls the seeding unit extension, check that foldable part is connected to the seed drill main frame.

- (a): Incorrect connection.
- (b): Correct connection.



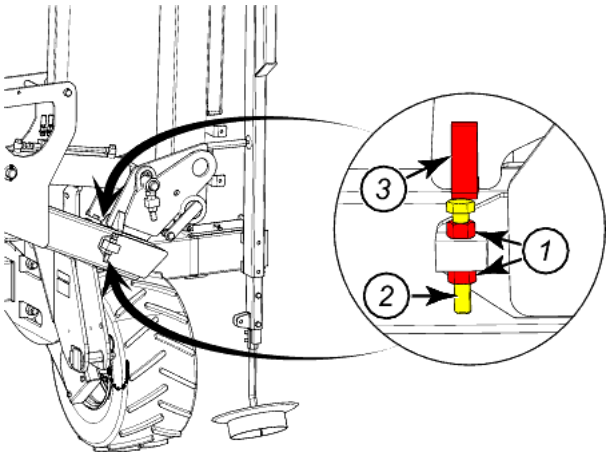
Frame adjustment:

- Remove the 2 pins (1).
- Loosen the 2 screws (2).
- Carry out adjustment to obtain the connection between the foldable part and seed drill main frame.
- Tighten the 2 bolts (2).
- Insert and lock pins (1).
- Proceed the same way on the other side.



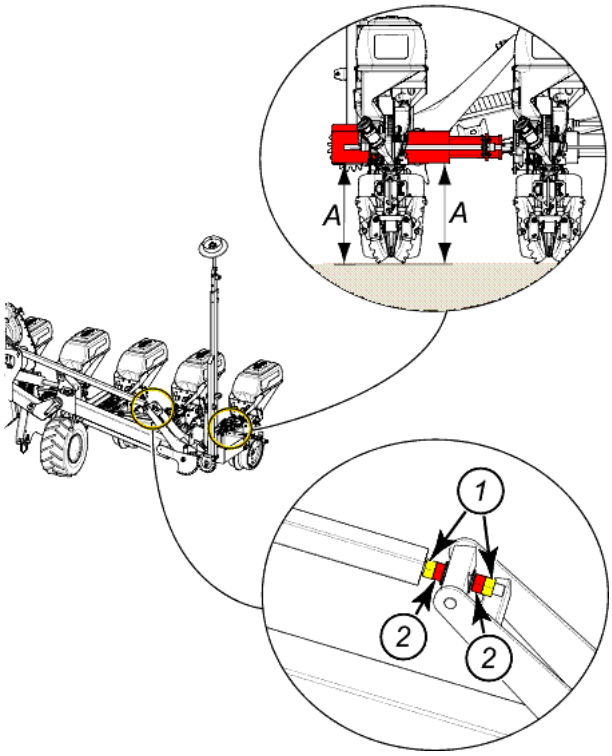
Adjust folding stops

- Operate hydraulic valve that controls extension unfolding/folding to fold the machine.
- Loosen nuts (1).
- Adjust screw (2) so that it is in contact with stop (3).
- Tighten nuts (1).
- Proceed the same way on the other side.

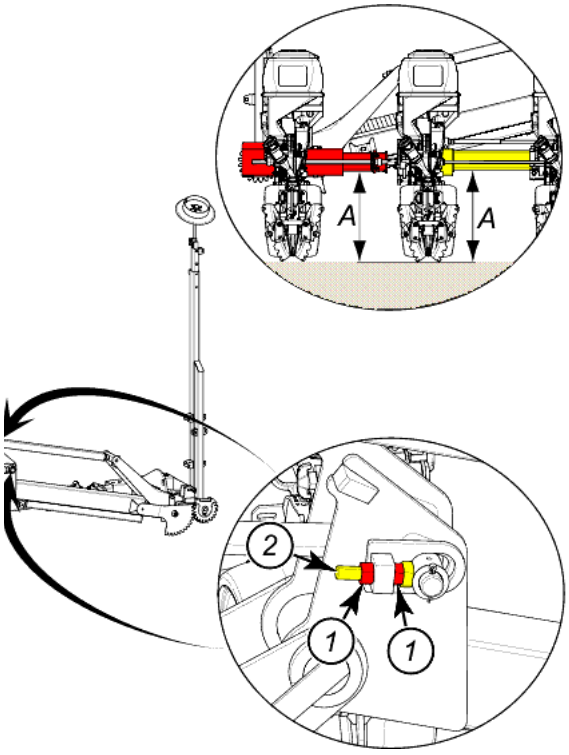


Adjusting the frame alignment

- Loosen the 2 counter-nuts (1).
- Tighten or loosen the 2 nuts (2) so that the foldable part is level in relation to the ground.
- Tighten the 2 counter nuts (1).
- Proceed the same way on the other side.



- Unscrew the 2 nuts (1).
- Tighten or loosen screw (2) so that foldable part is in line with the main frame.
- Tighten the 2 nuts (1).
- Proceed the same way on the other side.



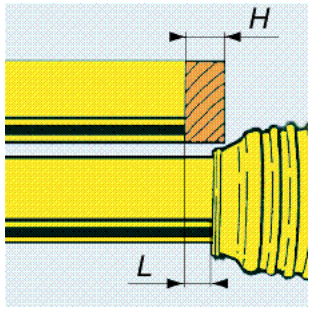
■ Primary PTO shaft

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.

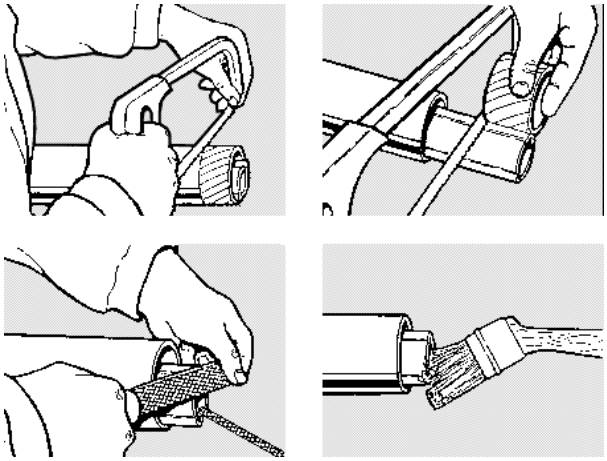
Check the length of the PTO shaft:

- 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'').



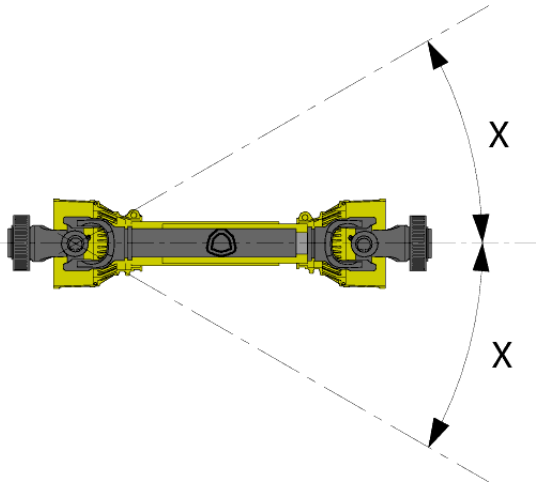
If this is not the case:

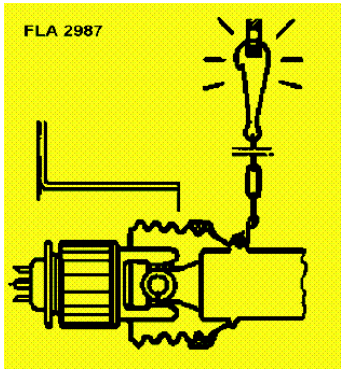
- Mark length (H) to cut when the transmission is the maximum overlap position.
- Shorten the guard tubes and the transmission tubes by the same length.
- Bevel and clean the tubes.
- Grease the inside of the outer tube.



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.

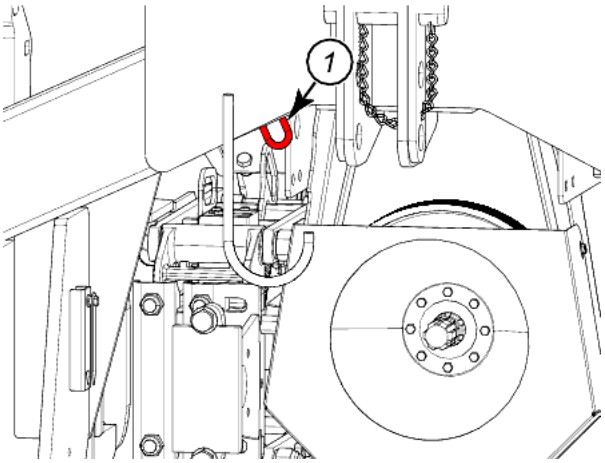
Never operate the PTO shaft at an angle X exceeding 30°.





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

On machine side, hook drive guard chain to ring (1).

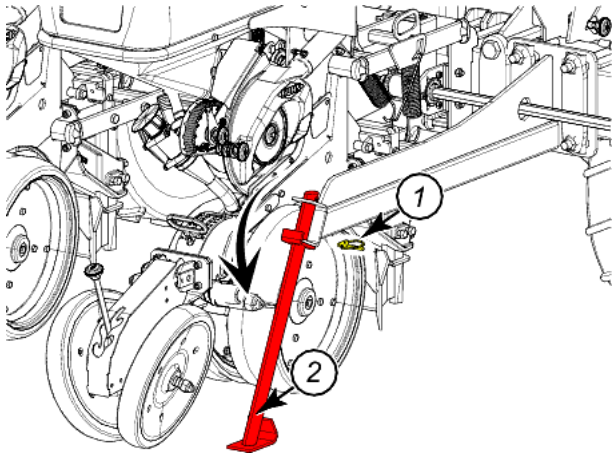


Immediately replace any worn or damaged guard.

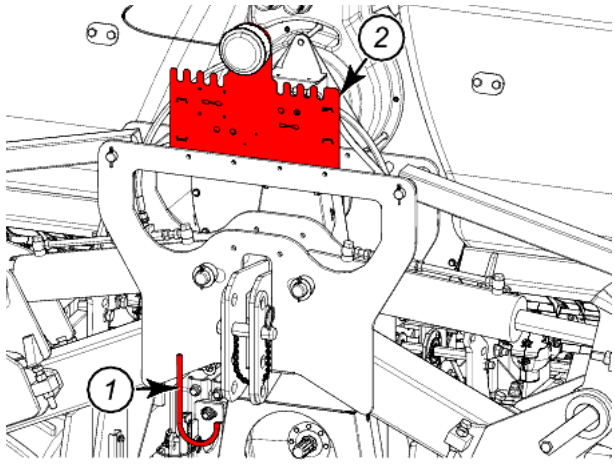
■ Uncoupling the machine

Park the machine on an even fairly level ground.

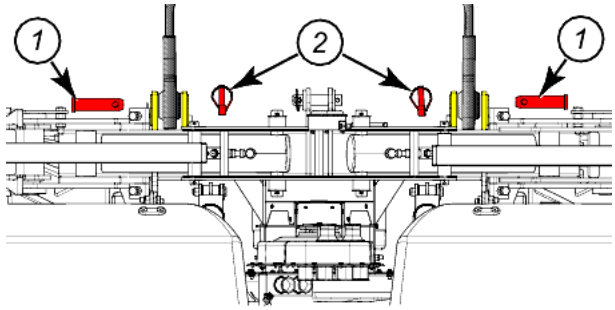
- Lower parking stands:
  - Remove lynch pin (1).
  - Lower parking stand (2).
  - Insert and lock lynch pin (1).
  - Repeat procedure on the other parking stand.



- Lower the tractor three-point linkage to rest the machine on the ground.
- Uncouple and place PTO shaft in support (1).
- Disconnect and store hydraulic hoses in holder (2).
- Disconnect and store signalling electric plug on holder (2).
- Disconnect and store control boxes in a dry and clean place.
- Detach the top link from the machine end.



- Remove lynch pins (2).
- Remove the 2 pins (1).
- Lower the tractor three-point linkage.



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

From the working position:

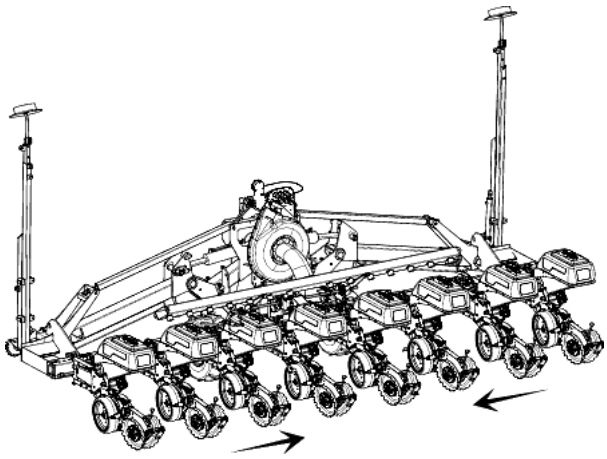
- Disengage tractor PTO.
- Raise machine using tractor lift.

Do no never activate seed drill unfolding without having raised the two markers.

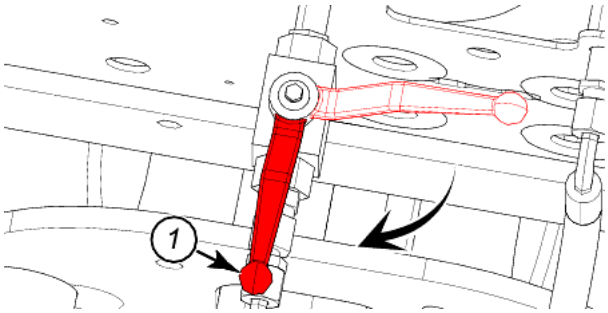
- Operate hydraulic valve that controls side marker unfolding/folding to fold the side markers.

Never activate seed drill folding without having retracted the outer units.

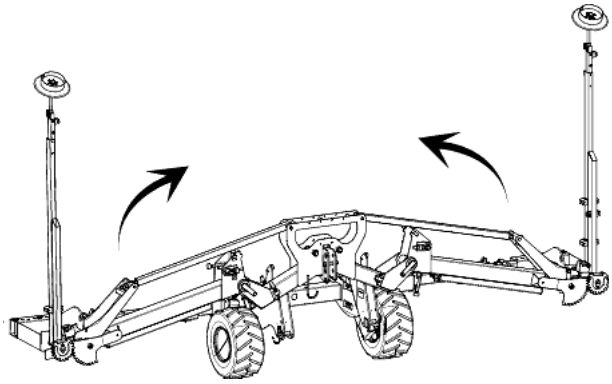
- Activate hydraulic hose that control the extension/retraction cylinder of the outer seeding units until seeding units are fully retracted.
- Switch hydraulic hose in neutral position.



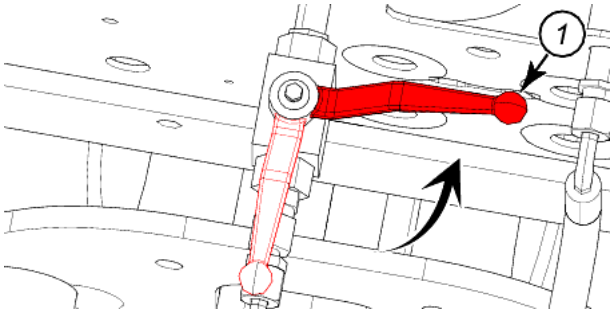
- Unlock foldable extensions using valve (1).



- Operate hydraulic valve that controls the foldable extension unfolding/folding cylinders.



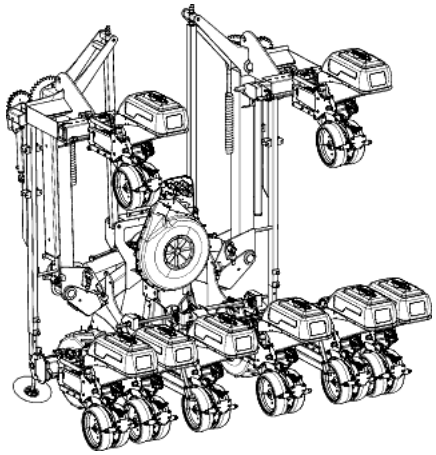
- Lock foldable extensions using valve (1).



The foldable extensions must always be locked when the machine is in transport position.

The machine is in transport position.

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



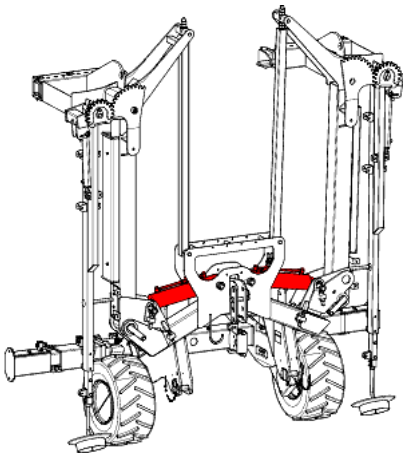
2. Conformity with the road regulations

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

Check that the lilght boards are clean and that the lighting equipment functions before transporting the machine on public roads.

Immediately replace any worn or damaged signalling panels or lights.

Check that foldable extension valve is in locked position.



During transport, adapt the travel speed to suit the road conditions.

INSTRUCTIONS FOR WORK

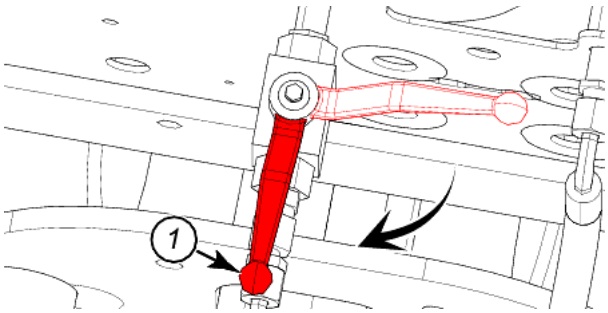
Before placing the machine in working position:

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

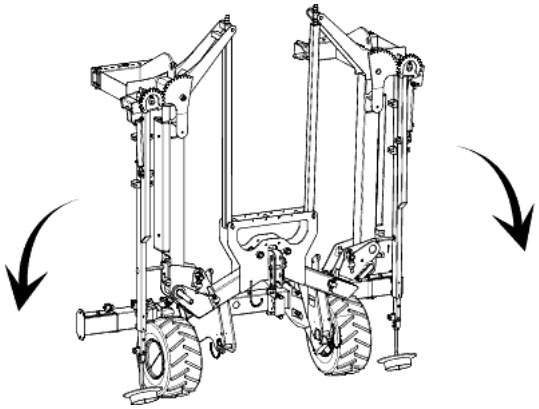
1. Putting the machine into work position

From the transport position:

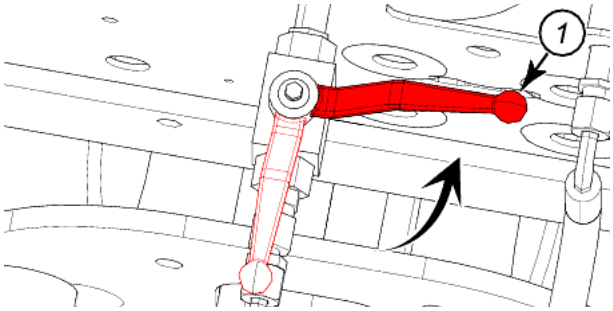
- Unlock foldable extensions using valve (1).

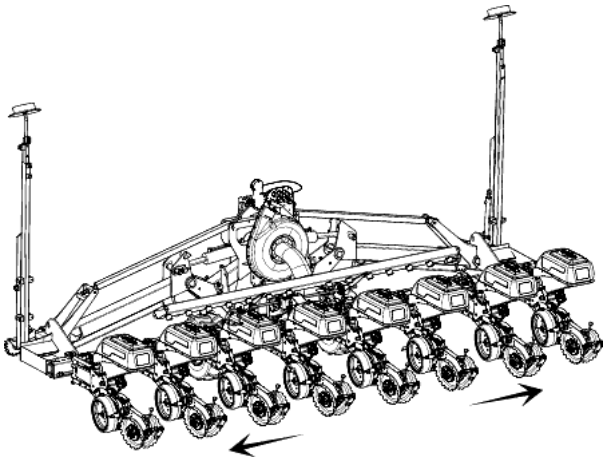


- Operate hydraulic valve that controls the foldable extension unfolding/folding cylinders.



- Lock foldable extensions using valve (1).





- Activate hydraulic hose pressurizing the extension/retraction cylinder of the outer seeding units in order to fully extend the seeding units.
- Switch hydraulic hose in neutral position.

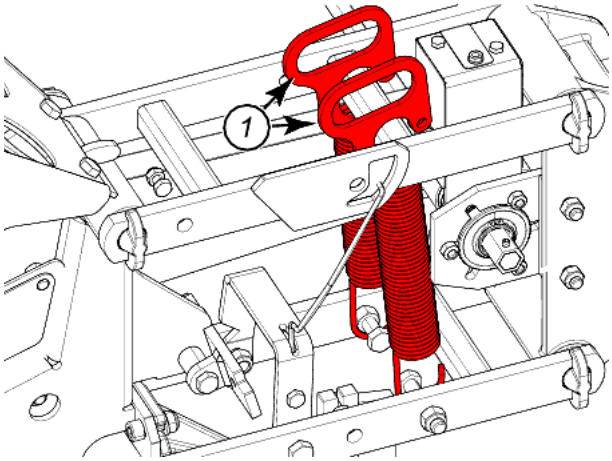
- Operate hydraulic valve that controls side marker unfolding/folding to unfold side markers.
- Lower the machine using the tractor lift linkage.

The machine is in working position.

2. Adjustments in working position

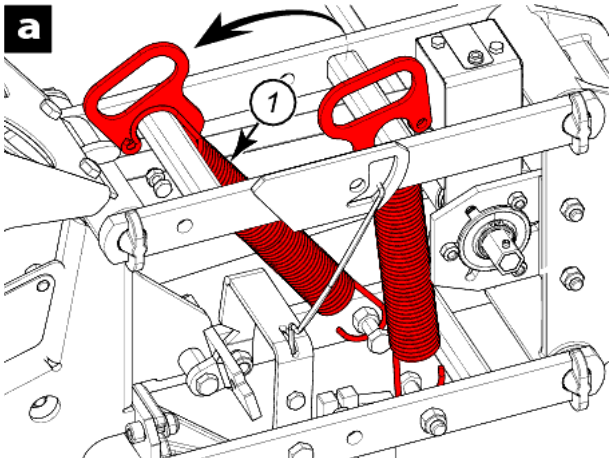
■ Adjusting the seeding unit ground pressure

The seeding unit ground pressure is modified by changing the position of springs (1).



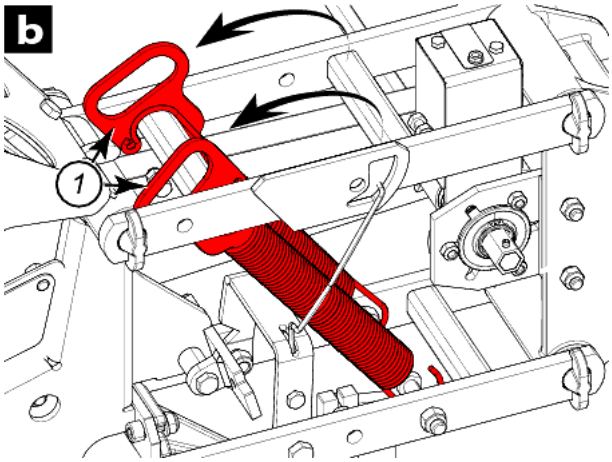
Coupling device (a):

By moving one spring (1) rearwards, the seeding unit ground pressure is increased by 20 kg (44 lb).



Coupling device (b):

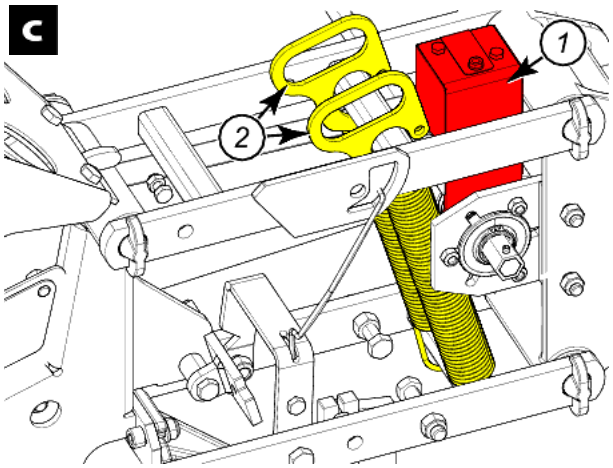
By moving 2 springs (1) rearwards, the seeding unit ground pressure is increased by 40 kg (88 lb).



When the 2 springs (1) are positioned in configuration (b), check that the frame is sufficiently ballasted.

The drive wheels must not slip. If necessary ballast the frame.

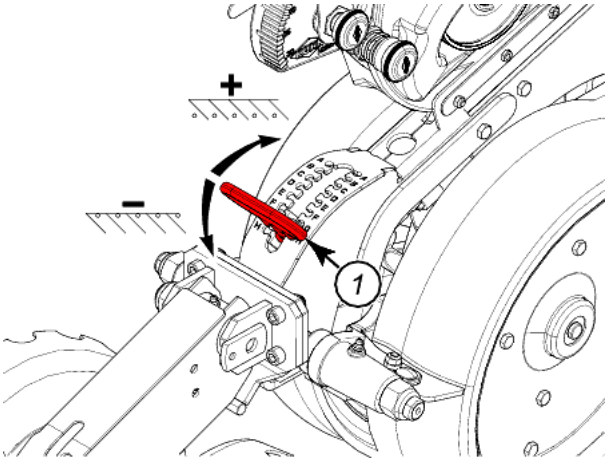
Whe the machine is fitted with electronic seeding unit disengagement system (1), never position springs (2) in configuration (c). There is a risk of interference.



■ Adjusting the sowing depth

Handle (1) enables adjusting the sowing depth.

The sowing depth can be adjusted from 0 to 8.5 cm (0'' - 3.34'') (approximately).

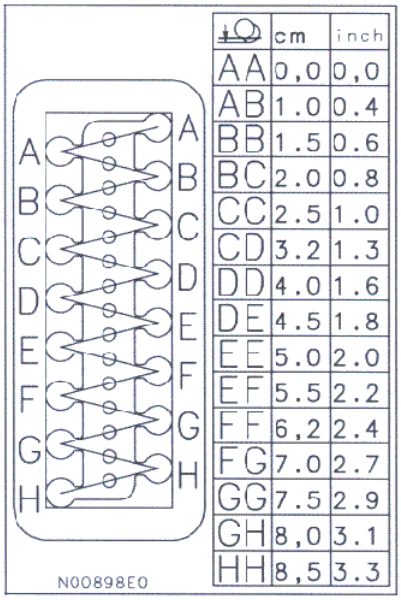


Adjustment:

Refer to the decal applied on the machine to determine handle (1) setting position.

Settings are only indicated for your information.

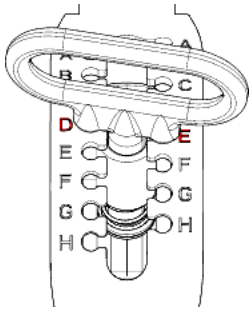
The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).



	cm	inch
AA	0,0	0,0
AB	1.0	0.4
BB	1.5	0.6
BC	2.0	0.8
CC	2.5	1.0
CD	3.2	1.3
DD	4.0	1.6
DE	4.5	1.8
EE	5.0	2.0
EF	5.5	2.2
FF	6,2	2.4
FG	7.0	2.7
GG	7.5	2.9
GH	8,0	3.1
HH	8,5	3.3

Example:

To adjust the sowing depth at 4.5 cm (1.77''), place adjustment handle in position **D-E**.



- Repeat procedure on each seeding unit.

The marking enables identical setting of each seeding unit.

■ Adjusting the markers

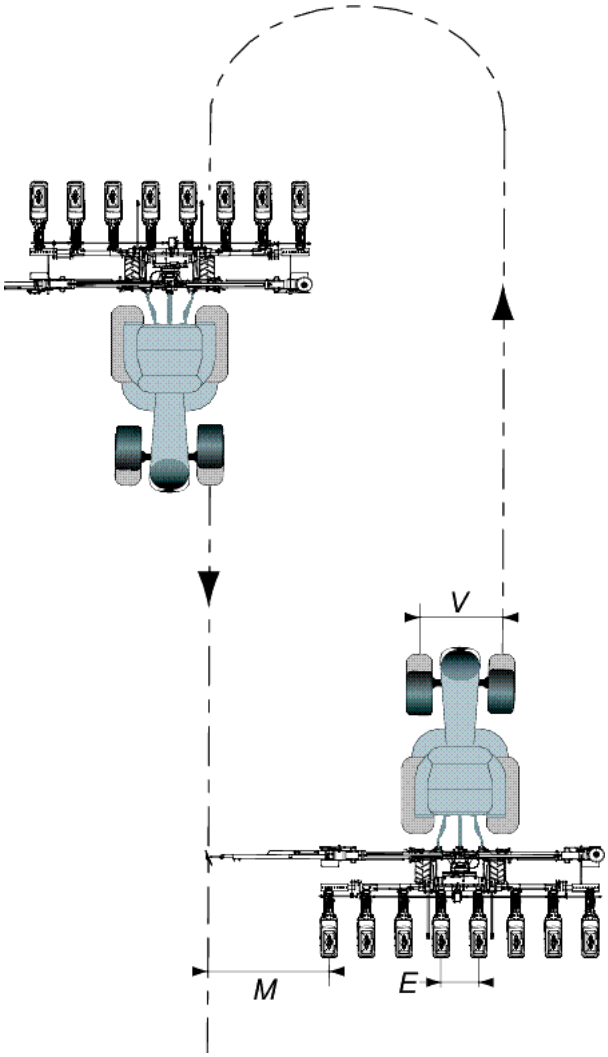
The side markers are designed to provide marking in the tractor center or wheel track.

Marking to the tractor wheel

Calculating the distance (M):

- M: distance between the marker disk and the outer seeding unit.
- N: Number of rows.
- E: distance between rows.
- V: Tractor wheel track.

$$M = \frac{E \times (N + 1) - V}{2}$$



Example:

N = 8 rows

E = 750 mm (2.5'')

V = 1800 mm (5'11'')

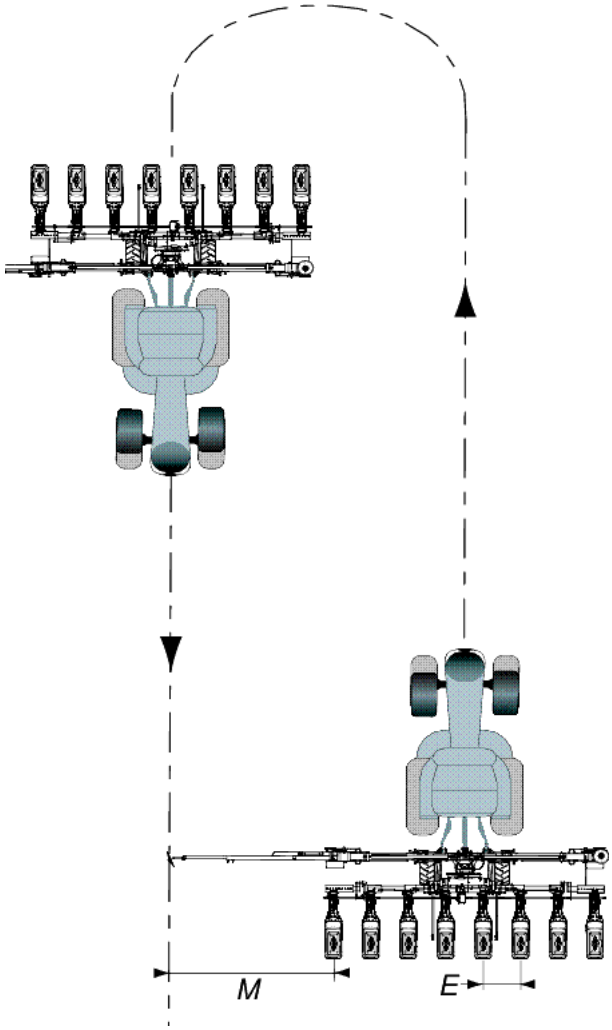
$$M = \frac{750 \times (8 + 1) - 1800}{2} = 2475 \text{ mm } (8'10'')$$

Marking in line with the tractor

Calculating the distance (M):

- M: distance between the marker disk and the outer seeding unit.
- N: Number of rows.
- E: distance between rows.

$$M = \frac{E \times (N + 1)}{2}$$



Example:

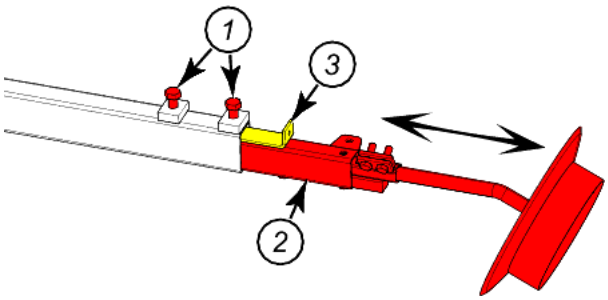
N = 8 rows

E = 750 mm (2.5'')

$$M = \frac{750 \times (8 + 1)}{2} = 3375 \text{ mm } (11')$$

Adjusting the length (M)

- Unscrew the 2 bolts (1).
- Move side marker extension (2) to obtain required length M.
- Check that spacer (3) located between the rigid arm and the pivoting arm is fully inside the rigid arm.



The spacer prevents deterioration of the moving arm when tightening the screws.

- Tighten bolts (1).

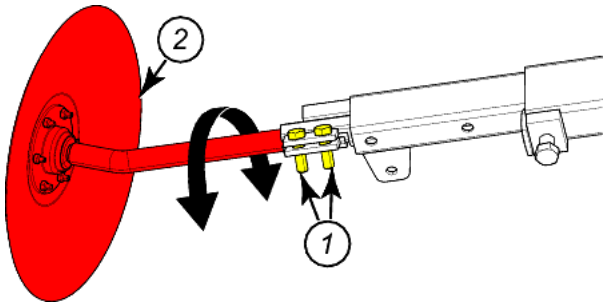
Repeat procedure on the second side marker.

You are recommended to check this setting in the field, by inspecting several runs.

Angle adjustment

- Unscrew the 2 bolts (1).
- Pivot arm (2) to adjust the disc angle with regards to the soil type.
- Tighten bolts (1).

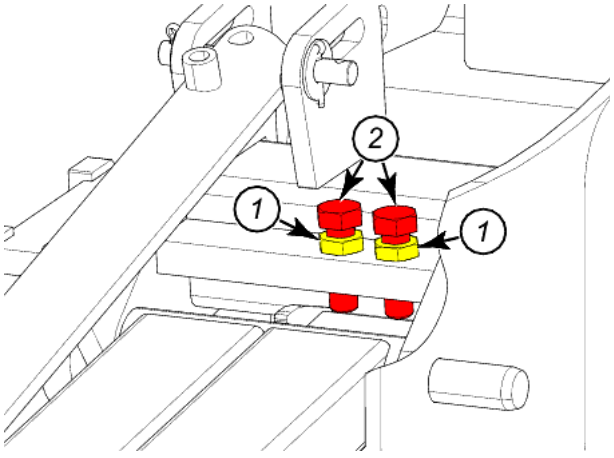
Repeat procedure on the second side marker.



Adjustment of the bottom stop

- Loosen the 2 counter-nuts (1).
- Adjust length of screws (2).
- Tighten the 2 counter nuts (1).

Repeat procedure on the second side marker.



■ Selection of disks

Never drill out disks in order to increase the diameter of the intake holes, otherwise serious deterioration of sowing accuracy may result.

For Maize seeds

In general, use disks with holes of diameter 5 mm (0.2 '') for maximum versatility (Standard supplied).

Maize seeds with very angular or pointed shapes can be sown with a disk with 4.5 mm (0.17 '') diameter holes to improve seed placement in the row.

For sowing very large maize seeds, we recommend using a disk with 5.5 mm (0.21 '') diameter holes.

For sowing very small sweet corn seeds, we recommend using a disk with 3.5 mm (0.14 '') diameter holes.

For Sunflower seeds

Successful sunflower sowing depends on two factors:

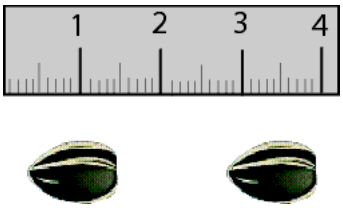
- The adaptation of the disk hole diameter to the seed size.
- The selector adjustment.

Indications on the seed bags do not mention the seed size.

We recommend to possess 2 disk models (holes diameter 2.5 mm (0.1 '') and 3.5 mm (0.14 '')) if the seed size to be purchased cannot be specified.

Fine and medium Sunflower

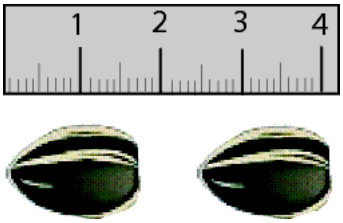
For sowing fine or medium sunflower seeds, we recommend using a disk with 2.5 mm (0.1 ’’) diameter holes.



For sowing fine or medium sunflower seeds, using a disk with 3.5 mm (0.14 ’’) diameter holes does not enable fine tuning of the selection (Too many misses or doubles).

Coarse Sunflower

For sowing large sunflower seeds, we recommend using a disk with 3.5 mm (0.14 ’’) diameter holes.



For sowing large sunflower seeds, using a disk with 2.5 mm (0.1 ’’) diameter holes does not enable fine tuning of the selection (Correct positioning but with too much misses).

Table of recommended distribution disks

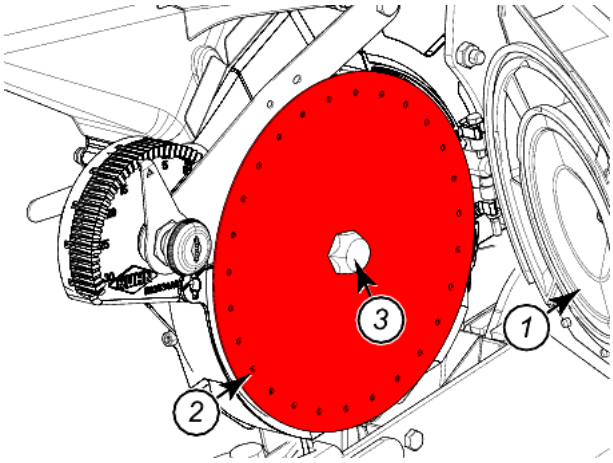
Type of seeds	Number of holes	Hole diameter (mm)	Min/max spacing (cm)
Maize	27	5.0	from 8 to 24.1
Maize	27	4.5	from 8 to 24.1
Maize	27	5.5	from 8 to 24.1
Maize	22	5.0	from 9.8 to 29.5
Maize	22	4.5	from 9.8 to 29.5
Maize	22	5.5	from 9.8 to 29.5
Sunflower	18	2.5	from 12 to 36.1
Sunflower	18	3.5	from 16 to 36.1
Bean	48	3.5	from 4.5 to 13.5
Bean	48	2.5	from 1.5 to 13.5
Sorghum	70	2.5	from 3.1 to 9.3
Beet	31	2.1	from 7 to 21
Beet	22	2.1	from 9.8 to 29.5
Soy	70	4.5	from 3.1 to 6.3
Delinted cotton	33	3.5	from 6.5 to 19.7

■ Fitting distribution disks

Before changing a disk, empty the seeding unit hopper.

Mark disks prior to removing them in order to determine their respective position. A disk must always be fitted on the same sowing unit.

- Open hood (1).
- Install distribution disk (2) on drive shaft (3).



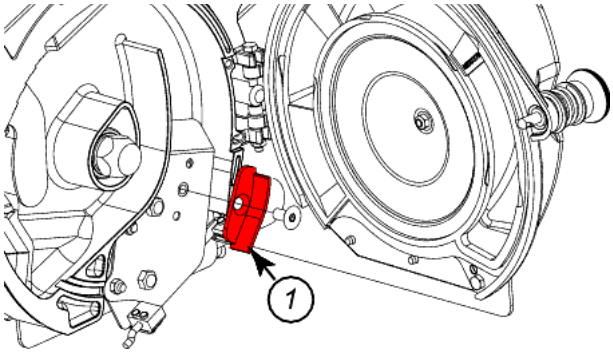
When disks are fitted with agitator blades, position disks with agitator blades pointing inwards.

Check that the distribution disk is properly positioned on the drive shaft.

- Close hood (1).

■ Selecting and fitting seed ejectors

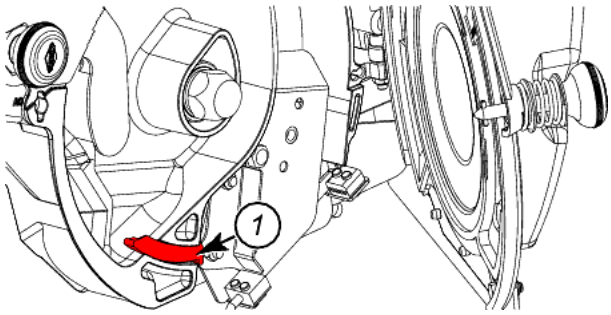
When the machine is used with disks with only one row of holes, the ejector **BNB0083** (1) must be fitted.



This ejector must always be fitted whatever the seed variety.

When disks are not fitted with agitator blades, install spacer **BNB0048** (1).

The agitator blades fitted on the disk enable preventing seed bridging in the casing.



Spacer BNB0048 stops small seeds from flowing freely through the groove.

When the disks are fitted with agitator blades, spacer **BNB0048** (1) must be removed.

■ Adjusting the number of plants per hectare

Number of plants per hectare according to spacing between seeds and between rows

Seed row spacing (cm)	Spacing between seeds (cm)												
	25	33	38	40	45	50	55	60	70	75	80
2.5	1600000	1212100	1052600	1000000	888900	800000	727300	666700	571400	533300	500000
5	800000	606058	526300	500000	444450	400000	363650	333350	285700	266650	250000
6	666667	505042	438583	416667	370375	333333	303042	277792	238093	222206	208333
7	571429	432899	375929	357143	317464	285714	259750	238107	204071	190464	178571
8	500000	378781	328938	312500	277781	250000	227281	208344	178563	166656	156250
9	444444	336694	292389	277778	246917	222222	202028	185194	158722	148139	138889
10	400000	303025	263150	250000	222225	200000	181825	166675	142850	133325	125000
11	363636	275477	239227	227273	202023	181818	165225	151523	129864	121205	113636
12	333333	252521	219292	208333	185188	166667	151521	138896	119042	111104	104167
13	307692	233096	202423	192308	170942	153846	139865	128212	109885	102568	96154
14	285714	216446	187964	178571	158732	142857	129875	119054	102036	95232	89286
15	266667	202017	175433	166667	148150	133333	121217	111117	95283	88883	83333
16	250000	189391	164469	156250	138891	125000	113641	104172	89281	83328	78125
17	235294	178250	154794	147059	130721	117647	106958	98044	84029	78426	73529
18	222222	168347	146194	138889	123458	111111	101014	92597	79361	74069	69444
19	210526	159437	138380	131579	116961	105263	95697	87724	75184	70171	65789
20	200000	151513	131575	125000	111113	100000	90913	83338	71425	66663	62500
21	190476	144226	125310	119048	105821	95238	86583	79369	68004	63483	59524
22	181818	137739	119614	113636	101011	90909	82648	75761	64902	60602	56818
23	173913	131750	114413	108696	96620	86957	79054	72467	62109	57957	54348
24	166667	126260	109646	104167	92594	83333	75760	69448	59521	55552	52083
25	160000	121210	105260	100000	88890	80000	72730	66670	57140	53330	50000
30	133333	101008	87717	83333	74075	66667	60608	55558	47617	44442	41667
35	114286	86579	75186	71429	63493	57143	51950	47621	40814	38858	35714
40	100000	75756	65788	62500	55556	50000	45456	41669	35713	33331	31250
45	88889	67339	58478	55556	49383	44444	40406	37039	31744	29628	27778
50	80000	60605	52630	50000	44445	40000	36365	33335	28570	26665	25000

Distribution output charts

Metering output table - Disc 18 Holes -																			
No. holes: 18	20-SPEED-GEARBOX																		
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	120	128	135	143	152	162	171	181	190	202	214	226	240	255	270	285	304	323	342	361
No. Seeds / m	8,3	7,8	7,4	7,0	6,6	6,2	5,8	5,5	5,3	5,0	4,7	4,4	4,2	3,9	3,7	3,5	3,3	3,1	2,9	2,8
Spacing in cm = 40	208,3	195,3	185,2	174,8	164,5	154,3	146,2	138,1	131,6	123,8	116,8	110,6	104,2	98,0	92,6	87,7	82,2	77,4	73,1	69,3
Spacing in cm = 45	185,2	173,6	164,6	155,4	146,2	137,2	130,0	122,8	117,0	110,0	103,8	98,3	92,6	87,1	82,3	78,0	73,1	68,8	65,0	61,6
Spacing in cm = 50	166,7	156,3	148,1	139,9	131,6	123,5	117,0	110,5	105,3	99,0	93,5	88,5	83,3	78,4	74,1	70,2	65,8	61,9	58,5	55,4
Spacing in cm = 55	151,5	142,0	134,7	127,1	119,6	112,2	106,3	100,5	95,7	90,0	85,0	80,5	75,8	71,3	67,3	63,8	59,8	56,3	53,2	50,4
Spacing in cm = 60	138,9	130,2	123,5	116,6	109,6	102,9	97,5	92,1	87,7	82,5	77,9	73,7	69,4	65,4	61,7	58,5	54,8	51,6	48,7	46,2
Spacing in cm = 65	128,2	120,2	114,0	107,6	101,2	95,0	90,0	85,0	81,0	76,2	71,9	68,1	64,1	60,3	57,0	54,0	50,6	47,6	45,0	42,6
Spacing in cm = 70	119,0	111,6	105,8	99,9	94,0	88,2	83,5	78,9	75,2	70,7	66,8	63,2	59,5	56,0	52,9	50,1	47,0	44,2	41,8	39,6
Spacing in cm = 75	111,1	104,2	98,8	93,2	87,7	82,3	78,0	73,7	70,2	66,0	62,3	59,0	55,6	52,3	49,4	46,8	43,9	41,3	39,0	36,9
Spacing in cm = 80	104,2	97,7	92,6	87,4	82,2	77,2	73,1	69,1	65,8	61,9	58,4	55,3	52,1	49,0	46,3	43,9	41,1	38,7	36,5	34,6
	Thousands of seeds per hectare																			
The quantities indicated are given by way of illustration only. They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel																				

Metering output table - Disc 22 Holes -																			
No. holes: 22	20-SPEED-GEARBOX																		
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	98	104	111	117	124	132	140	148	156	165	175	185	196	209	221	233	249	264	280	295
No. Seeds / m	10,2	9,6	9,0	8,5	8,1	7,6	7,1	6,8	6,4	6,1	5,7	5,4	5,1	4,8	4,5	4,3	4,0	3,8	3,6	3,4
Spacing in cm = 40	255,1	240,4	225,2	213,7	201,6	189,4	178,6	168,9	160,3	151,5	142,9	135,1	127,6	119,6	113,1	107,3	100,4	94,7	89,3	84,7
Spacing in cm = 45	226,8	213,7	200,2	189,9	179,2	168,4	158,7	150,2	142,5	134,7	127,0	120,1	113,4	106,3	100,6	95,4	89,2	84,2	79,4	75,3
Spacing in cm = 50	204,1	192,3	180,2	170,9	161,3	151,5	142,9	135,1	128,2	121,2	114,3	108,1	102,0	95,7	90,5	85,8	80,3	75,8	71,4	67,8
Spacing in cm = 55	185,5	174,8	163,8	155,4	146,6	137,7	129,9	122,9	116,6	110,2	103,9	98,3	92,8	87,0	82,3	78,0	73,0	68,9	64,9	61,6
Spacing in cm = 60	170,1	160,3	150,2	142,5	134,4	126,3	119,0	112,6	106,8	101,0	95,2	90,1	85,0	79,7	75,4	71,5	66,9	63,1	59,5	56,5
Spacing in cm = 65	157,0	147,9	138,6	131,5	124,1	116,6	109,9	104,0	98,6	93,2	87,9	83,2	78,5	73,6	69,6	66,0	61,8	58,3	54,9	52,2
Spacing in cm = 70	145,8	137,4	128,7	122,1	115,2	108,2	102,0	96,5	91,6	86,6	81,6	77,2	72,9	68,4	64,6	61,3	57,4	54,1	51,0	48,4
Spacing in cm = 75	136,1	128,2	120,1	114,0	107,5	101,0	95,2	90,1	85,5	80,8	76,2	72,1	68,0	63,8	60,3	57,2	53,5	50,5	47,6	45,2
Spacing in cm = 80	127,6	120,2	112,6	106,8	100,8	94,7	89,3	84,5	80,1	75,8	71,4	67,6	63,8	59,8	56,6	53,6	50,2	47,3	44,6	42,4
	Thousands of seeds per hectare																			
The quantities indicated are given by way of illustration only. They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.																				

Metering output table - Disc 27 Holes -

No. holes: 27	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	80	85	90	95	101	108	114	120	127	135	143	150	160	170	180	190	203	215	228	241
No. Seeds / m	12,5	11,8	11,1	10,5	9,9	9,3	8,8	8,3	7,9	7,4	7,0	6,7	6,3	5,9	5,6	5,3	4,9	4,7	4,4	4,1
Spacing in cm = 40	312,5	294,1	277,8	263,2	247,5	231,5	219,3	208,3	196,9	185,2	174,8	166,7	156,3	147,1	138,9	131,6	123,2	116,3	109,6	103,7
Spacing in cm = 45	277,8	261,4	246,9	233,9	220,0	205,8	194,9	185,2	175,0	164,6	155,4	148,1	138,9	130,7	123,5	117,0	109,5	103,4	97,5	92,2
Spacing in cm = 50	250,0	235,3	222,2	210,5	198,0	185,2	175,4	166,7	157,5	148,1	139,9	133,3	125,0	117,6	111,1	105,3	98,5	93,0	87,7	83,0
Spacing in cm = 55	227,3	213,9	202,0	191,4	180,0	168,4	159,5	151,5	143,2	134,7	127,1	121,2	113,6	107,0	101,0	95,7	89,6	84,6	79,7	75,4
Spacing in cm = 60	208,3	196,1	185,2	175,4	165,0	154,3	146,2	138,9	131,2	123,5	116,6	111,1	104,2	98,0	92,6	87,7	82,1	77,5	73,1	69,2
Spacing in cm = 65	192,3	181,0	170,9	161,9	152,3	142,5	135,0	128,2	121,1	114,0	107,6	102,6	96,2	90,5	85,5	81,0	75,8	71,6	67,5	63,8
Spacing in cm = 70	178,6	168,1	158,7	150,4	141,4	132,3	125,3	119,0	112,5	105,8	99,9	95,2	89,3	84,0	79,4	75,2	70,4	66,4	62,7	59,3
Spacing in cm = 75	166,7	156,9	148,1	140,4	132,0	123,5	117,0	111,1	105,0	98,8	93,2	88,9	83,3	78,4	74,1	70,2	65,7	62,0	58,5	55,3
Spacing in cm = 80	156,3	147,1	138,9	131,6	123,8	115,7	109,6	104,2	98,4	92,6	87,4	83,3	78,1	73,5	69,4	65,8	61,6	58,1	54,8	51,9
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 31 Holes -

No. holes: 31	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	70	74	78	83	88	94	99	105	110	117	124	131	139	148	157	166	177	188	199	210
No. Seeds / m	14,3	13,5	12,8	12,0	11,4	10,6	10,1	9,5	9,1	8,5	8,1	7,6	7,2	6,8	6,4	6,0	5,6	5,3	5,0	4,8
Spacing in cm = 40	357,1	337,8	320,5	301,2	284,1	266,0	252,5	238,1	227,3	213,7	201,6	190,8	179,9	168,9	159,2	150,6	141,2	133,0	125,6	119,0
Spacing in cm = 45	317,5	300,3	284,9	267,7	252,5	236,4	224,5	211,6	202,0	189,9	179,2	169,6	159,9	150,2	141,5	133,9	125,5	118,2	111,7	105,8
Spacing in cm = 50	285,7	270,3	256,4	241,0	227,3	212,8	202,0	190,5	181,8	170,9	161,3	152,7	143,9	135,1	127,4	120,5	113,0	106,4	100,5	95,2
Spacing in cm = 55	259,7	245,7	233,1	219,1	206,6	193,4	183,7	173,2	165,3	155,4	146,6	138,8	130,8	122,9	115,8	109,5	102,7	96,7	91,4	86,6
Spacing in cm = 60	238,1	225,2	213,7	200,8	189,4	177,3	168,4	158,7	151,5	142,5	134,4	127,2	119,9	112,6	106,2	100,4	94,2	88,7	83,8	79,4
Spacing in cm = 65	219,8	207,9	197,2	185,4	174,8	163,7	155,4	146,5	139,9	131,5	124,1	117,4	110,7	104,0	98,0	92,7	86,9	81,8	77,3	73,3
Spacing in cm = 70	204,1	193,1	183,2	172,1	162,3	152,0	144,3	136,1	129,9	122,1	115,2	109,1	102,8	96,5	91,0	86,1	80,7	76,0	71,8	68,0
Spacing in cm = 75	190,5	180,2	170,9	160,6	151,5	141,8	134,7	127,0	121,2	114,0	107,5	101,8	95,9	90,1	84,9	80,3	75,3	70,9	67,0	63,5
Spacing in cm = 80	178,6	168,9	160,3	150,6	142,0	133,0	126,3	119,0	113,6	106,8	100,8	95,4	89,9	84,5	79,6	75,3	70,6	66,5	62,8	59,5
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 33 Holes -

No. holes: 33	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	65	70	74	78	83	88	93	98	104	110	117	123	131	139	147	156	166	176	187	197
No. Seeds / m	15,4	14,3	13,5	12,8	12,0	11,4	10,8	10,2	9,6	9,1	8,5	8,1	7,6	7,2	6,8	6,4	6,0	5,7	5,3	5,1
Spacing in cm = 40	384,6	357,1	337,8	320,5	301,2	284,1	268,8	255,1	240,4	227,3	213,7	203,3	190,8	179,9	170,1	160,3	150,6	142,0	133,7	126,9
Spacing in cm = 45	341,9	317,5	300,3	284,9	267,7	252,5	238,9	226,8	213,7	202,0	189,9	180,7	169,6	159,9	151,2	142,5	133,9	126,3	118,8	112,8
Spacing in cm = 50	307,7	285,7	270,3	256,4	241,0	227,3	215,1	204,1	192,3	181,8	170,9	162,6	152,7	143,9	136,1	128,2	120,5	113,6	107,0	101,5
Spacing in cm = 55	279,7	259,7	245,7	233,1	219,1	206,6	195,5	185,5	174,8	165,3	155,4	147,8	138,8	130,8	123,7	116,6	109,5	103,3	97,2	92,3
Spacing in cm = 60	256,4	238,1	225,2	213,7	200,8	189,4	179,2	170,1	160,3	151,5	142,5	135,5	127,2	119,9	113,4	106,8	100,4	94,7	89,1	84,6
Spacing in cm = 65	236,7	219,8	207,9	197,2	185,4	174,8	165,4	157,0	147,9	139,9	131,5	125,1	117,4	110,7	104,7	98,6	92,7	87,4	82,3	78,1
Spacing in cm = 70	219,8	204,1	193,1	183,2	172,1	162,3	153,6	145,8	137,4	129,9	122,1	116,1	109,1	102,8	97,2	91,6	86,1	81,2	76,4	72,5
Spacing in cm = 75	205,1	190,5	180,2	170,9	160,6	151,5	143,4	136,1	128,2	121,2	114,0	108,4	101,8	95,9	90,7	85,5	80,3	75,8	71,3	67,7
Spacing in cm = 80	192,3	178,6	168,9	160,3	150,6	142,0	134,4	127,6	120,2	113,6	106,8	101,6	95,4	89,9	85,0	80,1	75,3	71,0	66,8	63,5
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 48 Holes -

No. holes: 48	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	45	48	51	53	57	61	64	68	71	76	80	85	90	96	101	107	114	121	128	135
No. Seeds / m	22,2	20,8	19,6	18,9	17,5	16,4	15,6	14,7	14,1	13,2	12,5	11,8	11,1	10,4	9,9	9,3	8,8	8,3	7,8	7,4
Spacing in cm = 40	555,6	520,8	490,2	471,7	438,6	409,8	390,6	367,6	352,1	328,9	312,5	294,1	277,8	260,4	247,5	233,6	219,3	206,6	195,3	185,2
Spacing in cm = 45	493,8	463,0	435,7	419,3	389,9	364,3	347,2	326,8	313,0	292,4	277,8	261,4	246,9	231,5	220,0	207,7	194,9	183,7	173,6	164,6
Spacing in cm = 50	444,4	416,7	392,2	377,4	350,9	327,9	312,5	294,1	281,7	263,2	250,0	235,3	222,2	208,3	198,0	186,9	175,4	165,3	156,3	148,1
Spacing in cm = 55	404,0	378,8	356,5	343,1	319,0	298,1	284,1	267,4	256,1	239,2	227,3	213,9	202,0	189,4	180,0	169,9	159,5	150,3	142,0	134,7
Spacing in cm = 60	370,4	347,2	326,8	314,5	292,4	273,2	260,4	245,1	234,7	219,3	208,3	196,1	185,2	173,6	165,0	155,8	146,2	137,7	130,2	123,5
Spacing in cm = 65	341,9	320,5	301,7	290,3	269,9	252,2	240,4	226,2	216,7	202,4	192,3	181,0	170,9	160,3	152,3	143,8	135,0	127,1	120,2	114,0
Spacing in cm = 70	317,5	297,6	280,1	269,5	250,6	234,2	223,2	210,1	201,2	188,0	178,6	168,1	158,7	148,8	141,4	133,5	125,3	118,1	111,6	105,8
Spacing in cm = 75	296,3	277,8	261,4	251,6	233,9	218,6	208,3	196,1	187,8	175,4	166,7	156,9	148,1	138,9	132,0	124,6	117,0	110,2	104,2	98,8
Spacing in cm = 80	277,8	260,4	245,1	235,8	219,3	204,9	195,3	183,8	176,1	164,5	156,3	147,1	138,9	130,2	123,8	116,8	109,6	103,3	97,7	92,6
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 54 Holes -

No. holes: 54	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	40	43	45	48	51	54	57	60	63	67	71	75	80	85	90	95	101	108	114	120
No. Seeds / m	25,0	23,3	22,2	20,8	19,6	18,5	17,5	16,7	15,9	14,9	14,1	13,3	12,5	11,8	11,1	10,5	9,9	9,3	8,8	8,3
Spacing in cm = 40	625,0	581,4	555,6	520,8	490,2	463,0	438,6	416,7	396,8	373,1	352,1	333,3	312,5	294,1	277,8	263,2	247,5	231,5	219,3	208,3
Spacing in cm = 45	555,6	516,8	493,8	463,0	435,7	411,5	389,9	370,4	352,7	331,7	313,0	296,3	277,8	261,4	246,9	233,9	220,0	205,8	194,9	185,2
Spacing in cm = 50	500,0	465,1	444,4	416,7	392,2	370,4	350,9	333,3	317,5	298,5	281,7	266,7	250,0	235,3	222,2	210,5	198,0	185,2	175,4	166,7
Spacing in cm = 55	454,5	422,8	404,0	378,8	356,5	336,7	319,0	303,0	288,6	271,4	256,1	242,4	227,3	213,9	202,0	191,4	180,0	168,4	159,5	151,5
Spacing in cm = 60	416,7	387,6	370,4	347,2	326,8	308,6	292,4	277,8	264,6	248,8	234,7	222,2	208,3	196,1	185,2	175,4	165,0	154,3	146,2	138,9
Spacing in cm = 65	384,6	357,8	341,9	320,5	301,7	284,9	269,9	256,4	244,2	229,6	216,7	205,1	192,3	181,0	170,9	161,9	152,3	142,5	135,0	128,2
Spacing in cm = 70	357,1	332,2	317,5	297,6	280,1	264,6	250,6	238,1	226,8	213,2	201,2	190,5	178,6	168,1	158,7	150,4	141,4	132,3	125,3	119,0
Spacing in cm = 75	333,3	310,1	296,3	277,8	261,4	246,9	233,9	222,2	211,6	199,0	187,8	177,8	166,7	156,9	148,1	140,4	132,0	123,5	117,0	111,1
Spacing in cm = 80	312,5	290,7	277,8	260,4	245,1	231,5	219,3	208,3	198,4	186,6	176,1	166,7	156,3	147,1	138,9	131,6	123,8	115,7	109,6	104,2
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 70 Holes -

No. holes: 70	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	31	33	35	37	39	42	44	46	49	52	55	58	62	66	69	73	78	83	88	93
No. Seeds / m	32,3	30,3	28,6	27,0	25,6	23,8	22,7	21,7	20,4	19,2	18,2	17,2	16,1	15,2	14,5	13,7	12,8	12,0	11,4	10,8
Spacing in cm = 40	806,5	757,6	714,3	675,7	641,0	595,2	568,2	543,5	510,2	480,8	454,5	431,0	403,2	378,8	362,3	342,5	320,5	301,2	284,1	268,8
Spacing in cm = 45	716,8	673,4	634,9	600,6	569,8	529,1	505,1	483,1	453,5	427,4	404,0	383,1	358,4	336,7	322,1	304,4	284,9	267,7	252,5	238,9
Spacing in cm = 50	645,2	606,1	571,4	540,5	512,8	476,2	454,5	434,8	408,2	384,6	363,6	344,8	322,6	303,0	289,9	274,0	256,4	241,0	227,3	215,1
Spacing in cm = 55	586,5	551,0	519,5	491,4	466,2	432,9	413,2	395,3	371,1	349,7	330,6	313,5	293,3	275,5	263,5	249,1	233,1	219,1	206,6	195,5
Spacing in cm = 60	537,6	505,1	476,2	450,5	427,4	396,8	378,8	362,3	340,1	320,5	303,0	287,4	268,8	252,5	241,5	228,3	213,7	200,8	189,4	179,2
Spacing in cm = 65	496,3	466,2	439,6	415,8	394,5	366,3	349,7	334,4	314,0	295,9	279,7	265,3	248,1	233,1	223,0	210,7	197,2	185,4	174,8	165,4
Spacing in cm = 70	460,8	432,9	408,2	386,1	366,3	340,1	324,7	310,6	291,5	274,7	259,7	246,3	230,4	216,5	207,0	195,7	183,2	172,1	162,3	153,6
Spacing in cm = 75	430,1	404,0	381,0	360,4	341,9	317,5	303,0	289,9	272,1	256,4	242,4	229,9	215,1	202,0	193,2	182,6	170,9	160,6	151,5	143,4
Spacing in cm = 80	403,2	378,8	357,1	337,8	320,5	297,6	284,1	271,7	255,1	240,4	227,3	215,5	201,6	189,4	181,2	171,2	160,3	150,6	142,0	134,4
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 80 Holes -

No. holes: 80	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	27	29	30	32	34	36	38	41	43	45	48	51	54	57	61	64	68	73	77	81
No. Seeds / m	37,0	34,5	33,3	31,3	29,4	27,8	26,3	24,4	23,3	22,2	20,8	19,6	18,5	17,5	16,4	15,6	14,7	13,7	13,0	12,3
Spacing in cm = 40	925,9	862,1	833,3	781,3	735,3	694,4	657,9	609,8	581,4	555,6	520,8	490,2	463,0	438,6	409,8	390,6	367,6	342,5	324,7	308,6
Spacing in cm = 45	823,0	766,3	740,7	694,4	653,6	617,3	584,8	542,0	516,8	493,8	463,0	435,7	411,5	389,9	364,3	347,2	326,8	304,4	288,6	274,3
Spacing in cm = 50	740,7	689,7	666,7	625,0	588,2	555,6	526,3	487,8	465,1	444,4	416,7	392,2	370,4	350,9	327,9	312,5	294,1	274,0	259,7	246,9
Spacing in cm = 55	673,4	627,0	606,1	568,2	534,8	505,1	478,5	443,5	422,8	404,0	378,8	356,5	336,7	319,0	298,1	284,1	267,4	249,1	236,1	224,5
Spacing in cm = 60	617,3	574,7	555,6	520,8	490,2	463,0	438,6	406,5	387,6	370,4	347,2	326,8	308,6	292,4	273,2	260,4	245,1	228,3	216,5	205,8
Spacing in cm = 65	569,8	530,5	512,8	480,8	452,5	427,4	404,9	375,2	357,8	341,9	320,5	301,7	284,9	269,9	252,2	240,4	226,2	210,7	199,8	189,9
Spacing in cm = 70	529,1	492,6	476,2	446,4	420,2	396,8	375,9	348,4	332,2	317,5	297,6	280,1	264,6	250,6	234,2	223,2	210,1	195,7	185,5	176,4
Spacing in cm = 75	493,8	459,8	444,4	416,7	392,2	370,4	350,9	325,2	310,1	296,3	277,8	261,4	246,9	233,9	218,6	208,3	196,1	182,6	173,2	164,6
Spacing in cm = 80	463,0	431,0	416,7	390,6	367,6	347,2	328,9	304,9	290,7	277,8	260,4	245,1	231,5	219,3	204,9	195,3	183,8	171,2	162,3	154,3
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

Metering output table - Disc 100 Holes -

No. holes: 100	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	22	23	24	26	27	29	31	33	34	36	38	41	43	46	49	51	55	58	62	65
No. Seeds / m	45,5	43,5	41,7	38,5	37,0	34,5	32,3	30,3	29,4	27,8	26,3	24,4	23,3	21,7	20,4	19,6	18,2	17,2	16,1	15,4
Spacing in cm = 40	#####	#####	#####	961,5	925,9	862,1	806,5	757,6	735,3	694,4	657,9	609,8	581,4	543,5	510,2	490,2	454,5	431,0	403,2	384,6
Spacing in cm = 45	#####	966,2	925,9	854,7	823,0	766,3	716,8	673,4	653,6	617,3	584,8	542,0	516,8	483,1	453,5	435,7	404,0	383,1	358,4	341,9
Spacing in cm = 50	909,1	869,6	833,3	769,2	740,7	689,7	645,2	606,1	588,2	555,6	526,3	487,8	465,1	434,8	408,2	392,2	363,6	344,8	322,6	307,7
Spacing in cm = 55	826,4	790,5	757,6	699,3	673,4	627,0	586,5	551,0	534,8	505,1	478,5	443,5	422,8	395,3	371,1	356,5	330,6	313,5	293,3	279,7
Spacing in cm = 60	757,6	724,6	694,4	641,0	617,3	574,7	537,6	505,1	490,2	463,0	438,6	406,5	387,6	362,3	340,1	326,8	303,0	287,4	268,8	256,4
Spacing in cm = 65	699,3	668,9	641,0	591,7	569,8	530,5	496,3	466,2	452,5	427,4	404,9	375,2	357,8	334,4	314,0	301,7	279,7	265,3	248,1	236,7
Spacing in cm = 70	649,4	621,1	595,2	549,5	529,1	492,6	460,8	432,9	420,2	396,8	375,9	348,4	332,2	310,6	291,5	280,1	259,7	246,3	230,4	219,8
Spacing in cm = 75	606,1	579,7	555,6	512,8	493,8	459,8	430,1	404,0	392,2	370,4	350,9	325,2	310,1	289,9	272,1	261,4	242,4	229,9	215,1	205,1
Spacing in cm = 80	568,2	543,5	520,8	480,8	463,0	431,0	403,2	378,8	367,6	347,2	328,9	304,9	290,7	271,7	255,1	245,1	227,3	215,5	201,6	192,3
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

How to read the calibration charts

Use the chart corresponding to the selected disk type (According to the number of holes).

The chart enables determining the position of the gearbox gearwheels according to the spacing between the seed drill rows and the number of plants required per hectare.

Example:

For Maize seeds: 27 hole disk.

Seed row spacing: 75 cm (2'5'').

Required population: 83000 plants/hectare.

Metering output table - Disc 27 Holes -

No. holes: 27	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	80	85	90	95	101	108	114	120	127	135	143	150	160	170	180	190	203	215	228	241
No. Seeds / m	12,5	11,8	11,1	10,5	9,9	9,3	8,8	8,3	7,9	7,4	7,0	6,7	6,3	5,9	5,6	5,3	4,9	4,7	4,4	4,1
Spacing in cm = 40	312,5	294,1	277,8	263,2	247,5	231,5	219,3	208,3	196,9	185,2	174,8	166,7	156,3	147,1	138,9	131,6	123,2	116,3	109,6	103,7
Spacing in cm = 45	277,8	261,4	246,9	233,9	220,0	205,8	194,9	185,2	175,0	164,6	155,4	148,1	138,9	130,7	123,5	117,0	109,5	103,4	97,5	92,2
Spacing in cm = 50	250,0	235,3	222,2	210,5	198,0	185,2	175,4	166,7	157,5	148,1	139,9	133,3	125,0	117,6	111,1	105,3	98,5	93,0	87,7	83,0
Spacing in cm = 55	227,3	213,9	202,0	191,4	180,0	168,4	159,5	151,5	143,2	134,7	127,1	121,2	113,6	107,0	101,0	95,7	89,6	84,6	79,7	75,4
Spacing in cm = 60	208,3	196,1	185,2	175,4	165,0	154,3	146,2	138,9	131,2	123,5	116,6	111,1	104,2	98,0	92,6	87,7	82,1	77,5	73,1	69,2
Spacing in cm = 65	192,3	181,0	170,9	161,9	152,3	142,5	135,0	128,2	121,1	114,0	107,6	102,6	96,2	90,5	85,5	81,0	75,8	71,6	67,5	63,8
Spacing in cm = 70	178,6	168,1	158,7	150,4	141,4	132,3	125,3	119,0	112,5	105,8	99,9	95,2	89,3	84,0	79,4	75,2	70,4	66,4	62,7	59,3
Spacing in cm = 75	166,7	156,9	148,1	140,4	132,0	123,5	117,0	111,1	105,0	98,8	93,2	88,9	83,3	78,4	74,1	70,2	65,7	62,0	58,5	55,3
Spacing in cm = 80	156,3	147,1	138,9	131,6	123,8	115,7	109,6	104,2	98,4	92,6	87,4	83,3	78,1	73,5	69,4	65,8	61,6	58,1	54,8	51,9
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

To obtain a number of plants (1) close to the required number with a spacing between rows (2) of 75 cm (2'5''), position gearbox gearwheels on ratio **D1** (3).

The chart also indicates the spacing between seeds (4) and the theoretical number of seeds (5) over 1 m (3'3'').

It is possible to determine the gearbox ration as from this data.

If in between 2 values in the adjustment chart, select the setting that gives the less plants per hectare.

When the chart does not correspond to the disk used (number of holes), use "**1** hole disk" chart:

Metering output table - Disc **1** Holes -																				
No. holes: 1	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	2161	2296	2431	2566	2737	2908	3079	3250	3421	3635	3849	4063	4322	4592	4862	5132	5474	5816	6159	6501
No. Seeds / m	0,463	0,436	0,411	0,390	0,365	0,344	0,325	0,308	0,292	0,275	0,260	0,246	0,231	0,218	0,206	0,195	0,183	0,172	0,162	0,154
Spacing in cm = 55	8,41	7,92	7,48	7,09	6,64	6,25	5,91	5,59	5,31	5,00	4,72	4,47	4,21	3,96	3,74	3,54	3,32	3,13	2,95	2,80
Spacing in cm = 60	7,71	7,26	6,86	6,50	6,09	5,73	5,41	5,13	4,87	4,59	4,33	4,10	3,86	3,63	3,43	3,25	3,04	2,87	2,71	2,56
Spacing in cm = 65	7,12	6,70	6,33	6,00	5,62	5,29	5,00	4,73	4,50	4,23	4,00	3,79	3,56	3,35	3,16	3,00	2,81	2,65	2,50	2,37
Spacing in cm = 70	6,61	6,22	5,88	5,57	5,22	4,91	4,64	4,40	4,18	3,93	3,71	3,52	3,31	3,11	2,94	2,78	2,61	2,46	2,32	2,20
Spacing in cm = 75	6,17	5,81	5,48	5,20	4,87	4,59	4,33	4,10	3,90	3,67	3,46	3,28	3,08	2,90	2,74	2,60	2,44	2,29	2,16	2,05
Spacing in cm = 80	5,78	5,44	5,14	4,87	4,57	4,30	4,06	3,85	3,65	3,44	3,25	3,08	2,89	2,72	2,57	2,44	2,28	2,15	2,03	1,92
	Thousands of seeds per hectare																			
The quantities indicated are given by way of illustration only. They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.																				

The 1 hole disk chart enables determining the following values:

- Number of plants per hectare.
- Spacing between seeds.
- Number of seeds per meter.

Example:

Seed row spacing: 75 cm (2'5'').

24 hole disk.

Selected speed ratio: A1

Number of plants per hectare:

P = Number of plants per hectare.

N = Number of holes on the disk used.

N1 = Number of seeds with 1 hole disk.

P = (N x N1) x1000

Example:

P = (24 x 6.17) x 1000 = 148080 seeds/ha

Spacing between seeds:

E = Spacing between seeds.

E1 = Spacing between seeds with 1 hole disk.

N = Number of holes on the disk used.

E = E1 / N

Example:

E = 2161 / 24 = 90 mm (3.5'')

Number of seeds per meter:

N1 = Number of seeds per meter.

N2 = Number of seeds per meter with 1 hole disk.

N = Number of holes on the disk used.

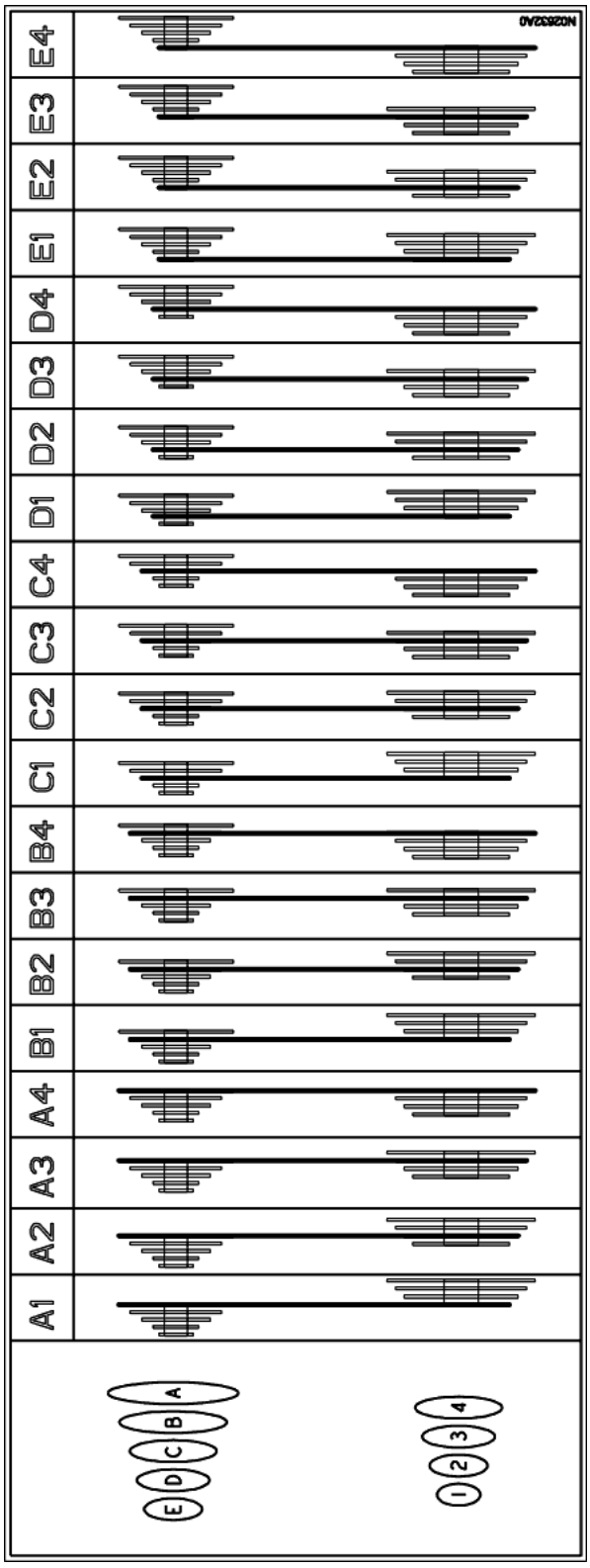
N1 = N2 x N

Example:

N1 = 0.463 x 24 = 11.1 Seeds per meter.

Adjustment of the gearbox

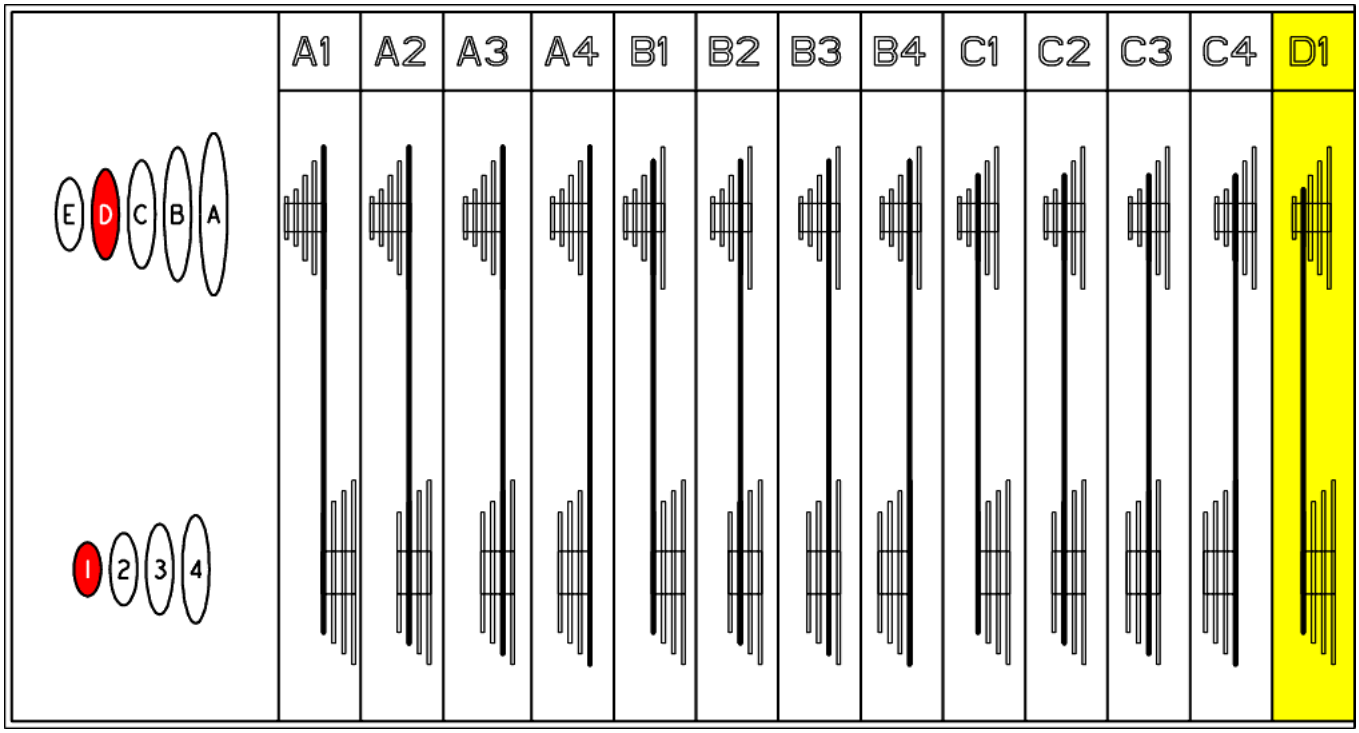
Combination chart



Adjust gearbox gearwheel and chain position according to the ratio recommended in the calibration chart.

Example:

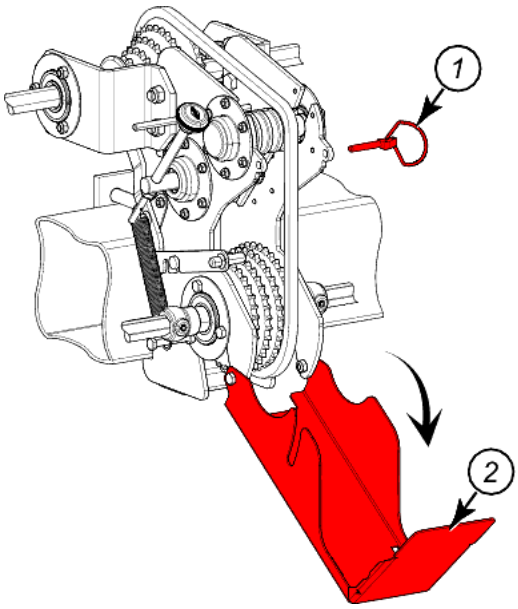
Ratio to adjust: D1.



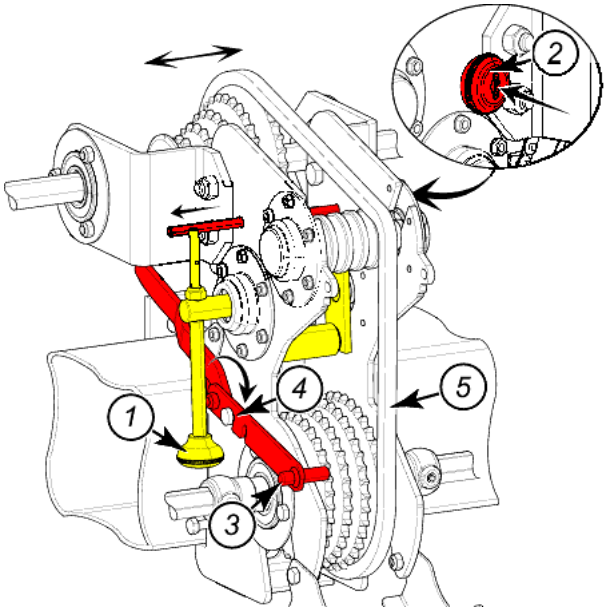
- Position chain on upper level gearwheel **D**.
- Position chain on lower level gearwheel **1**.

Variation of 6 % between each ratio.

Adjustment:

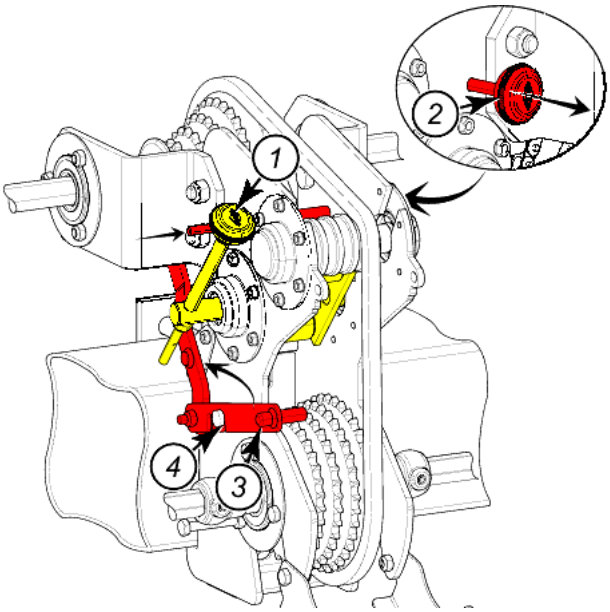


- Remove lynch pin (1).
- Open gearbox (2).



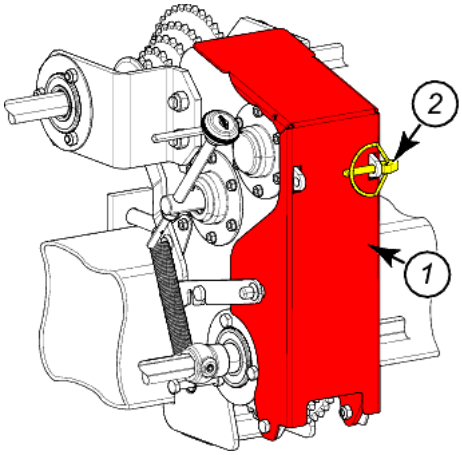
- Lower lever (1) until chain tension is loosened.
- Push handle (2) to lock lever (1) in low position.
- Position lever (3) in notch (4) to enable moving the upper level gearwheels sideways.
- Position chain (5) on the recommended gearwheels.

- Position lever (3) in notch (4) to lock upper level gearwheels.



Check that chain and gearwheels are in line.

- Maintain lever (1) downwards and pull handle (2) to unlock the lever.
- Lift lever (1) to retension the chain.



- Close gearbox (1).
- Insert and lock lynch pin (2).

Checking the number of plants per hectare

2 methods are possible:

- Checking by counting over a set distance.
- Checking the spacing between seeds.

Checking by counting over a set distance

Seed row spacing	Counting length
30 cm (1.18'')	33.33 m (109'4'')
35 cm (1.38'')	28.57 m (93'9'')
40 cm (1.57'')	25.00 m (82')
45 cm (1.77'')	22.22 m (72'11'')
50 cm (1.97'')	20.00 m (65'7'')
55 cm (2.16'')	18.18 m (59'8'')
60 cm (2.36'')	16.66 m (54'8'')
65 cm (2.56'')	15.38 m (50'5'')
70 cm (2.75'')	14.28 m (46'10'')
75 cm (2.95'')	13.30 m (43'8'')
80 cm (3.15'')	12.50 m (41')

Example:

Seed row spacing: 75 cm (2'5'').

The seed count must be made over a length of 13.30 m (43'8'').

The count gives 83 seeds over a length of 13.30 m (43'8'').

Multiply the number of seeds per 1000:

83 x 1000 = 83000 seeds/ha.

The KMS412 control box enables knowing instantaneously the average number of plants sown per hectare.

If the distance between the real population and the population target exceeds 4 %, the difference can be reduced by modifying the gearbox ratio.

Checking the spacing between seeds

- Uncover 11 seeds on the seeding line.
- Measure distance D between the first and eleventh seed.
- Divide the measured distance by 10 to obtain the spacing between two seeds.

Example:

For Maize seeds: 27 hole disk.

Seed row spacing: 75 cm (2’5’’).

Required population: 83000 plants/hectare.

Distance (D) measured between the first and eleventh seed: 1600 mm (5’3’’).

Seed spacing:

1600 / 10 = 160 mm (6.3’’).

Compare the average distance measured with value (1) indicated in the chart. Modify settings if necessary.

Metering output table - Disc **27** Holes -

No. holes: 27	20-SPEED-GEARBOX																			
Gearbox position	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	E1	E2	E3	E4
Seed spacing (mm)	80	85	90	95	101	108	114	120	127	135	143	150	160	170	180	190	203	215	228	241
No. Seeds / m	12,5	11,8	11,1	10,5	9,9	9,3	8,8	8,3	7,9	7,4	7,0	6,7	6,3	5,9	5,6	5,3	4,9	4,7	4,4	4,1
Spacing in cm = 40	312,5	294,1	277,8	263,2	247,5	231,5	219,3	208,3	196,9	185,2	174,8	166,7	156,3	147,1	138,9	131,6	123,2	116,3	109,6	103,7
Spacing in cm = 45	277,8	261,4	246,9	233,9	220,0	205,8	194,9	185,2	175,0	164,6	155,4	148,1	138,9	130,7	123,5	117,0	109,5	103,4	97,5	92,2
Spacing in cm = 50	250,0	235,3	222,2	210,5	198,0	185,2	175,4	166,7	157,5	148,1	139,9	133,3	125,0	117,6	111,1	105,3	98,5	93,0	87,7	83,0
Spacing in cm = 55	227,3	213,9	202,0	191,4	180,0	168,4	159,5	151,5	143,2	134,7	127,1	121,2	113,6	107,0	101,0	95,7	89,6	84,6	79,7	75,4
Spacing in cm = 60	208,3	196,1	185,2	175,4	165,0	154,3	146,2	138,9	131,2	123,5	116,6	111,1	104,2	98,0	92,6	87,7	82,1	77,5	73,1	69,2
Spacing in cm = 65	192,3	181,0	170,9	161,9	152,3	142,5	135,0	128,2	121,1	114,0	107,6	102,6	96,2	90,5	85,5	81,0	75,8	71,6	67,5	63,8
Spacing in cm = 70	178,6	168,1	158,7	150,4	141,4	132,3	125,3	119,0	112,5	105,8	99,9	95,2	89,3	84,0	79,4	75,2	70,4	66,4	62,7	59,3
Spacing in cm = 75	166,7	156,9	148,1	140,4	132,0	123,5	117,0	111,1	105,0	98,8	93,2	88,9	83,3	78,4	74,1	70,2	65,7	62,0	58,5	55,3
Spacing in cm = 80	156,3	147,1	138,9	131,6	123,8	115,7	109,6	104,2	98,4	92,6	87,4	83,3	78,1	73,5	69,4	65,8	61,6	58,1	54,8	51,9
	Thousands of seeds per hectare																			

The quantities indicated are given by way of illustration only.
They equate to 64.4 revolutions of the wheel shaft per 100 metres of travel.

The KMS412 control box enables knowing instantaneously the average distance between seeds.

■ Adjusting the selector

The selector adjustment must be made after having installed the disks best adapted to the seed variety to sow.

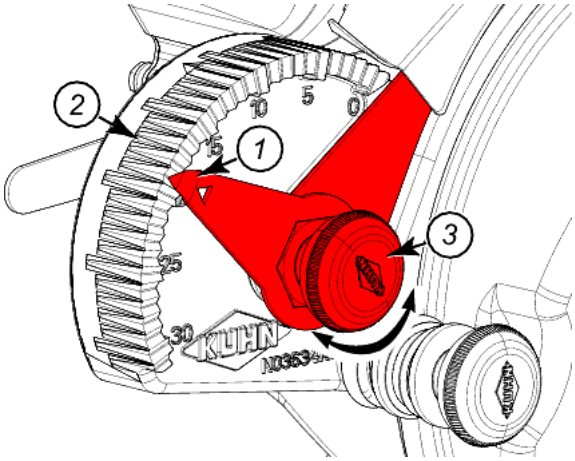
The selector enables preventing misses and doubles along the seeding line.

Pre-setting:

- Position selector (1) on the teeth bottom on the notched quadrant (2).

Plate (2) is graduated from 0 to 30.

- Pull knob (3) to place selector (1) on the recommended position.



	Recommended adjustment range	Position of 1st running test
Maize	15 to 25	21
Sunflower	10 to 16	14
Beet	18 to 25	21

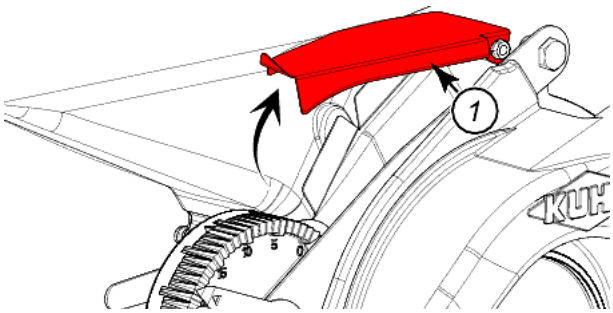
Settings are only indicated for your information.

The seeding unit setting must be adjusted according to the sowing conditions (Work speed and soil nature).

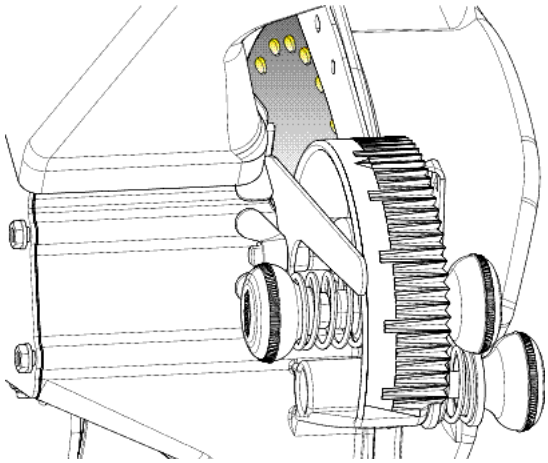
It is indispensable to refine the adjustments when starting the machine and every time the seed variety or type changes.

Stationary checking:

- Fill hoppers with seeds.
- Lift the seed drill.
- Engage the tractor pto and increase speed gradually until reaching the recommended blower speed.
- Disengage the other seeding units by hand (Refer to "Manual seeding unit disengagement" chapter).
- Lift the observation flap (1).

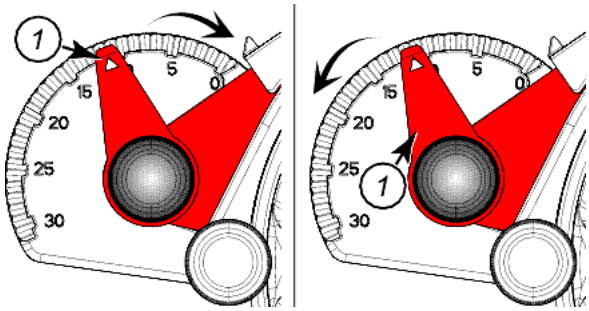


- Turn the seed drill wheel through several revolutions by hand to monitor seed take-up by the disk. If doubles or misses are noticed during the seed take-up control, modify the selector position.



If you notice seed doubles on the disk, move selector (1) of one or several graduations in direction 0.

If you notice seed misses on the disk, move selector (1) of one or several graduations in direction 30.



- Repeat procedure until obtaining the right setting.
- Disengage tractor PTO.

After checking:

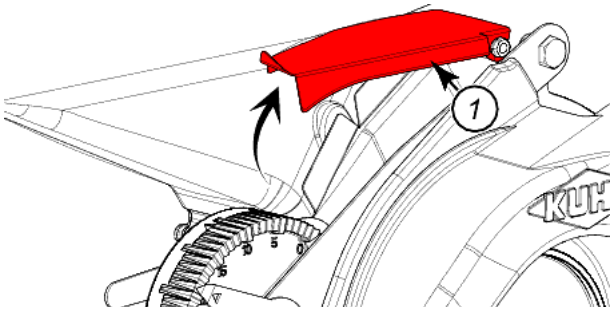
- Lower control hatch and engage all other seeding units.
- Carry out same setting for each seeding unit.

The marking enables identical setting of each seeding unit.

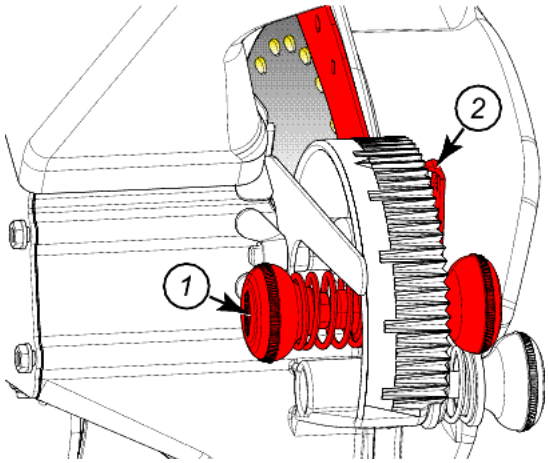
Checking during sowing:

The seed take-up control can be made while following the seed drill during a sowing operation.

- Lift the observation flap (1).

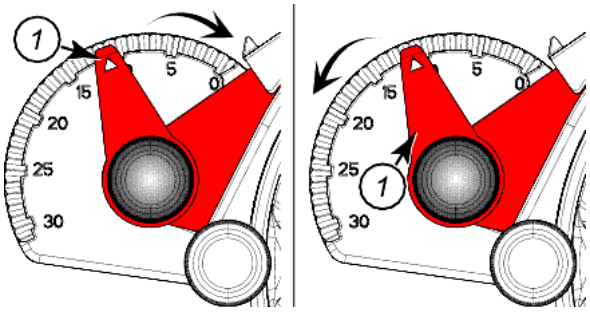


- If doubles or misses are noticed during the seed take-up control, modify the selector position.
- Push knob (1) to place selector (2) in the required position.



If you notice seed doubles on the disk, move selector (1) of one or several graduations in direction 0.

If you notice seed misses on the disk, move selector (1) of one or several graduations in direction 30.



- Repeat procedure until obtaining the right setting.

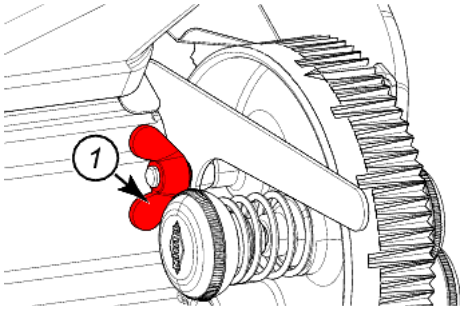
After checking:

- Lower control hatch.
- Carry out same setting for each seeding unit.

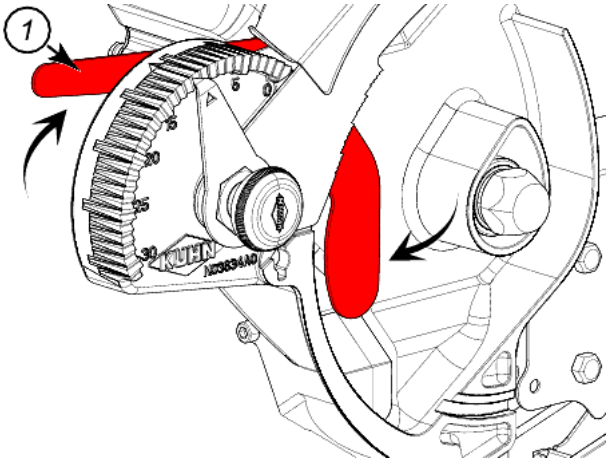
The marking enables identical setting of each seeding unit.

■ Adjusting the seed flow

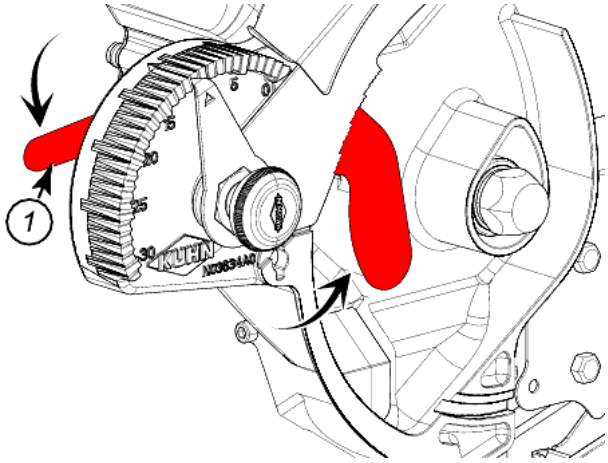
When sowing fluid seeds (sunflower, rapeseed...) on slopes or stony grounds, there is a risk of overpopulation dues to overflow. The reduction spacer may have to be adjusted.



- Loosen the butterfly nut (1).



- Lift output reduction spacer lever (1) to reduce the seed supply to the disks.



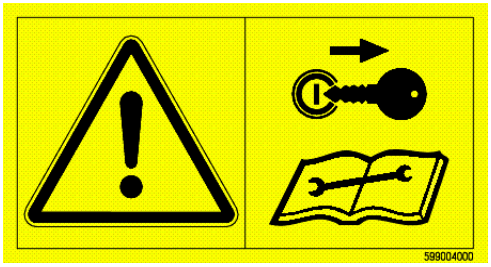
- Lower output reduction spacer lever (1) to increase the seed supply to the disks.

- Tighten the wing nut.

- Repeat procedure on each seeding unit.

3. Machine use

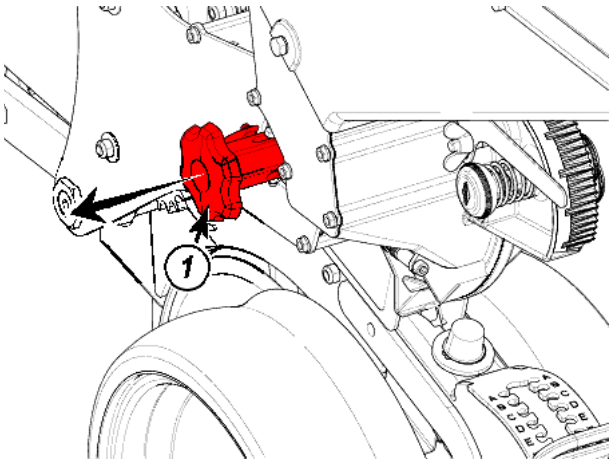
Before carrying out any maintenance on the machine, disengage the power take-off, switch off the tractor engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake



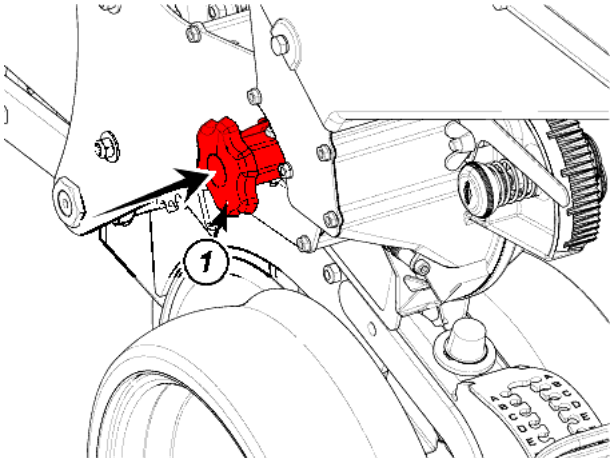
Only work in straight lines. Lift the machine to turn.

■ Manual unit disengagement

To disengage a unit by hand, pull knob (1).



To engage a unit by hand, push and turn slightly knob (1) to facilitate the unit engagement.



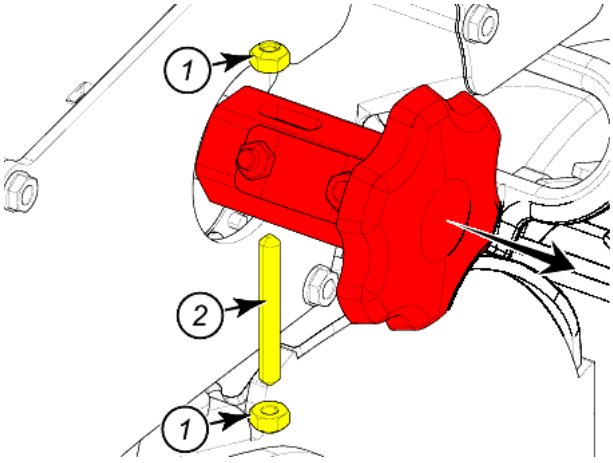
Seeding unit safety

When an incident occurs on one of the sowing units, the safety bolt (2) shears causing the metering unit to stop.

- Disengage the unit.
- Use a punch to remove the remaining shear bolt part.
- Replace the components.

Nuts (1) ***Part no. 80200640****.*
Safety bolt (2) ***Part no. N03273A0****.*

- Torque: 10 daN m (74 lbf ft).



■ Seeding unit high and low position

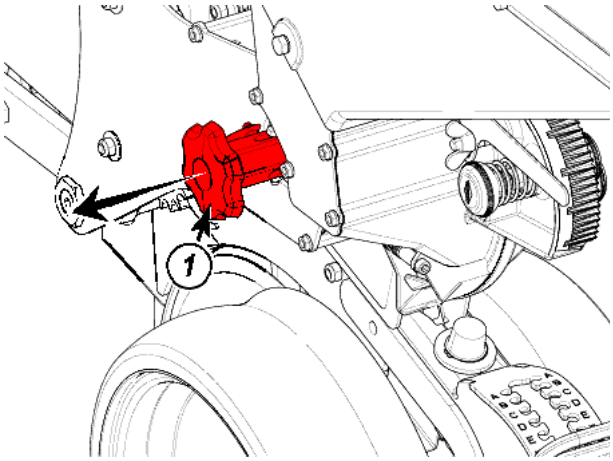
Never lift a seeding unit using the hopper assembly in order not to damage its link with the distribution.

For safety reasons forbidding to handle loads exceeding 25 daN (56.20 lbf) by hand, the seeding unit must be adjusted with the machine coupled to the tractor and in raised position.

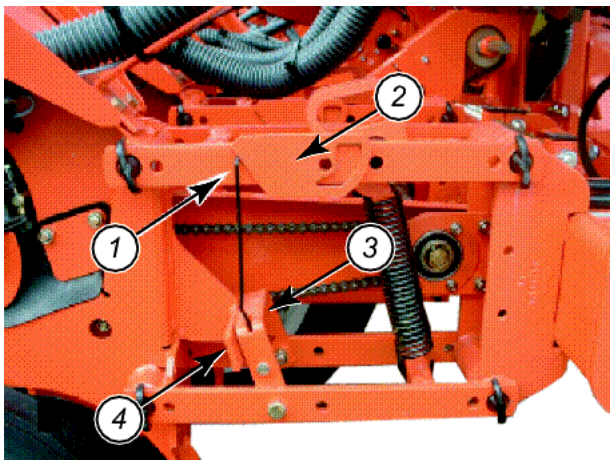
Setting the seeding unit in high position

The high position setting of the seeding units enables sowing on 1 row out of 2.

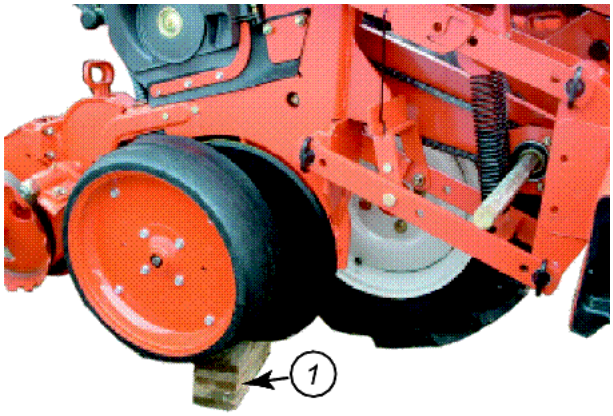
- Disengage the unit using knob (1).



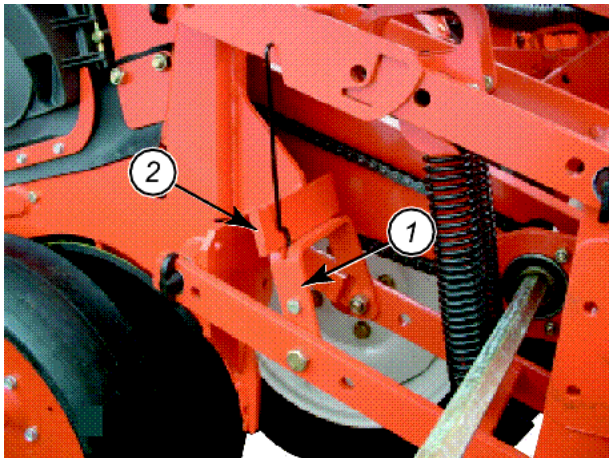
- Position spring (1) behind part (2).
- Lock (3) comes into contact with stop (4).



- Raise machine using tractor lift.
- Position a wedge (1) approximately 15 cm (5.90") thick underneath the seeding unit.

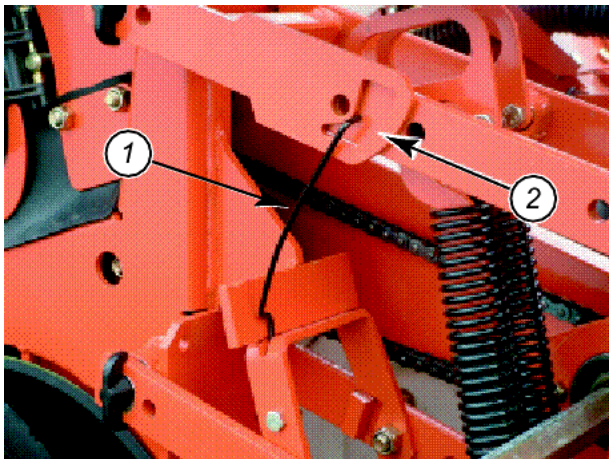


- Lower the machine using the tractor lift linkage.
- Lock (1) automatically positions itself underneath stop (2).

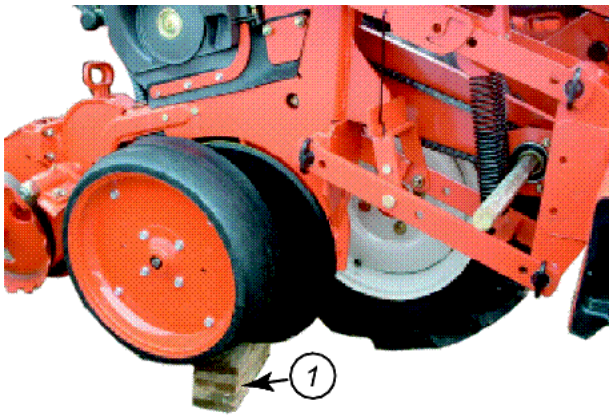


Setting the seeding unit in low position

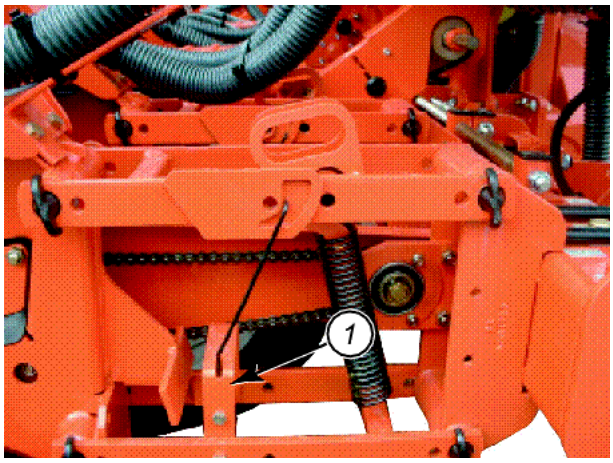
- Position spring (1) inside hole (2).



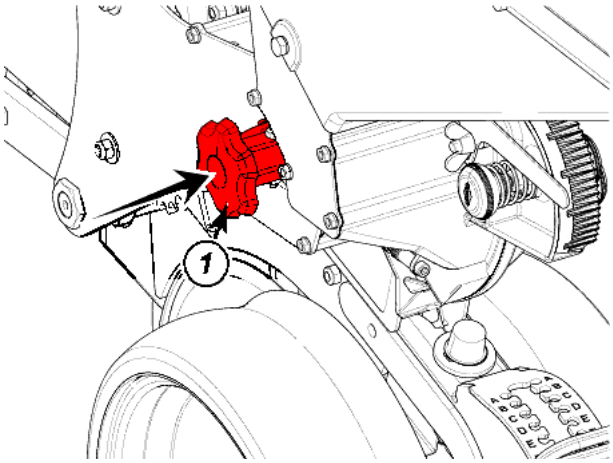
- Raise machine using tractor lift.
- Position a wedge (1) approximately 15 cm (5.90") thick underneath the seeding unit.



- Using the tractor lift linkage, lower machine to release lock (1).



- Engage the seeding unit using knob (1).

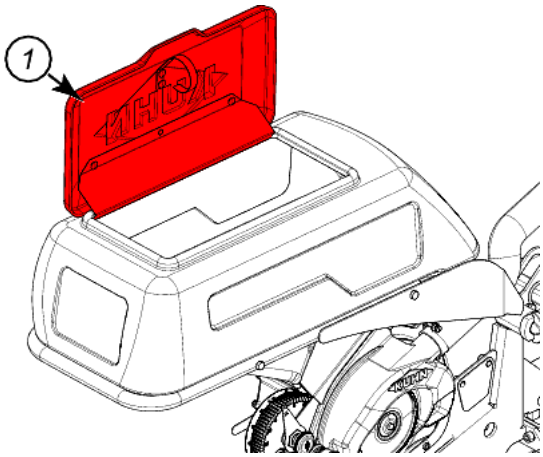


■ Hoppers

Hopper filling

Lower the machine on the ground.

- Open the hopper cover (1).



Before filling:

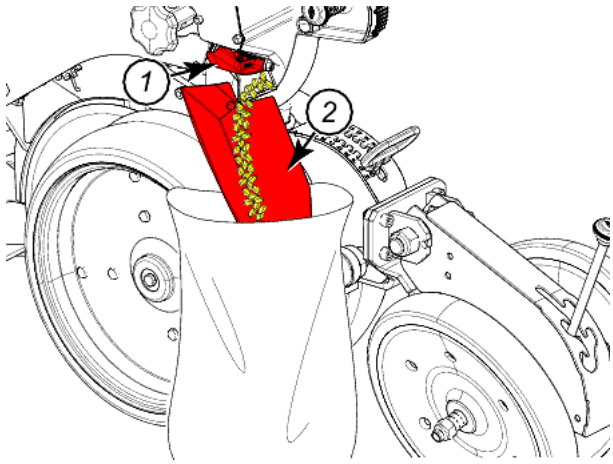
- **Check that there are no foreign bodies in the hoppers.**
- **Check that distribution disks are in the proper position.**
- **Check that distribution emptying hatches are closed.**

Each hopper has a capacity of 52 L (14 US gal).

- Fill sowing unit hoppers in order to have approximately equal seed quantity in all hoppers.
- After filling, close hopper cover.
- Repeat procedure for each hopper.

Emptying the hoppers

When seed variety is changed, or at the end of the season, it is important to fully empty the hoppers.



- Position a container close to the emptying hatch.
- Position funnel (2) underneath emptying hatch (1).
- Pull emptying hatch handle (1).
- Repeat procedure for each hopper.

■ Checking

Seeding depth

It is recommended to check sowing depth every time you refill the different hoppers.

Sowing depth must be matched to the type of seed, the soil and conditions in the seed bed.

A insufficient or excessive depth can harm the emergence quality.

On plots with variable quality soil, the depth setting must be checked and adjusted so as to obtain the correct sowing depth across the whole area of the field.

Distribution

During filling, rotate drive wheel by hand to check the good seed distribution underneath each sowing unit.

Seed application rate

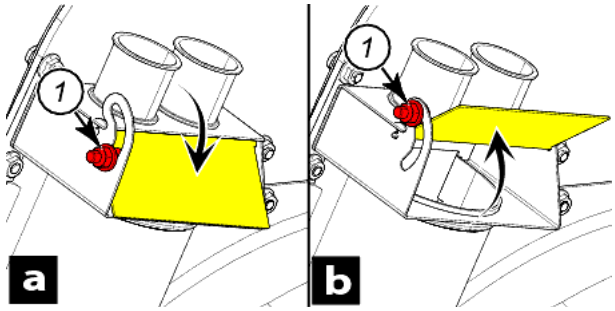
Check and compare the seed quantity used in relation to the adjustments and the area sown.

For each filling, compare residual seed quantity in each hopper. A variation of the residual seed volume in the hopper indicates there is a problem in the sowing unit setting or that the sowing unit is clogged. Search source of malfunction and remedy the problem prior to resuming sowing operation.

Suction adjustment

- Loosen nut (1).
- Position stop in the hole:
  - Minimum suction when stop is placed in the hole bottom position (Position (a)).

Maximum suction when the stop is placed in the hole top position (Position (b)).



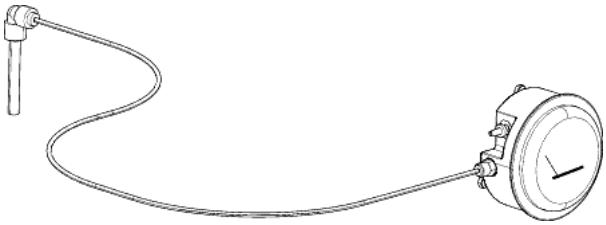
Suction must be comprised between 50 and 65 mbar (or cm water column).

- **A lower suction value can cause misses on the seeding line.**
- **A higher suction value can cause doubles on the seeding line and premature disk wear.**

The measure must be made with disks fitted, seeds engaged on the disks.

For precise measure of the suction value, a vacuometer can be installed on the machine.

Kit no. 1677223.



- Tighten nut (1).

Check that the flap is free to rotate and that no element interfers during its movement.

If the flap is not free to move upwards during seeding, there will be no suction at the distribution disk level.

■ Groundspeed

Adapt the forward speed to the working conditions.

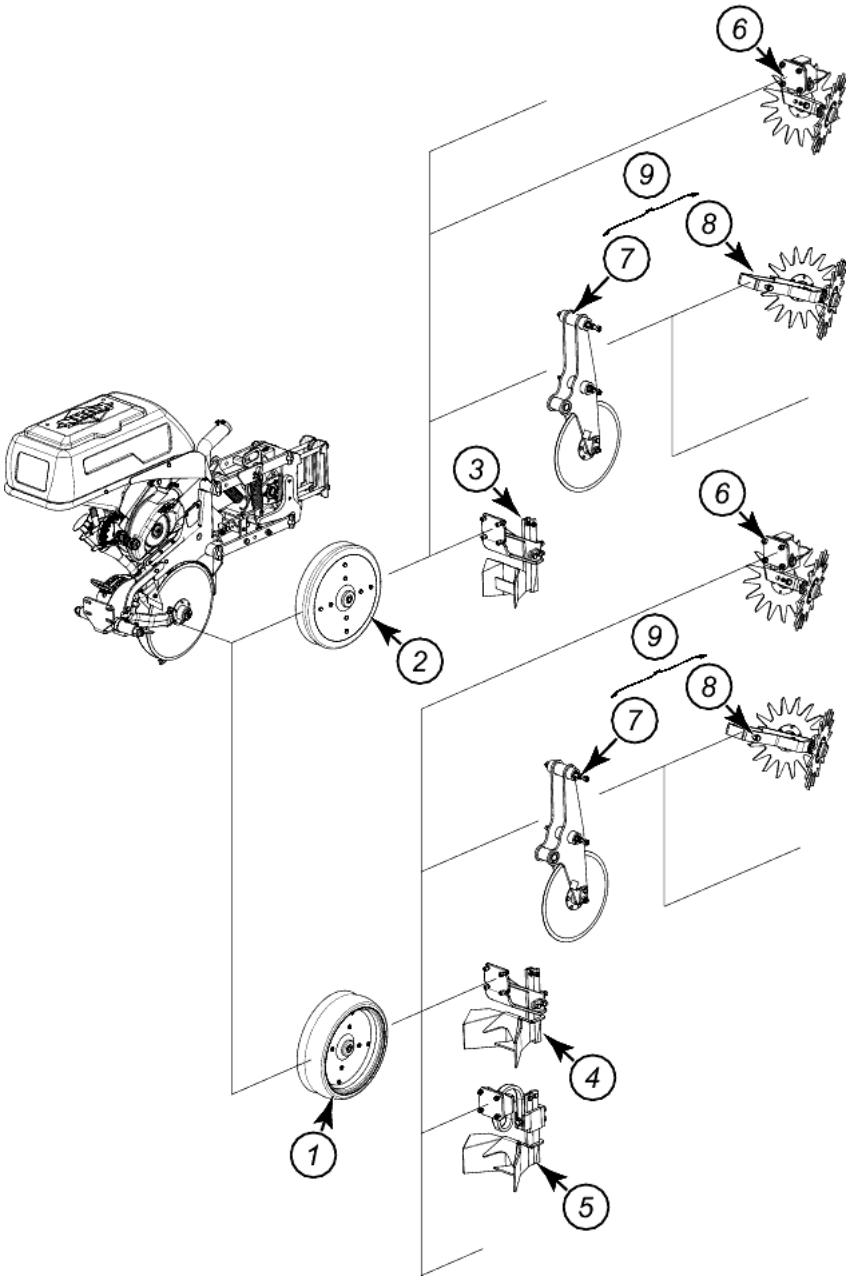
For optimum precision and seeding evenness, it is recommended to travel at a speed comprised between 5 and 7 km/h (3.1 - 4.3 mph).

A variation in the ground speed of 2 km/h (1.2 mph) is equivalent to a loss of accuracy of around 10 %.

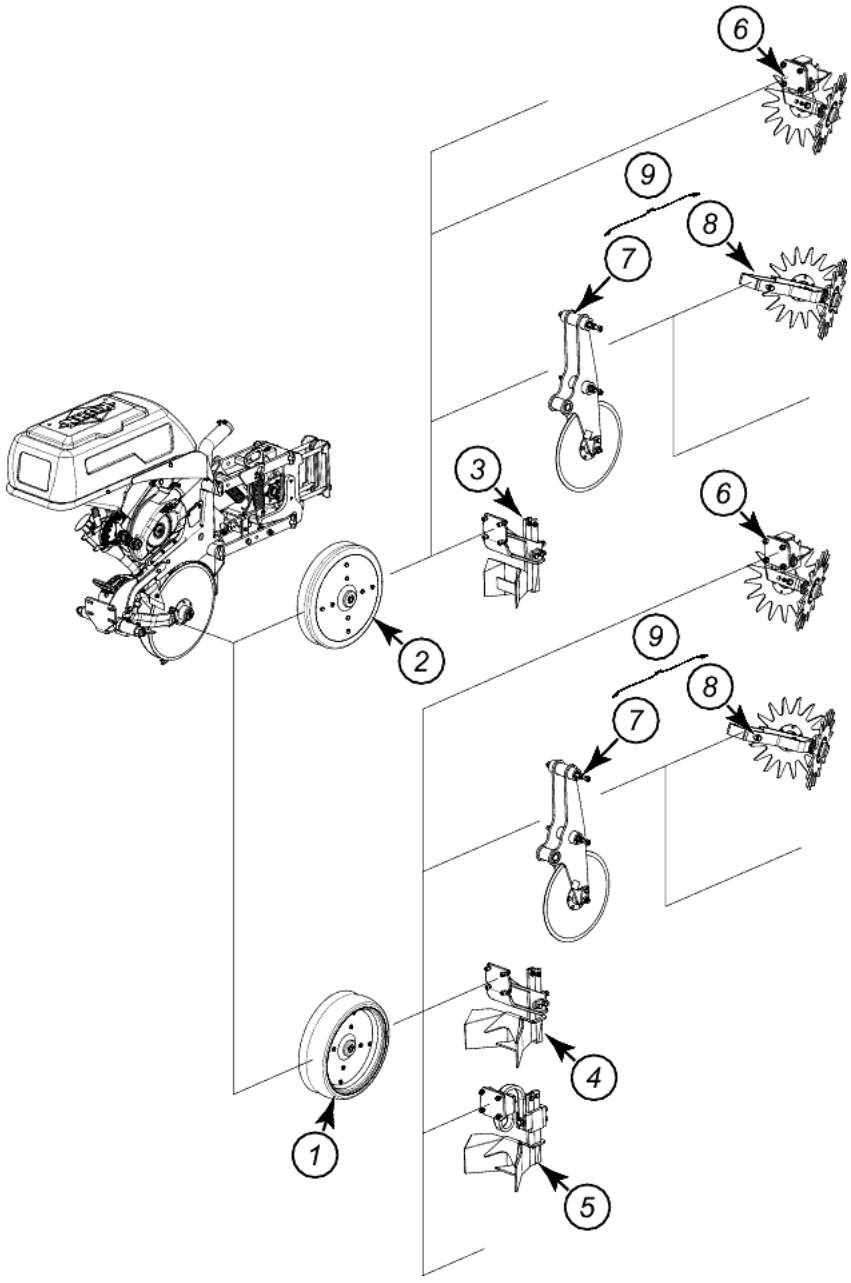
Groundspeed must be adapted to the encountered working conditions (Soil nature and presence or absence of plant residues).

OPTIONAL EQUIPMENT

■ Assembly combinations possible for front equipments

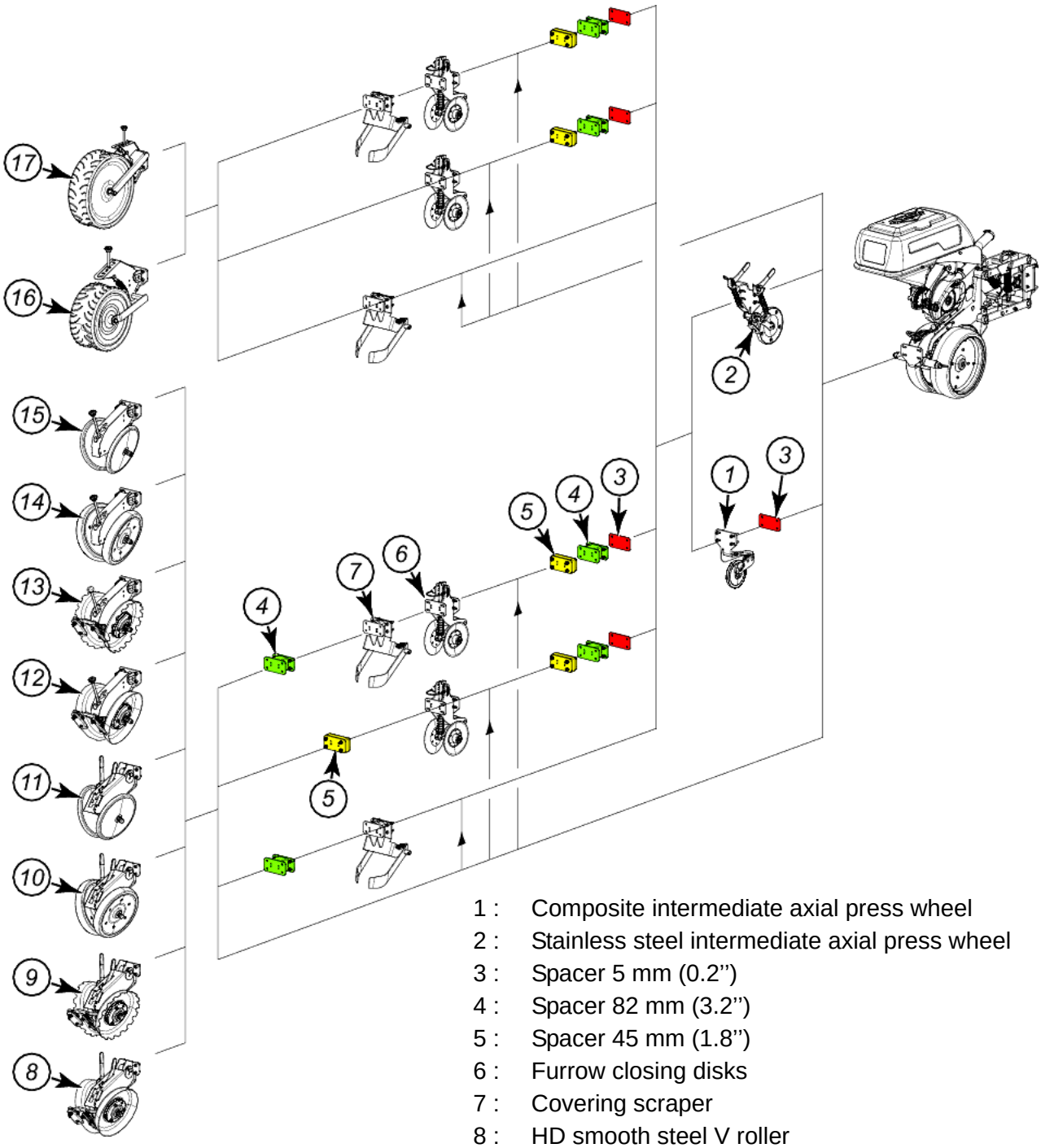


1 : 115 x ø 400 depth control wheels
2 : 65 x ø 400 depth control wheels
3 : Clod clearer with disk coulter for 65 x 400 gauge wheels

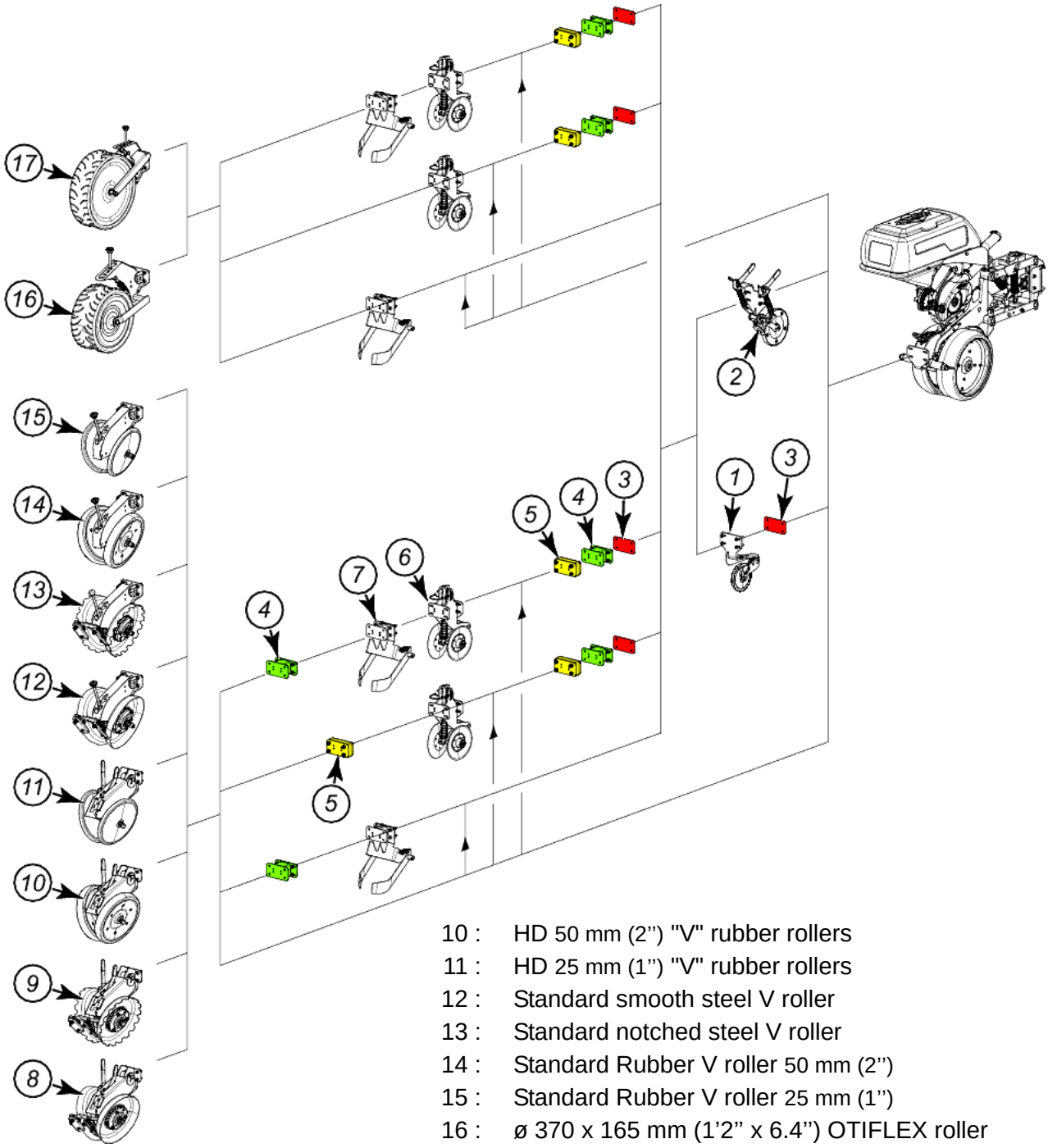


4 : Clod clearer with disk coulter for 115 x 400 gauge wheels
5 : Spring assisted clod clearer
6 : Star shaped trash remover
7 : Opener disc solo
8 : Star-shaped trash remover for furrow opening disk
9 : Furrow opening disk with star-shaped trash remover

■ Assembly combinations possible for rear equipments

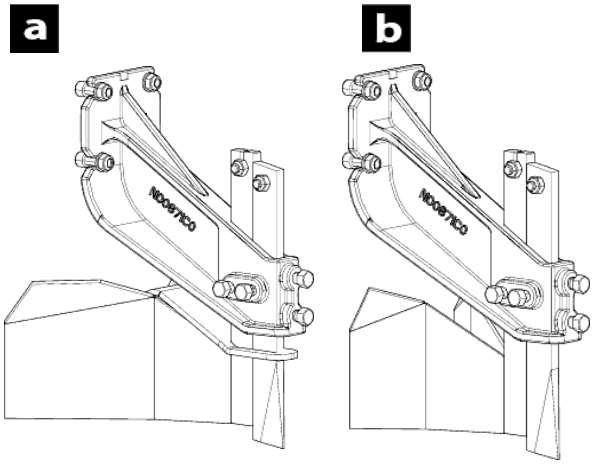


1 : Composite intermediate axial press wheel
2 : Stainless steel intermediate axial press wheel
3 : Spacer 5 mm (0.2'')
4 : Spacer 82 mm (3.2'')
5 : Spacer 45 mm (1.8'')
6 : Furrow closing disks
7 : Covering scraper
8 : HD smooth steel V roller
9 : HD notched steel V roller



10 : HD 50 mm (2'') "V" rubber rollers
11 : HD 25 mm (1'') "V" rubber rollers
12 : Standard smooth steel V roller
13 : Standard notched steel V roller
14 : Standard Rubber V roller 50 mm (2'')
15 : Standard Rubber V roller 25 mm (1'')
16 : ø 370 x 165 mm (1'2'' x 6.4'') OTIFLEX roller
17 : ø 500 x 175 mm (1'7'' x 6.9'') OTIFLEX roller

1. Clod clearer



Kit no. 1676801

Clod clearer with disk coulter for gauge wheels (a).

Kit no. 1676802

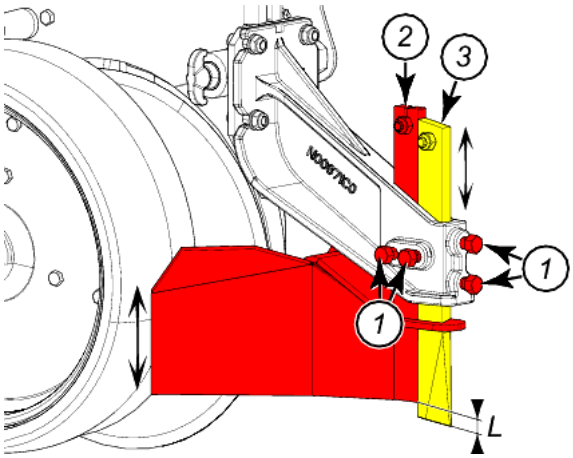
Clod clearer with disk coulter for gauge wheels (b).

The clod clearer is used to clear clods and small stones to prepare for the passage of the lateral gauge wheels and create a furrow in humid soil after having pushed away the dry and clody part.

■ Adjustments

Height adjustment

- Loosen screws (1).
- Set the required height:
  - Clod clearer (2) must be set high enough to prevent seeding unit from engaging in the soil.



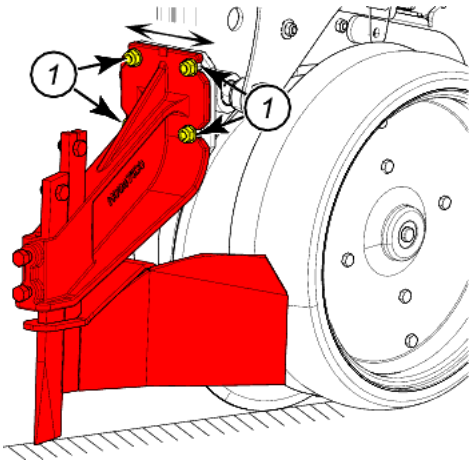
We recommend adjusting the clod clearer at approximately 20 mm (0.78'') from the ground.

  - The independent knife coulter (3) enables preparing the passage for the coulter and facilitates its engagement in the soil.

Respect a distance L of 2 to 6 cm (0.7'' - 2'') between the clod clearer (2) base and the independent coulter (3) base.

- Tighten screws (1).

Lateral adjustment

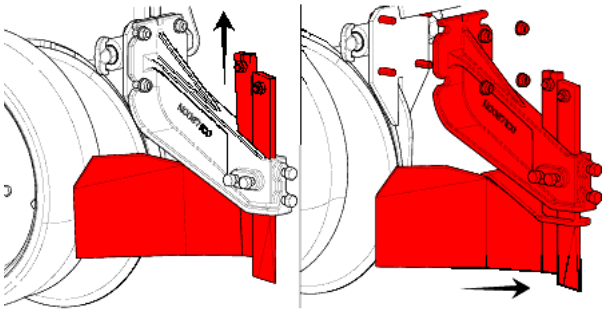


- Unscrew the 4 bolts (1).
- Centre clod clearer (2) with regards to the seeding line.
- Tighten the 4 bolts (1).

Adjust all seeding units to the same settings.

■ Machine use

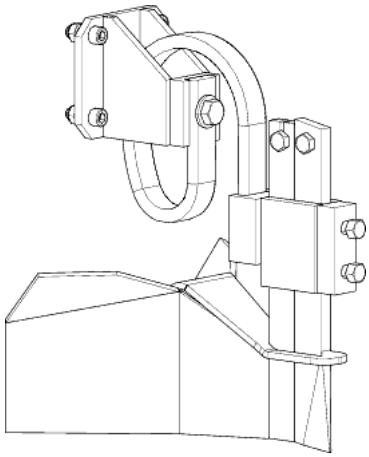
In very wet, sticky or stony conditions, the clod clearer and coulter can be folded upwards or the equipment can be removed from the seed drill.



2. Spring assisted clod clearer

Kit no. 1676803

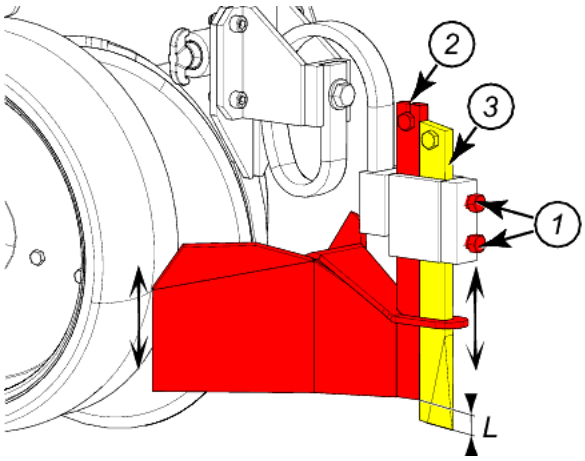
The clod clearer is used to clear clods and small stones to prepare for the passage of the lateral gauge wheels and create a furrow in humid soil after having pushed away the dry and clody part.



■ Adjustments

Height adjustment

- Loosen screws (1).
- Set the required height:
  - Clod clearer (2) must be set high enough to prevent seeding unit from engaging in the soil.



We recommend adjusting the clod clearer at approximately 20 mm (0.78") from the ground.

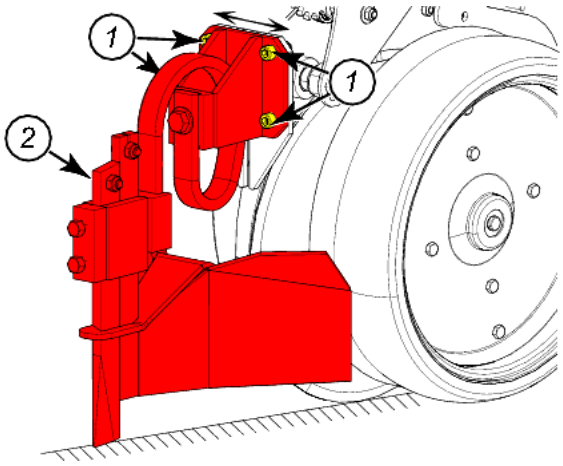
  - The independent knife coulter (3) enables preparing the passage for the coulter and facilitates its engagement in the soil.

Respect a distance L of 2 to 6 cm (0.7" - 2") between the clod clearer (2) base and the independent coulter (3) base.

- Tighten screws (1).

Lateral adjustment

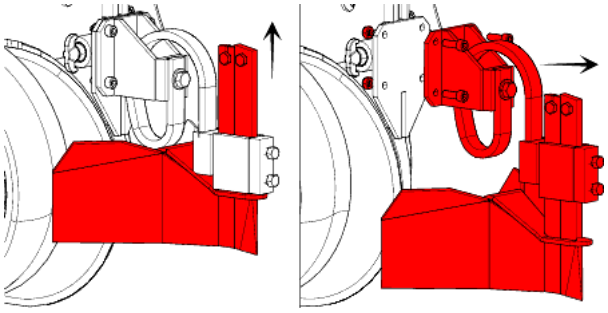
- Unscrew the 4 bolts (1).
- Centre clod clearer (2) with regards to the seeding line.
- Tighten the 4 bolts (1).



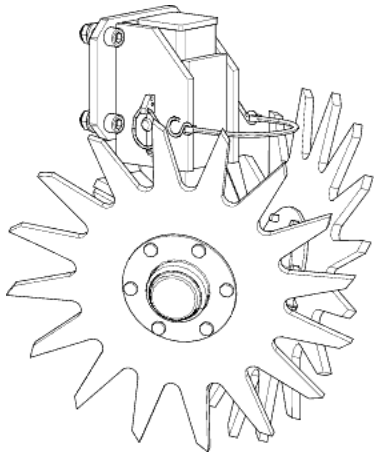
Adjust all seeding units to the same settings.

■ Machine use

In very wet, sticky or stony conditions, the clod clearer and coulter can be folded upwards or the equipment can be removed from the seed drill.



3. Star shaped trash remover



Kit no. 1676783

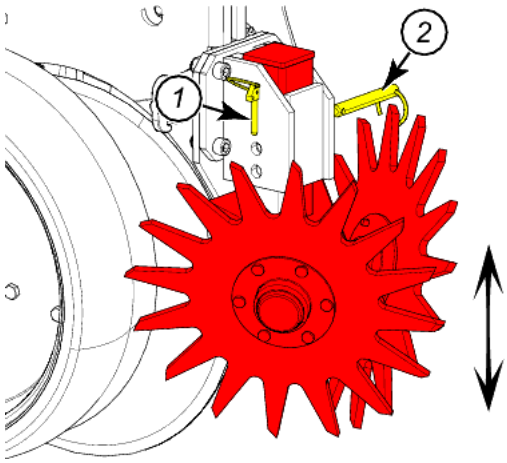
The star-shaped trash remover is used to push aside plant residues in order to prepare for the passage of the seeding unit.

■ Adjustments

Height adjustment

- Remove lynch pin (1).
- Adjust working height using pin (2).

The working height can be adjusted to 10 different positions.



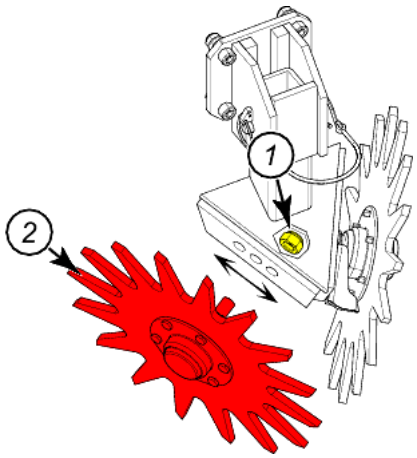
The adjustment range is of 82.5 mm (3.25").

- Insert and lock lynch pin (1).

Working width adjustment

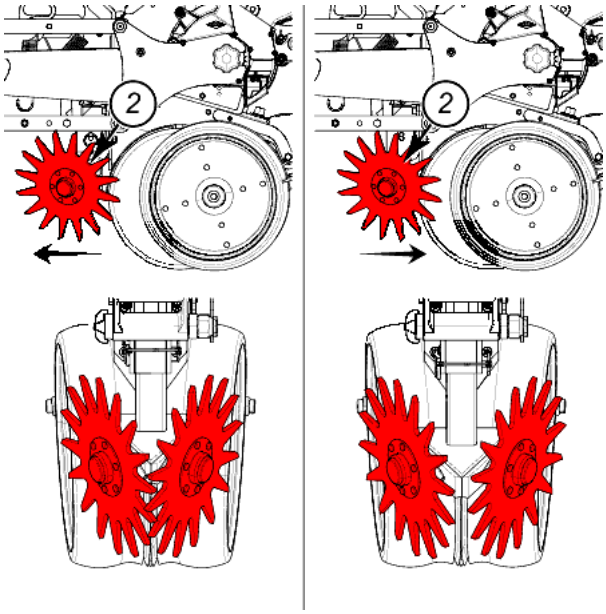
The working width can be adjusted to 3 different positions.

The working width must be adjusted according to the type of residues to push aside.



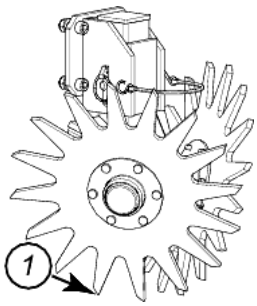
- Remove nut (1).

- Place star-shaped disks (2) in the required position:
  - By moving the star-shaped disks (2) frontwards, organic residues are more easily separated.
  - By moving the star-shaped disks (2) rearwards, the clearing width is increased prior to the passage of the gauge wheels.



- Reinstall nut (1).

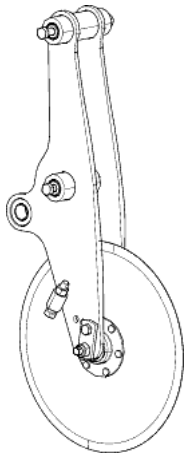
The pointed part (1) of the teeth must always be pointing frontwards in the lower part of the star-shaped disks.



Repeat procedure on the other disk.

Adjust all seeding units to the same settings.

4. Furrow opening disk



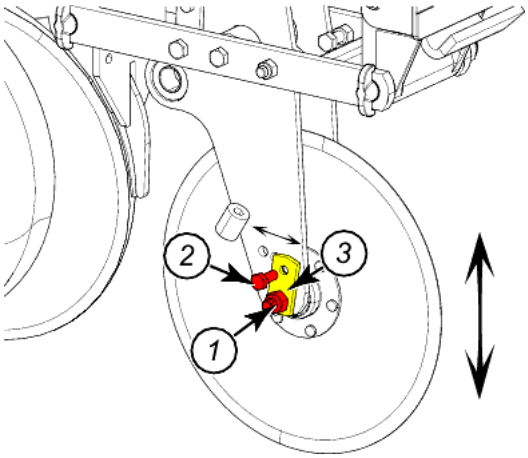
Kit no. 1676775

Opener disc solo.

The circular knife coulter facilitates penetration of the furrow opening disks in plant residues.

The star-shaped trash remover is used to push aside plant residues in order to prepare for the passage of the seeding unit.

■ Adjustment



Furrow opening disk

Height adjustment

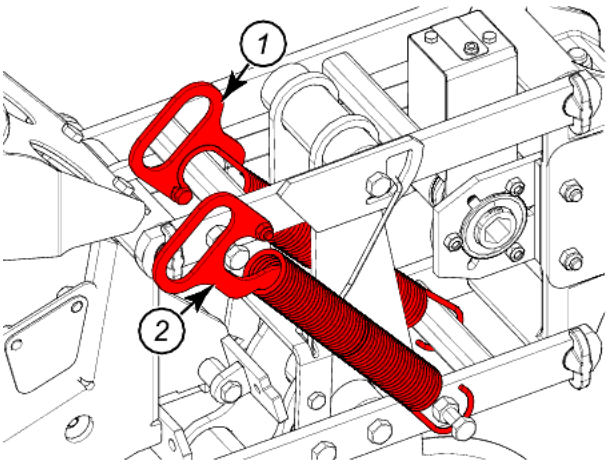
- Unscrew the 2 nuts (1) (1 on each side).
- Loosen the 2 screws (2) (1 on each side).
- Position disk holder (3) in one of the holes to increase or reduce the working depth.

The adjustment range is of 25 mm (0.98").

- Tighten the 2 screws (2) (1 on each side).
- Tighten the 2 nuts (1) (1 on each side).

■ Machine use

Only one spring (1) can be positioned in the centre of the parallelogram. The second spring (2) can be fitted on the right side of the parallelogram.

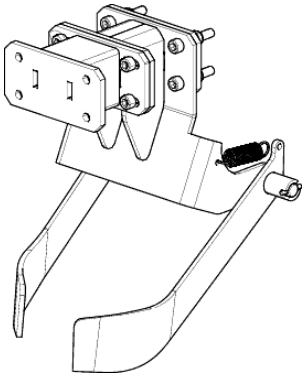


This equipment does not allow the seeding unit to be locked in the raised position.

5. Covering scraper

Kit no. 1676761

The covering scrapers transfers soil in the sowing line for easier furrow closing.

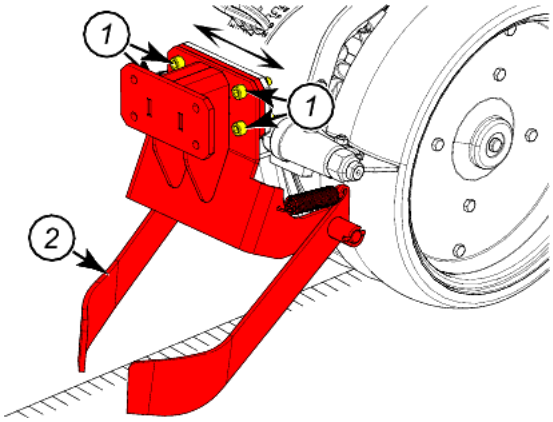


A 82 mm (3.2'') spacer is delivered with this equipment.

■ Adjustment

Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre scrapers (2) with regards to the furrow.
- Tighten the 4 bolts (1).

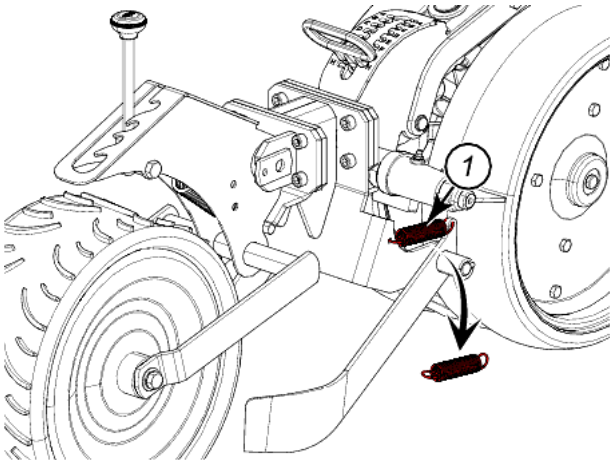


Check setting over the first few metres sown.

■ Machine use

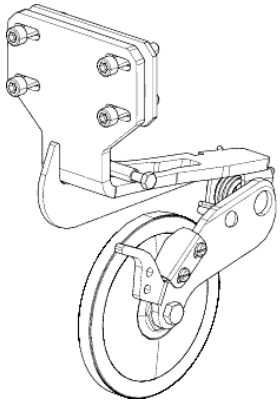
The work fulfilled by the covering scrapers can vary according to the sowing conditions and depth.

Check that the ground pressure applied with the springs, does not cause too much soil to be transferred in the furrow or that the scraper action does not damage the sowing operation.



If necessary, remove springs (1) to reduce the scraper ground pressure.

6. Composite intermediate axial press wheel



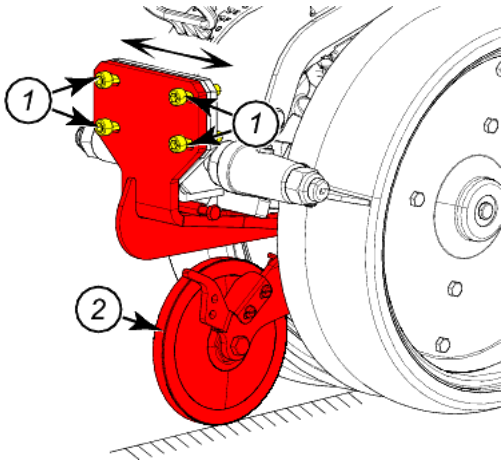
Kit no. 1676762

The purpose of the intermediate centerline roller is to tamp down the seed at the bottom of the furrow in order to encourage germination by optimising its contact with its moist environment.

■ Adjustments

Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre wheel (2) with regards to the furrow.



Incorrect wheel positioning could cause its incorrect functioning and alter the sowing precision.

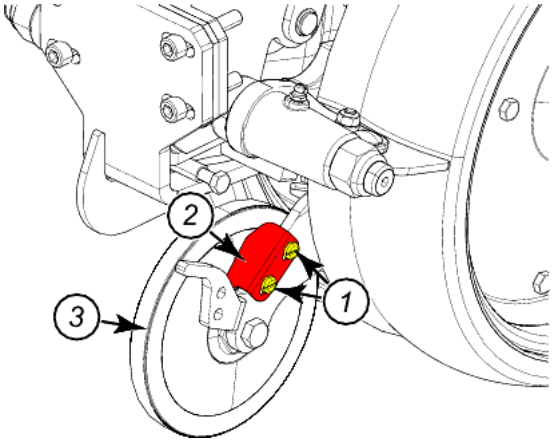
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.

Deflector adjustment

The deflector prevents stones from getting jammed.

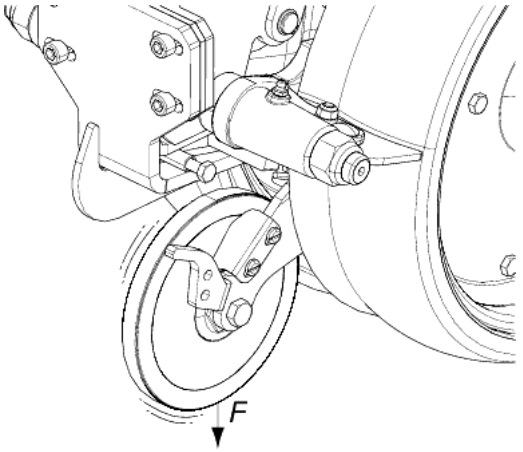
- Loosen screws (1).
- Position deflector (2) as close as possible to the wheel, without touching it. Wheel (3) must be free to rotate by hand. Rotate wheel by hand and check that the wheel is free to rotate at least once.
- Torque bolts to (1).



■ Machine use

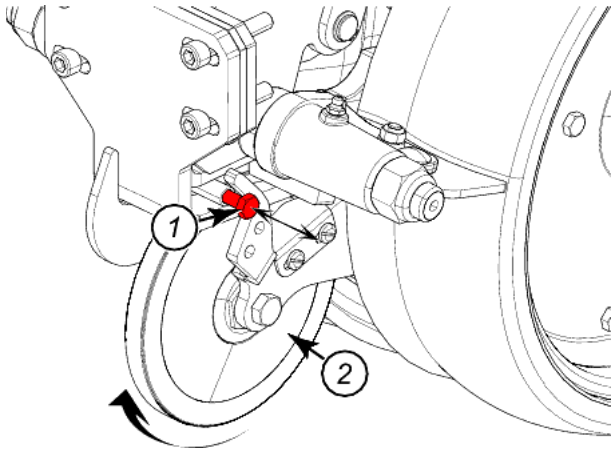
The wheel must be free to rotate and the return spring must allow a downward vertical effort of 3.5 to 6 daN.

The wheel must instantaneously resume its lower position and must not be blocked during its down travel.



In very wet, sticky or stony conditions, the wheel can be folded upwards to prevent damage on the wheel and ensure seeding precision.

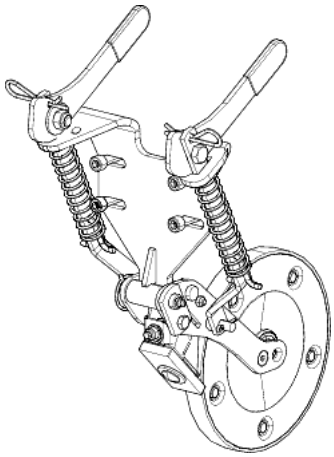
- Push screw (1).
- Raise wheel (2).
- Pull screw (1).



7. Stainless steel intermediate axial press wheel

Kit no. 1676766

The purpose of the intermediate centerline roller is to tamp down the seed at the bottom of the furrow in order to encourage germination by optimising its contact with its moist environment.



■ Adjustments

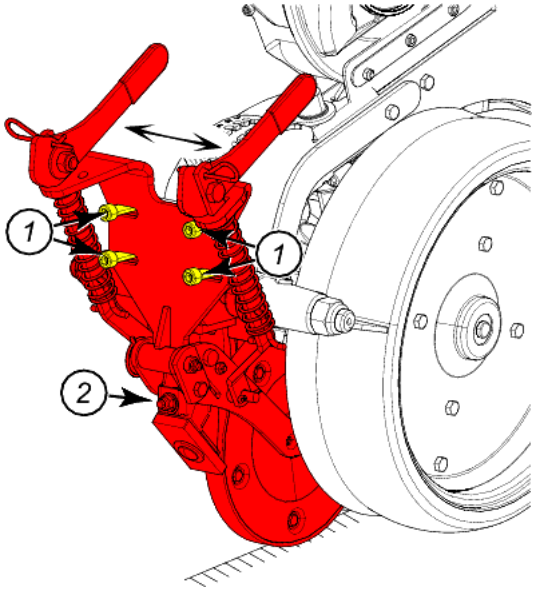
Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre wheel (2) with regards to the furrow.

Incorrect wheel positioning could cause its incorrect functioning and alter the sowing precision.

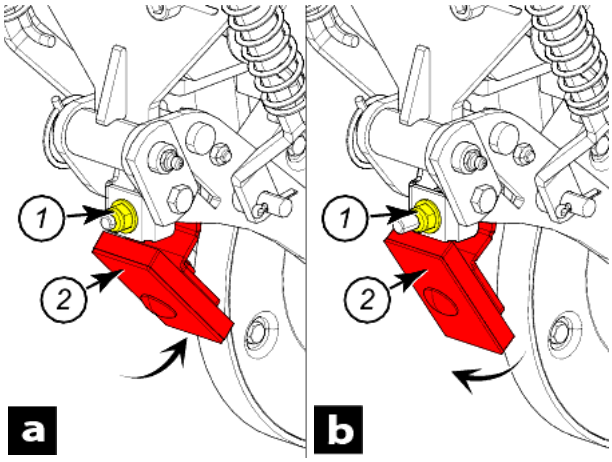
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.



Adjusting the scraper's position

The scraper's position must be adjusted according to the sowing conditions:



- Position (a): Slightly wet conditions.

Loosen nut (1) to reduce distance between scraper (2) and the wheel.

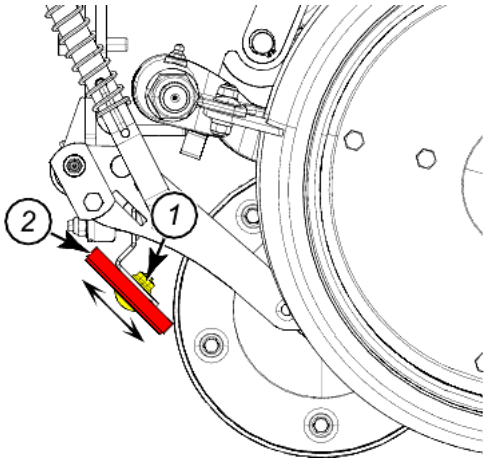
- Position (b): Dry conditions.

Tighten nut (1) to increase distance between scraper (2) and the wheel.

Repeat procedure on each seeding unit.

Adjusting the intermediate axial wheel scrapers

The scraper removes soil build-up around the wheel.



Adjusting the plates:

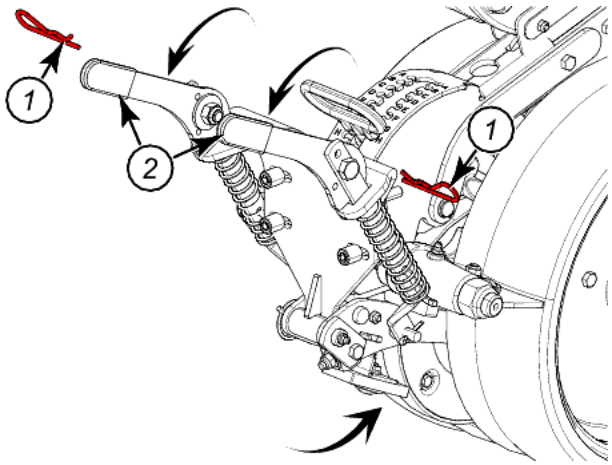
- Loosen nut (1).
- Position plate (2) closest to the wheel, but without touching it. Rotate wheel once to check that it is not in contact.

In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.

- Tighten screws (1).

Repeat procedure on each seeding unit.

Machine use



In very wet, sticky or stony conditions, the wheel can be folded upwards to prevent damage on the wheel and ensure seeding precision.

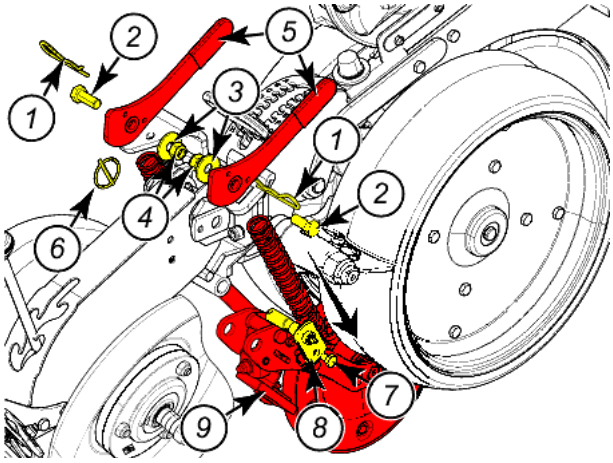
- Remove R-clips (1).
- Mover levers (2) rearwards ro raise the wheel.
- Insert split pins (1).

Repeat procedure on each seeding unit.

When the use of the wheel is no longer required or unadequate, it can be removed without removing the other equipments.

- Remove R-clips (1).
- Remove screws (2), nuts (4) and washers (3).
- Remove the 2 handles (5).
- Remove lynch pin (6).
- Remove screw (7) and pin (8).
- Remove wheel (9).

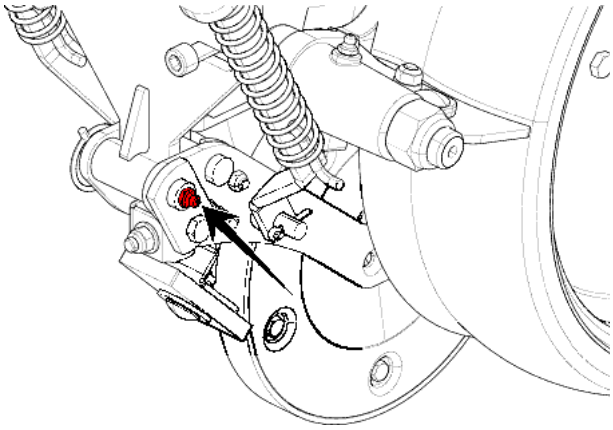
Repeat procedure on each seeding unit.



■ Maintenance

Greasing (Every 50 hours)

- The tamping wheel pivot pin.

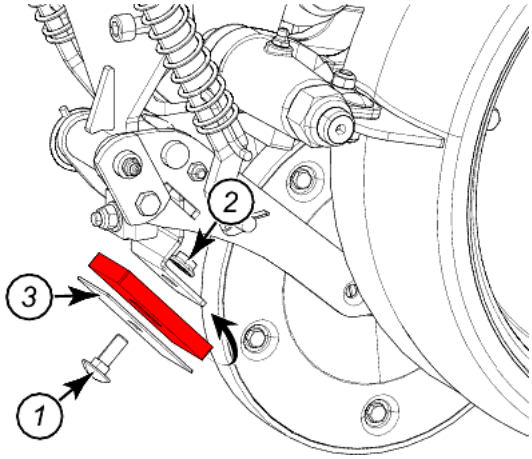


Replacing the scraper plates

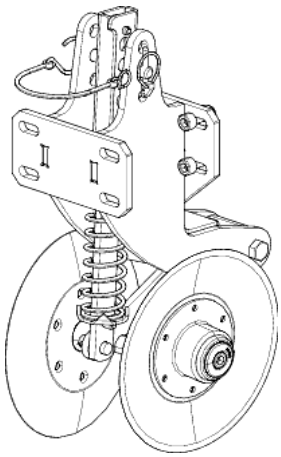
- Remove bolt (1) and nut (2).
- Remove plate (3).
- Turn plate over or replace it if necessary.

Scraper plate ***Part no. K3600550.***

- Install plate (3).
- Reinstall bolt (1) and nut (2).



8. Furrow closing disks



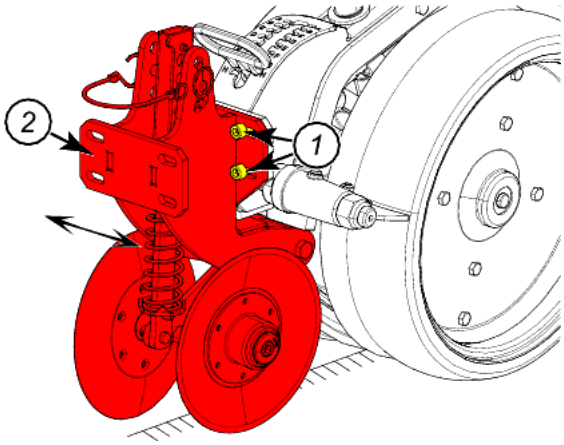
Kit no. 1676790

The closing disks transfers soil in the sowing line for easier furrow closing.

We recommend using the closing disks in the presence of debris or where the edges of the furrow are hard with little fine tilth.

A 45 mm (1.8'') spacer is delivered with this equipment.

■ Adjustments

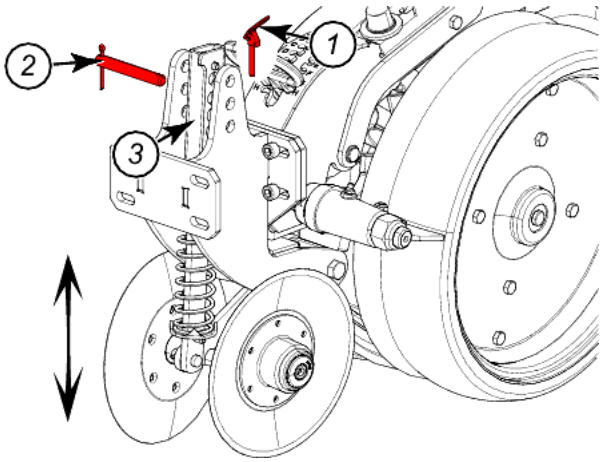


Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre disks (2) in relation to the furrow.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.

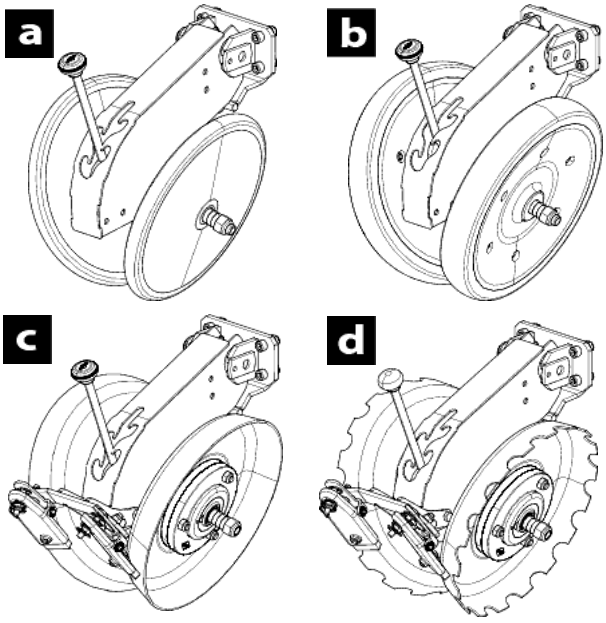
Height adjustment



- Remove lynch pin (1).
- Remove pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Lock pin using lynch pin (1).
- Adjust all sowing units to the same setting.

Adjust all seeding units to the same settings.

9. Standard V-shaped roller



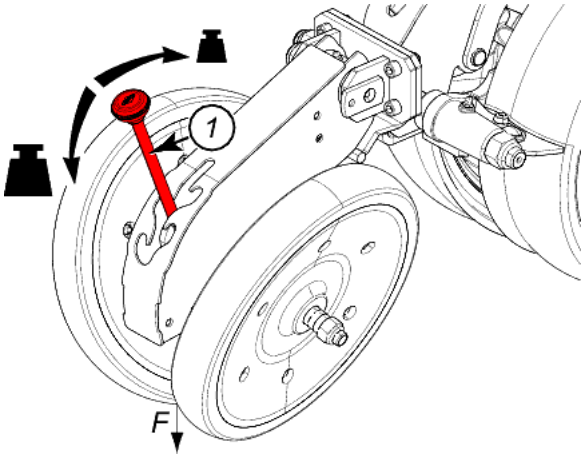
Kit no. 1677235:
Standard Rubber V roller 1'' (a).
Kit no. 1677234:
Standard Rubber V roller 2'' (b).
Kit no. 1677237:
Standard smooth steel V roller (c).
Kit no. 1677236:
Standard notched steel V roller (d).

The V-shaped roller enables closing and tamping the seeding line.

■ Adjustments

Adjusting the tamping pressure

Lever (1) enables adjusting the tamping pressure.

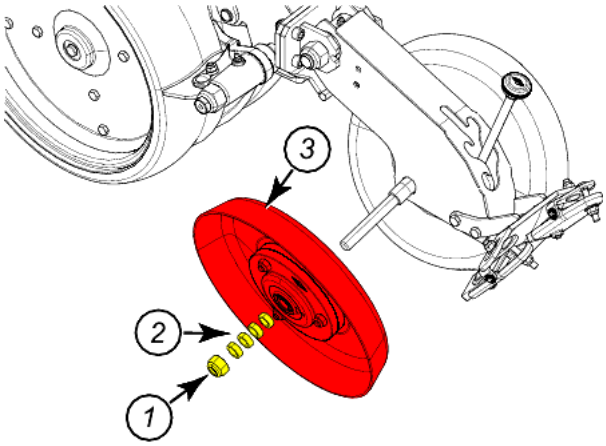


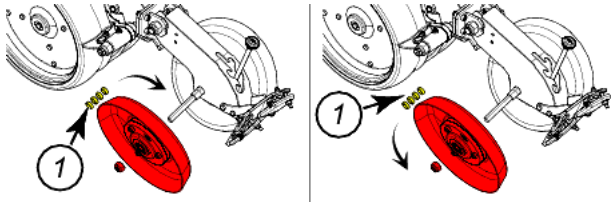
- Position lever (1) in one of the adjusting catches 5:
  - To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  - Mover adjustment lever (1) rearwards to increase tamping pressure in F.

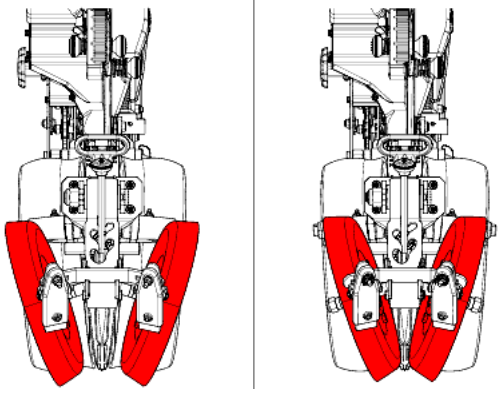
Adjust all seeding units to the same settings.

Adjusting the spacing between the press wheels

- Remove nut (1).
- Remove the struts (2).
- Remove wheel (3).

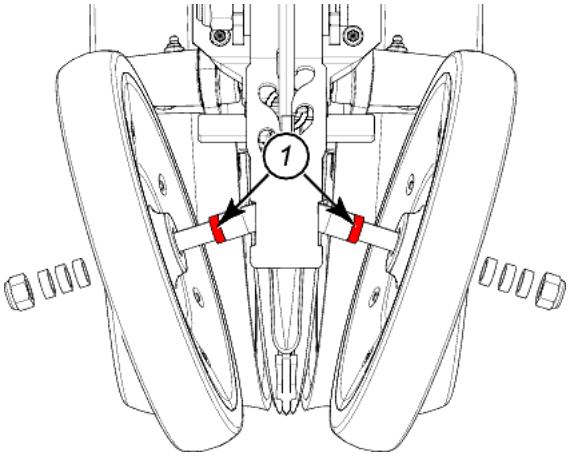






- Place one or several spacers (1) on the inside to increase spacing between the press wheels.
- Place one or several spacers (1) on the outside to reduce spacing between the press wheels.

For standard 25 and 50 mm (1'' - 2'') rubber V rollers, spacer (1) must remain on the inside to prevent interferences with the press wheels.

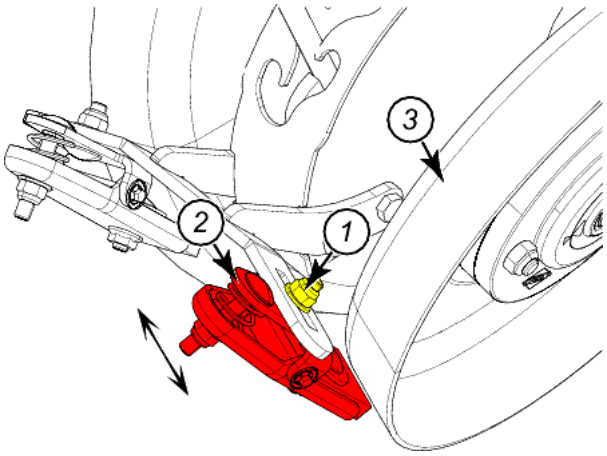


- Reinstall nut (1).

Repeat procedure on the other press wheel.

Adjustment of the tamping wheel cleaners

The cleaners remove soil build up around the tamping wheels.



Lateral adjustment

- Loosen nut (1).
- Center cleaner (2) with regards to wheel (3).
- Tighten nut (1).
- Repeat procedure on the other cleaner.

Adjusting the scraper's position

The scraper's position must be adjusted according to the sowing conditions:

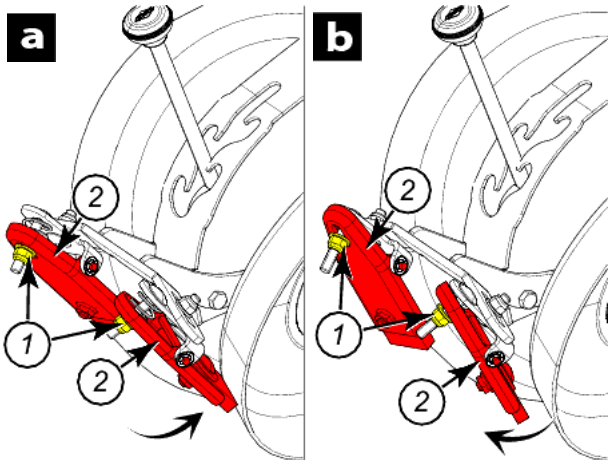
- Position (a): Slightly wet conditions.

Loosen nut (1) to reduce distance between scraper (2) and the wheel.

- Position (b): Dry conditions.

Tighten nut (1) to increase distance between scraper (2) and the wheel.

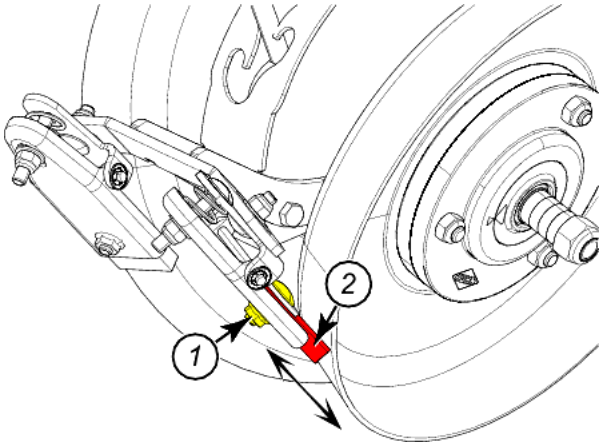
Repeat procedure on each seeding unit.



Adjusting the plates

- Loosen nut (1).
- Adjust plate (2) to bring it closer to the tamping wheel but without touching it. Rotate wheel once to check that it is not in contact.

In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.

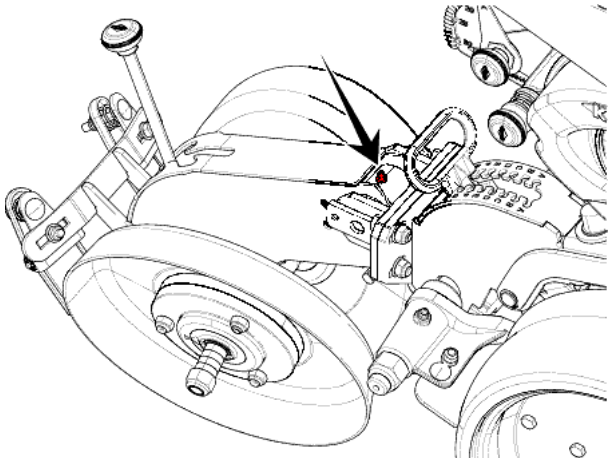


- Tighten screws (1).
- Repeat procedure on each seeding unit.

■ Maintenance

Greasing (Every 50 hours)

- The tamping wheel pivot pin.

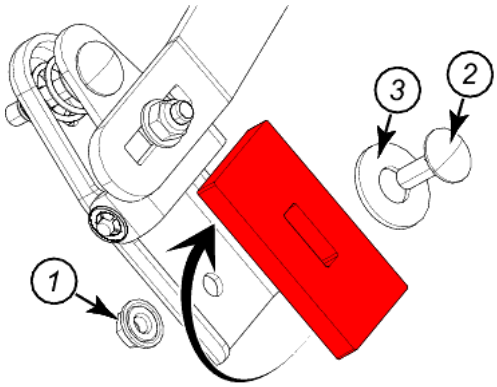


Replacing the scraper plates

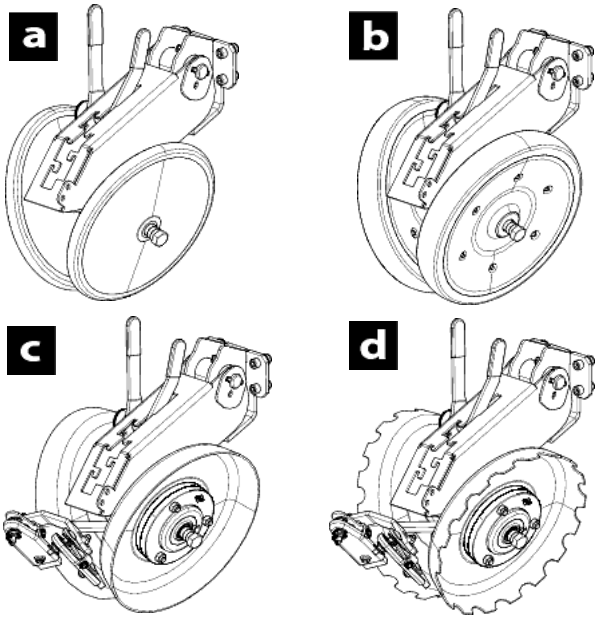
- Remove nut (1).
- Remove screw (2) and washer (3).
- Turn plate over or replace it if necessary.

Scraper plate ***Part no. K3600550****.*

- Reinstall screw (2), nut (1) and washer (3).



10. HD V roller



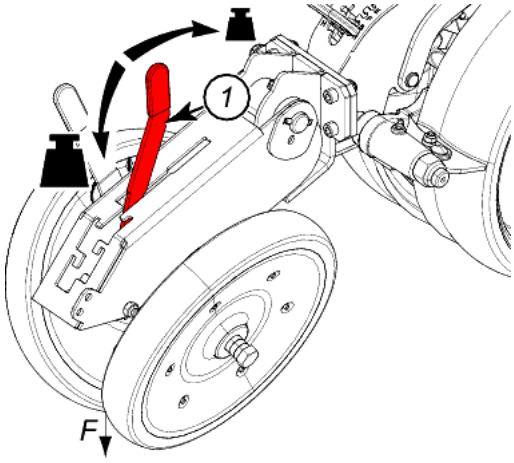
Kit no. 1677241:
HD Rubber V roller 1'' (a).
Kit no. 1677240:
HD Rubber V roller 2'' (b).
Kit no. 1677239:
HD smooth steel V roller (c).
Kit no. 1677238:
HD notched steel V roller (d).

The V-shaped roller enables closing and tamping the seeding line.

■ Adjustments

Adjusting the tamping pressure

Lever (1) enables adjusting the tamping pressure.



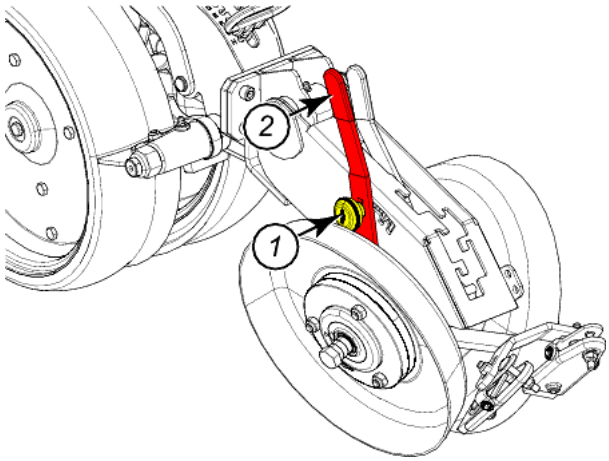
- Position lever (1) in one of the adjusting catches 5:
  - To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  - Mover adjustment lever (1) rearwards to increase tamping pressure in F.

Adjust all seeding units to the same settings.

Adjusting the roller opening angle

Lever (2) allows adjusting the roller opening angle.

- Loosen knob (1).



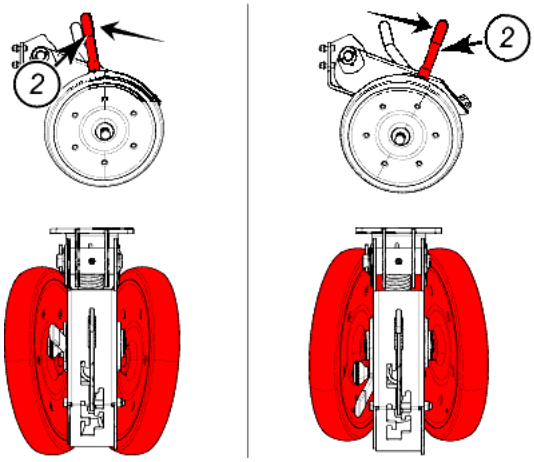
- Move adjustment lever (2) frontwards to increas the roller opening angle.

In current conditions, the roller opening facilitates furrow closing and seed covering.

- Move adjustment lever (2) rearwards to reduce the roller opening angle.

In stony conditions, closing the rollers prevents stones from getting jammed.

- Tighten knob (1).

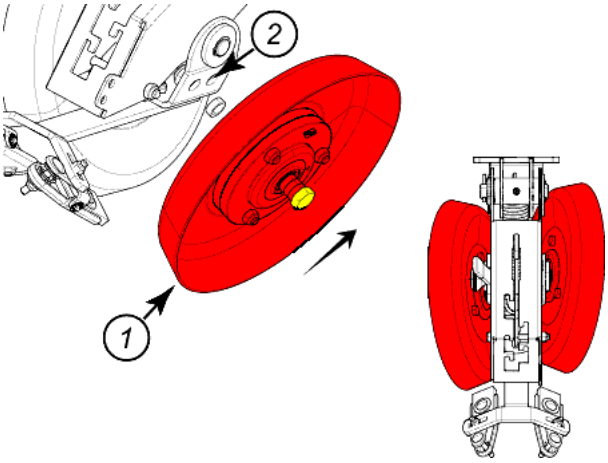


Adjust all seeding units to the same settings.

Adjusting the press wheel offset

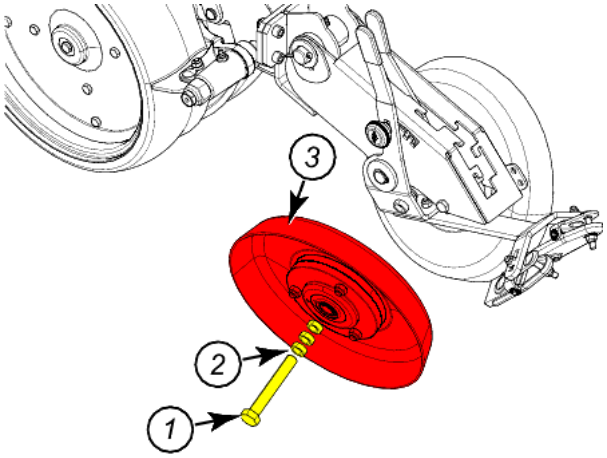
To prevent stones from getting jammed between the press wheels, the right wheel must be slightly offset towards the front.

- Remove right press wheel (1).
- Position right press wheel (1) in hole (2).

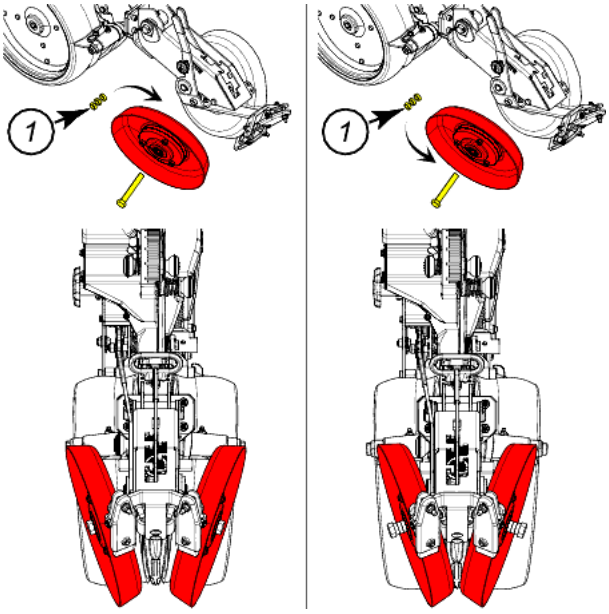


Adjusting the spacing between the press wheels

- Remove nut (1).
- Remove the struts (2).
- Remove wheel (3).



- Place one or several spacers (1) on the inside to increase spacing between the press wheels.
- Place one or several spacers (1) on the outside to reduce spacing between the press wheels.

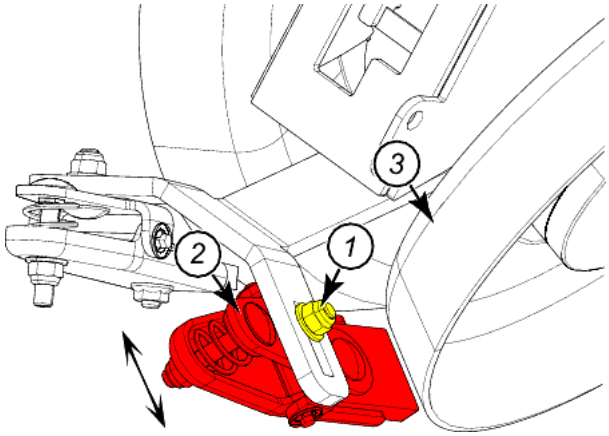


- Reinstall nut (1).

Repeat procedure on the other press wheel.

Adjustment of the tamping wheel cleaners

The cleaners remove soil build up around the tamping wheels.



Lateral adjustment

- Loosen nut (1).
- Center cleaner (2) with regards to wheel (3).
- Tighten nut (1).
- Repeat procedure on the other cleaner.

Adjusting the scraper's position

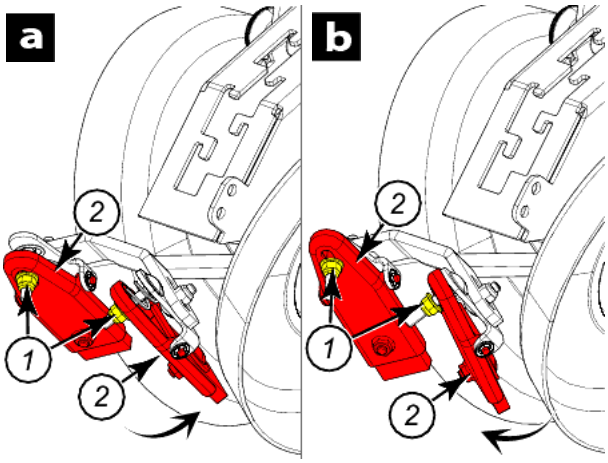
The scraper's position must be adjusted according to the sowing conditions:

- Position (a): Slightly wet conditions.

Loosen nut (1) to reduce distance between scraper (2) and the wheel.

- Position (b): Dry conditions.

Tighten nut (1) to increase distance between scraper (2) and the wheel.

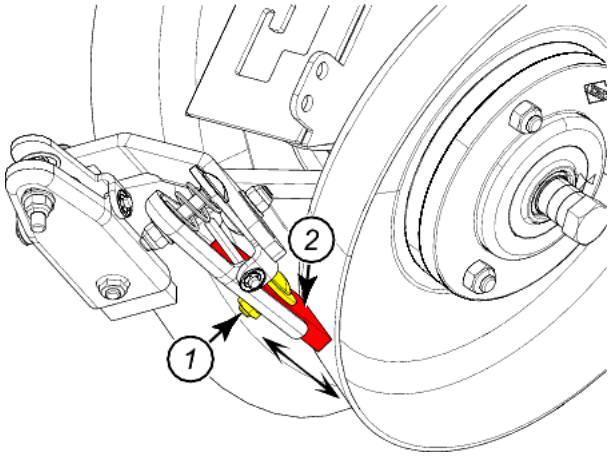


Repeat procedure on each seeding unit.

Adjusting the plates

- Loosen nut (1).
- Adjust plate (2) to bring it closer to the tamping wheel but without touching it. Rotate wheel once to check that it is not in contact.

In slightly wet conditions, reduce spacing between plate and wheel as much as possible to reduce wear.

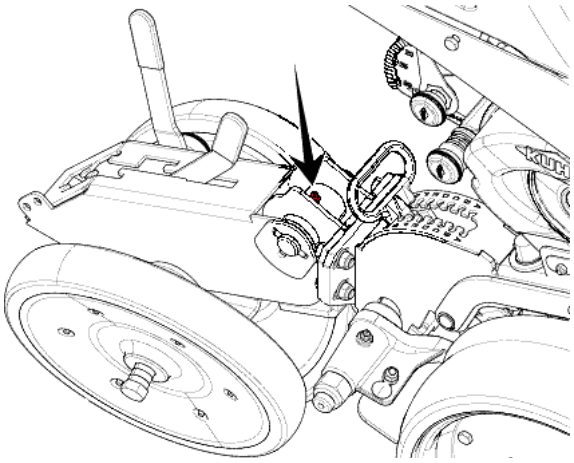


- Tighten screws (1).
- Repeat procedure on each seeding unit.

■ Maintenance

Greasing (Every 50 hours)

- The tamping wheel pivot pin.

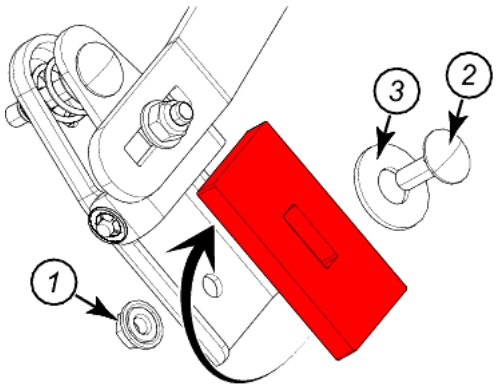


Replacing the scraper plates

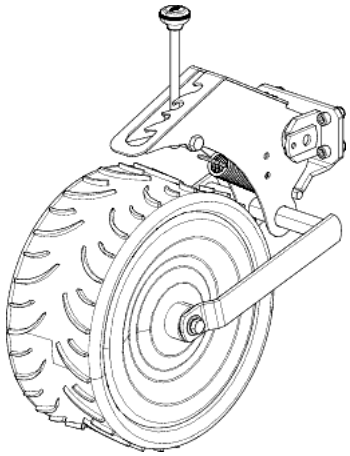
- Remove nut (1).
- Remove screw (2) and washer (3).
- Turn plate over or replace it if necessary.

Scraper plate ***Part no. K3600550****.*

- Reinstall screw (2), nut (1) and washer (3).



11. "OTIFLEX" 370 x 165 roller



The OTIFLEX roller must be used in combination with a soil centering system.

Kit no. 1676757

370 x 165 OTIFLEX roller and covering scrapers.

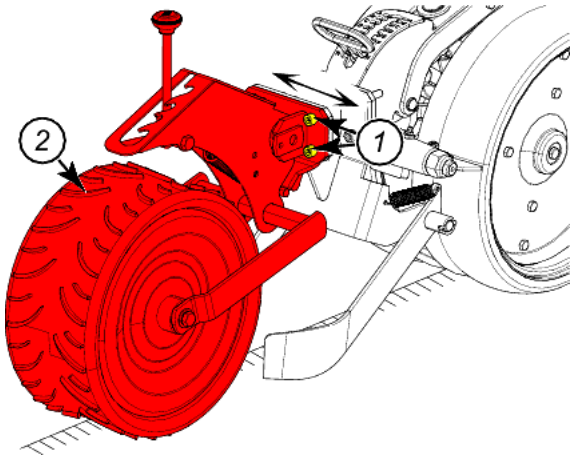
Kit no. 1676859

370 x 165 OTIFLEX roller and furrow closing disks.

The OTIFLEX roller enables packing soil mounds formed by the soil centering system (Furrow closing disks and/or covering plates).

The rubber banding is self-cleaning.

■ Adjustments



Lateral adjustment

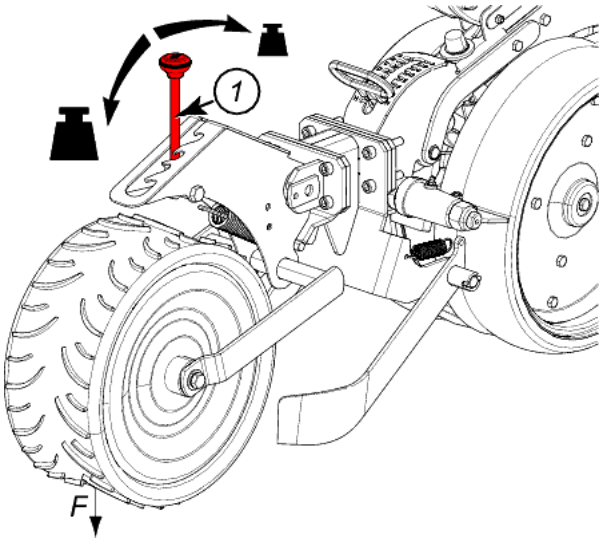
- Unscrew the 4 bolts (1).
- Centre roller (2) in relation to the seeding line.
- Tighten the 4 bolts (1).

Check setting over the first few metres sown.

Adjusting the tamping pressure

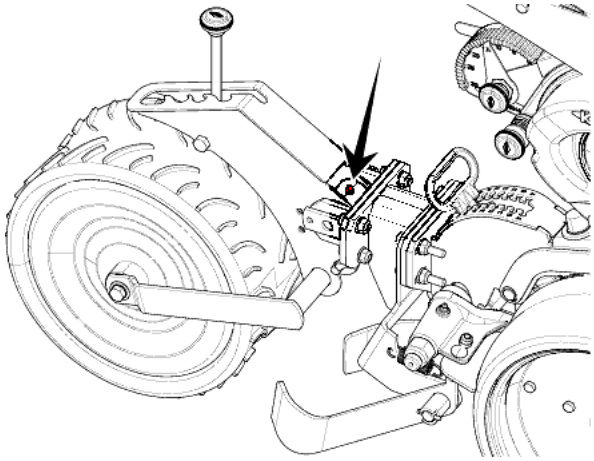
Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the adjusting catches 5:
  - To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  - Mover adjustment lever (1) rearwards to increase tamping pressure in F.

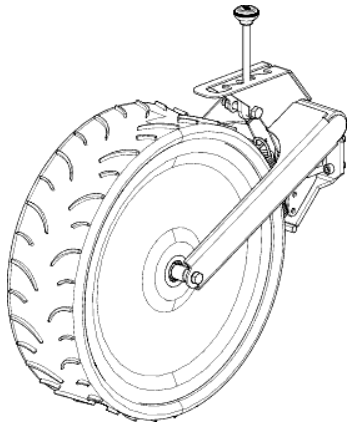


■ Grease (Every 50 hours)

- The tamping wheel pivot pin.



12. "OTIFLEX" 500 x 175 roller



The OTIFLEX roller must be used in combination with a soil centering system.

Kit no. 1676758

500 x 175 OTIFLEX roller and covering scrapers.

Kit no. 1676863

500 x 175 OTIFLEX roller and furrow closing disks.

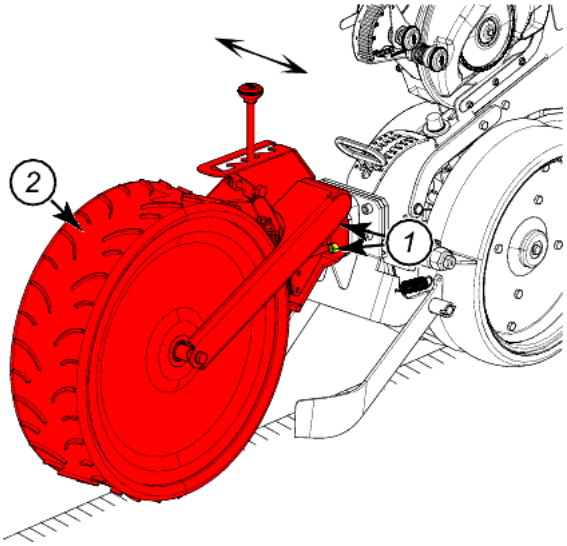
The OTIFLEX roller enables packing soil mounds formed by the soil centering system (Furrow closing disks and/or covering plates).

The rubber banding is self-cleaning.

■ Adjustments

Lateral adjustment

- Unscrew the 4 bolts (1).
- Centre roller (2) in relation to the seeding line.
- Tighten the 4 bolts (1).

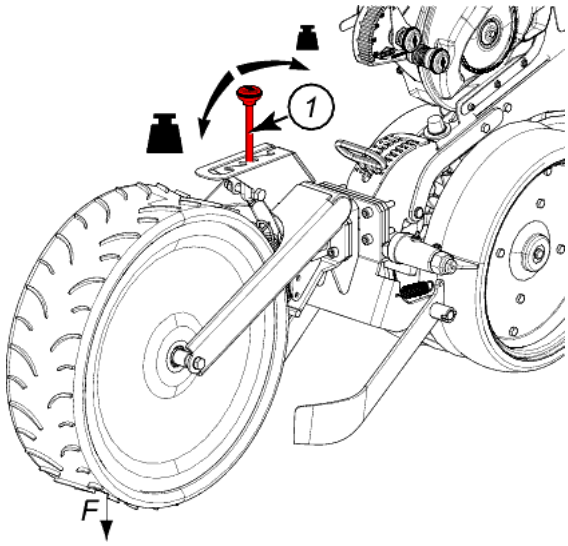


Check setting over the first few metres sown.

Adjusting the tamping pressure

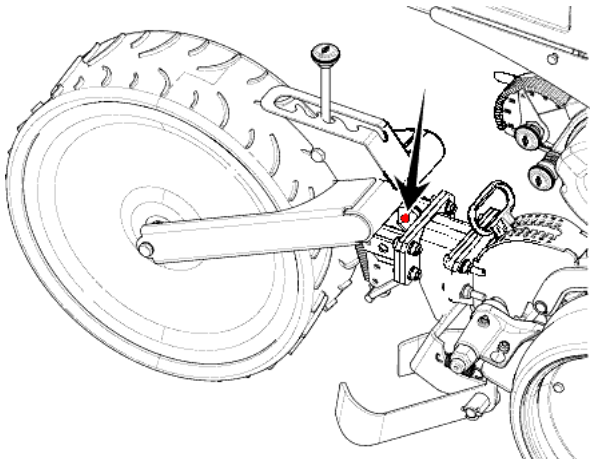
Lever (1) enables adjusting the tamping pressure.

- Position lever (1) in one of the adjusting catches 5:
  - To reduce the tamping pressure in F, move adjustment lever (1) frontwards.
  - Mover adjustment lever (1) rearwards to increase tamping pressure in F.



■ Grease (Every 50 hours)

- The tamping wheel pivot pin.



13. Microgranulator

Several microgranulators can be fitted on the machine:

For the following models:

M2M08RT000A003

First equipment microgranulator

Kit no. 1677163
Insecticide microgranulator 8 rows, 100 L (26 US gal) hoppers with front blower and fitting on air duct.

Kit no. 1677164
Slug pellet microgranulator 8 rows, 100 L (26 US gal) hoppers with front blower and fitting on air duct.

Kit no. 1677165
Herbicide microgranulator 8 rows, 190 L (50 US gal) hoppers with front blower and fitting on air duct.

Second equipment microgranulator

Kit no. 1677139
Insecticide microgranulator 8 rows, with 100 L (26 US gal) hoppers and fitting on air duct.

Kit no. 1677140
Slug pellet microgranulator 8 rows, with 100 L (26 US gal) hoppers and fitting on air duct.

Kit no. 1677292
Herbicide microgranulator 8 rows, with 190 (50 US gal) hoppers and fitting on air duct.

For the following models:

- M2M08RT000AG03

First equipment microgranulator

Kit no. 1677145
Insecticide microgranulator 8 rows with 100 L (21 US gal) hopper and fitting in high position.

Kit no. 1677146
Anti-slug pellet microgranulator 8 rows with 100 L (21 US gal) hopper and fitting in high position.

Kit no. 1677147
Herbicide microgranulator 8 rows with 190 L (40 US gal) hopper and fitting in high position.

Second equipment microgranulator

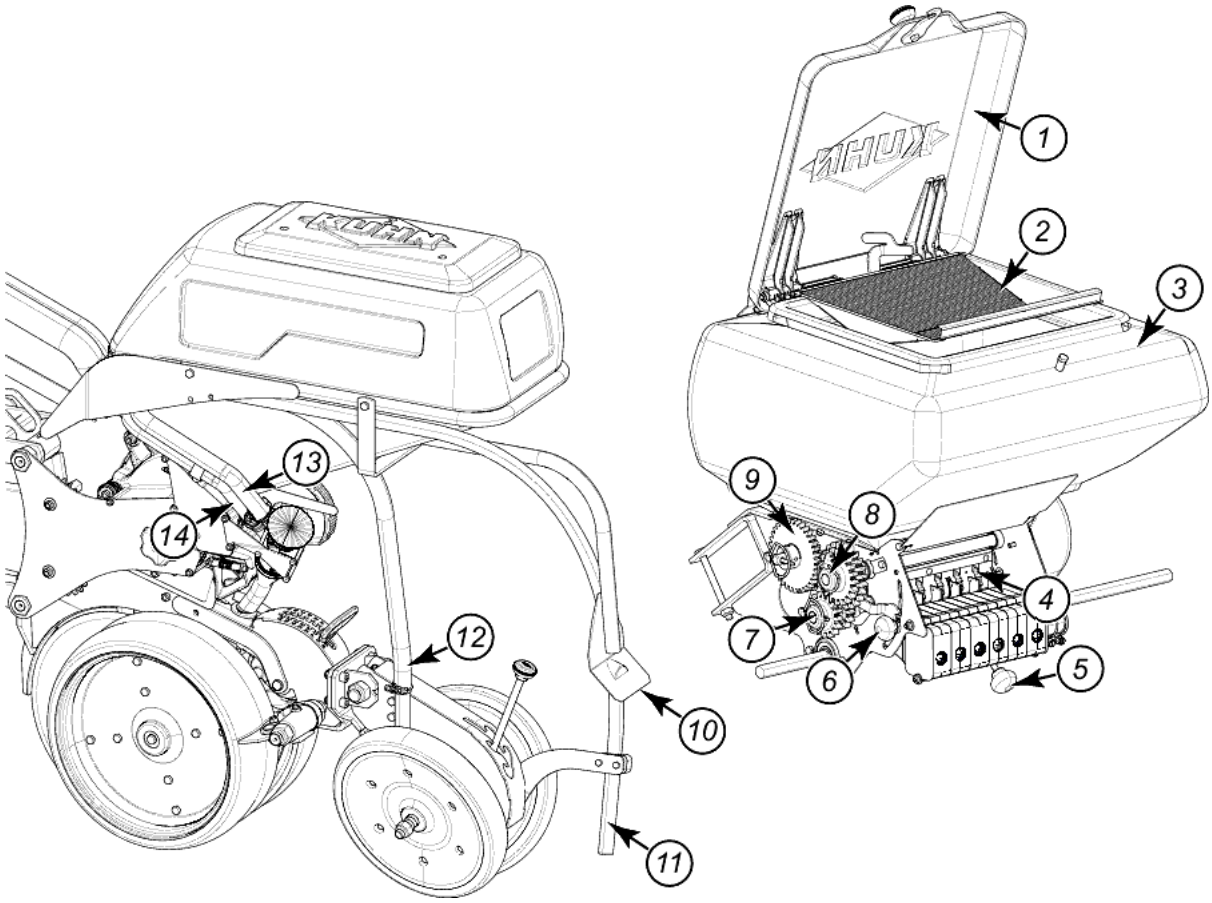
Kit no. 1677145
Insecticide microgranulator 8 rows with 100 L (21 US gal) hopper and fitting in high position.

Kit no. 1677146
Anti-slug pellet microgranulator 8 rows with 100 L (21 US gal) hopper and fitting in high position.

Kit no. 1677147

Herbicide microgranulator 8 rows with 190 L (40 US gal) hopper and fitting in high position.

■ Description and glossary



1 :	Cover	2 :	Sieve
3 :	Hopper	4 :	Distribution
5 :	Emptying lever	6 :	Outlet opening lever
7 :	Driven shaft	8 :	Drive shaft
9 :	Gearwheel storage	10 :	Herbicide spreading
11 :	Application of slug pellets behind the roller	12 :	Application of slug pellets in front of the roller
13 :	Application of slug pellets on the furrow bottom	14 :	Application of insecticide on the furrow bottom

■ Technical specifications

MAXIMA					
Insecticide microgranulator					
		Outputs	9		
Hopper		Capacity (L)	100		
		Material	polyethylene		
		Length (cm)	69		
		Height (cm)	64		
		Width (cm)	58		
Opening		Length (cm)	43.0		
		Width (cm)	32.0		
Sieve		Length (cm)	44.6		
		Width (cm)	34.0		
		Height (cm)	6.5		
		Area sown "ha trip"	1568		
		Material	Steel		
		Meshes	Diameter 2.5 mm ; Spacing 3.5		
Cover		Type	Pivoting		
Agitator		Type	Without		
Emptying the hopper		Type	Sliding hatch		
Metering unit		Type	Fertiliser metering unit		
Drive		Type	Chain and gearwheels		
Adjustment		Valve and gears	Spacing 75 cm : 2,3 L/Ha		
		PTO and belt	Spacing 75 cm : 31,8 L/Ha		
		Type	Valve and gears		
Blower		Drive	PTO and belt		
		min^{-1}	6300		
Outputs	Quantity	In the furrow	7	8	9
		Between coulter and rollers			
		Behind rollers			
	Dimensions (mm)		Diameter 25 / Diameter 21		
	Length (cm)		31,5		
	Cyclone and tube		7	8	9
	Rigid tube				
	Burster				
	Line width		1 to 2 cm		
Tubes		Material	PVC		
		Dimensions	Inner diameter 25 mm ; Length 1 to 9 m		

MAXIMA					
Slug pellet microgranulator					
		Outputs	9		
Hopper		Metering units	9		
		Capacity (L)	100		
		Material	polyethylene		
		Length (cm)	69		
		Height (cm)	64		
		Width (cm)	58		
Opening		Length (cm)	43.0		
		Width (cm)	32.0		
Sieve		Length (cm)	44.6		
		Width (cm)	34.0		
		Height (cm)	6,5		
		Area sown "ha trip"	1568		
		Material	Steel		
		Meshes	Diameter 2.5 mm ; Spacing 3.5 mm		
Cover		Type	Pivoting		
Agitator		Type	Without		
Emptying the hopper		Type	Sliding hatch		
Metering unit		Type	Fertiliser metering unit		
Drive		Type	Chain and gearwheels		
Adjustment		Valve and gears	Spacing 75 cm : 2,3 L/Ha		
		PTO and belt	Spacing 75 cm : 31,8 L/Ha		
		Type	Valve and gears		
Blower		Drive	PTO and belt		
		Min^{-1}	6300		
Outputs	Quantity	In the furrow			
		Between coulter and rollers			
		Behind rollers	7	8	9
	Dimensions (mm)		Diameter 25 / Diameter 21		
	Length (cm)		24,5		
	Cyclone and tube				
	Rigid tube		7	8	9
	Burster				
	Line width (cm)		2 to 6		
Tubes		Material	PVC		
		Dimensions	Inner diameter 25 mm ; Length 1 to 9 m		

MAXIMA					
Herbicide microgranulator					
		Outputs	9		
Hopper		Capacity (L)	190		
		Material	polyethylene		
		Length (cm)	69		
		Height (cm)	84		
		Width (cm)	58		
Opening		Length (cm)	43.0		
		Width (cm)	32.0		
Sieve		Length (cm)	44.6		
		Width (cm)	34.0		
		Height (cm)	6.5		
		Area sown "ha trip"	1568		
		Material	Steel		
		Meshes	Diameter 2.5 mm ; Spacing 3.5 mm		
Cover		Type	Pivoting		
Agitator		Type	Without		
Emptying the hopper		Type	Sliding hatch		
Metering unit		Type	Fertiliser metering unit		
Drive		Type	Chain and gearwheels		
Adjustment		Valve and gears	Spacing 75 cm : 2,3 L/Ha		
		PTO and belt	Spacing 75 cm : 31,8 L/Ha		
		Type	Valve and gears		
Blower		Drive	PTO and belt		
		Min^{-1}	6300		
Outputs	Quantity	In the furrow			
		Between coulter and rollers			
		Behind rollers	7	8	9
	Dimensions (mm)		Diameter 25 / Diameter 21		
	Length (cm)		108		
	Cyclone and tube				
	Rigid tube				
	Burster		7	8	9
	Line width (cm)		100 to 150		
Tubes		Material	PVC		
		Dimensions	Inner diameter 25 mm ; Length 1 to 9 m		

■ Adjusting the seed rate

Adjustment charts for insecticide and slug pellet microgranulator

TABLEAU DE REGLAGE MICRO INSECTICIDE ANTILIMACE EN LITRES/Ha — MICROGRANULATOR CALIBRATION CHART INSECTICIDE-SLUG PELLETS LITRES/Ha — EINSTELLTABELLE MICROGRANULATSTREUER INSEKTIZID-SCHNECKENKORN LITER/Ha — TABLA DE AJUSTE DEL MICROGRANULADOR INSECTICIDA-ANTIBABOSA EN LITROS/Ha — TABELLE DI REGOLAZIONE DEL MICROGRANULATORE INSETTICIDA-ANTILUMACHE IN LITRI/ETTARI

A:12 B:36

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.0172	6.9	5.7	4.9	4.3	3.8	3.4	3.1	2.9	2.6	2.5	2.3	2.2
1	0.0176	7	5.9	5	4.4	3.9	3.5	3.2	2.9	2.7	2.5	2.3	2.2
2	0.0184	7.4	6.1	5.3	4.6	4.1	3.7	3.3	3.1	2.8	2.6	2.5	2.3
3	0.0192	7.7	6.4	5.5	4.8	4.3	3.8	3.5	3.2	3	2.7	2.6	2.4
4	0.0208	8.3	6.9	5.9	5.2	4.6	4.2	3.8	3.5	3.2	3	2.8	2.6
5	0.0226	9	7.5	6.5	5.7	5	4.5	4.1	3.8	3.5	3.2	3	2.8
6	0.0242	9.7	8.1	6.9	6.1	5.4	4.8	4.4	4	3.7	3.5	3.2	3
7	0.0264	10.6	8.8	7.5	6.6	5.9	5.3	4.8	4.4	4.1	3.8	3.5	3.3
8	0.0278	11.1	9.3	7.9	7	6.2	5.6	5.1	4.6	4.3	4	3.7	3.5
9	0.0292	11.7	9.7	8.3	7.3	6.5	5.8	5.3	4.9	4.5	4.2	3.9	3.7
10	0.031	12.4	10.3	8.9	7.8	6.9	6.2	5.6	5.2	4.8	4.4	4.1	3.9
11	0.0314	12.6	10.5	9	7.9	7	6.3	5.7	5.2	4.8	4.5	4.2	3.9

A:12 B:24

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.0248	9.9	8.3	7.1	6.2	5.5	5	4.5	4.1	3.8	3.5	3.3	3.1
1	0.0254	10.2	8.5	7.3	6.4	5.6	5.1	4.6	4.2	3.9	3.6	3.4	3.2
2	0.0264	10.6	8.8	7.5	6.6	5.9	5.3	4.8	4.4	4.1	3.8	3.5	3.3
3	0.0276	11	9.2	7.9	6.9	6.1	5.5	5	4.6	4.2	3.9	3.7	3.5
4	0.0304	12.2	10.1	8.7	7.6	6.8	6.1	5.5	5.1	4.7	4.3	4.1	3.8
5	0.0326	13	10.9	9.3	8.2	7.2	6.5	5.9	5.4	5	4.7	4.3	4.1
6	0.0342	13.7	11.4	9.8	8.6	7.6	6.8	6.2	5.7	5.3	4.9	4.6	4.3
7	0.0364	14.6	12.1	10.4	9.1	8.1	7.3	6.6	6.1	5.6	5.2	4.9	4.6
8	0.0386	15.4	12.9	11	9.7	8.6	7.7	7	6.4	5.9	5.5	5.1	4.8
9	0.0405	16.2	13.5	11.6	10.1	9	8.1	7.4	6.8	6.2	5.8	5.4	5.1
10	0.0426	17	14.2	12.2	10.7	9.5	8.5	7.7	7.1	6.6	6.1	5.7	5.3
11	0.043	17.2	14.3	12.3	10.8	9.6	8.6	7.8	7.2	6.6	6.1	5.7	5.4

A:16 B:20

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.0398	15.9	13.3	11.4	10	8.8	8	7.2	6.6	6.1	5.7	5.3	5
1	0.041	16.4	13.7	11.7	10.3	9.1	8.2	7.5	6.8	6.3	5.9	5.5	5.1
2	0.042	16.8	14	12	10.5	9.3	8.4	7.6	7	6.5	6	5.6	5.3
3	0.0448	17.9	14.9	12.8	11.2	10	9	8.1	7.5	6.9	6.4	6	5.6
4	0.0482	19.3	16.1	13.8	12.1	10.7	9.6	8.8	8	7.4	6.9	6.4	6
5	0.052	20.8	17.3	14.9	13	11.6	10.4	9.5	8.7	8	7.4	6.9	6.5
6	0.056	22.4	18.7	16	14	12.4	11.2	10.2	9.3	8.6	8	7.5	7
7	0.0596	23.8	19.9	17	14.9	13.2	11.9	10.8	9.9	9.2	8.5	7.9	7.5
8	0.063	25.2	21	18	15.8	14	12.6	11.5	10.5	9.7	9	8.4	7.9
9	0.0668	26.7	22.3	19.1	16.7	14.8	13.4	12.1	11.1	10.3	9.5	8.9	8.4
10	0.069	27.6	23	19.7	17.3	15.3	13.8	12.5	11.5	10.6	9.9	9.2	8.6
11	0.0706	28.2	23.5	20.2	17.7	15.7	14.1	12.8	11.8	10.9	10.1	9.4	8.8

A:20 B:16

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.0608	24.3	20.3	17.4	15.2	13.5	12.2	11.1	10.1	9.4	8.7	8.1	7.6
1	0.063	25.2	21	18	15.8	14	12.6	11.5	10.5	9.7	9	8.4	7.9
2	0.0656	26.2	21.9	18.7	16.4	14.6	13.1	11.9	10.9	10.1	9.4	8.7	8.2
3	0.0702	28.1	23.4	20.1	17.6	15.6	14	12.8	11.7	10.8	10	9.4	8.8
4	0.0752	30.1	25.1	21.5	18.8	16.7	15	13.7	12.5	11.6	10.7	10	9.4
5	0.0804	32.2	26.8	23	20.1	17.9	16.1	14.6	13.4	12.4	11.5	10.7	10.1
6	0.085	34	28.3	24.3	21.3	18.9	17	15.5	14.2	13.1	12.1	11.3	10.6
7	0.09	36	30	25.7	22.5	20	18	16.4	15	13.8	12.9	12	11.3
8	0.095	38	31.7	27.1	23.8	21.1	19	17.3	15.8	14.6	13.6	12.7	11.9
9	0.1006	40.2	33.5	28.7	25.2	22.4	20.1	18.3	16.8	15.5	14.4	13.4	12.6
10	0.104	41.6	34.7	29.7	26	23.1	20.8	18.9	17.3	16	14.9	13.9	13
11	0.1056	42.2	35.2	30.2	26.4	23.5	21.1	19.2	17.6	16.2	15.1	14.1	13.2

A:24 B:12

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.0944	37.8	31.5	27	23.6	21	18.9	17.2	15.7	14.5	13.5	12.6	11.8
1	0.096	38.4	32	27.4	24	21.3	19.2	17.5	16	14.8	13.7	12.8	12
2	0.1	40	33.3	28.6	25	22.2	20	18.2	16.7	15.4	14.3	13.3	12.5
3	0.108	43.2	36	30.9	27	24	21.6	19.6	18	16.6	15.4	14.4	13.5
4	0.1158	46.3	38.6	33.1	29	25.7	23.2	21.1	19.3	17.8	16.5	15.4	14.5
5	0.1236	49.4	41.2	35.3	30.9	27.5	24.7	22.5	20.6	19	17.7	16.5	15.5
6	0.132	52.8	44	37.7	33	29.3	26.4	24	22	20.3	18.9	17.6	16.5
7	0.1398	55.9	46.6	39.9	35	31.1	28	25.4	23.3	21.5	20	18.6	17.5
8	0.1474	59	49.1	42.1	36.9	32.8	29.5	26.8	24.6	22.7	21.1	19.7	18.4
9	0.154	61.6	51.3	44	38.5	34.2	30.8	28	25.7	23.7	22	20.5	19.3
10	0.1574	63	52.5	45	39.4	35	31.5	28.6	26.2	24.2	22.5	21	19.7
11	0.159	63.6	53	45.4	39.8	35.3	31.8	28.9	26.5	24.5	22.7	21.2	19.9

A:36 B:12

	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0.1338	53.5	44.6	38.2	33.5	29.7	26.8	24.3	22.3	20.6	19.1	17.8	16.7
1	0.144	57.6	48	41.1	36	32	28.8	26.2	24	22.2	20.6	19.2	18
2	0.1506	60.2	50.2	43	37.7	33.5	30.1	27.4	25.1	23.2	21.5	20.1	18.8
3	0.1624	65	54.1	46.4	40.6	36.1	32.5	29.5	27.1	25	23.2	21.7	20.3
4	0.174	69.6	58	49.7	43.5	38.7	34.8	31.6	29	26.8	24.9	23.2	21.8
5	0.1856	74.2	61.9	53	46.4	41.2	37.1	33.7	30.9	28.6	26.5	24.7	23.2
6	0.1976	79	65.9	56.5	49.4	43.9	39.5	35.9	32.9	30.4	28.2	26.3	24.7
7	0.2092	83.7	69.7	59.8	52.3	46.5	41.8	38	34.9	32.2	29.9	27.9	26.2
8	0.2208	88.3	73.6	63.1	55.2	49.1	44.2	40.1	36.8	34	31.5	29.4	27.6
9	0.2314	92.6	77.1	66.1	57.9	51.4	46.3	42.1	38.6	35.6	33.1	30.9	28.9
10	0.236	94.4	78.7	67.4	59	52.4	47.2	42.9	39.3	36.3	33.7	31.5	29.5
11	0.2384	95.4	79.5	68.1	59.6	53	47.7	43.3	39.7	36.7	34.1	31.8	29.8

Les quantités indiquées ne sont données qu'à titre indicatif. The given values should be used as a guide only. Die angegebenen Werte sind Richtwerte.
Los cantidades se especifican solo a titulo indicativo. Le quantità indicate sono soltanto a titolo indicativo.

FLA2170A

Settings are only indicated for your information.

Adjustment charts for herbicide microgranulator

TABLEAU DE REGLAGE MICROGRANULATEUR HERBICIDE EN LITRES/Ha — MICROGRANULATOR CALIBRATION CHART HERBICIDE LITRES/Ha — EINSTELLTABELLE MICROGRANULATSTREUER HERBIZID LITER/Ha — TABLA DE AJUSTE DEL MICROGRANULADOR HERBICIDA EN LITROS/Ha — TABELLE DI REGOLAZIONE DEL MICROGRANULATORE ERBICIDA IN LITRI/ETTARI

	A:12 B:24													A:16 B:20											
	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM												L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM										
		40	45	50	55	60	65	70	75	80	85	90	100		40	45	50	55	60	65	70	75	80	85	90	100
0	0.064	16	14.2	12.8	11.6	10.7	9.8	9.1	8.5	8	7.5	7.1	6.4	0.102	25.5	22.7	20.4	18.5	17	15.7	14.6	13.6	12.8	12	11.3	10.2
1	0.066	16.5	14.7	13.2	12	11	10.2	9.4	8.8	8.3	7.8	7.3	6.6	0.104	26	23.1	20.8	18.9	17.3	16	14.9	13.9	13	12.2	11.6	10.4
2	0.07	17.5	15.6	14	12.7	11.7	10.8	10	9.3	8.8	8.2	7.8	7	0.109	27.3	24.2	21.8	19.8	18.2	16.8	15.6	14.5	13.6	12.8	12.1	10.9
3	0.075	18.8	16.7	15	13.6	12.5	11.5	10.7	10	9.4	8.8	8.3	7.5	0.117	29.3	26	23.4	21.3	19.5	18	16.7	15.6	14.6	13.8	13	11.7
4	0.082	20.5	18.2	16.4	14.9	13.7	12.6	11.7	10.9	10.3	9.6	9.1	8.2	0.129	32.3	28.7	25.8	23.5	21.5	19.8	18.4	17.2	16.1	15.2	14.3	12.9
5	0.091	22.8	20.2	18.2	16.5	15.2	14	13	12.1	11.4	10.7	10.1	9.1	0.144	36	32	28.8	26.2	24	22.2	20.6	19.2	18	16.9	16	14.4
6	0.103	25.8	22.9	20.6	18.7	17.2	15.8	14.7	13.7	12.9	12.1	11.4	10.3	0.161	40.3	35.8	32.2	29.3	26.8	24.8	23	21.5	20.1	18.9	17.9	16.1
7	0.114	28.5	25.3	22.8	20.7	19	17.5	16.3	15.2	14.3	13.4	12.7	11.4	0.177	44.3	39.3	35.4	32.2	29.5	27.2	25.3	23.6	22.1	20.8	19.7	17.7
8	0.126	31.5	28	25.2	22.9	21	19.4	18	16.8	15.8	14.8	14	12.6	0.197	49.3	43.8	39.4	35.8	32.8	30.3	28.1	26.3	24.6	23.2	21.9	19.7
9	0.139	34.8	30.9	27.8	25.3	23.2	21.4	19.9	18.5	17.4	16.4	15.4	13.9	0.214	53.5	47.6	42.8	38.9	35.7	32.9	30.6	28.5	26.8	25.2	23.8	21.4
10	0.15	37.5	33.3	30	27.3	25	23.1	21.4	20	18.8	17.6	16.7	15	0.233	58.3	51.8	46.6	42.4	38.8	35.8	33.3	31.1	29.1	27.4	25.9	23.3
11	0.16	40	35.6	32	29.1	26.7	24.6	22.9	21.3	20	18.8	17.8	16	0.249	62.3	55.3	49.8	45.3	41.5	38.3	35.6	33.2	31.1	29.3	27.7	24.9

	A:20 B:16													A:24 B:12											
	L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM												L. 100M	Ecartement Spacing Reihenabstand Separacion Scostamento CM										
		40	45	50	55	60	65	70	75	80	85	90	100		40	45	50	55	60	65	70	75	80	85	90	100
0	0.157	39.3	34.9	31.4	28.5	26.2	24.2	22.4	20.9	19.6	18.5	17.4	15.7	0.247	61.8	54.9	49.4	44.9	41.2	38	35.3	32.9	30.9	29.1	27.4	24.7
1	0.16	40	35.6	32	29.1	26.7	26.4	22.9	21.3	20	18.8	17.8	16	0.252	63	56	50.4	45.8	42	38.8	36	33.6	31.5	29.6	28	25.2
2	0.168	42	37.3	33.6	30.5	28	25.8	24	22.4	21	19.8	18.7	16.8	0.264	66	58.7	52.8	48	44	40.6	37.7	35.2	33	31.1	29.3	26.4
3	0.181	45.3	40.2	36.2	32.9	30.2	27.8	25.9	24.1	22.6	21.3	20.1	18.1	0.281	70.3	62.4	56.2	51.1	46.8	43.2	40.1	37.5	35.1	33.1	31.2	28.1
4	0.2	50	40.4	40	36.4	33.3	30.8	28.6	26.7	25	23.5	22.2	20	0.308	77	68.4	61.6	56	51.3	47.4	44	41.1	38.5	36.2	34.2	30.8
5	0.223	55.8	49.6	44.6	40.5	37.2	34.3	31.9	29.7	27.9	26.2	24.8	22.3	0.347	86.8	77.1	69.4	63.1	57.8	53.4	49.6	46.3	43.4	40.8	38.6	34.7
6	0.249	62.3	55.3	49.8	45.3	41.5	38.3	35.6	33.2	31.1	29.3	27.7	24.9	0.388	97	86.2	77.6	70.5	64.7	59.7	55.4	51.7	48.5	45.6	43.1	38.8
7	0.275	68.8	61.1	55	50	45.8	42.3	39.3	36.7	34.4	32.4	30.6	27.5	0.431	108	95.8	86.2	78.4	71.8	66.3	61.6	57.5	53.9	50.7	47.9	43.1
8	0.302	75.5	67.1	60.4	54.9	50.3	46.5	43.1	40.3	37.8	35.5	33.6	30.2	0.475	119	106	95	86.4	79.2	73.1	67.9	63.3	59.4	55.9	52.8	47.5
9	0.332	83	73.8	66.4	60.4	55.3	51.1	47.4	44.3	41.5	39.1	36.9	33.2	0.515	129	114	103	93.6	85.8	79.2	73.6	68.7	64.4	60.6	57.2	51.5
10	0.357	89.3	79.3	71.4	64.9	59.5	54.9	51	47.6	44.6	42	39.7	35.7	0.555	139	123	111	101	92.5	85.4	79.3	74	69.4	65.3	61.7	55.5
11	0.382	95.5	84.9	76.4	69.5	63.7	58.8	54.6	50.9	47.8	44.9	42.4	38.2	0.597	149	133	119	109	99.5	91.8	85.3	79.6	74.6	70.2	66.3	59.7

Les quantités indiquées ne sont données qu'à titre indicatif. The given values should be used as a guide only. Die angegebenen Werte sind Richtwerte.
Los contidades se especifican solo a titulo indicativo. Le quantità indicate sono soltanto a titolo indicativo.

FNB0585B

Settings are only indicated for your information.

How to read the calibration charts

Select the required volume per hectare in the column corresponding to the spacing between rows.

The values indicated in the calibration charts are given in litre per hectare.

Calculating the application rate per hectare:

- For insecticides:

Divide the product quantity to apply per hectare by the density of the non packed product.

Example:

Required application rate: 10 kg (22 lb) / ha.

Density of the non packed product: 1.5

Volume / ha = 10 / 1.5 = 6.66 l (1.76 US gal) / ha

- For anti-slug pellets:

Divide the product quantity to apply per hectare by the correction factor of the product used.

- *Correction factor for HELARION: 0.40*
- *Correction factor for MESUROL: 0.43*

Example:

Required application rate: 5 kg (11 lb) / ha.

Correction factor for HELARION: 0.40

Volume / ha = 5 / 0.4 = 12.5 l (3.30 US gal) / ha

Determine the drive gearwheel/driven gearwheel matching set according to the spacing between the seed drill rows and the required volume per hectare.

Refer to the decal fitted on the machine.

Example:

Seed row spacing: 80 cm (2’7’’).

Required volume per hectare: 12.5 l (3.30 US gal) / ha.

		A : 20 / B : 16											
	L. 100M	<-----> cm											
		25	30	35	40	45	50	55	60	65	70	75	80
0	0,0608	24,3	20,3	17,4	15,2	13,5	12,2	11,1	10,1	9,4	8,7	8,1	7,6
1	0,063	25,2	21,0	18,0	15,8	14,0	12,6	11,5	10,5	9,7	9,0	8,4	7,9
2	0,0656	26,2	21,9	18,7	16,4	14,6	13,1	11,9	10,9	10,1	9,4	8,7	8,2
3	0,0702	28,1	23,4	20,1	17,6	15,6	14,0	12,8	11,7	10,8	10,0	9,4	8,8
4	0,0752	30,1	25,1	21,5	18,8	16,7	15,0	13,7	12,5	11,6	10,7	10,0	9,4
5	0,0804	32,2	26,8	23,0	20,1	17,9	16,1	14,6	13,4	12,4	11,5	10,7	10,1
6	0,085	34,0	28,3	24,3	21,3	18,9	17,0	15,5	14,2	13,1	12,1	11,3	10,6
7	0,09	36,0	30,0	25,7	22,5	20,0	18,0	16,4	15,0	13,8	12,9	12,0	11,3
8	0,095	38,0	31,7	27,1	23,8	21,1	19,0	17,3	15,8	14,6	13,6	12,7	11,9
9	0,1006	40,2	33,5	28,7	25,2	22,4	20,1	18,3	16,8	15,5	14,4	13,4	12,6
10	0,104	41,6	34,7	29,7	26,0	23,1	20,8	18,9	17,3	16,0	14,9	13,9	13,0
11	0,1056	42,2	35,2	30,2	26,4	23,5	21,1	19,2	17,6	16,2	15,1	14,1	13,2

The volume per hectare closest to the required volume per hectare for a spacing between rows of 80 cm (2’7’’) is located in the chart for a **20** teeth drive gearwheel and **16** teeth driven gearwheel matching set.

The line where the required volume per hectare is located enables determining the outlet opening adjustment value.

Example:

	A : 20 / B : 16											
	L. 100M	<-----> cm										
		25	30	35	40	45	50	55	60	65	70	75	80
0	0,0608	24,3	20,3	17,4	15,2	13,5	12,2	11,1	10,1	9,4	8,7	8,1	7,6
1	0,063	25,2	21,0	18,0	15,8	14,0	12,6	11,5	10,5	9,7	9,0	8,4	7,9
2	0,0656	26,2	21,9	18,7	16,4	14,6	13,1	11,9	10,9	10,1	9,4	8,7	8,2
3	0,0702	28,1	23,4	20,1	17,6	15,6	14,0	12,8	11,7	10,8	10,0	9,4	8,8
4	0,0752	30,1	25,1	21,5	18,8	16,7	15,0	13,7	12,5	11,6	10,7	10,0	9,4
5	0,0804	32,2	26,8	23,0	20,1	17,9	16,1	14,6	13,4	12,4	11,5	10,7	10,1
6	0,085	34,0	28,3	24,3	21,3	18,9	17,0	15,5	14,2	13,1	12,1	11,3	10,6
7	0,09	36,0	30,0	25,7	22,5	20,0	18,0	16,4	15,0	13,8	12,9	12,0	11,3
8	0,095	38,0	31,7	27,1	23,8	21,1	19,0	17,3	15,8	14,6	13,6	12,7	11,9
9	0,1006	40,2	33,5	28,7	25,2	22,4	20,1	18,3	16,8	15,5	14,4	13,4	12,6
10	0,104	41,6	34,7	29,7	26,0	23,1	20,8	18,9	17,3	16,0	14,9	13,9	13,0
11	0,1056	42,2	35,2	30,2	26,4	23,5	21,1	19,2	17,6	16,2	15,1	14,1	13,2

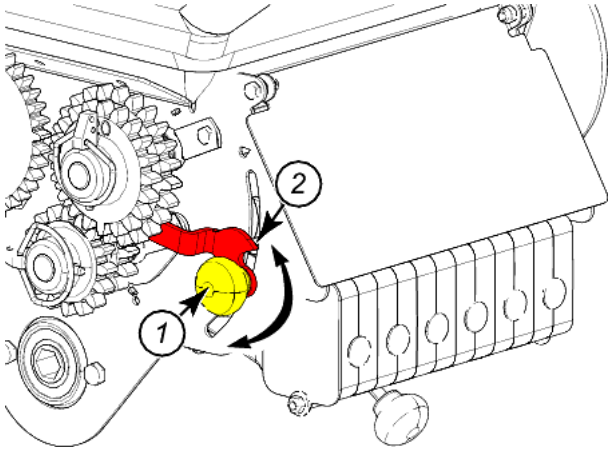
For a volume to apply of 12.5 l (3.30 US gal) / ha, adjust index on **9**.

Adjusting the outlet opening

- Loosen knob (1).
- Position adjustment lever tip (2) on the required value.
- Tighten knob (1)

Refer to the adjustment chart to determine the outlet opening adjustment index according to the required volume per hectare and the spacing between the seed drill rows.

The values indicated in the adjustment chart are only for your information.



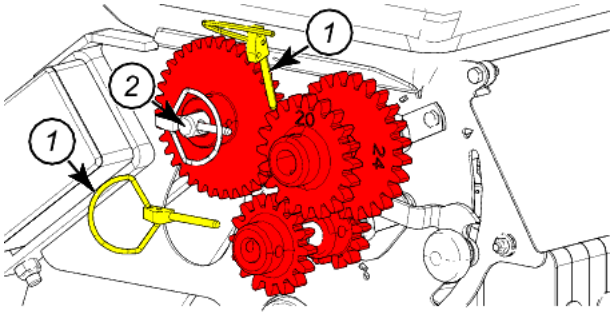
Adjusting the distribution shaft rotational speed

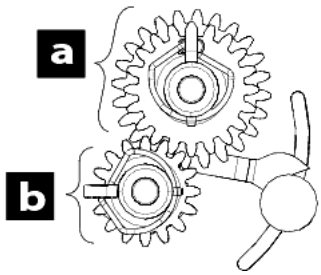
Refer to the adjustment chart to determine the drive gearwheel/driven gearwheel matching set according to the required volume per hectare and the spacing between the seed drill rows.

- Remove lynch pins (1).
- Position sprockets recommended in the adjustment charts in the adequate position:
  - Drive gearwheel (a).
  - Driven gearwheel (b).

Position non-used gearwheels on holder (2).

- Insert lynch pins (1).





Man. calibration

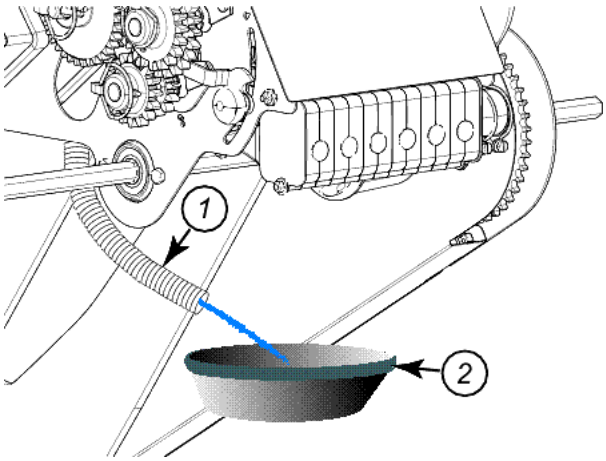
The flow can vary according to the product, the ambient temperature and the humidity level.

Proceed with regular calibration tests to check the fertilizer is properly adjusted.

After having preset the microgranulator, it is necessary to carry out a calibration test to know the real product volume applied.

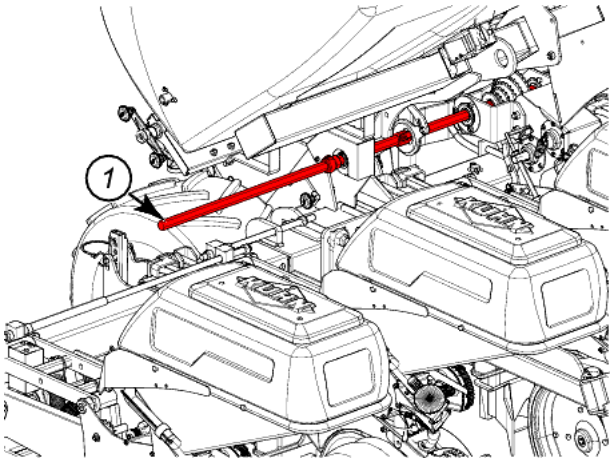
Preparing the machine:

- Divert a product transfer tube (1) towards a container.
- Position a container (2) underneath the metering unit.



Checking flow rate:

- Travel a distance of 100 m (328’1’’) for the drive shaft (1) to rotate 64 times which corresponds to 100 m (328’1’’) linear.



- Weigh and deduct the container weight in order to assess the quantity collected.
- Compare the collected product quantity for one row with the value indicated in the chart column (1). Modify settings if necessary.

Values are given in litre.

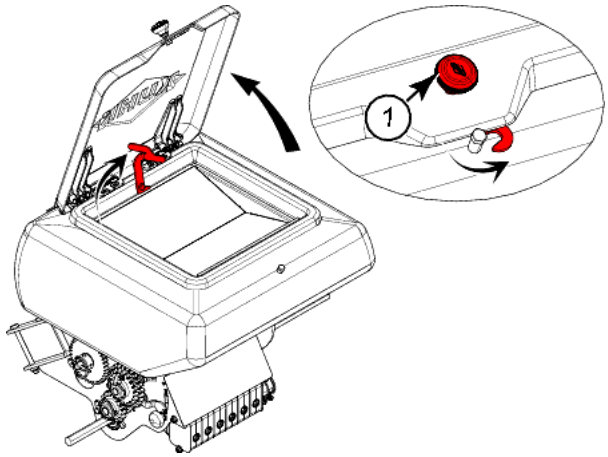
	1	A : 20 / B : 16						
	L. 100M	<----> cm						
		25	30	35	40	45	50	55
0	0,0608	24,3	20,3	17,4	15,2	13,5	12,2	11,1
1	0,063	25,2	21,0	18,0	15,8	14,0	12,6	11,5
2	0,0656	26,2	21,9	18,7	16,4	14,6	13,1	11,9
3	0,0702	28,1	23,4	20,1	17,6	15,6	14,0	12,8
4	0,0752	30,1	25,1	21,5	18,8	16,7	15,0	13,7
5	0,0804	32,2	26,8	23,0	20,1	17,9	16,1	14,6
6	0,085	34,0	28,3	24,3	21,3	18,9	17,0	15,5
7	0,09	36,0	30,0	25,7	22,5	20,0	18,0	16,4
8	0,095	38,0	31,7	27,1	23,8	21,1	19,0	17,3
9	0,1006	40,2	33,5	28,7	25,2	22,4	20,1	18,3
10	0,104	41,6	34,7	29,7	26,0	23,1	20,8	18,9
11	0,1056	42,2	35,2	30,2	26,4	23,5	21,1	19,2

■ Machine use

Filling the hopper

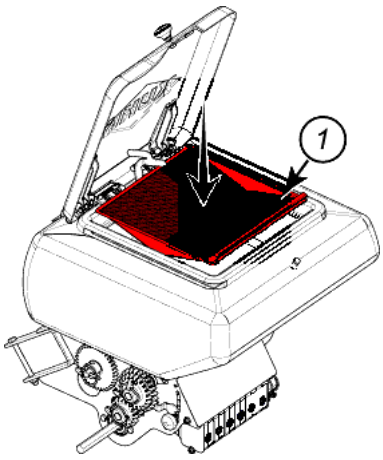
Wear waterproof clothing adapted for handling phytosanitary products (gloves, gogles, boots, mask).

- Lower the machine on the ground.
- Release hook (1).
- Open and lock the lid.



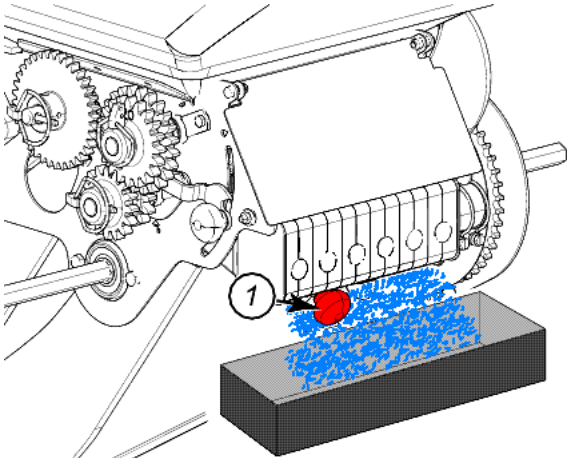
Make sure that sieve (1) is well installed.

- Empty the bag of microgranulates over the sieve.
- Close the lid and lock it.



Emptying the hopper

- Position a container close to the emptying hatch.
- Push lever (1) upwards to open the emptying hatch.
- Remove all seeds.
- Close the hatch.
- Empty transfer tubes (by shaking them).



Supply shut-off for a few rows

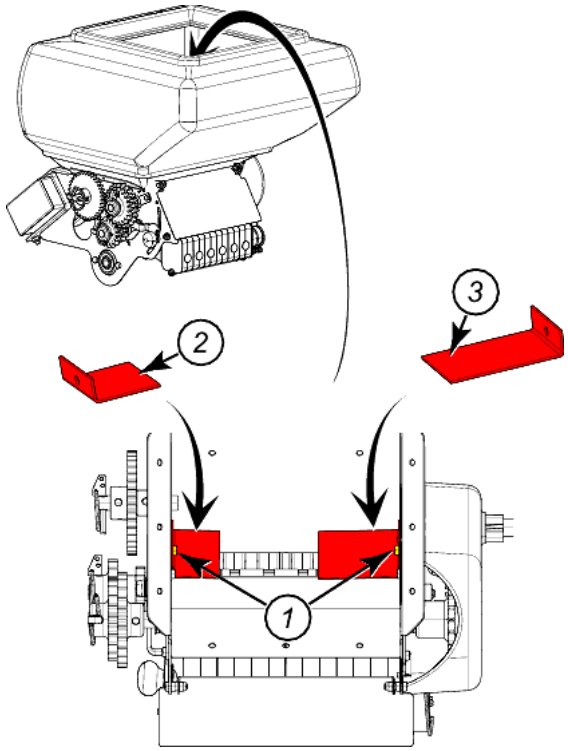
The 2 spacers (2) and (3) allow shutting off the product supply of 1 to 3 rows.

- Remove bolts (1).
- Install the spacer or spacers.

Spacer (2) enables shutting-off the supply to one row.

Spacer (3) enables shutting-off the supply to 2 rows.

- Reinstall bolts (1).
  - Torque: 2.3 daN m (17 lbf ft).



■ Checking

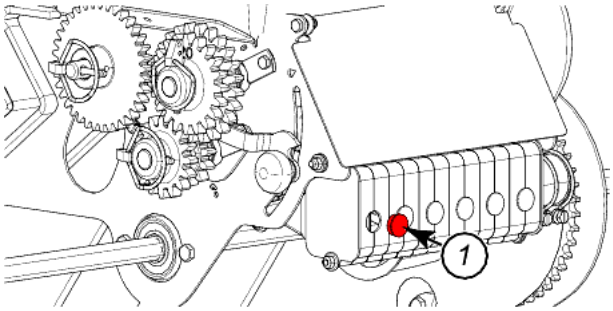
During filling, rotate drive wheel by hand to check proper functioning of the microgranulator and product flow. If no product comes out of the application system, this indicates there is a problem in the setting or that the supply tube is clogged. Search source of malfunction and remedy the problem prior to resuming sowing operation.

■ Maintenance

Cleaning the machine

Do not clean the microgranulator with water.

- Remove plug (1).
- Clean the venturi using compressed air.
- Reinstall plug (1).
- Repeat procedure on all other venturis.



Check (Each time the machine is used)

Check wear of foils to prevent sealing loss and overdosage.

■ Trouble shooting guide

■ Problem	■ Cause	■ Remedy
Incorrect distribution rotation.	Metering unit encrusted.	Clean metering unit.
Irregular drive.	Friction point in metering unit.	Check the condition of the drive (condition of gears, sprockets, chains and tensioners).
Uneven spreading.	Metering unit encrusted.	Clean metering unit.
	Friction point in metering unit.	Check the condition of the drive (condition of gears, sprockets, chains and tensioners).
No distribution.	Pipes blocked.	Clear or replace the tube.
	Too tight a bend in the seed delivery pipe.	Shorten the pipe to eliminate the bend.
	Blocked venturi.	Clean the venturi.
Sealing loss.	Worn foils.	Replace foils.
Clogging inside the hopper.	Product remained too long inside the hopper during wet weather	Never leave microgranulates inside the hopper or they will form compact blocks.

14. Fertilizer unit

For the following models:

- M2M08RT000AG03

Kit no. 1677058

Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with standard Suffolk coulters.

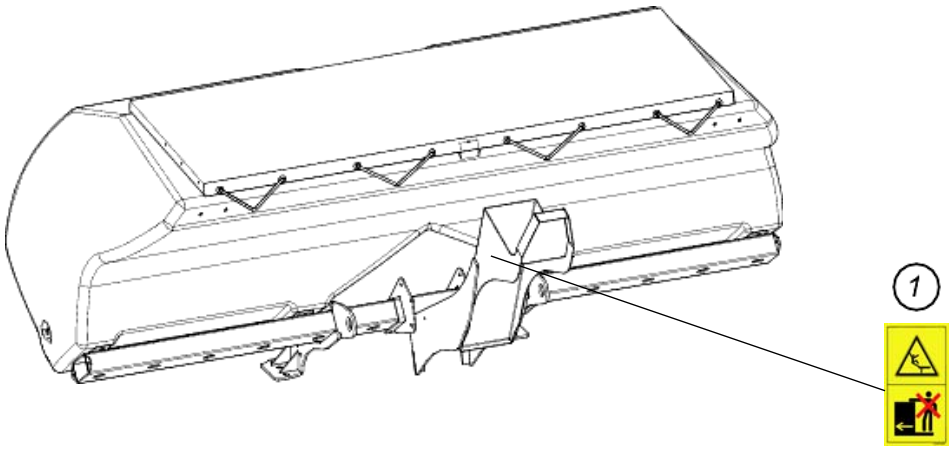
Kit no. 1677059

Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-stop Suffolk coulters.

Kit no. 1677060

Fertilizer 8 rows with 1350 L (356 US gal) hopper and applicators with non-top disk coulters.

■ Location of safety decals

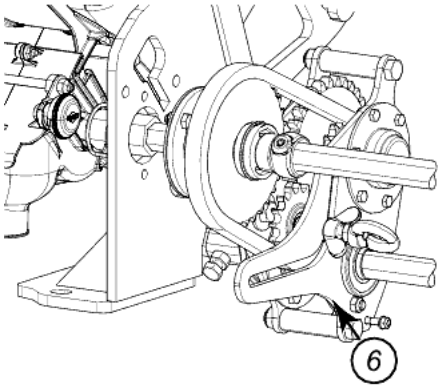


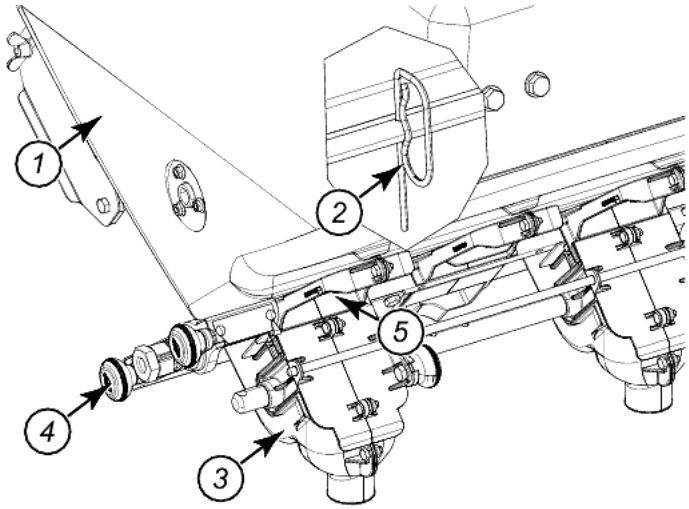
■ Description of safety decals

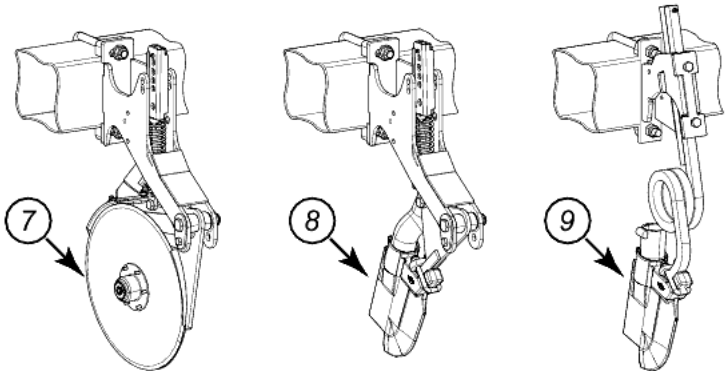
Risk of falling (1)

Do not ride on the machine when it is moving. There is a risk of falling.

■ Description and glossary



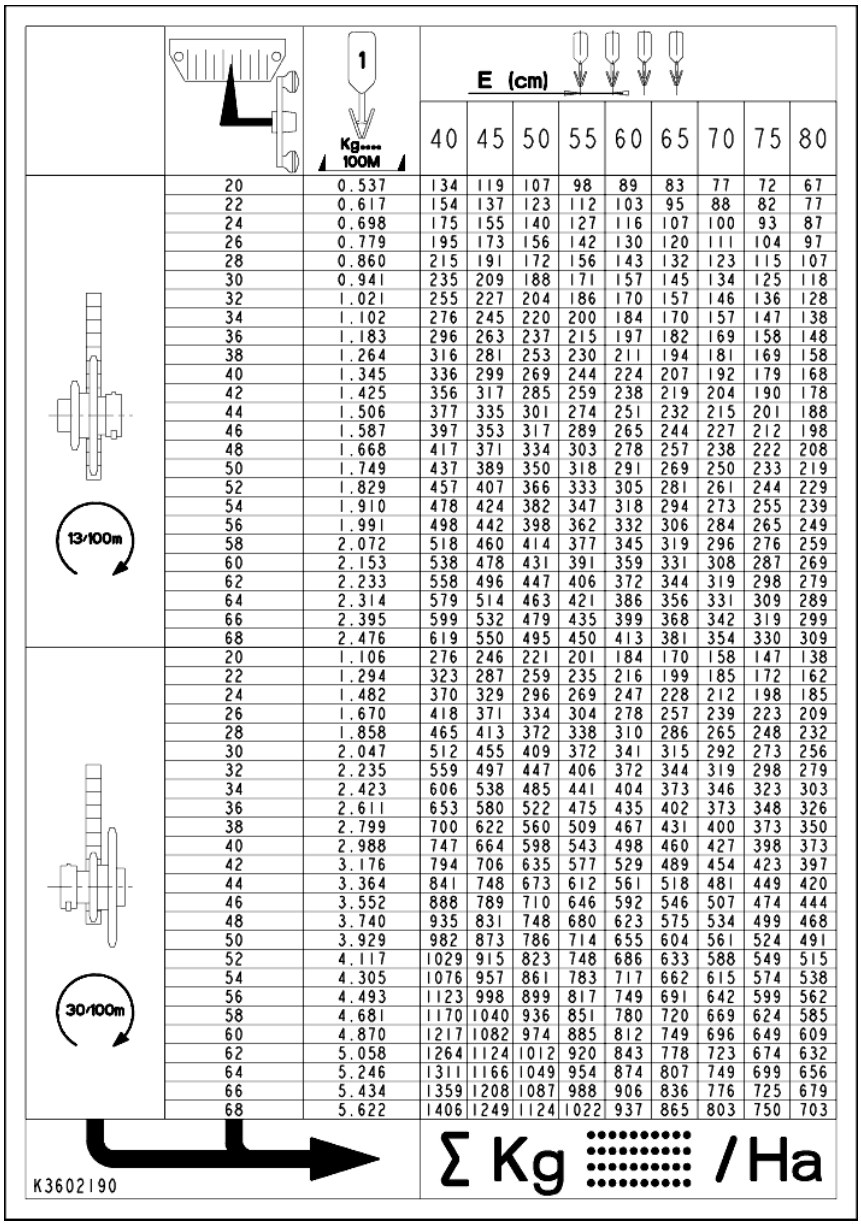




1 : Hopper
2 : Agitator
3 : Metering unit
4 : Spline opening lever
5 : Upper foil
6 : Distribution
7 : Applicator with non stop disks
8 : Applicator with non stop Suffolk coulter
9 : Applicator with standard coulter

■ Adjusting the seed rate

Calibration chart



		E (cm)								
	Kg.... 100M	40	45	50	55	60	65	70	75	80
20	0.537	134	119	107	98	89	83	77	72	67
22	0.617	154	137	123	112	103	95	88	82	77
24	0.698	175	155	140	127	116	107	100	93	87
26	0.779	195	173	156	142	130	120	111	104	97
28	0.860	215	191	172	156	143	132	123	115	107
30	0.941	235	209	188	171	157	145	134	125	118
32	1.021	255	227	204	186	170	157	146	136	128
34	1.102	276	245	220	200	184	170	157	147	138
36	1.183	296	263	237	215	197	182	169	158	148
38	1.264	316	281	253	230	211	194	181	169	158
40	1.345	336	299	269	244	224	207	192	179	168
42	1.425	356	317	285	259	238	219	204	190	178
44	1.506	377	335	301	274	251	232	215	201	188
46	1.587	397	353	317	289	265	244	227	212	198
48	1.668	417	371	334	303	278	257	238	222	208
50	1.749	437	389	350	318	291	269	250	233	219
52	1.829	457	407	366	333	305	281	261	244	229
54	1.910	478	424	382	347	318	294	273	255	239
56	1.991	498	442	398	362	332	306	284	265	249
58	2.072	518	460	414	377	345	319	296	276	259
60	2.153	538	478	431	391	359	331	308	287	269
62	2.233	558	496	447	406	372	344	319	298	279
64	2.314	579	514	463	421	386	356	331	309	289
66	2.395	599	532	479	435	399	368	342	319	299
68	2.476	619	550	495	450	413	381	354	330	309
20	1.106	276	246	221	201	184	170	158	147	138
22	1.294	323	287	259	235	216	199	185	172	162
24	1.482	370	329	296	269	247	228	212	198	185
26	1.670	418	371	334	304	278	257	239	223	209
28	1.858	465	413	372	338	310	286	265	248	232
30	2.047	512	455	409	372	341	315	292	273	256
32	2.235	559	497	447	406	372	344	319	298	279
34	2.423	606	538	485	441	404	373	346	323	303
36	2.611	653	580	522	475	435	402	373	348	326
38	2.799	700	622	560	509	467	431	400	373	350
40	2.988	747	664	598	543	498	460	427	398	373
42	3.176	794	706	635	577	529	489	454	423	397
44	3.364	841	748	673	612	561	518	481	449	420
46	3.552	888	789	710	646	592	546	507	474	444
48	3.740	935	831	748	680	623	575	534	499	468
50	3.929	982	873	786	714	655	604	561	524	491
52	4.117	1029	915	823	748	686	633	588	549	515
54	4.305	1076	957	861	783	717	662	615	574	538
56	4.493	1123	998	899	817	749	691	642	599	562
58	4.681	1170	1040	936	851	780	720	669	624	585
60	4.870	1217	1082	974	885	812	749	696	649	609
62	5.058	1264	1124	1012	920	843	778	723	674	632
64	5.246	1311	1166	1049	954	874	807	749	699	656
66	5.434	1359	1208	1087	988	906	836	776	725	679
68	5.622	1406	1249	1124	1022	937	865	803	750	703

The values indicated in the adjustment chart are only for your information.

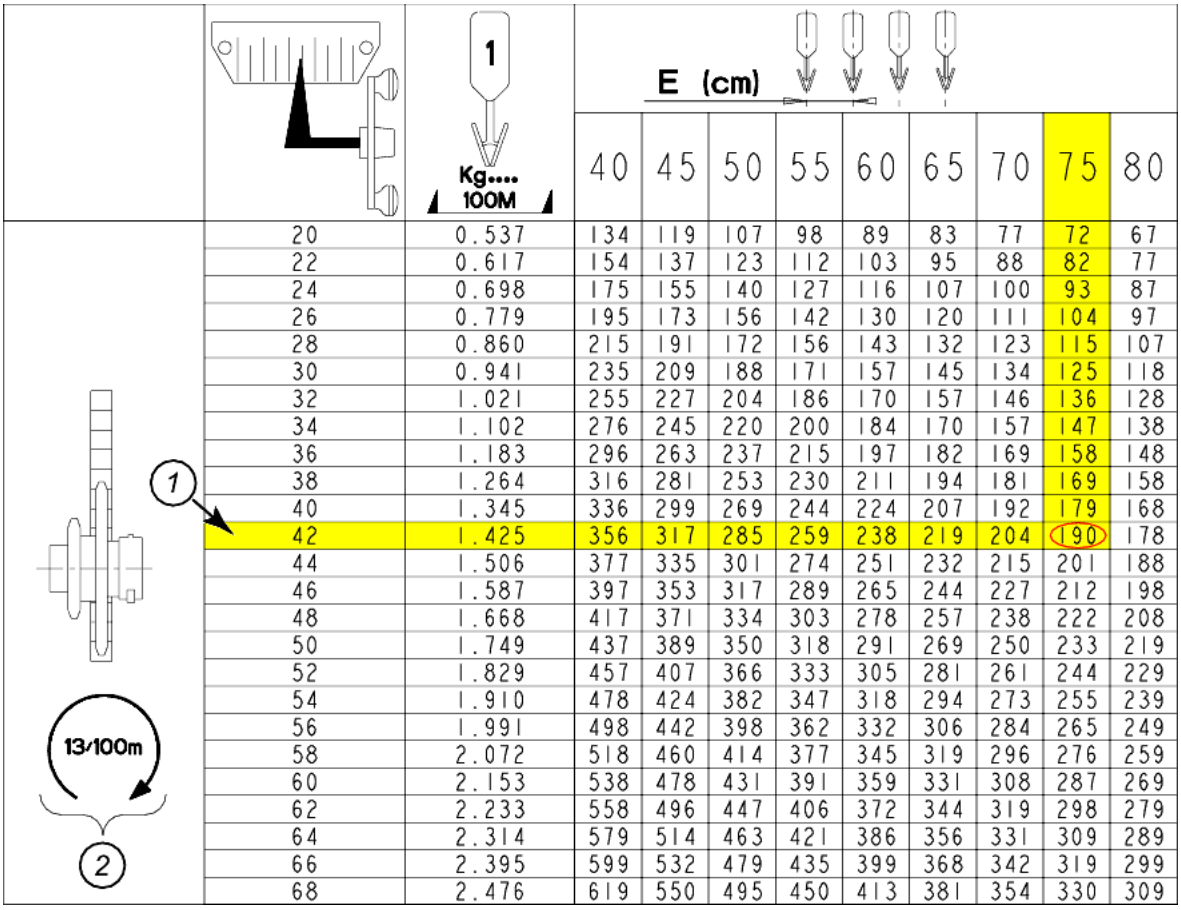
Reading the chart

Select the required application rate in the column corresponding to the spacing between the seed drill rows.

Example:

Seed row spacing: 75 cm (2’5’’).

Required application rate: 190 kg (419 lb) / ha.



		1 Kg.... 100M	E (cm) 40	45	50	55	60	65	70	75	80
	20	0.537	134	119	107	98	89	83	77	72	67
	22	0.617	154	137	123	112	103	95	88	82	77
	24	0.698	175	155	140	127	116	107	100	93	87
	26	0.779	195	173	156	142	130	120	111	104	97
	28	0.860	215	191	172	156	143	132	123	115	107
	30	0.941	235	209	188	171	157	145	134	125	118
	32	1.021	255	227	204	186	170	157	146	136	128
	34	1.102	276	245	220	200	184	170	157	147	138
	36	1.183	296	263	237	215	197	182	169	158	148
	38	1.264	316	281	253	230	211	194	181	169	158
	40	1.345	336	299	269	244	224	207	192	179	168
	42	1.425	356	317	285	259	238	219	204	190	178
	44	1.506	377	335	301	274	251	232	215	201	188
	46	1.587	397	353	317	289	265	244	227	212	198
	48	1.668	417	371	334	303	278	257	238	222	208
	50	1.749	437	389	350	318	291	269	250	233	219
	52	1.829	457	407	366	333	305	281	261	244	229
	54	1.910	478	424	382	347	318	294	273	255	239
	56	1.991	498	442	398	362	332	306	284	265	249
	58	2.072	518	460	414	377	345	319	296	276	259
	60	2.153	538	478	431	391	359	331	308	287	269
	62	2.233	558	496	447	406	372	344	319	298	279
	64	2.314	579	514	463	421	386	356	331	309	289
	66	2.395	599	532	479	435	399	368	342	319	299
	68	2.476	619	550	495	450	413	381	354	330	309

The line on which the required application rate is located enables determining the index (1) and the distribution shaft speed (2).

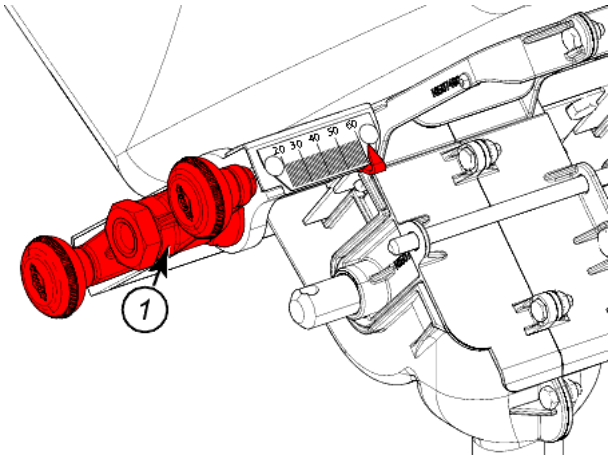
Example:

For an application rate of 190 kg (419 lb) / ha, adjust index on 42 and use gearwheel enabling to obtain a distribution shaft speed ratio of 13 rotations for 100 m (328’).

Adjusting the spline opening

The spline opening is adjusted by means of crank (1).

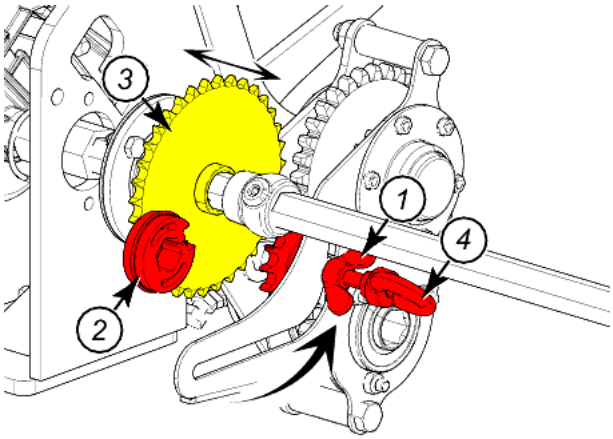
Refer to adjustment chart to dermtermine the spline opening adjustment index according to the required application rate and the spacing between the seed drill rows.

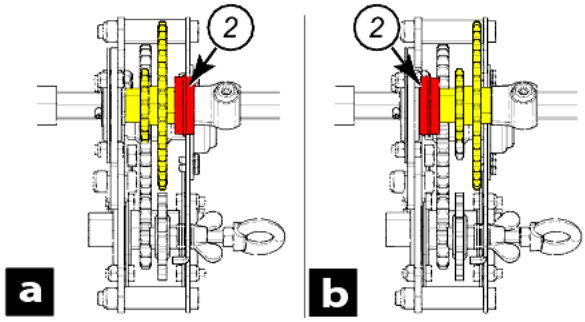


Adjusting the distribution shaft rotational speed

Refer to the adjustment chart to determine the drive gearwheel direction of mount according to the required application rate and the spacing between the seed drill rows.

- Loosen wing nut (1).
- Pivot tensioner (4).
- Remove spacer (2).
- Move the double gearwheel (3) and chain to the required position:
  - Position (a): Dristribution shaft speed of 13 revs for a travel of 100 m (328').
  - Position (b): Dristribution shaft speed of 30 revs for a travel of 100 m (328').
- Reinstall wedge (2) according to double gearwheel (3) position.
- Pivot tensioner (4).
- Tighten the wing nut (1).



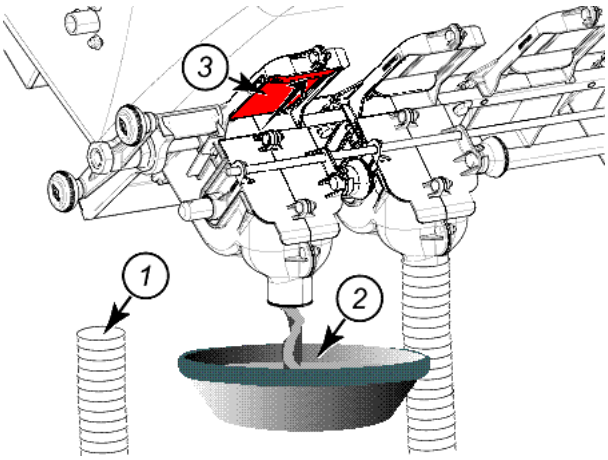


Man. calibration

The flow can vary according to the fertilizer type, the ambient temperature and the humidity level.

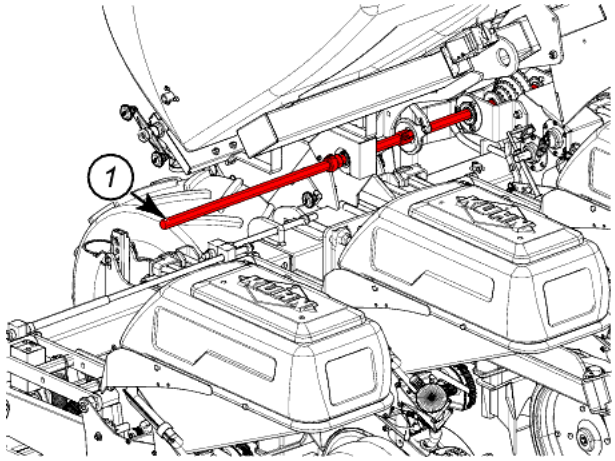
Proceed with regular calibration tests to check the fertilizer is properly adjusted.

After having preset the fertilizer, it is necessary to carry out a calibration test in order to assess the real fertilizer dose supplied.



Preparing the machine:

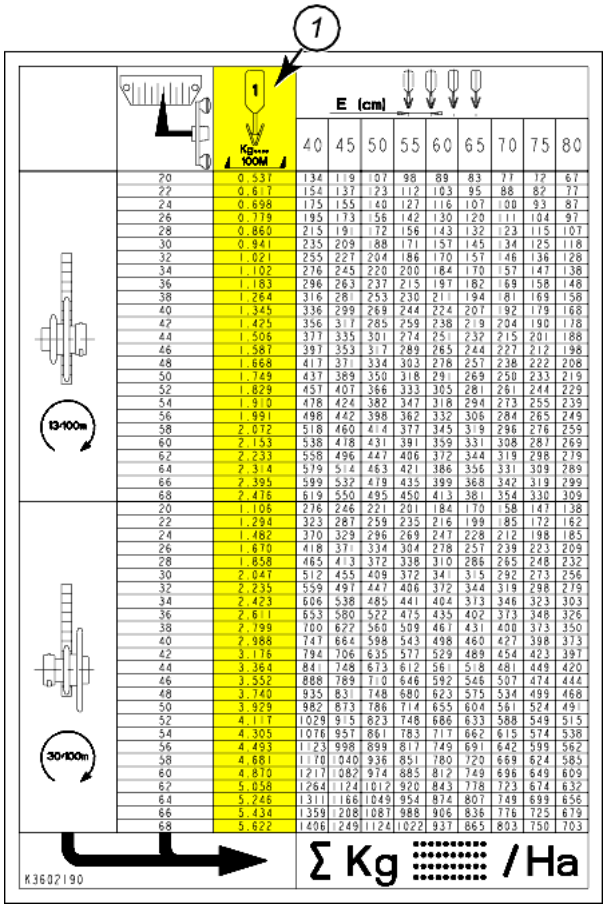
- Disconnect tube (1) from one of the metering units.
- Position a container (2) underneath the metering unit.
- Open hatch (3).



Checking flow rate:

- Travel a distance of 100 m (328'1'') for the drive shaft (1) to rotate 64 times which corresponds to 100 m (328'1'') linear.
- Weigh and deduct the container weight in order to assess the quantity collected.

- Compare the collected product quantity for one row with the value indicated in the chart column (1). Modify settings if necessary.

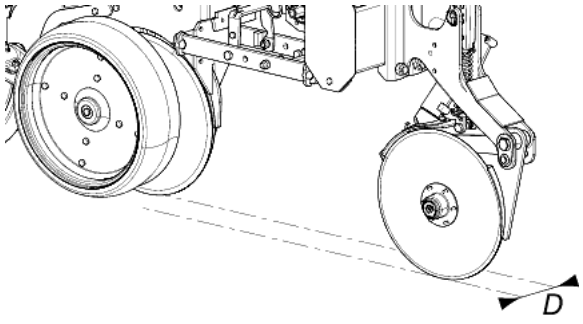


■ Adjusting the applicators

Non stop disk applicators

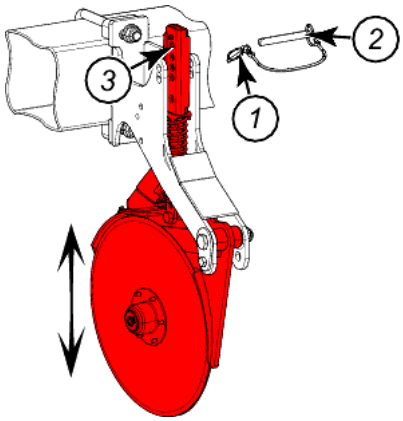
Lateral adjustment

The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97'').



Adjusting the application depth

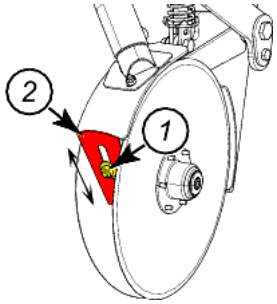
The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).



- Raise the machine.
- Remove lynch pin (1) and pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Insert and lock lynch pin (1).

Adjust all applicators to the same setting.

Adjusting the plates



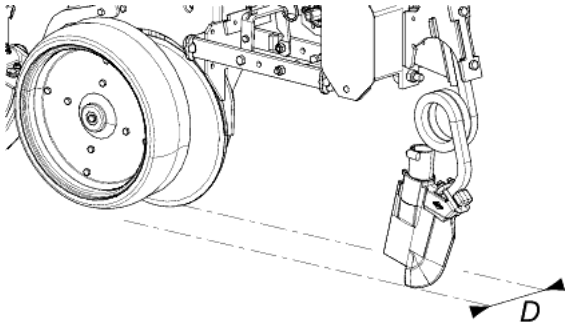
- Loosen nut (1).
- Set plate (2) as close as possible to the disks but without touching it. Rotate disk once to check that it is not in contact.
- Tighten nut (1).

Repeat procedure on each applicator.

Applicators with standard coulters

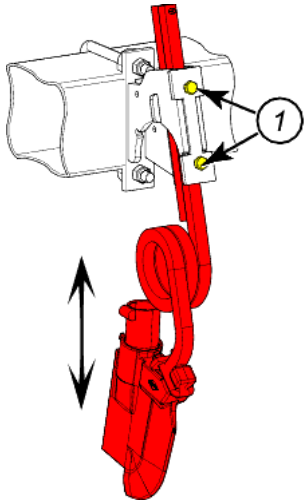
Lateral adjustment

The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97'').



Adjusting the application depth

The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).



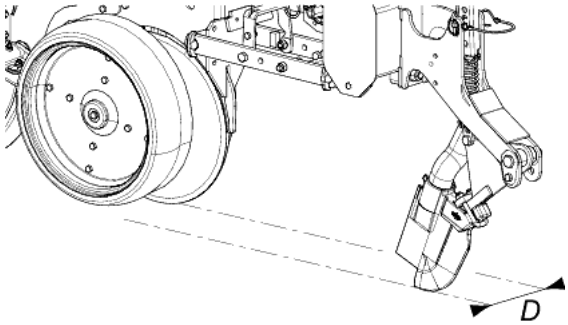
- Raise the machine.
- Loosen bolts (1).
- Adjust coulter height to obtain the required working depth.
- Tighten screws (1).

Adjust all applicators to the same setting.

Non stop coulter applicators

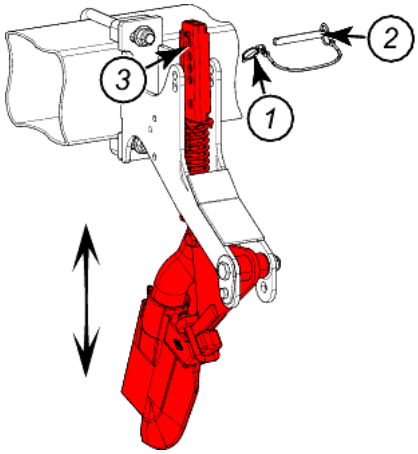
Lateral adjustment

The applicator (D) is factory offset with regards to the seeding line by approximately 50 mm (1.97'').



Adjusting the application depth

The seeding unit setting must be adjusted according to the sowing conditions (Soil preparation and nature).



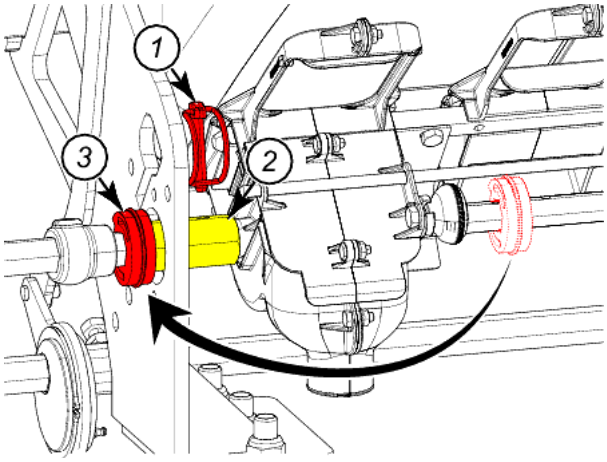
- Raise the machine.
- Remove lynch pin (1) and pin (2).
- Insert pin (2) in one of bracket (3) holes to set the required working depth.
- Insert and lock lynch pin (1).

Adjust all applicators to the same setting.

■ Machine use

Disengaging the fertilizer

- Remove lynch pin (1).
- Use spacer (3) to stop spacer (2) from moving sideways.



Safety

When an incident occurs, the safety bolt (3) shears causing the metering unit to stop.

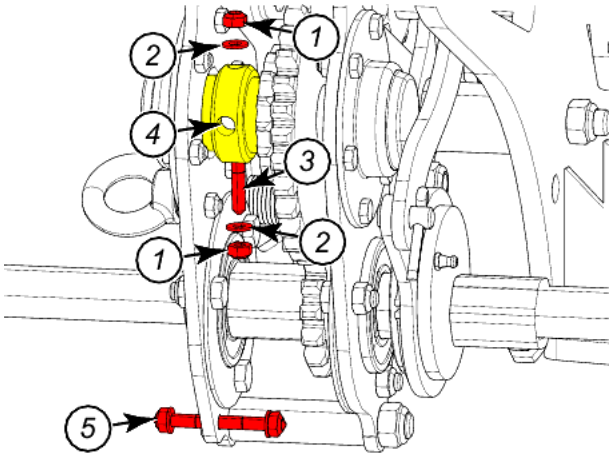
- Use a punch to remove the remaining shear bolt parts.

Hole (4) of larger diameter enables easier removal of the remaining shear bolt parts.

- Replace the components.

A full set of replacement components (5) is positioned on the machine.

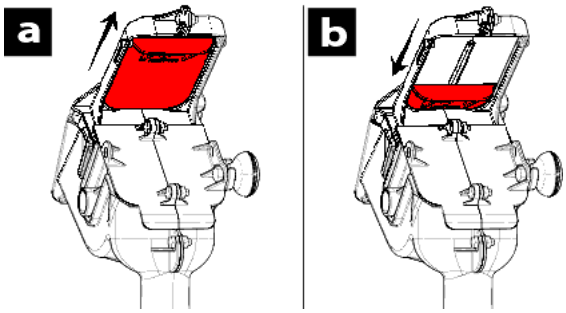
Nut (1) ***Part no. 80200640****.*
Washer (2) ***Part no. 80250611****.*
Safety bolt (3) ***Part no. N03481B0****.*



Supply shut-off for a few rows

It is possible to shut-off the fertilizer supply to certain rows.

- Position (a): Distribution open.
- Position (b): Distribution shut-off.

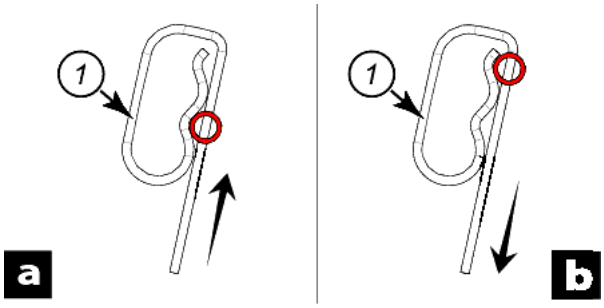


Agitator adjustment

- Remove the sieve fitted in the hopper to access agitators.

When the distribution is not used, place agitator (1) in high position (a).

When the distribution is used, place agitator (1) in low position (b).

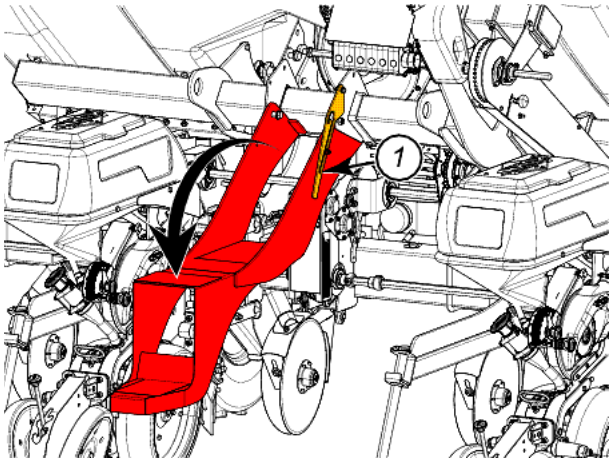


Filling the hopper

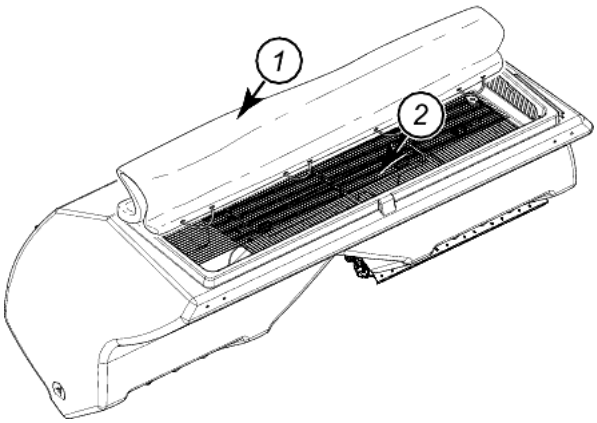
- Lower the machine on the ground.

If the machine is fitted with an access platform:

- Lower platform using lever (1).



- Raise protection cover (1).



Make sure that sieve (2) is well installed.

Before filling, check that there is no foreign matter in the hopper.

- After filling, lower and attach the protection cover.

If the machine is fitted with an access platform:

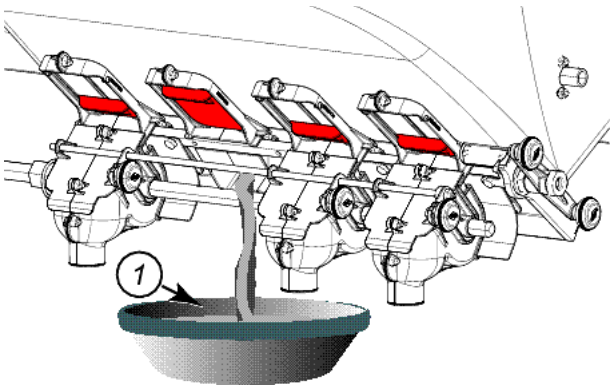
- Raise access platform.

The machine can be fitted with a loading screw for easier hopper filling.

- *Loading screw for fertilizer equiped with 1350 L (356 US gal) hoppers* **Kit no. 1677227**.

Emptying the hopper

- Place a container (1) underneath the hatch that does not supply a metering unit.
- Open hatch.



■ Checking

During filling, rotate drive wheel by hand to check proper functioning of the fertilizer and product flow. If no product comes out of the applicator, this indicates there is a problem in the setting or that the applicator is clogged. Search source of malfunction and remedy the problem prior to resuming sowing operation.

■ Maintenance

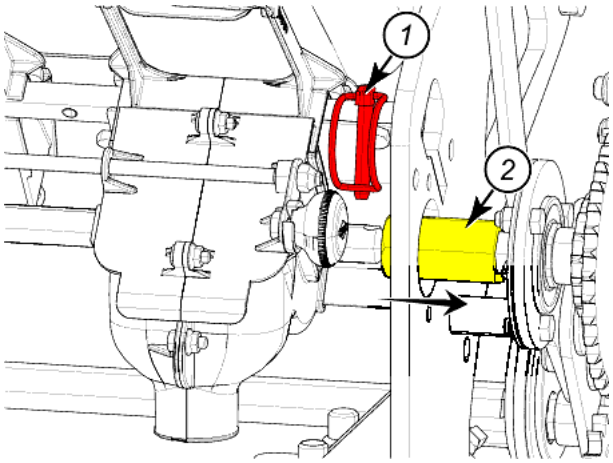
Cleaning the machine

Fertilisers used cause corrosion in the machine and rapid deterioration.

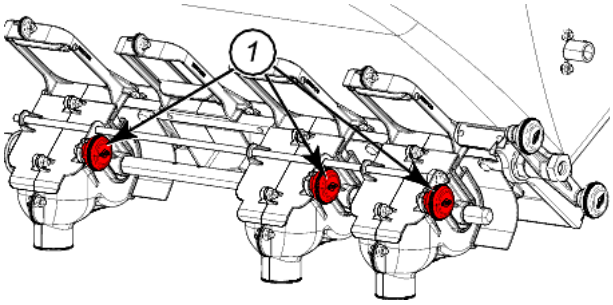
Remove the metering unit assembly to clean the machine completely.

Removing the metering units

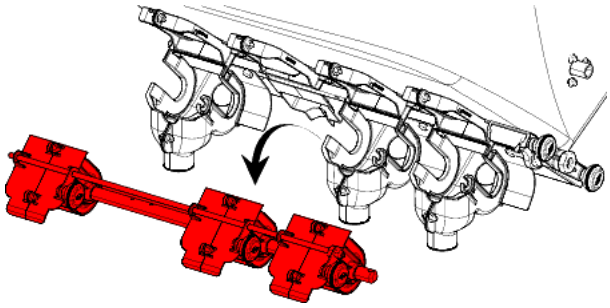
- Disengage the fertilizer.
  - Remove lynch pin (1).
  - Slide spacer (2) to free distribution drive shaft.



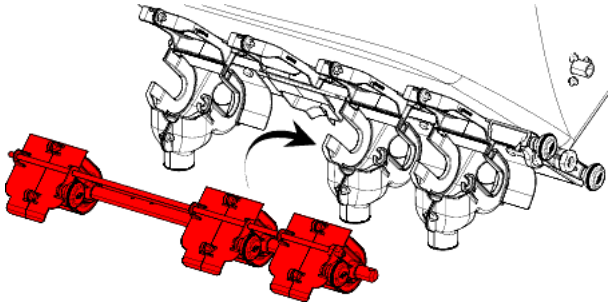
- Loosen knurled knob (1) on each metering unit.



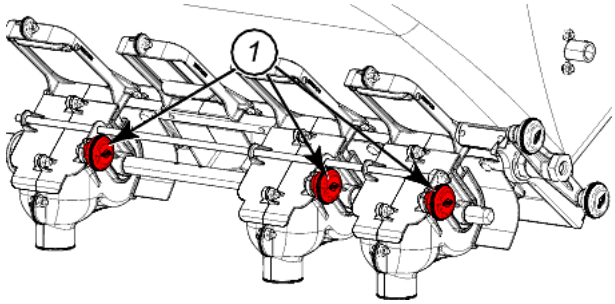
- Remove the unit.
- Clean the unit using compressed air.



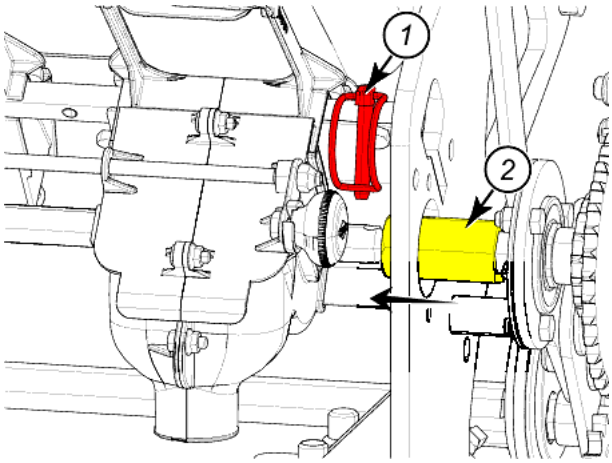
- Reassemble the unit.



- Tighten knurled nuts *1 on each metering unit.

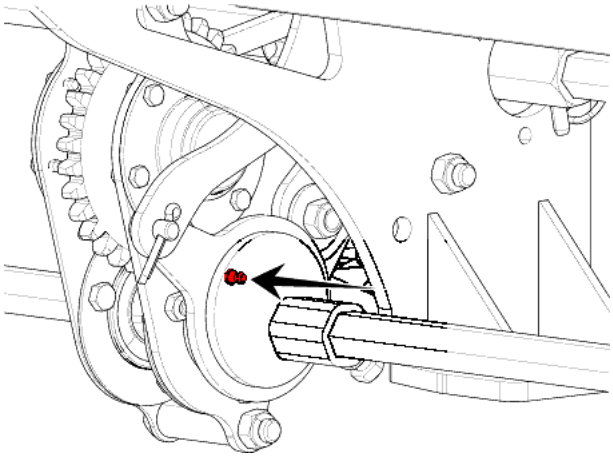


- Slide spacer (2).
- Reinstall lynch pin (1).



Lubrication (Every 50 hours)

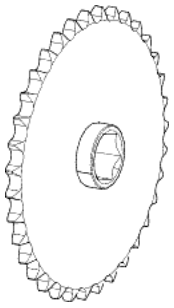
- Eccentrics.



■ Trouble shooting guide

■ Problem	■ Cause	■ Remedy
Incorrect distribution rotation.	Metering unit encrusted.	Clean metering unit.
Irregular drive.	Friction point in metering unit.	Check the condition of the drive (condition of gears, sprockets, chains and tensioners).
Uneven spreading.	Too tight a bend in the seed delivery pipe.	Shorten the pipe to eliminate the bend.
	Moisture problems.	Damp fertiliser will not flow, do not use fertiliser unless it is dry.
No distribution.	Applicators blocked.	Clean the applicators.
	Pipes blocked.	Clear or replace the tube. Do not work when the tube inside are too wet.
	The safety system shear bolt has sheared.	Replace the components.
	Distributions disengaged.	Check that the lynch pin is in position and locked

15. Low flow kit for the fertilizer unit



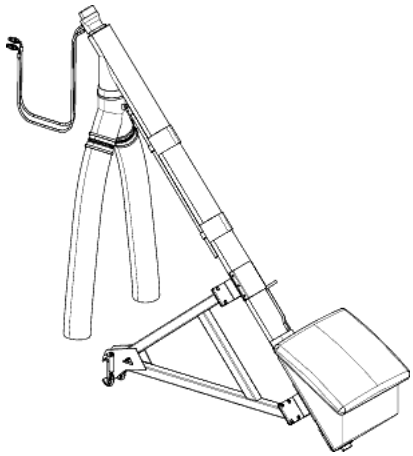
Kit no. 1677228

This equipment allows reducing the flow for low application rate fertilisation.

Install calibration chart decal.
Part no. K3602200.

		1 Kg.... 100M	E (cm) 40	45	50	55	60	65	70	75	80
	20	0.347	87	77	69	63	58	53	50	46	43
	22	0.397	99	88	79	72	66	61	57	53	50
	24	0.448	112	99	90	81	75	69	64	60	56
	26	0.498	125	111	100	91	83	77	71	66	62
	28	0.549	137	122	110	100	91	84	78	73	69
	30	0.600	150	133	120	109	100	92	86	80	75
	32	0.650	163	144	130	118	108	100	93	87	81
	34	0.701	175	156	140	127	117	108	100	93	88
	36	0.751	188	167	150	137	125	116	107	100	94
	38	0.802	200	178	160	146	134	123	115	107	100
	40	0.853	213	189	171	155	142	131	122	114	107
	42	0.903	226	201	181	164	151	139	129	120	113
	44	0.954	238	212	191	173	159	147	136	127	119
	46	1.004	251	223	201	183	167	155	143	134	126
	48	1.055	264	234	211	192	176	162	151	141	132
	50	1.106	276	246	221	201	184	170	158	147	138
	52	1.156	289	257	231	210	193	178	165	154	145
	54	1.207	302	268	241	219	201	186	172	161	151
	56	1.257	314	279	251	229	210	193	180	168	157
	58	1.308	327	291	262	238	218	201	187	174	163
	60	1.359	340	302	272	247	226	209	194	181	170
	62	1.409	352	313	282	256	235	217	201	188	176
	64	1.460	365	324	292	265	243	225	209	195	182
	66	1.510	378	336	302	275	252	232	216	201	189
	68	1.561	390	347	312	284	260	240	223	208	195
8/100m											
K3602200			Σ Kg /Ha								

16. Filling auger



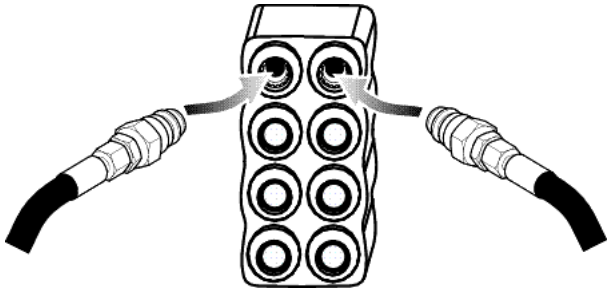
Kit no. 1677227

Loading screw for fertilizer equiped with 1350 L (356 US gal) hoppers.

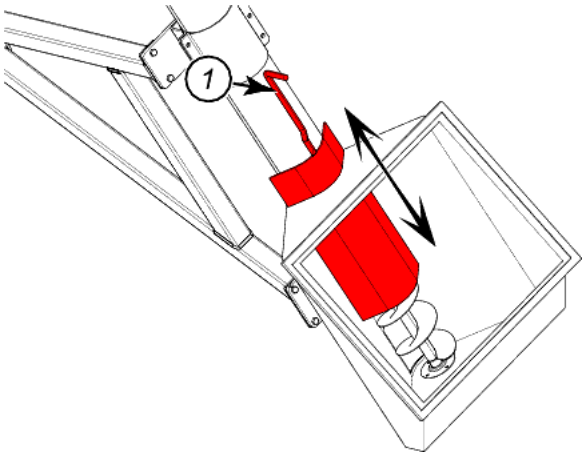
The machine can be fitted with a loading screw for easier hopper filling.

■ Hydraulic connections

Connect hydraulic hoses to the tractor double acting spool valve.

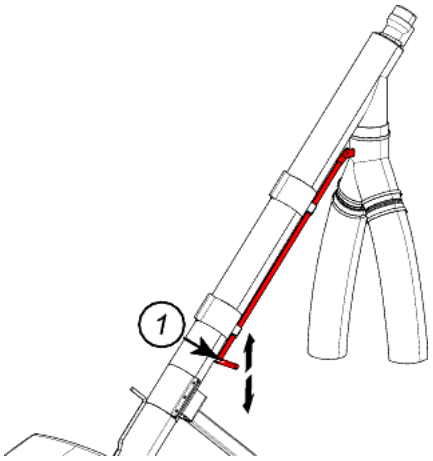


■ Machine use



Lever (1) linked to the hatch enables altering the screw flow.

Lever (1) enables directing the fertilizer flow to the right or left for an even hopper filling.



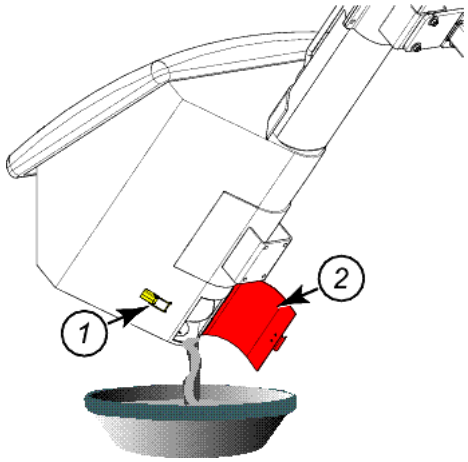
■ Maintenance

Cleaning the machine

Fertilisers used cause corrosion in the machine and rapid deterioration.

In case of a long interruption, or at the end of the season, the container must be fully emptied.

- Release hook (1).
- Open hatch (2).
- Empty remaining fertilizer and clean container thoroughly.
- Shut hatch (2).
- Lock hook (1).



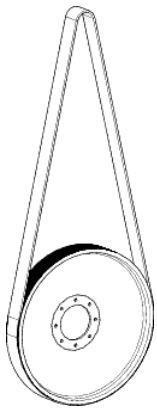
17. Distribution disks

Hole diameter (mm)	Number of holes												
	12	18	22	27	30	31	33	35	48	54	70	80	100
0.8													N1501051*
1.25									K3601440*		N1500431*		N00849B0*
1.5	N1506320	N04286B0*											
1.75													N1500701
2.1			N00856B0* N1503810			N00845B0*							
2.5	N04343B0	N00846B0	N04341B0	N1503140					N02951B0		N02851B0	N1502170	
3		N04318B0		N1500670*						N1500061*			
3.5	N1502090	N00847B0	N03840B0	N03828B0			N00855B0	N1503380	N00848B0		N04342B0	N1501591	N04293B0
4													
4.5			N00851B0	N00843B0			N04107B0	N1503390	N04305B0	N1500681	N00850B0		
5			N02511B0	N00905B0				N1503400					
5.5			N00852B0	N00844B0			N04282B0	N1503410	N1503130	N1500691			
7					N1500340								

* Without agitator blades and plan additional spacer **BNB0048** to install in the casing.

Other types of disks available. Contact your Kuhn dealer.

18. Belt and pulley units



Belt and pulley assemblies are available to adapt the blower speed to the tractor PTO speed.

Kit no. 1677287

Belt and pulley assembly for tractors with a pto speed of 470 min^{-1}.

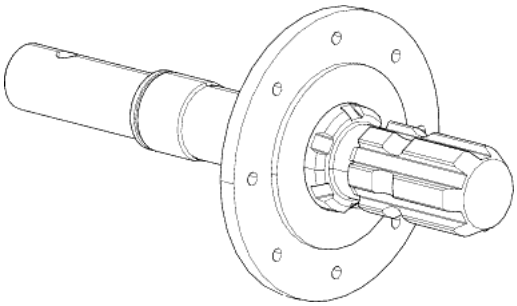
Kit no. 1676731

Belt and pulley assembly for tractors with a pto speed of 870 min^{-1}.

Kit no. 1676738

Belt and pulley assembly for tractors with a pto speed of 1000 min^{-1}.

19. Rear PTO output stub



Kit no. 1676730

This equipment enables creating a drive source for driving another device.

Example: Driving a diaphragm pump for a fluid fertilizer placement system.

20. Hydraulic blower drive

Kit no. 1676545

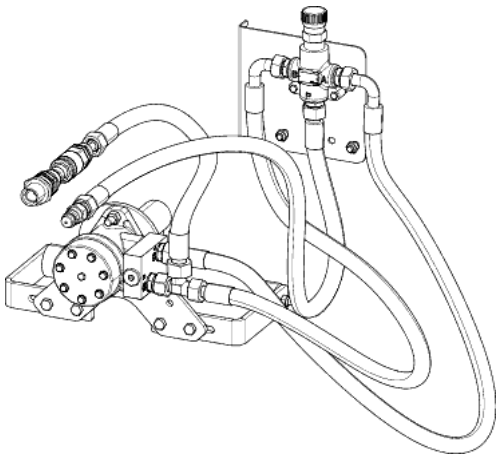
This equipment enables driving the blower at a constant speed whatever the tractor engine speed.

When the seed drill is combined with a soil preparation tool driven by the tractor PTO, this equipment allows blower rotation when disengaging the PTO or when the torque limiter is released.

Kit no. 1676546

Hydraulic hose extension.

This equipment may be necessary when the machine is combined with a soil preparation tool.



■ Preparing the tractor

The tractor must be equipped with:

- 1 double acting valve or single acting valve with free return to supply the hydraulic valve bank.

■ Technical specifications

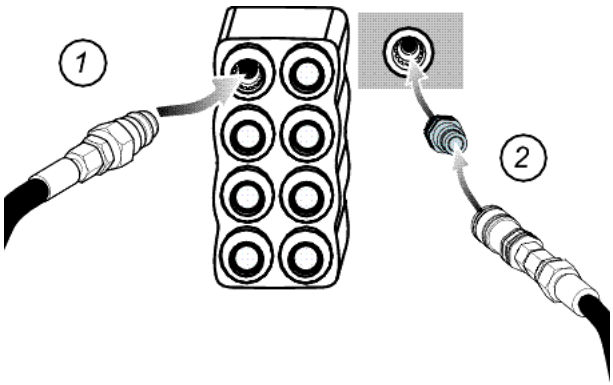
The tractor must be fitted with load sensing.

In case of doubt, refer to the tractor operator's manual and contact the official distributor of the concerned tractor brand

	Recommendations
Required oil flow	40 - 45 l/min
Maximum pressure authorized	200 bar (2900 psi)
Maximum pressure authorized on the free return	10 bar (145 psi)

■ Hydraulic connections

- Connect the hydraulic hose (1) on the blower to a single acting or double acting valve.
- Connect the hydraulic hose (2) of the blower to a free return on the tractor.If the tractor is not fitted with a FLAT FACE coupler, use the one supplied with the equipment to connect hose (2) to the tractor free return.



Available as spare parts:

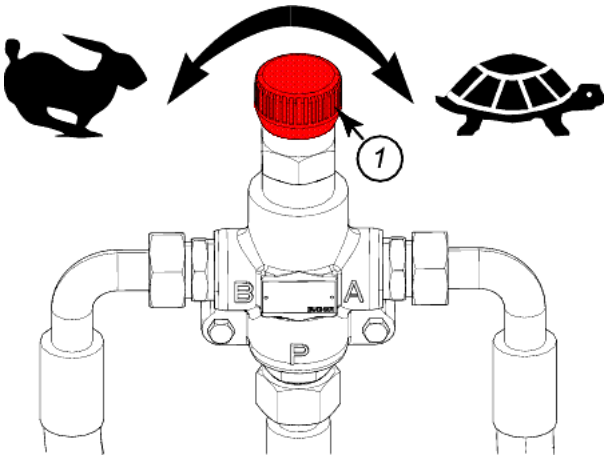
- "FLAT FACE" coupler with M30 thread (Part no. A4074042).
- "FLAT FACE" coupler with M22 thread (Part no. A4074041).

After connecting the hoses, check that there is no risk of catching them during operation.

■ Suction adjustment

Adjustment procedure:

- Fully turn thumbwheel (1) clockwise.
- Operate hydraulic valve that supplies the blower hydraulic drive motor.
- Turn thumbwheel (1) counterclockwise to increase the suction value.



Suction must be comprised between 50 and 65 (or cm water column).

- **A lower suction value can cause misses on the seeding line.**
- **A higher suction value can cause doubles on the seeding line and premature disk wear.**

The measure must be made with disks fitted, seeds engaged on the disks.

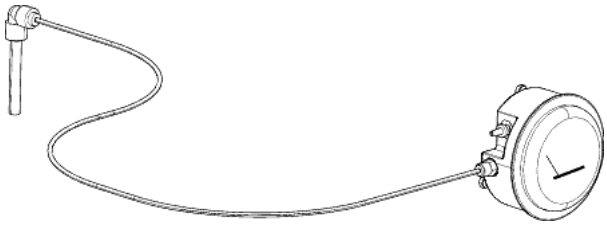
For a precise measure of the suction value, a vacuometer must be fitted on the machine.

Kit no. 1677223.

21. Vacuometer

Kit no. 1677223

The vacuometer enables determining precisely the suction value at disk hole level.



The vacuometer calibration is factory checked.

22. HECTOR 3000 electronic control box

Kit no. 1676822

The HECTOR 3000 electronic control box is used to::

- Count the area sown (daily and total counter).
- Indicate forward speed.

23. Passage control box kit KMS208

Kit no. 1676659

The passage control box enables controlling seed passage.

24. Sowing control box kit KMS412

Kit no. 1676428B

The sowing control box enables controlling the seed population.

25. Electronic disengagement kit

Kit no. 1677299

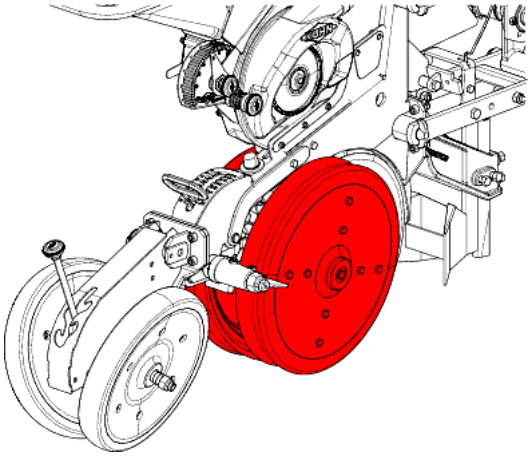
The KMD112 disengagement control box allows electrical disengagement of one or several rows at any time.

The KMD112 disengagement control box can only function in combination with control boxes KMS208 or KMS412.

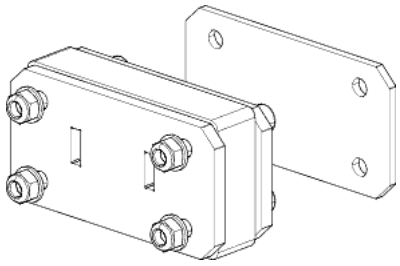
26. 65 x 400 depth control wheels

Kit no. 1676520

This equipment may be required for sowing crops that need little spacing between rows.



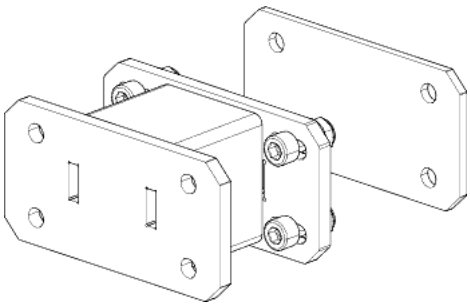
27. 45 mm (1.8 ”) spacer and 5 mm (0.2”) levelling pad



Kit no. 1677293

This equipment may be necessary to combine certain optional equipments.

28. 82 mm (3.2”) spacer and 5 mm (0.2”) levelling pad

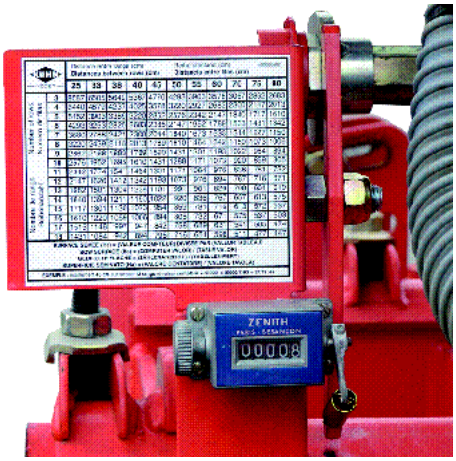


Kit no. 1676792

This equipment may be necessary to combine certain optional equipments.

29. Mechanical hectare counter

Kit no. 1676821



The mechanical hectare counter shows the area sown.

■ Machine use

The chart indicates the number of rotations made by the hexagonal drive shaft to sow one hectare according to the number of rows used and the spacing between rows.

To determin the area sown:

- Find the value in the chart that corresponds to the number of rows used and the spacing between rows.

Example:

Number of rows: 12.

Seed row spacing: 45 cm (1’5’’).

Number of rows / Numéro de filas / Nombre de rangs / Reihenanzahl (1)	Distance entre rangs (cm) / Distances between rows (cm) / Reihenabstand (cm) / Distancia entre filas (cm) (2)										
	25	33	38	40	45	50	55	60	70	75	80
3	8587	6505	5649	5367	4770	4293	3903	3578	3067	2862	2683
4	6440	4879	4237	4025	3578	3220	2927	2683	2300	2147	2013
5	5152	3903	3389	3220	2862	2576	2342	2147	1840	1717	1610
6	4293	3253	2825	2683	2385	2147	1952	1789	1533	1431	1342
7	3680	2788	2421	2300	2044	1840	1673	1533	1314	1227	1150
8	3220	2439	2118	2013	1789	1610	1464	1342	1150	1073	1006
9	2862	2168	1883	1789	1590	1431	1301	1193	1022	954	894
10	2576	1952	1695	1610	1431	1288	1171	1073	920	859	805
11	2342	1774	1541	1464	1301	1171	1064	976	836	781	732
12	2147	1626	1412	1342	1193	1073	976	894	767	716	671
13	1982	1501	1304	1238	1101	991	901	826	708	661	619
14	1840	1394	1211	1150	1022	920	836	767	657	613	575
15	1717	1301	1130	1073	954	859	781	716	613	572	537
16	1610	1220	1059	1006	894	805	732	671	575	537	503
17	1515	1148	997	947	842	758	689	631	541	505	474
18	1431	1084	942	894	795	716	651	596	511	477	447

SURFACE SEMEE (Ha)=(VALEUR COMPTEUR) DIVISEE PAR (VALEUR TABLEAU)
SOW SURFACE (Ha) = (COMPUTER VALOR) / (TABLE VALOR)
GEDRILLTE FLÄCHE = (ZÄHLERANZEIGE) / (TABELLENWERT)
SUPERFICIE SEMINATO (Ha) = (VALORE CONTATORE) / (VALORE TAVOLA)

EXEMPLE:écartement **45cm** sur semoir **12 rangs** et valeur **compteur=45000-->45000/1193=37,72Ha,**

The value in the chart that corresponds to the number of rows used (1) and the spacing between rows (2) is **1193**.

- Divide the value indicated on the counter by the value indicated in the chart:

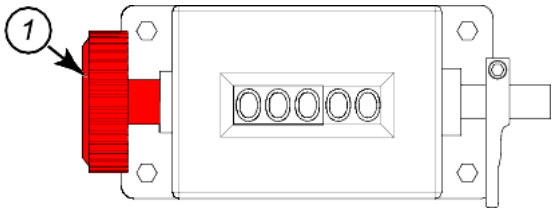
Example:

Value indicated on the hectare counter: 45000.

Number of hectares sown: 45000 / 1193 = **37.72 ha**.

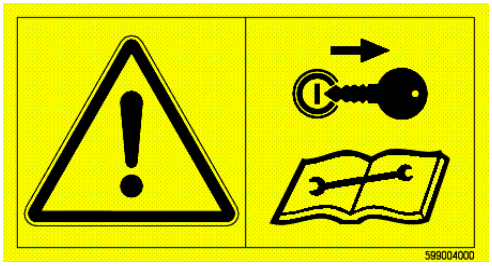
To reset:

Turn the wheel (1) to reset the hectare counter to zero.



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.



1. Frequency chart

	Each time the machine is used	After the first 8 hours of use	Every 25 hours	Every 50 hours	At the end of each season
Lubrication					
Grease: - The gauge wheel pivot point				✓	
- The marker pivot point				✓	
- The roller guide pivot points				✓	
- The telescopic frame					✓
Oil - The moving parts and pivot points				✓	
- Chains				✓	
Maintenance					
Check - Wearing parts	✓				
- Seeding units				✓	

	Each time the machine is used	After the first 8 hours of use	Every 25 hours	Every 50 hours	At the end of each season
- Tyre pressure	✓				
- Fixing elements		✓			
- Blower belt tension	✓				
- Drive components	✓		✓		
- Sowing monitoring units	✓		✓		

2. Cleaning the machine

Regularly clean hopper inside walls and furrow openers.

■ Hoppers

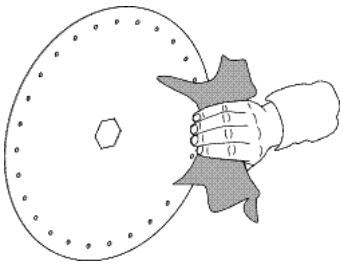
Empty and clean hopper inside and outside.

■ Blower and control boxes

Do not pressure-wash with water.

■ Distribution disc

Clean disks with a clean rag.



3. Lubrication

The pictorials show the points to be greased (Part no. 099054002).

Clean grease nipples before greasing.

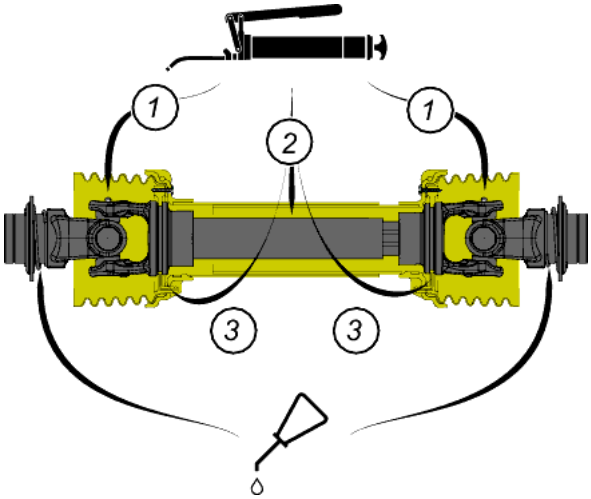
Lubricate with SHELL multi-purpose grease grade NLGI 2.

Oil with SHELL SAE 90 gear oil.

■ PTO shaft

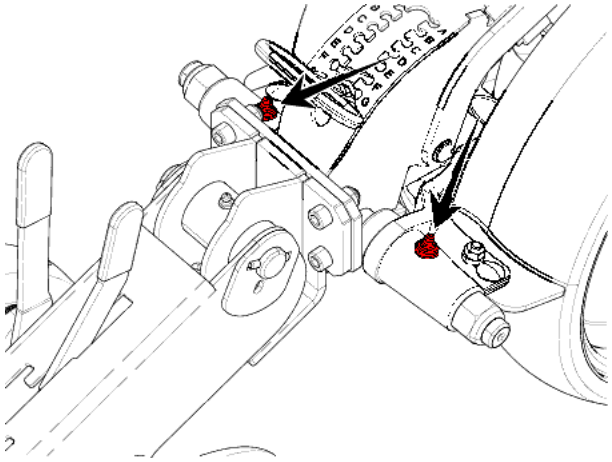
Primary PTO shaft

- Every 8 hours:
  - U-joints (1).
  - transmission tube (2).
  - guide rings (3).

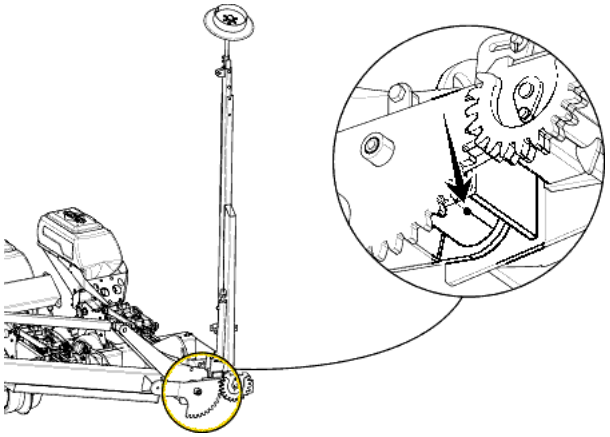


■ Grease:

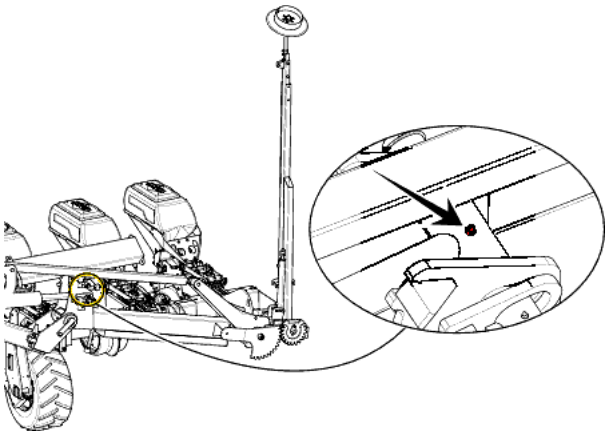
- The gauge wheel pivot point.



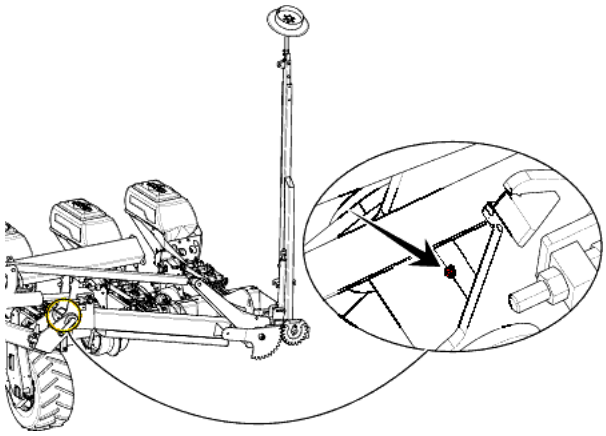
- The marker pivot point (1 on each side).



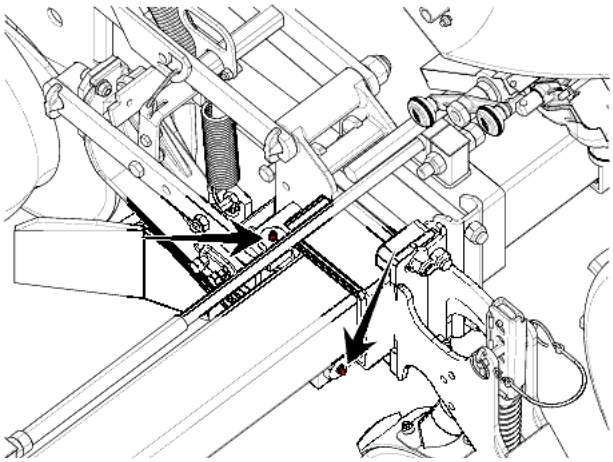
- The folding cylinder pivot points (1 on each side).



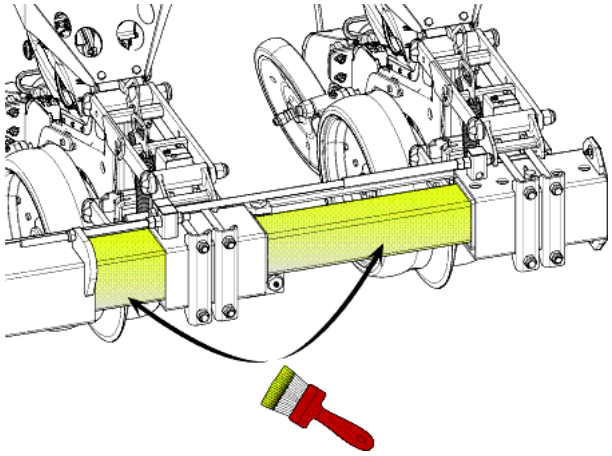
The foldable extension pivot point (1 on each side).



- The roller guide pivot points (1 on each side).



- The telescopic frame.

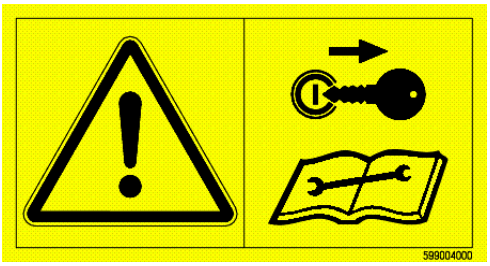


■ **Oil:**

- The moving parts and pivot points.
- Chains.

It is possible to spray silicone or other based aerosols to prevent dust from sticking on the chains.

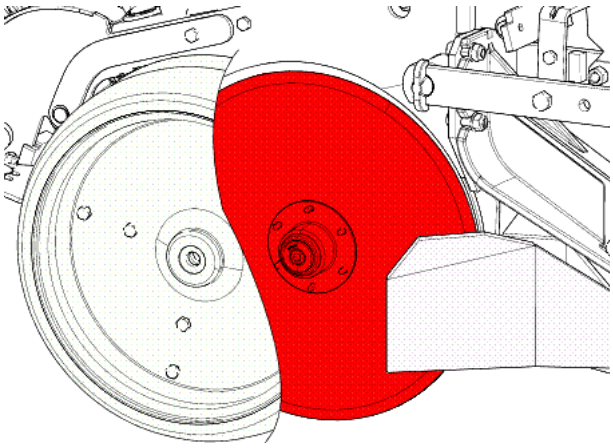
4. Maintenance



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**

Wearing parts



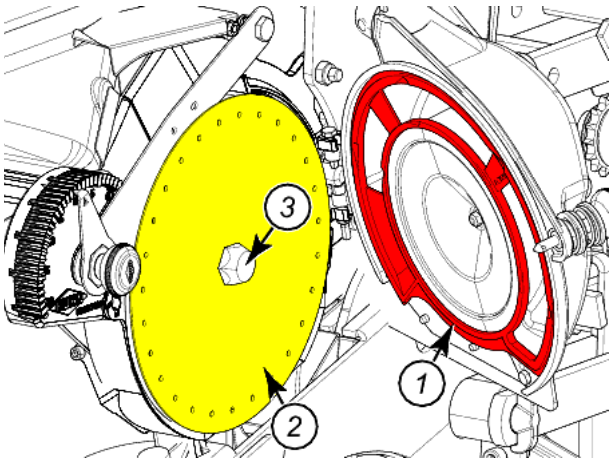
It is important to check seed drill components sensitive to wear.

Components must be replaced before wear affects the sowing quality.

- Opener disks:

The diameter of a new disk is of 380 mm (12.96") for a thickness of 4 mm (0.15").

- Door seals and distribution disks:
  - Check door seal (1) wear.
  - Check wear and flatness of distribution disks (2).
  - Check drive pin play (3) of each disk.

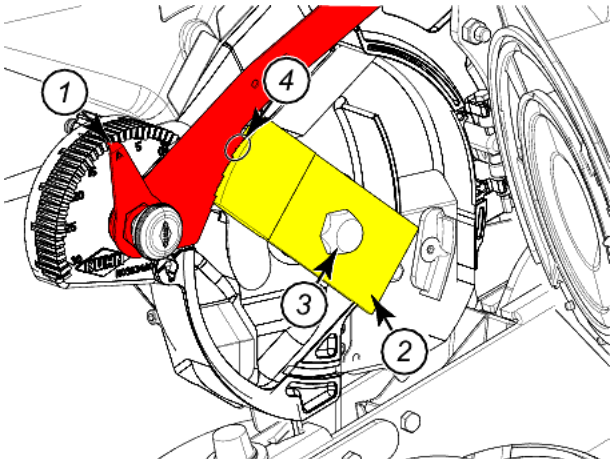


- Selector:

Wear modifies its action and risks creating doubles. Change if necessary.

A gauge enables checking the selector wear.

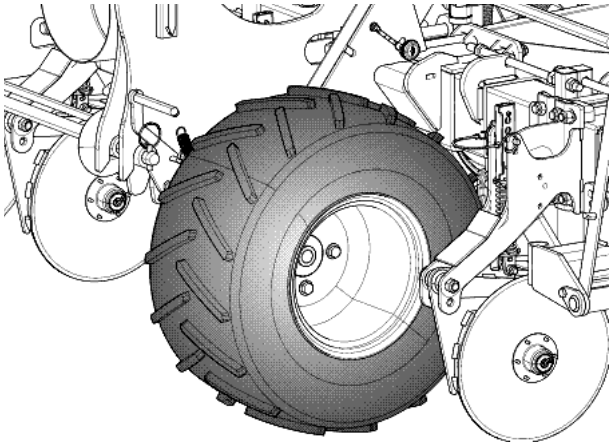
*Gauge part no.: **3N9818**.*



- Position selector (1) on **11**.
- Position gauge (2) on drive square (3). Gauge (2) must be in contact with the fourth tooth (4) of the selector.

- Tyres:

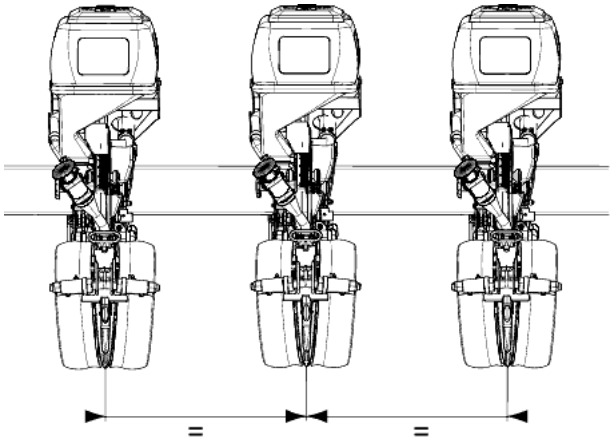
Tire wear has a direct effect on the required sowing density.



Seeding units

Check all working parts for proper alignment to the sowing row (Coulters, clod-clearers, opener disks and rear rollers).

- Also check that all sections are equidistant.
- The correct positioning of the seed transfer ducts on the welded chassis and the proper condition inside and at the bottom part.



Tyre pressure

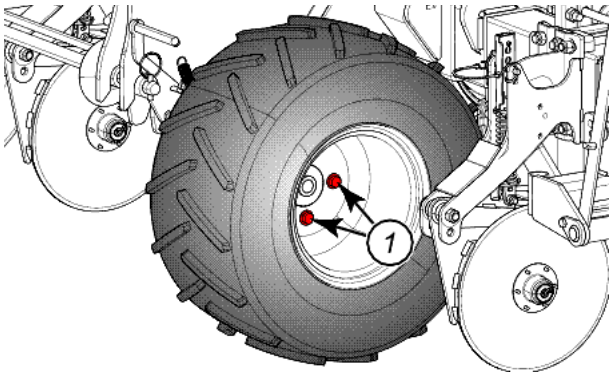
Tire pressure has a direct effect on the required sowing density.

A 1 bar (14 psi) low pressure can generate up to 3 % additional population.

- Tyres 26 x 12: 2.7 bar (39 psi).

Fixing elements

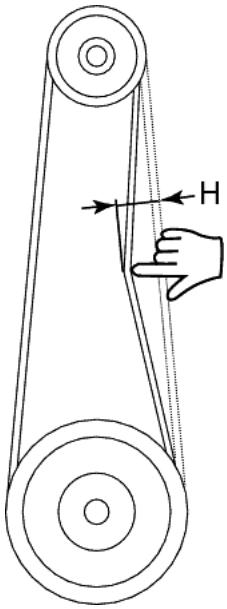
- Check wheelnut tightness:
  - Torque: 10 daN m (74 lbf ft).



Belt tension

Regularly check belt tension and in particular during the first hours of use.

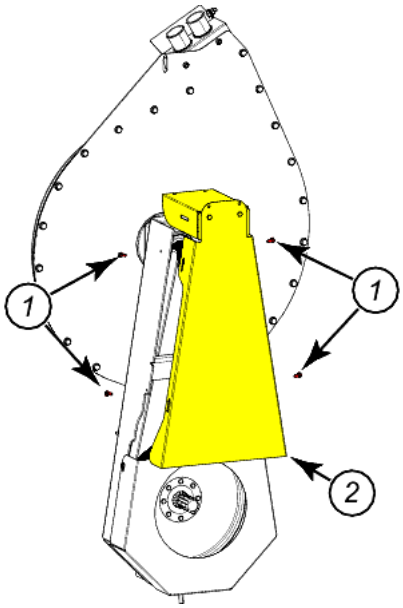
- Exert a force of 7 daN on the belt.
- The deflection (H) must not exceed 20 mm (0.78").



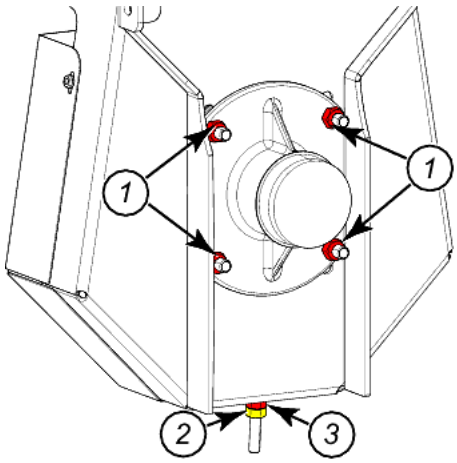
For 4.40 m to 6 m (14’4’’ - 19’8’’) models:

Procedure to re-tension the belt:

- Remove 4 bolts (1).
- Remove guard (2).



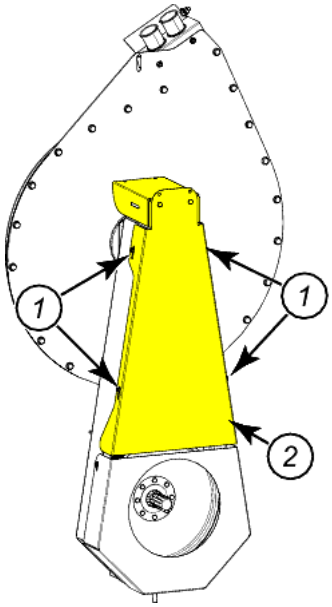
- Loosen nuts (1).
- Loosen counter nut (2).
- Rotate nut (3) to tension the belt.



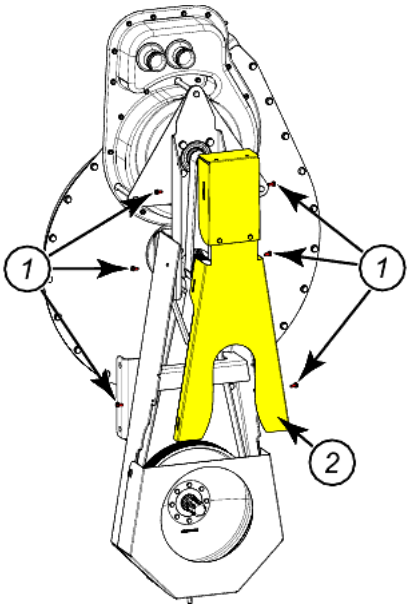
The belt tension must be moderate to prevent overheating.

- Tighten counter nut (2).
- Tighten nuts (1).

- Fit guard (2).
- Reinstall the 4 screws (1).



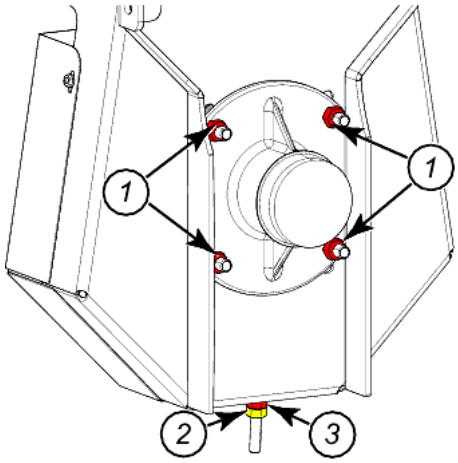
If the machine is fitted with a microgranulator, a blower is installed on the front of the vacuum turbine



To retension the blower belt:

- Remove 6 bolts (1).
- Remove guard (2).

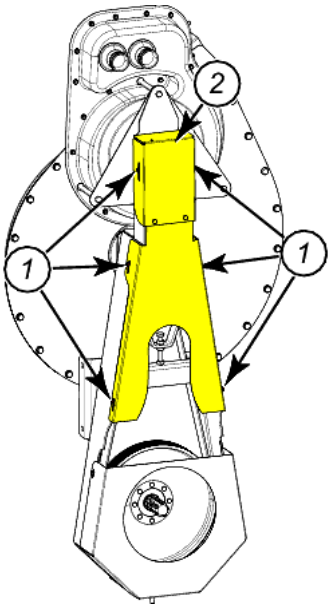
- Loosen nuts (1).
- Loosen counter nut (2).
- Rotate screw (3) clockwise to tension the belt.



The belt tension must be moderate to prevent overheating.

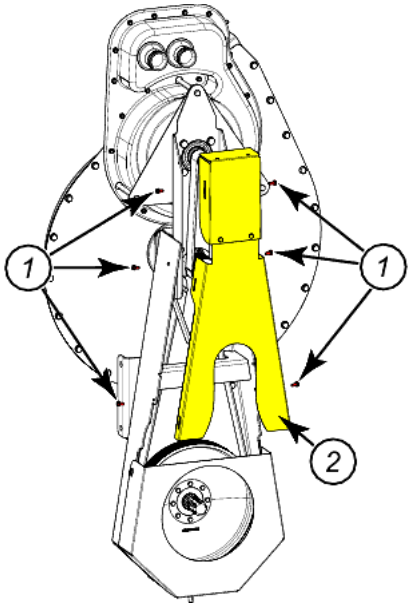
- Tighten counter nut (2).
- Tighten nuts (1).

- Fit guard (2).
- Reinstall the 6 screws (1).



To retension fan blower:

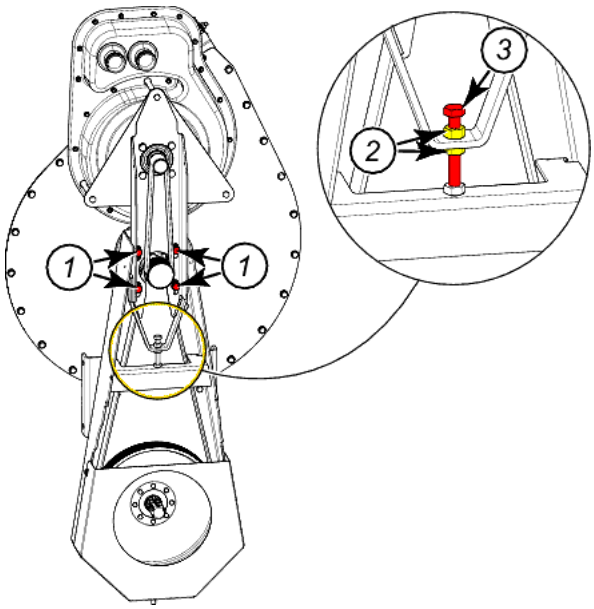
- Remove 6 bolts (1).
- Remove guard (2).



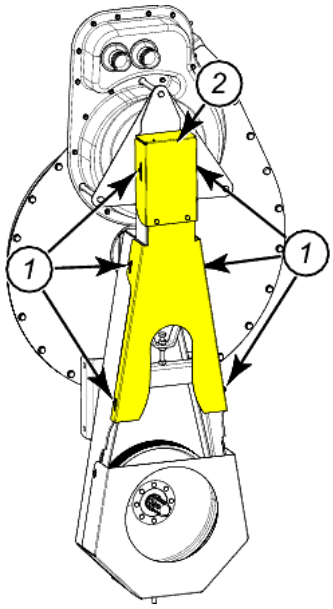
- Loosen nuts (1).
- Loosen counternuts (2).
- Rotate screw (3) clockwise to tension the belt.

The belt tension must be moderate to prevent overheating.

- Tighten counternuts (2).
- Tighten nuts (1).



- Fit guard (2).
- Reinstall the 6 screws (1).



Drive components

Check the condition of the drive (condition of gears, sprockets, chains and tensioners).

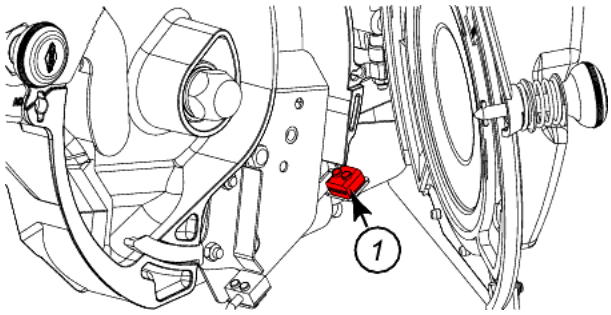
Irregular drive can cause sowing variations.

Never fully tension the chains.

Sowing monitoring units

The sowing control cell (1) must be close to the distribution disk.

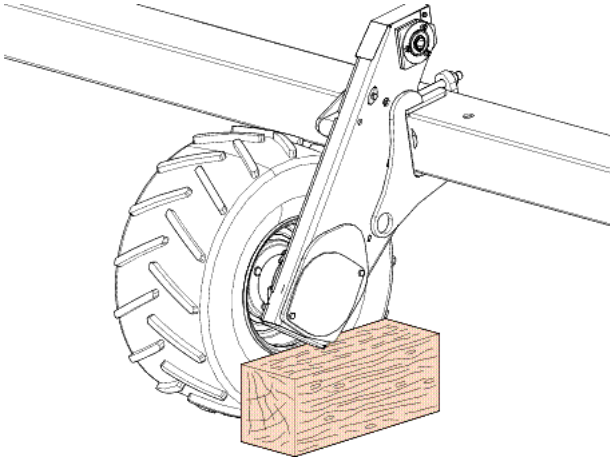
The cover must be correct without any possibility of the cell moving to the right.



5. Storage

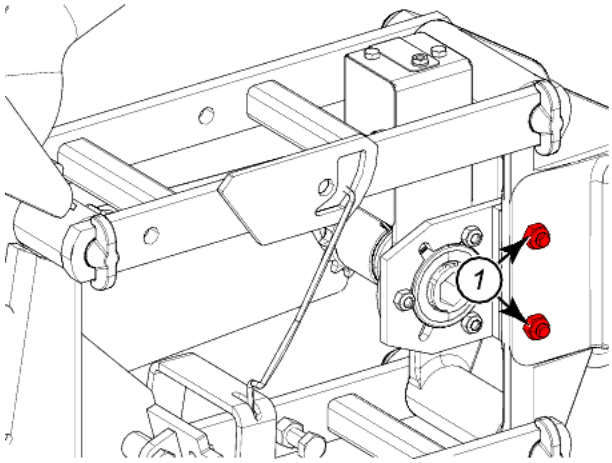
■ At the end of each season

- Clean the machine with a spray gun.
- touch up any areas of damaged paintwork.
- Put the machine under cover in a dry place.
- Position wedges underneath wheel arms to take load off the tires.
- Store controls boxes in a dry place free of dust.
- Empty hoppers.
- Lubricate the whole machine.
- Check the operation of the doors and metering flaps.

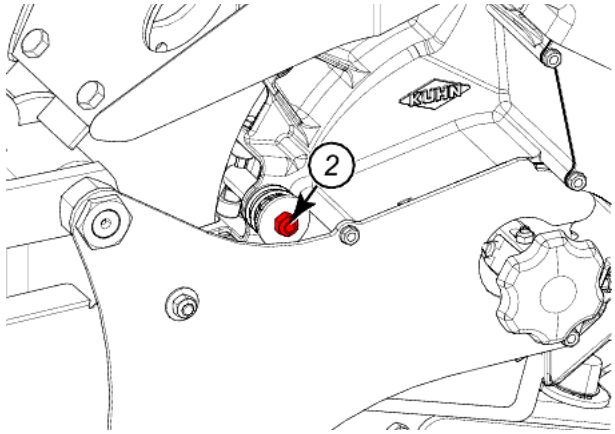


■ At the start of each season

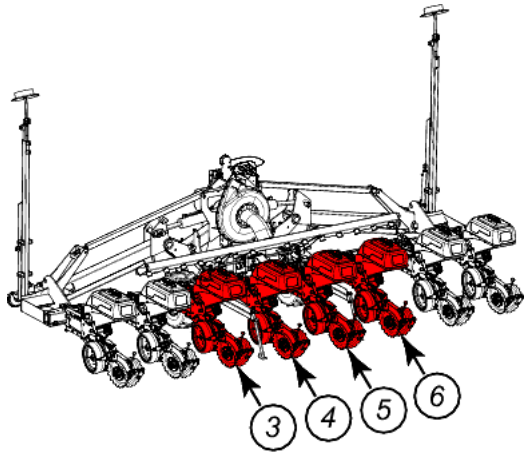
- Read through the operator's manual again.



- Check that all nuts and bolts are sufficiently tightened.



To keep an assembly mobile and self-aligning, nuts (1) and (2) fitted on each sowing unit must always be free to move on units (3), (4), (5) and (6).



- Make sure that all protection devices are in place and in good condition.
- Check that the lighting equipment is clean.
- Check tyre pressure.
- Check the condition of the hydraulic hoses.
- Check the condition and setting of the belts.

TROUBLE SHOOTING GUIDE

■ Problem	■ Cause	■ Remedy
Seeding units		
There are misses on the seeding line.	Inappropriate disk being used.	Fit a disk to match seed size.
	Excessive ground speed.	Adapt the forward speed to the working conditions.
	Incorrect selector adjustment.	Adjust selector.
	Selector worn.	Adjust setting or change selector.
	Suction cover not closed properly.	Close it properly checking its sealing at the front and the rear of the metering housing.
	Spacer disk distorted, unsuitable or holes blocked.	Replace disc.
		Fit a disk to match seed size.
		Clean the disk and its holes with a dry rag.
	Fan belt improperly tensioned or displaced.	Tension belt.
	Failure of mechanical drive to disk.	Check the safety bolt and check that the disk rotates freely using the manual disengagement knob.
	Seed coating too delicate or uneven size.	Change seeds and do not mix varieties.
		Fit disks without blades.
	Worn door seal.	Replace seal.
There are doubles on the seeding line.	Incorrect selector adjustment.	Adjust selector.
	Selector worn.	Adjust setting or change selector.
	Inappropriate disk being used.	Fit a disk to match seed size.
	Insufficient vacuum.	Reduce PTO speed.
	Seed level too high in the metering unit and overflowing into seed row.	Adjust seed supply.

■ Problem	■ Cause	■ Remedy
Unevenness while sowing.	Inappropriate disk being used.	Fit a disk to match seed size.
	Incorrect selector adjustment.	Adjust selector.
	Seed variety or batch promote poor placement.	Check improvement with another variety. (if possible send us a sample to the factory in order to check the problem with this type of seed on our test rig and to optimise settings).
	Ground conditions.	Prepare ground correctly. Moisture content must be correct.
	friction point in drive.	Check drive condition (gears, sprockets and chains).
	Incorrect gearbox setting.	Use ratio adapted to the required population.
	Excessive ground speed.	Adapt the forward speed to the working conditions.
	Worn opening disks.	Replace opening disks.
	Improper pressing and covering adjustment.	Reposition them so they do not interfere with seed positioning.
	Incorrect seed drill horizontality adjustment.	Adjust the 3rd point such that the machine operates perfectly level.
	Seed transfer duct encrusted and partialy blocked.	Clean the inside and do not hesitate to replace it if necessary.
		Check for correct vacuum, re-tension the belt if necessary.
	Warped disk.	Replace disk.
	Drive wheels are not always in contact with the ground.	Adjust spring adjustment in order to limit the ground pressure or add weights on the frame.
Uneven sowing depth.	Ground too lumpy or too stony.	Prepare ground correctly.
	Excessive ground speed.	Adapt the forward speed to the working conditions.
	Incorrect seed drill horizontality adjustment.	Adjust the 3rd point such that the machine operates perfectly level.
	Disks have difficulty in penetrating the ground.	Install ground pressure springs or fit a pre-cutting disk.

■ Problem	■ Cause	■ Remedy
Side markers		
Too sharp raising and lowering of the markers.	Throttle valve not fitted or not adapted to the tractor oil flow.	Install adequate throttle valves.
Side markers do not react.	The side marker cylinder is not pressurized.	Pressurize the hydraulic circuit.
		Connect hoses to the other valve.
	The spool of the solenoid valve has seized up.	Remove the slide valve from the sequence valve and polish it.

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 or 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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