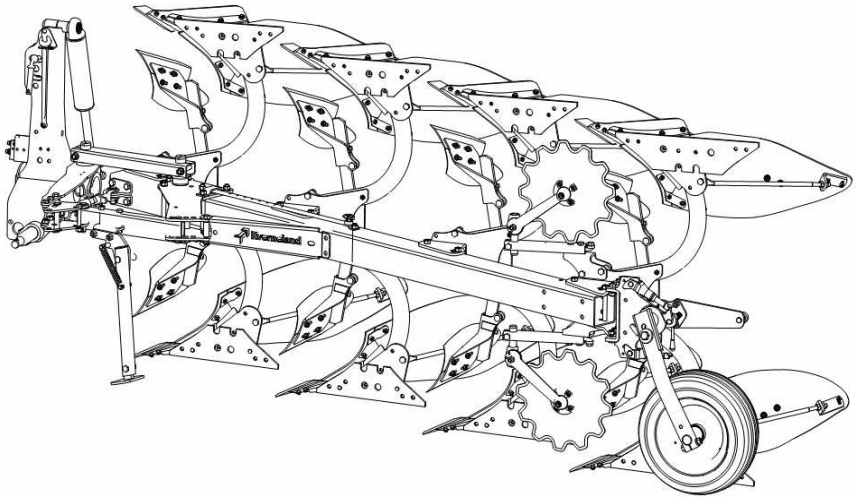


RM 2000 Series

WARNING: Cancer and Reproductive Harm - www.P65warnings.ca.gov

Operator‘s manual

Original operator‘s manual

Edition	2017
Date of print	06.2018
Language	EN
Machine number	
Model	RM 2000 Series
Document number	A133865840.EN

Machine identification

In order for your dealer to assist you as efficiently as possible, you will need to provide some information about your machine. Please enter the details here.

Designation	RM 2000 Series
Machine ID	
Address of supplier	
Address of manufacturer	Kverneland Group Operations Norway AS Plogfabrikkvegen 1 N-4353 Klepp Stasjon Norway Tel. +47 5142 9000 www.kvernelandgroup.com

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Target group for this operator‘s manual

This operator‘s manual is aimed at those concerned with the control, use and maintenance of the machine. It contains all the data required for safe handling, use and maintenance of the plow.

For your safety
Before starting to adjust and use your plow, familiarise yourself with this operator‘s manual. Doing so will ensure your safety and optimal working conditions. It is very important to read this manual carefully before using the plow and to keep it handy. In this way, you will

- Avoid accidents
- Satisfy the warranty terms and conditions
- Ensure that you have a functional plow which works as it should do at all times
- Understand how to operate in different conditions.

⚠ WARNING

Observe the warning triangle
The warning triangle indicates important safety information and danger. Failure to observe this safety information can result in:

- Improper use of this machine
- Damage to the machine,
- Personal injury or accidents.

For the employer
Every employee must be given training at regular intervals on how to use this plow (at least once a year) in accordance with the guidelines issued by the employer's insurance company. Untrained or unauthorised individuals are not permitted to use the plow.

You are personally responsible for the safe use and maintenance of the plow. You must ensure that you and anyone else who is going to operate, maintain or work around the plow is familiar with the operating and maintenance procedures and related safety information contained in this manual.

Symbols used

In this operator‘s manual the following symbols and terms are used:

- A bullet point accompanies each item in a list

> A triangle indicates operating functions which must be performed

→ An arrow indicates a cross-reference to other sections of this manual

[+] Indicates optional equipment

We have also used pictograms to help you find instructions more quickly:

TIP! The word 'tip' indicates tips or instructions on use.



Shut off the engine, set the parking brake, remove the ignition key and secure the tractor against rolling away.

The triangle indicates a risk of danger when assembling or adjusting.



Terminology used

In this operator‘s manual the following terminology is used:

- Turned to the right: observed from the rear, all bodies are located on the right side of the frame.
- Turned to the left: observed from the rear, all bodies are located on the left side of the frame.
- Turn with the bodies over: when turning, rotate the bodies over the frame, while the depth wheel rotates under the frame.
- Turn with the bodies under: when turning, rotate the bodies under the frame, while the depth wheel rotates over the frame.

California Proposition 65

WARNING

Engine exhaust, some of its constituents, certain machine components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

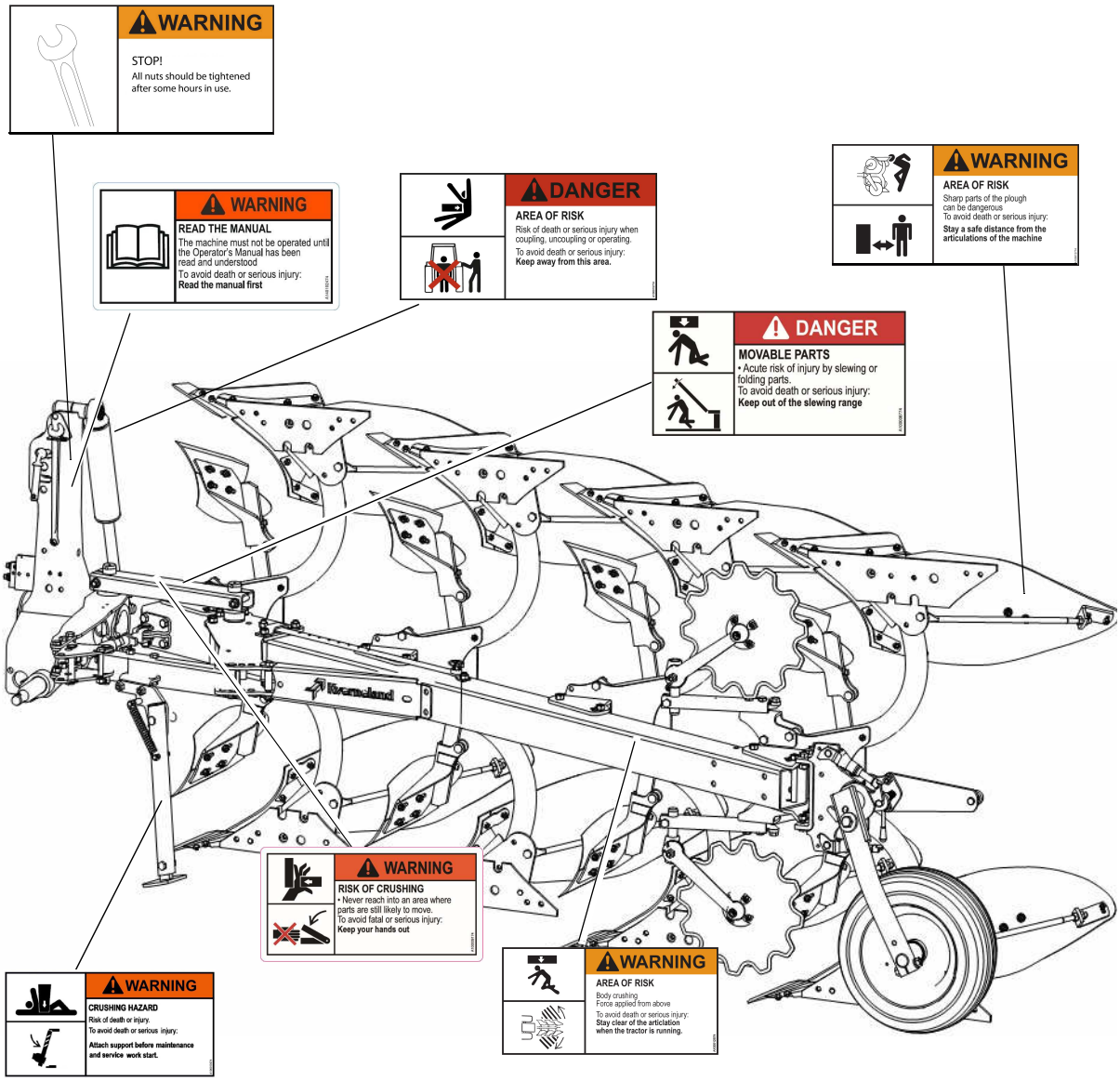
Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

DANGER, WARNING and CAUTION labels

Know your equipment and it‘s limitations. Read this entire manual before attempting start and operate the units

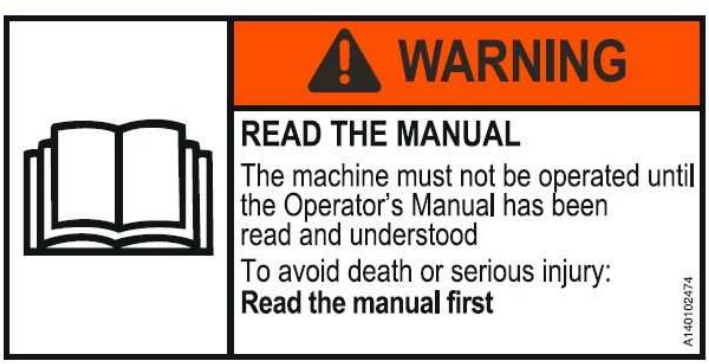
This chapter contains general safety instructions for this product. Each chapter of the operator‘s manual contains additional specific safety information.
For your safety, safety decals are placed on important parts of the plow. Please do not remove them. If they become illegible or begin to peel off, replace them with new decals (see the spare parts catalogue).

DANGER, WARNING and CAUTION labels on the plow



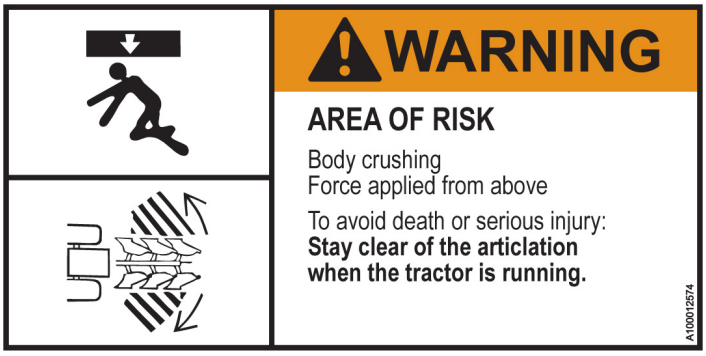
Meaning of DANGER, WARNING and CAUTION labels

The meaning of the safety decals is explained below.










WARNING
RISK OF CRUSHING
• Never reach into an area where parts are still likely to move.
To avoid fatal or serious injury:
Keep your hands out
A100009174


WARNING
AREA OF RISK
Sharp parts of the plough can be dangerous
To avoid death or serious injury:
Stay a safe distance from the articulations of the machine


DANGER
MOVABLE PARTS
• Acute risk of injury by slewing or folding parts.
To avoid death or serious injury:
Keep out of the slewing range
A100008774


WARNING
STOP!
All nuts should be tightened after some hours in use.

General safety information

General

Please read and ensure you understand the following general safety information. Specific safety information is pointed out in the relevant chapters.

Read and ensure you understand the instructions
Before starting to operate the plow, read the operator‘s manual and follow the instructions. Failure to follow the instructions may damage the plow or lead to injury.

Qualified personnel only
The plow must not be put into use until the user has been properly trained and is familiar with the operation and safe use of the plow. Incorrect use of the plow may damage the plow or lead to injury.

Check for technical defects
Before starting to use the plow, check that the machine is in perfect working condition. If there are any defective components, contact your dealer to have them replaced. Defective components may cause malfunctions, and damage the plow or lead to injury.

Keep your distance
Do not stand on, under or near the plow when it is operating or being coupled to the tractor. This may result in damage or injury.

Support the plow
Do not stand under or near the plow unless it is properly supported. If the plow tips, it may damage the plow or lead to injury.

Lower the plow
Always lower the plow when parking the tractor. Otherwise, the plow may lower itself and damage the plow or lead to injury.

Use the front weights
Fit the tractor with enough front weights to ensure stability and secure steering.

Check the vicinity
Always check the immediate vicinity before starting to move or operate the plow. No persons must stand close to the plow when it is being operated.

Use the parking stand
Use the parking stand when parking the plow. If the plow is not correctly supported, it may tip over. This may damage the plow or lead to injury.

Information for the employer
Inform all persons who work with the machine about this safety information at regular intervals and in accordance with statutory regulations.

No riding on the plow
Persons or objects must never be transported on the plow. Carrying passengers, especially children, on the plow is life threatening and prohibited. Serious or fatal injury may be caused as a result.

Safety for children
Never assume that children will remain where you last saw them.Be alert and shut your machine down if children come into the work area. Never allow children to play on or operate the machine.

Coupling



Risk of injury when coupling
There is an increased risk of injury when the plow is coupled to the tractor. Therefore:

- Shut off the engine, set the parking brake, remove the ignition key
- Secure the tractor to prevent it from rolling
- Do not stand between the tractor and plow when coupling
- Lift and lower the plow slowly

An unsecured tractor can create hazardous conditions.
If this requirement is ignored, the consequence may be damage to the machine and the potential for life-threatening injuries.

Relieving the oil pressure - Unintended movements
Relieve the oil pressure in both the tractor's hydraulic system and the plow's hydraulic system before connecting and disconnecting the hydraulic hoses. Otherwise, pressurised oil may cause the plow to move unexpectedly. This may damage the plow or lead to injury.

Check the length of the hose
Check the length of the hose on the plow and between the plow and tractor for sufficient slack. If the hoses are taut or stretched, the hoses may be damaged or destroyed.

Check that the hydraulic connections are correct
Make sure you do not cross hydraulic connections when coupling them to the tractor. If the connections are crossed, it will cause the plow to move unexpectedly. This may damage the plow or lead to injury.

Adjusting and maintaining

Avoid skin contact with oils and lubricants
When handling oils or lubricants, prevent them coming into contact with the skin by using oil resistant gloves. Oils and lubricants can damage the skin.

Relieve the oil pressure - jet streams
Before replacing or otherwise working with parts of the hydraulic system, relieve the oil pressure in the system. The oil pressure can be very high. Jet streams caused by high oil pressure may lead to injury. In case of injury, seek medical attention immediately.

Carry out maintenance at regular intervals
Carry out maintenance on the plow at regular intervals and as prescribed in »Maintenance and care«. Also replace worn parts as prescribed. plows that are not well maintained can malfunction. This may damage the plow or lead to injury.

Do not weld
Never carry out welding work on any part of the plow. The plow is made of hardened steel, and any welding will adversely affect the plow's strength. Welding may irreparably damage the plow.



Retighten bolts and nuts
Regularly retighten all bolts and nuts on the plow. This is especially important after the first few hours of use. Unnoticed loosening of bolts and nuts may lead to damage or injury.
→ »Tighten bolts and nuts«, page 55

Replace the cross shaft after 1000 km (621 miles)
On large mounted plows we recommend that you replace the cross shaft after 1000 km (621 miles) of road transport. Road transport causes imperceptible damage to the cross shaft.

Proper working condition
Ensure that the tractor and the machine are always in proper working condition. Make sure that the tractor brakes work in synchronisation with the machine. Also follow the instructions in your tractor's operator's manual.

Wear protective clothing
Wear protective clothing, e.g. gloves, when working with sharp parts of the plow. In particular, parts which come into contact with the soil can be very sharp. Careless handling can result in injury.

Specified workwear
Do not wear loose fitting or other inappropriate clothing. Loose fitting items of clothing may become caught in rotating parts. Wear the proper protective clothing, request for the operating, environment and conditions. Different environments may require special clothing to preform the operation and maintenance of the plow. Serious or fatal injury may be caused if these guidelines are not followed.

Use original spare parts
Use only genuine Kubota spare parts. Other products may adversely affect the correct operation of the plow and safety. The warranty will no longer be valid if parts not produced by Kubota are used.

Check the tire pressure
Regularly check to ensure the tire pressure meets the requirements. Pressures which are too high or low may cause damage and excessive wear of the tire.
→ »Tire pressure«, page 19

Driving on the road

Be aware of the plow's length
The plow is long, and swings out when turning. In tight turns, avoid swinging the rear of the plow into obstacles.

Stabilize the lower link arms
During all non-plowing operations, e.g. transport, the tractor's lower link arms must be secured. This will prevent the plow from accidentally moving sideways.

Obey local state, and Federal laws when transporting
Obey all laws when driving with the plow on public roads. For example

- have all necessary lights installed and warning signs displayed.
- do not exceed the maximum permitted weights, loads and dimensions.

The user is responsible for ensuring that the plow complies with the law when driving on public roads.

Additional markings are required for road transport in some U.S. states and some Canadian provinces:



Marking for slow-moving vehicle – SMV
This SMV emblem shall be used on all slow moving machines when operated or traveling on public roads.

- On slow moving machines with design specifications of a maximum speed of 40 km/h (25 mph) or less, the SMV emblem shall be used. Per ASABE S276.7

Adjust speed: max. 25 km/h (15 mph)
Always adjust the driving speed according to the road's conditions, but never drive faster than 25 km/h (15 mph). Excessive speeds can result in too much stress on the tractor, plow and transport wheel. This can result in damage or breakage.

Speed adjustment
In poor road conditions and at high speeds, significant forces can be generated which subject the tractor and machine material to high or excessive stresses. Adjust your driving speed to the road conditions. A driving style which is not adapted to conditions can cause accidents. Accidents with serious or fatal injuries may be caused as a result.



Unrestricted field of vision to the rear
After plow has been coupled, ensure that you have an unrestricted view of the machine, in both its work and transport positions. Otherwise, dangerous situations may not be detected in time, resulting in accidents or damage.

Hydraulics

Hydraulic connection at zero pressure only
Only connect hydraulic hoses to the tractor hydraulic system if the tractor and machine hydraulic system is at zero pressure. A pressurize hydraulic system can trigger unforeseen movements on the machine and can cause serious machine damage and personal injury. Serious or fatal injury may be caused as a result.

High pressures in the hydraulic system
The hydraulic system is under high pressure. Regularly check all lines, hoses, and coupled connections for leaks and externally visible damage. Do not use hands to search for suspected leaks. Only use suitable equipment when looking for leaks. Rectify any damage immediately. Fluid escaping under pressure can penetrate skin and may result in injuries and fires. Seek medical attention immediately if injuries occur.

Replace hydraulic hoses every six years or earlier
Hydraulic hoses age without showing externally visible signs. Replace hydraulic hoses every six years, or earlier if aging or degradation is visible. Defective hydraulic lines can cause serious or fatal injuries.

Warranty

The warranty and manufacturer's liability will no longer be valid if the instructions provided in the chapter on Safety are not observed, if maintenance is inadequate or faulty, if the machine is used for purposes other than those for which it was intended and if it is overstressed, or if impermissible modifications are made to the machine.

Getting to know the plow

This chapter provides information on the plow. You can learn about correct use of the plow and its features as well as technical information.

Proper use

This plow is intended to be used for plowing. Any other use of the plow, e.g. as for lifting or pulling operations, is deemed improper use. The manufacturer and dealer are not liable for damage caused by improper use.

Features

Variable plowing width
These plow models have either a Variomat - infinitely variable plowing width - or a plowing width which can be adjusted in increments. By having this option to adjust the plowing width, the best possible combination between the tractor, plow and ground conditions can be achieved.

Complete range of bodies
A complete range of plow bodies is available for all requirements. Kubota plow bodies offer excellent plowing quality, are wear resistant and have a low draft requirement.

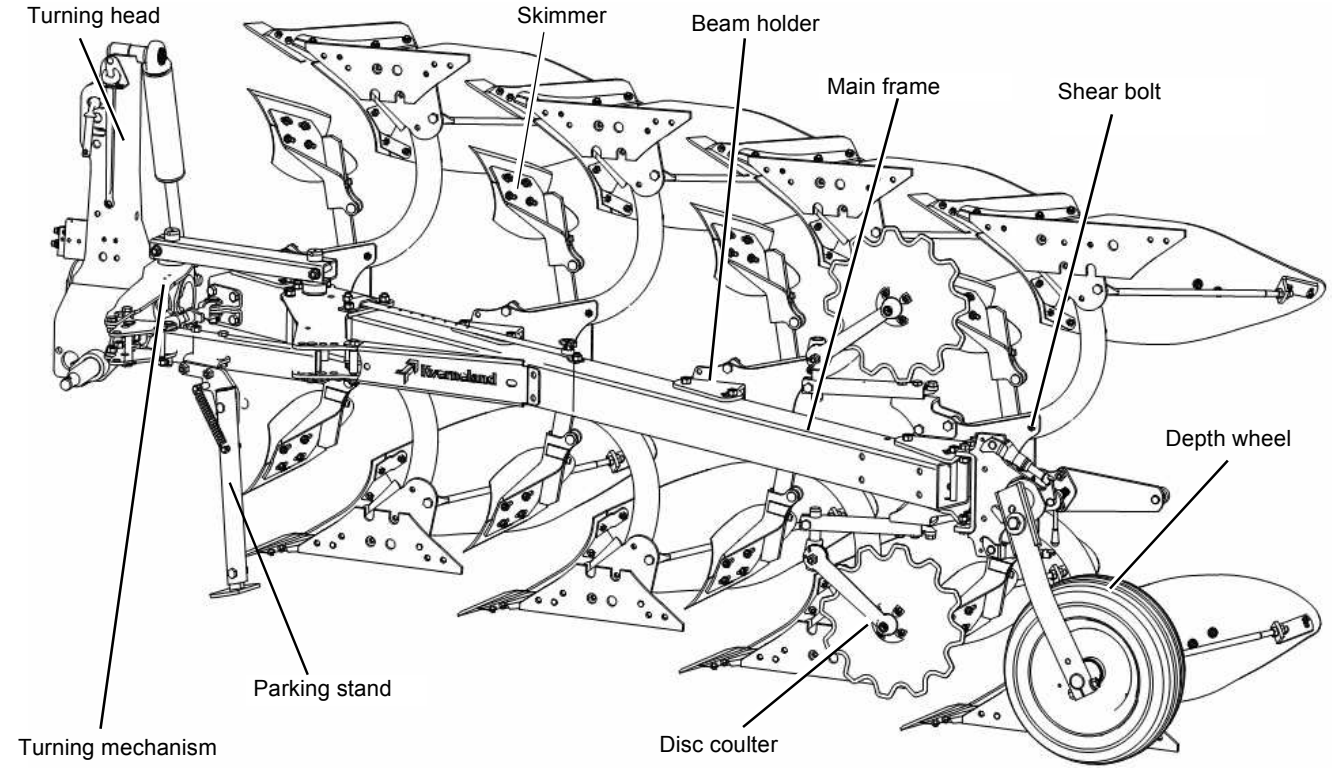
Robust turning head
The plow's turning head is designed to have the centre of gravity close to the tractor, thus minimising the lifting requirement as much as possible.

Complete range of optional equipment
Optional equipment on the plow consists of a wide range of depth wheels, skimming equipment, disc coulters and knives. These will meet your requirements in terms of soil type and field conditions.

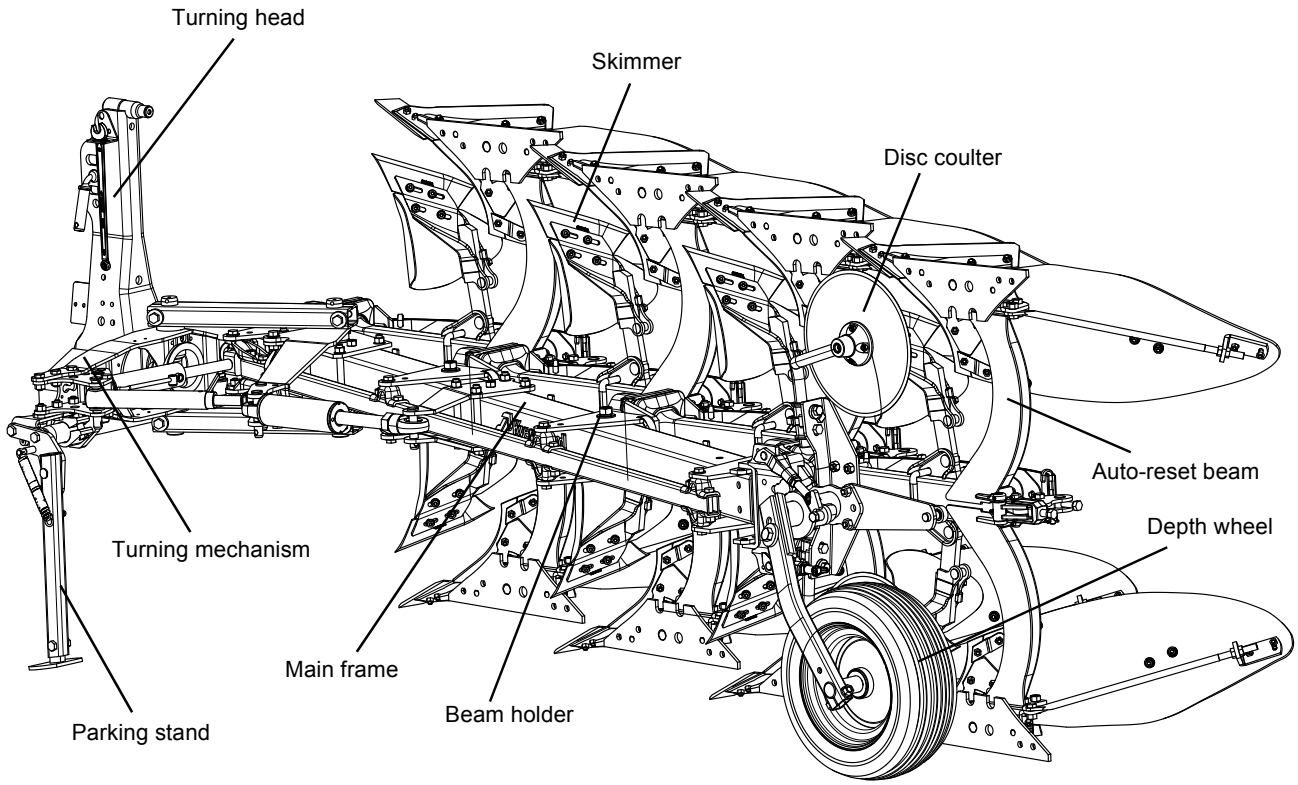
Wear resistant parts
All soil engaging parts have undergone a process of heat treatment. This makes them extremely wear resistant, yet flexible enough to withstand shocks.

Components

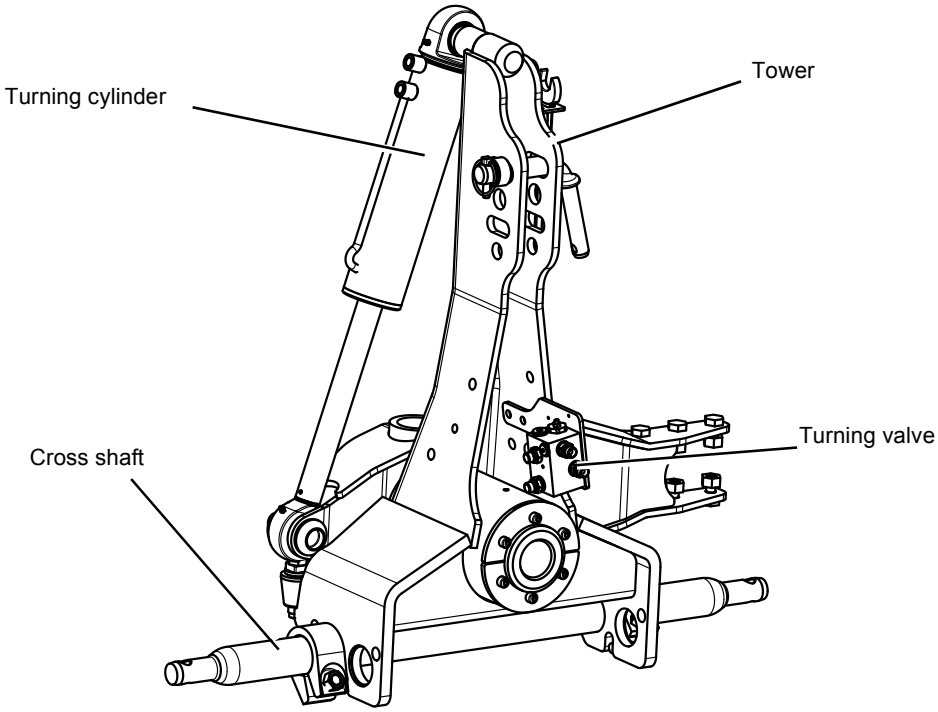
General -RM 2000



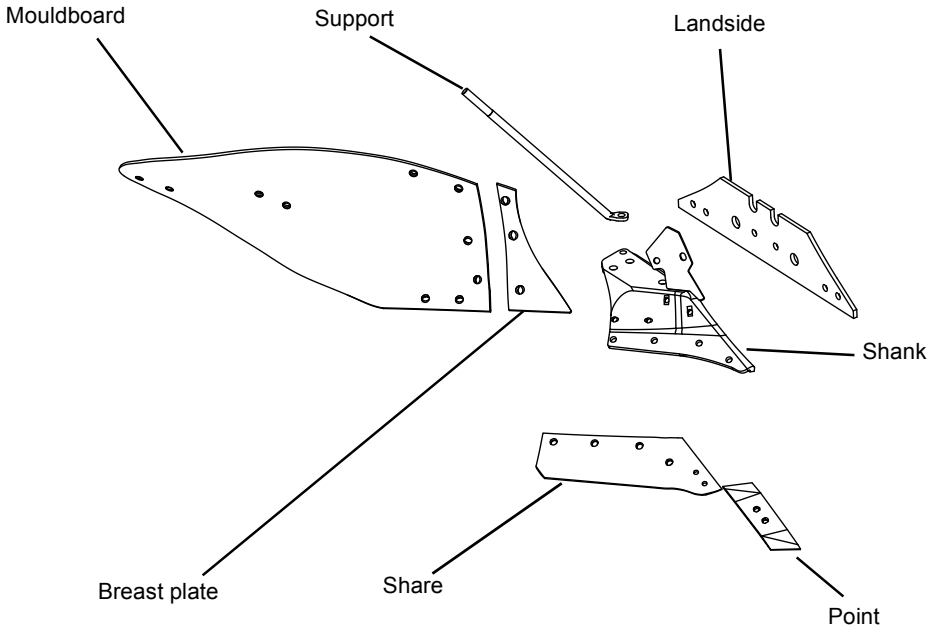
RM 2005



Turning head 150



Body



(This illustration shows body no. 9. Other types of bodies have similar components)

Technical specifications

General - Incremental

Model	Turning head	Clearance between the bodies	Beam height	Number of bodies	Frame	Furrow width Incremental[3]	Recommended hp	Weight[1]	Lifting requirement[2]
		cm (inches)	cm (inch.)	#	mm (inch.)	cm (inch.)	hp	kg (lbs)	kg (lbs)
RM 2000	150	85 (33)	80 (32)	3	150x100 (6x4)	30-45 (12-18)	-90		
RM 2000	150	85 (33)	80 (32)	4	150x100 (6x4)	30-45 (12-18)	-120		
RM 2000	150	100 (39)	80 (32)	3	150x100 (6x4)	35-53 (14-21)	-90		
RM 2000	150	100 (39)	80 (32)	4	150x100 (6x4)	35-53 (14-21)	-120		
RM 2000	150	85 (33)	80 (32)	3	150x150 (6x6)	30-45 (12-18)	-90		
RM 2000	150	85 (33)	80 (32)	4	150x150 (6x6)	30-45 (12-18)	-120		
RM 2000	150	85 (33)	80 (32)	5	150x150 (6x6)	30-45 (12-18)	-150		
RM 2000	150	100 (39)	80 (32)	3	150x150 (6x6)	35-53 (14-21)	-90		
RM 2000	150	100 (39)	80 (32)	4	150x150 (6x6)	35-53 (14-21)	-120		
RM 2000	150	100 (39)	80 (32)	5	150x150 (6x6)	35-53 (14-21)	-150		
RM 2005	150	85 (33)	70-75 (27-29)	3	150x150 (6x6)	30-45 (12-18)	-90		
RM 2005	150	85 (33)	70-75 (27-29)	4	150x150 (6x6)	30-45 (12-18)	-120		
RM 2005	150	85 (33)	70-75 (27-29)	5	150x150 (6x6)	30-45 (12-18)	-150		
RM 2005	150	100 (39)	70-75 (27-29)	3	150x150 (6x6)	35-53 (14-21)	-90		
RM 2005	150	100 (39)	70-75 (27-29)	4	150x150 (6x6)	35-53 (14-21)	-120		

Model	Turning head	Clearance between the bodies	Beam height	Number of bodies	Frame	Furrow width Incremental[3]	Recommended hp	Weight[1]	Lifting requirement [2]
		cm (inches)	cm (inch.)	#	mm (inch.)	cm (inch.)	hp	kg (lbs)	kg (lbs)

[1]Estimated net weight without equipment

[2]Measured with skimmer, disc coulters on rear body and depth wheel

[3]Adjusted in increments of 5 cm (2 inches)

General - Variomat

Model	Turning head	Clearance between the bodies	Beam height	Number of bodies	Frame	Furrow width Variomat	Recommended hp	Weight [1]	Lifting requirement[2]
		cm (inches)	cm (inch.)	#	mm (inches)	cm (inches)	hp	kg (lbs)	kg (lbs)
RM 2000	150	85 (33)	80 (32)	3	150x150 (6x6)	30-50 (12-20)	-90		
RM 2000	150	85 (33)	80 (32)	4	150x150 (6x6)	30-50 (12-20)	-120		
RM 2000	150	85 (33)	80 (32)	5	150x150 (6x6)	30-50 (12-20)	-150		
RM 2000	150	100 (39)	80 (32)	3	150x150 (6x6)	30-50 (12-20)	-90		
RM 2000	150	100 (39)	80 (32)	4	150x150 (6x6)	30-50 (12-20)	-120		
RM 2000	150	100 (39)	80 (32)	5	150x150 (6x6)	30-50 (12-20)	-150		
RM 2005	150	85 (33)	70-75 (27-29)	3	150x150 (6x6)	30-50 (12-20)	-90		
RM 2005	150	85 (33)	70-75 (27-29)	4	150x150 (6x6)	30-50 (12-20)	-120		
RM 2005	150	85 (33)	70-75 (27-29)	5	150x150 (6x6)	30-50 (12-20)	-150		
RM 2005	150	100 (39)	70-75 (27-29)	3	150x150 (6x6)	30-50 (12-20)	-90		
RM 2005	150	100 (39)	70-75 (27-29)	4	150x150 (6x6)	30-50 (12-20)	-120		

Model	Turning head	Clearance between the bodies	Beam height	Number of bodies	Frame	Furrow width Variomat	Recommended hp	Weight [1]	Lifting requirement[2]
		cm (inches)	cm (inch.)	#	mm (inches)	cm (inches)	hp	kg (lbs)	kg (lbs)

[1]Estimated net weight without equipment

[2]Measured with skimmer, disc coulters on rear body and depth wheel

NB! This plow is designed for 150 HP max. The warranty for the turning head and frame components is invalidated if the tractor is driven at more than 150 hp.

Cross shaft

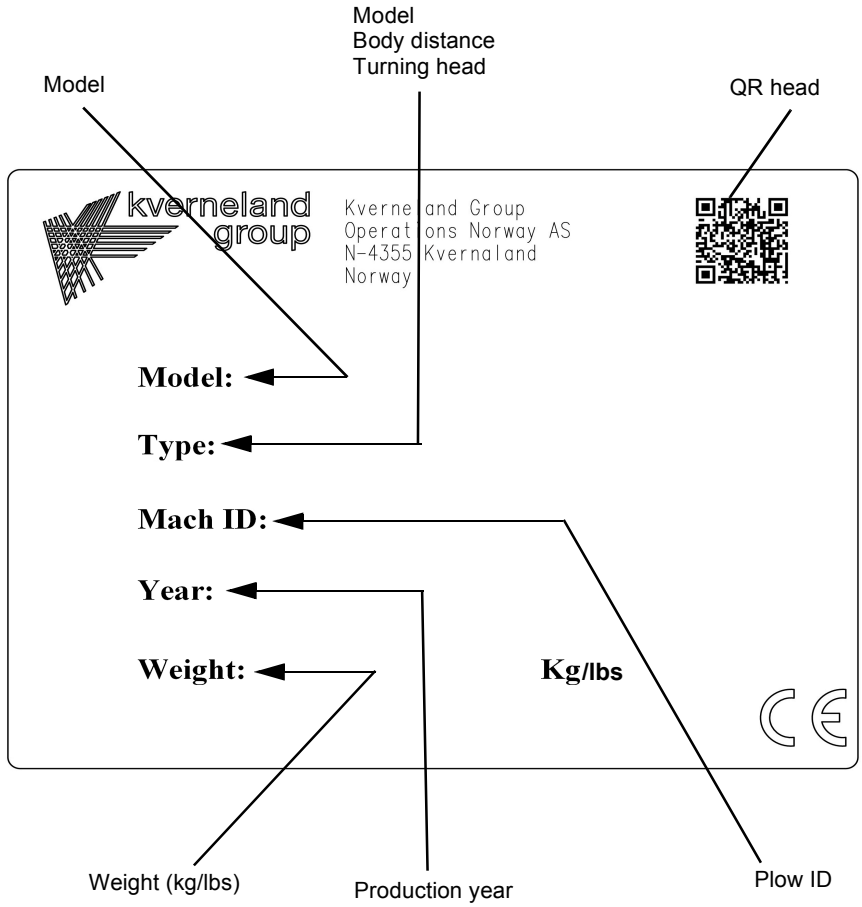
Turning head	Type	Category	Diameter mm (inches)	Length mm (inches)
150	Fixed	II	60 (2.3)	825 (32) 965 (38)
150	Fixed	III	60 (2.3)	860 (34) 965 (38)
150	Quick coupling	II	60 (2.3)	935 (37)
150	Quick coupling	III	60 (2.3)	860 (34) 965 (38)

Tire pressure

Tires	Recommended pressure (PSI)
6.00 x 9	4.2 bar (60.9 PSI)
200 x 14.5	5.0 bar (72.5 PSI)
320/60 - 12 TT	4.0 bar (58.0 PSI)

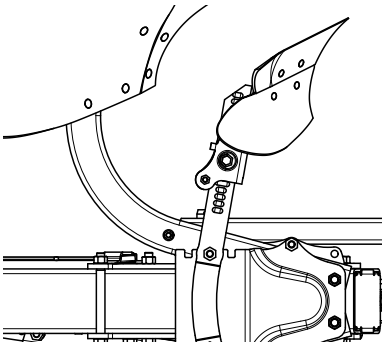
Information plate

The information plate is attached to the tower. When ordering spare parts or consulting services, please state the full model code and plow ID, to avoid any mistakes or misunderstandings.



This chapter provides an overview of optional equipment for the RM 2000 Series plow. Limitations apply. Please contact your Kubota dealer for more information.

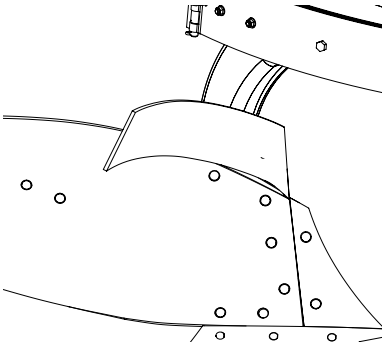
Skimmer



Recommended for effective plowing down of grass and stubble. Two types or skimmer are available: manure skimmers and maize skimmers. Both can be equipped with either a long share for more effective burial of plant waste or a short share for working deeper with the skimmer.

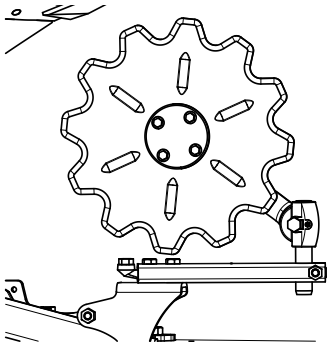
Available with skimmer extensions.

Trashboard



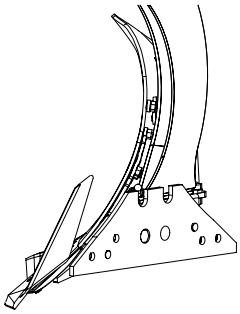
Particularly useful when large quantities of plant waste (manure, straw, etc.) are present. Using a trashboard gives more free space between the bodies, compared to using a skimmer.

Disc coulter



Disc coulters are available in sizes of 45, 50 and 55 cm (18, 20 and 22 in.) in diameter, plain or notched. They are mounted on single arms and are easy to adjust to suit all conditions.

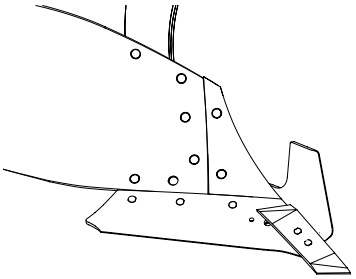
Share knife



An alternative to disc coulters, when a reduction in weight may be necessary or when blockage from trash or stones is likely. Can only be used on plows fitted with reversible points.

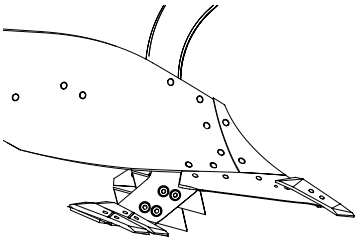
Optional equipment

Landside knife



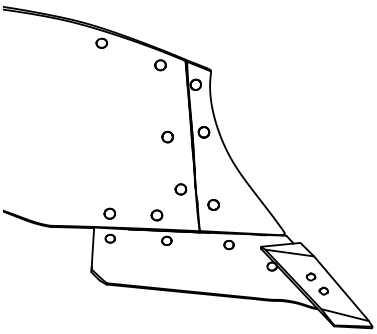
Can be used together with all types of shares. An alternative to disc coulters, when a reduction in weight may be necessary or when blockage from trash or stones is likely. Ideal for combining with skims, and suitable for all types of share.

Eco-share



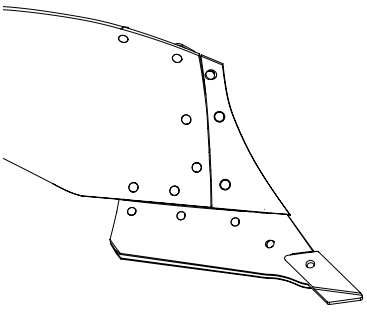
A share for working 10cm deeper than the plow's normal share and breaking up the topsoil. This cannot be fitted to all bodies. Also an alternative for plowing up to 10 cm shallower.

Share with reversible point



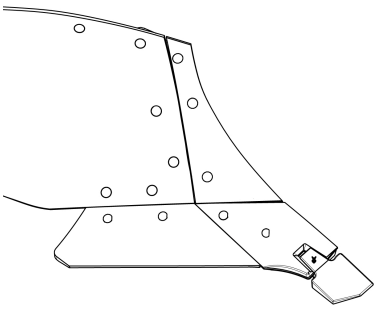
An effective share system for plowing hard and abrasive soil and for use under generally difficult conditions.

Share with flush fit point



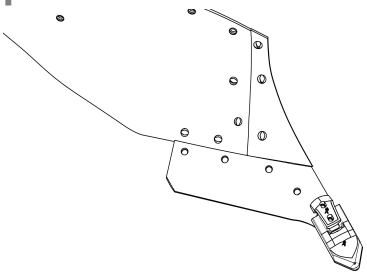
For plowing in sticky soil conditions. The point is fixed by means of a single bolt and is therefore easy to replace.

Quick-fit share



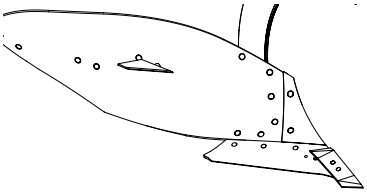
Reduces the downtime when replacing the points. Can be fitted to all plow bodies. Very good ground penetration.

Share with Knock-on® point



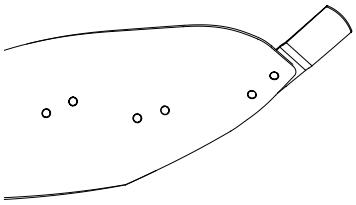
Reduces the down time in replacing the points. Can be fitted to all plow bodies. Very good ground penetration.

Furrow splitter



Designed for mounting to any part of the mouldboard, to cut through firm soil, making subsequent operations easier. The splitter is secured with a screw in the existing hole in the mouldboard.

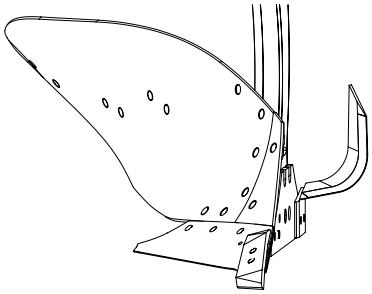
Mouldboard extension



Mouldboard extensions can be fitted for better packing of the heaps in firm soil and uphill.

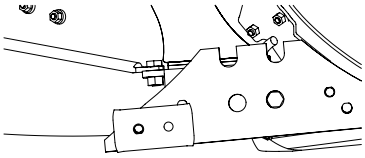
Optional equipment

Furrow opener



For use on the rear body to increase the width of the furrow bottom, in order to accept tractors with wider tires.

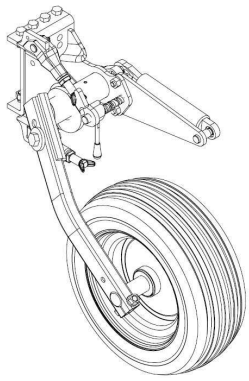
Wear plate



Can be fitted on the landsides, to reduce wearing of the landsides. Fitted to the rear end of the landside as a usable wearing part.

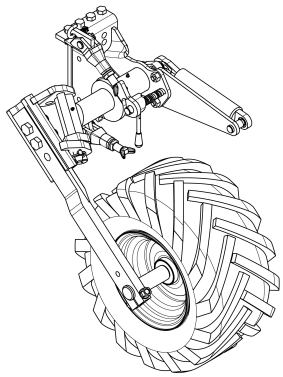
Depth wheel

It is highly recommended that a depth wheel is used on all plows. A wide range of depth wheels is available for the plow.



Steel or rubber depth wheel

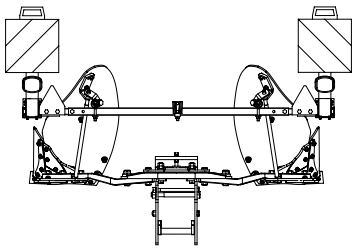
A robust steel or rubber depth wheel. The depth wheels are available in two different widths and diameters. The function of the wheel can be purely mechanical or equipped with various damper systems. Available in frame mounted and rear mounted versions.



Depth/transport wheel

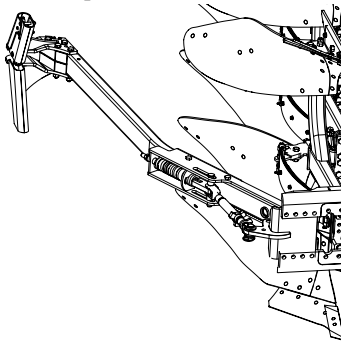
A robust rubber wheel, that can be used as depth wheel while plowing. For road transport, it can be transformed in a few easy steps into a transport wheel. Available in frame mounted and rear mounted versions. The simplest and most frequently used is the rear mounted version (see photo). The frame mounted version is used for getting into tight corners (hedge, fence, etc.) when finishing plowing.

Light equipment for transport



Removable light equipment is available for road transport, to comply to local regulations. Several configurations are available for different markets. Available for transport both in plowing and in half-turned position.

Trailed packer arm



Available when using a trailed packer. A hydraulic cylinder releases the trailer packer at the headland.

This chapter will guide you through the preparations that must be made on the plow and tractor before you start operating the plow.

Tractor

Hydraulic connections

The following chart shows the connections required on the tractor.

Hydraulic functions	Single-acting	Double-acting
Turning		1
Hydraulic first furrow width [+]		1

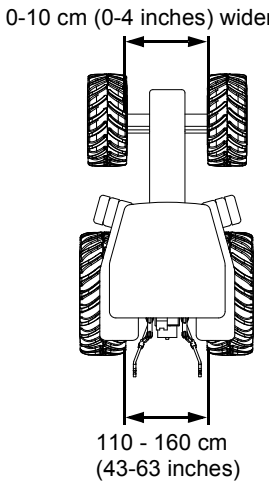
We recommend the tractor's hydraulic output flow is 25-35 l/min (6.6-9.2 gpm).

Depth control

We recommend that the tractor's depth control be initially set according to the following table. The exact settings are determined by the soil and field conditions.

Plow size	Depth control of the plow Initial settings Draft power regulated depth control Position control <----------> Draft control
3 - 4 furrows	|----------X----------|
4 - 5 furrows	|----------X----------|

Wheel distance



- The tractor's inner wheel distance with which the plow can be used is from 110-160 cm (43-63 inches).
- The distance between the front wheels must be 0 to 10 cm (0-4 inches) wider.
- The turning mechanism has a bracket which can be mounted on the plow in two ways, depending on the rear wheel distance.

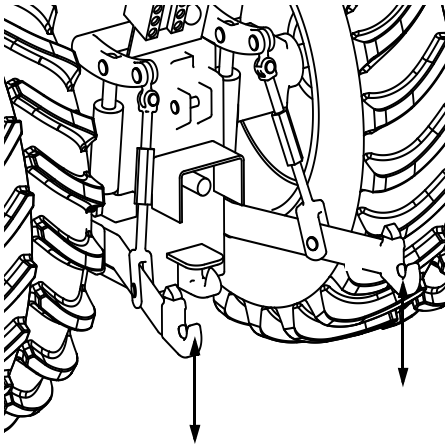
Tire pressure

To avoid uneven furrows, the air pressure must be equal on both rear tires of the tractor.

Front weights

> Add sufficient front end weights to ensure safe driving.

Lower link arms



> Set both lower link arms at the same height. This ensures equal levelling of the plow in both plowing directions.

Remove paint

> Remove paint from all surfaces in contact with the ground. Use a scraper and paint remover.

This chapter explains how to couple the plow to the tractor.

Safety

WARNING

Increased risk of injury when coupling
There is an increased risk of injury when the plow is coupled to the tractor. Therefore:

- Shut off the engine, set the parking brake, remove the ignition key.
- Secure the tractor to prevent it from rolling.
- Do not stand between the tractor and plow when coupling
- Lift and lower the plow slowly

An unsecured tractor can create hazardous conditions.
If this requirement is ignored, the consequence may be damage to the machine and the potential for life-threatening injuries.

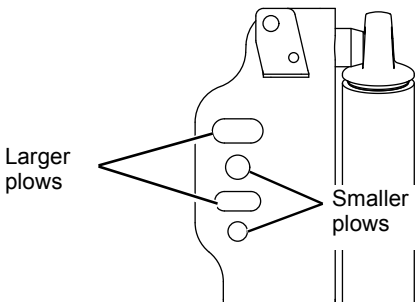
Check the length of the hose
Check the length of the hose between the plow and tractor for sufficient slack. If the hoses are taut or stretched, the hoses may be damaged or pulled out.

Coupling

To couple the plow to the tractor

> Connect the draw arms of the tractor to the cross shaft on the plow
> Connect the top linkage pin on the tractor to the plow's turning head/tower
> Connect the hydraulic hoses to the tractor
> Carefully lift the plow
> Fold up the parking stand
> Check the linkage geometry (see below)
> Turn the plow to check the clearance from the ground and from the tractor (see below)

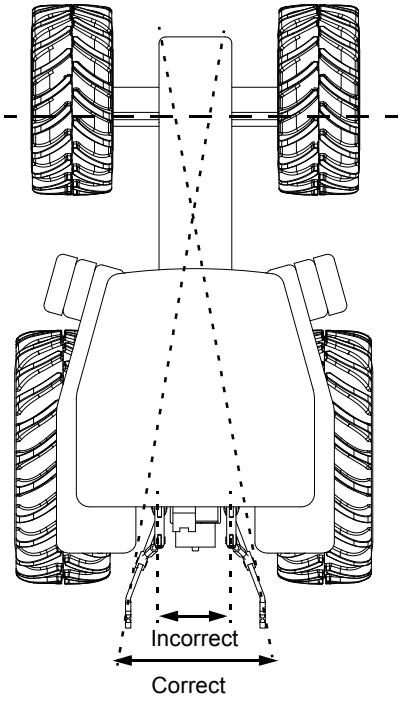
TIP! Top linkage coupling



- Use the slotted holes on 4-share plows or larger. This allows the plow to follow field contours
- Use the fixed holes on 2 and 3-share plows. This prevents the plow from tilting up in heavy or stony soils.
- Make sure the top linkage inclines slightly towards the tractor from the plow.

Linkage geometry

For a stable first furrow width, the imaginary intersection of the draw arms should be 1/3 of the axle distance behind the front axle. If this is not the case, replace the cross shaft with another length.
→ »Cross shaft« page 19



Clearance between the depth wheel/plow and ground

When turning with the bodies over the frame
After you have coupled the plow to the tractor, first make sure that the depth wheel has sufficient clearance from the ground when turning. If there is not sufficient clearance, carry out the following:

- Connect the top linkage to a higher hole on the plow
- Connect the top linkage to a lower hole on the tractor
- Place the cross shaft in a lower hole

→ »The position of the cross shaft«, page 63

Clearance between the tractor and plow

If there is insufficient clearance between the tractor and plow, turn the cross shafts' attachment plates toward the turning head
→ »The position of the cross shaft«, page 63

Take particular care with plows equipped with turning head 110 because of the cylinder in the front which moves up and down.

This chapter explains how to drive safely on roads.

Safety

⚠ WARNING

Stabilize the lower links
During transport, stabilize the tractor's lower links. This will prevent the plow from accidentally moving sideways.

Use the transport wheel
If the plow is equipped with a depth/transport wheel, use it when driving on the road. Failure to use the depth/transport wheel causes excessive stress to both tractor and plow, leading to damage.

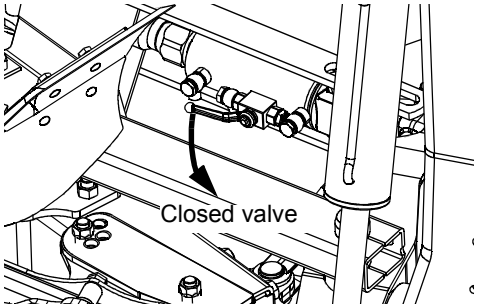
Disconnect the top linkage
When using a depth/transport wheel, disconnect the top linkage. Otherwise, road contours may cause excessive forces on the plow, causing damage.

Adapt your speed: max 25 km/h
Your driving speed must be adapted to the road and field conditions under all circumstances, but must never exceed 25 km/h. Excessively high speeds cause excessive stresses on both tractor and plow, and may cause irreparable damage.

Be aware of the plow's length
The plow is long, and swings out when turning. In tight turns, avoid swinging the rear of the plow into obstacles.

Prior to transport

> Remove soil and dirt from the plow
> Lift the plow carefully
> Stabilize the lower link arms
> Adjust the plow to the narrowest transport width (with hydraulic folding in)



> Close the valve on the working width cylinder [+]

> Mount the lights [+]
→ Fitting instructions for light equipment

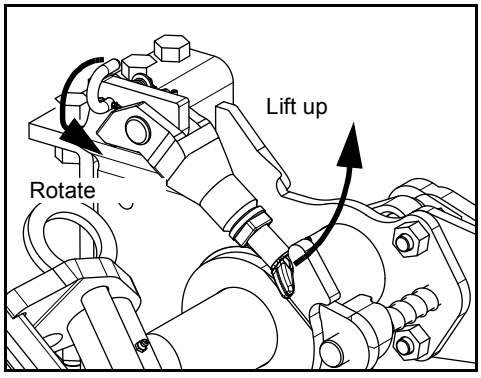
Place in the transport position

Without transport wheel

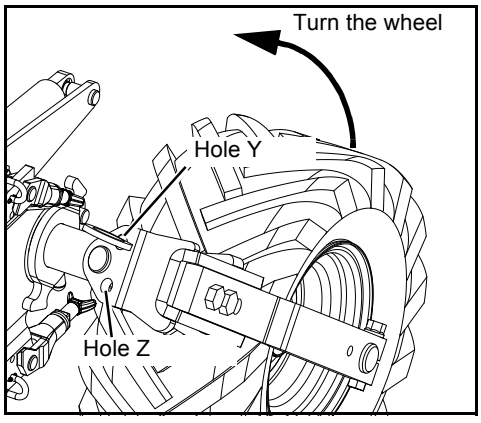


If the plow is equipped with a transport wheel, transport the plow as shown.

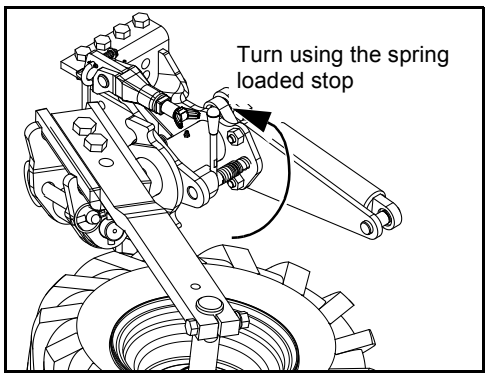
Transport wheel for half-turned position



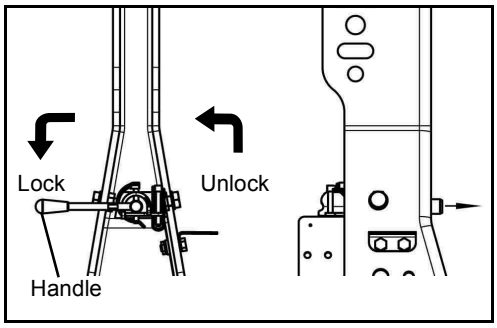
> Lift the plow 10 cm (4 inches) above the ground
> Lift up the upper depth stop
> Rotate the lock pin, to lock the position of the depth stops. This allows free rotation of the wheel
> Repeat this for the lower depth stops.



> Remove the bolt from hole Y
> Turn the depth/transport wheel to the transport position
> Place the bolt in hole Z



> Turn the spring loaded stops. This allows free 360º rotation of the wheel



> Activate the transport lock of the turning head, i.e. release the spring loaded lock pin.



> Turn the plow carefully to the half-turned position. Make sure the transport lock latches.
> Lower the plow until it rests on the transport wheel
> Disconnect the top linkage from the tower

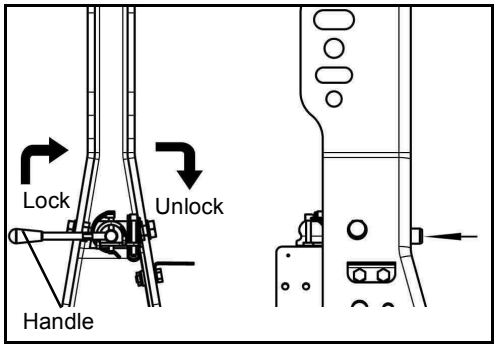
Place in plowing position

After transport, place the plow back into the work position.

Transport wheel for half-turned position

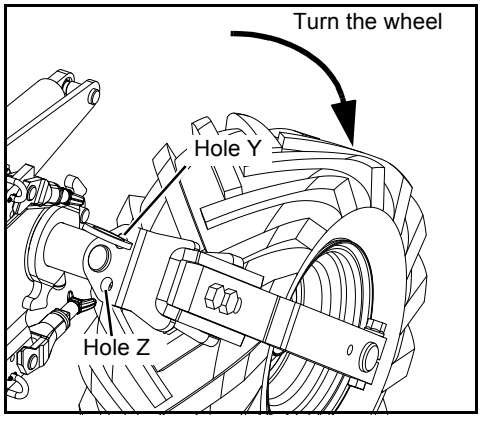


> Connect the top linkage to the tower
> Lift the plow fully.

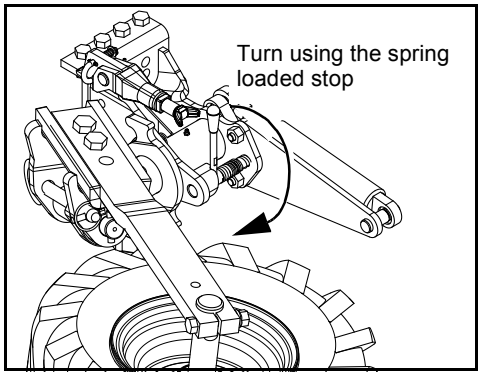


> Deactivate the transport lock on the turning head, i.e. pull in the lock pin

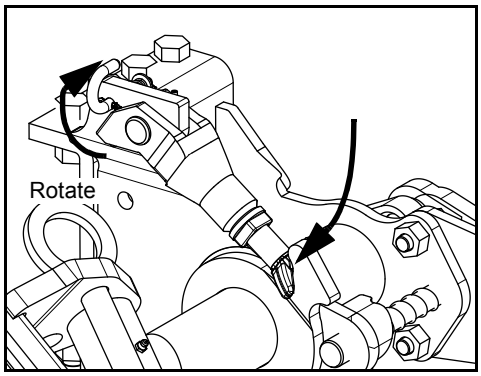
> Turn the plow carefully into the plowing position.



> Take the bolt out of hole Z
> Turn the depth/transport wheel to the work position
> Place the bolt in hole Y



> Turn the spring loaded stops and simultaneously lift the wheel arm a little so that the wheel points backwards



> Release the locking hooks for the upper and lower depth stops so that these can move freely.

This chapter describes the plow adjustments required to obtain the desired plowing result.

Adjustments can be carried out before and during plowing.

Recommended working order
We recommend you to use the following working order when adjusting the plow in the field

> Working width
> First furrow width
> Working depth with depth wheel, depth control and top linkage
> Sideways levelling
> Disc coulter, skimmer and trashboard

If one function is adjusted, this will affect the others. Therefore, this adjustment must be carried out several times.

Adjustments for the Packomat can be found in the Packomat operator‘s manual.

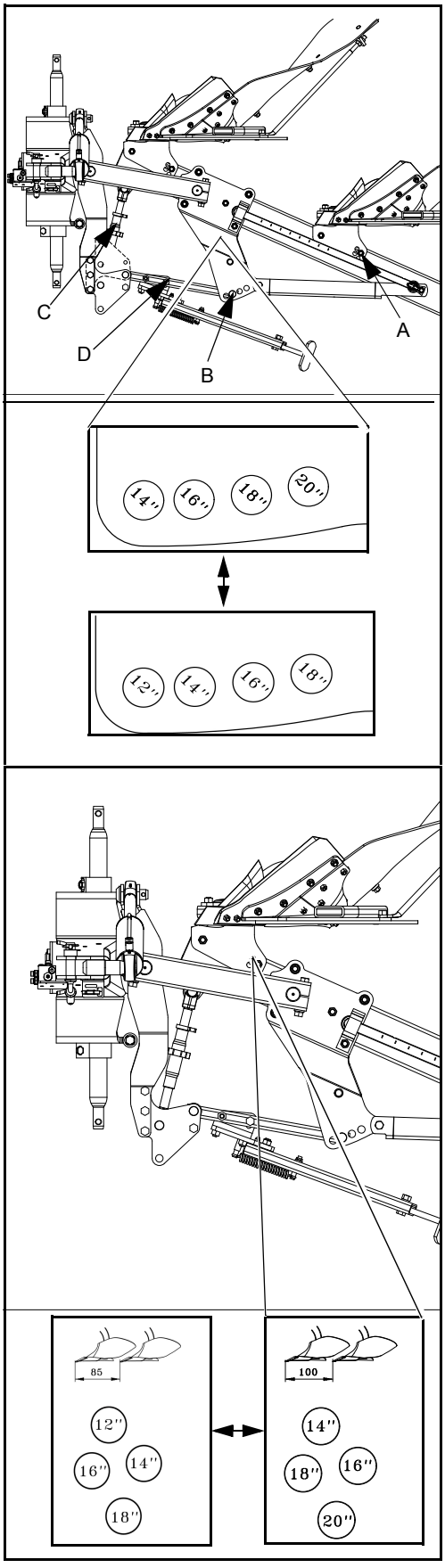
Safety

WARNING

Use protective clothing
Use protective clothing, e.g. gloves, when working with sharp parts of the plow. Parts that come into contact with the soil can be very sharp. Failure to handle these carefully may lead to injury.

Do not wear loose fitting or other inappropriate clothing. Loose fitting items of clothing may become caught in parts of the plow. Wear the proper protective clothing. Different environments may require special clothing to preform the operation and maintenance of the plow. Serious or fatal injury may be caused if these guidelines are not followed.

Working width - Incremental



Working width
For plows with a working width set in increments, this is adjusted as follows:

> Each individual body is set by turning the beam holder and placing the bolt in the holes which corresponds to the desired working width (A)

> The angle of the plow's main frame is set by placing the bolt (B) in the hole which represents the desired working width.
NB! The length of the adjustable linkage (D) must not be changed.

> The width of the first furrow is set in the same way as the rest, using the turnbuckle or the side adjustment cylinder (C) - see also the dedicated section.

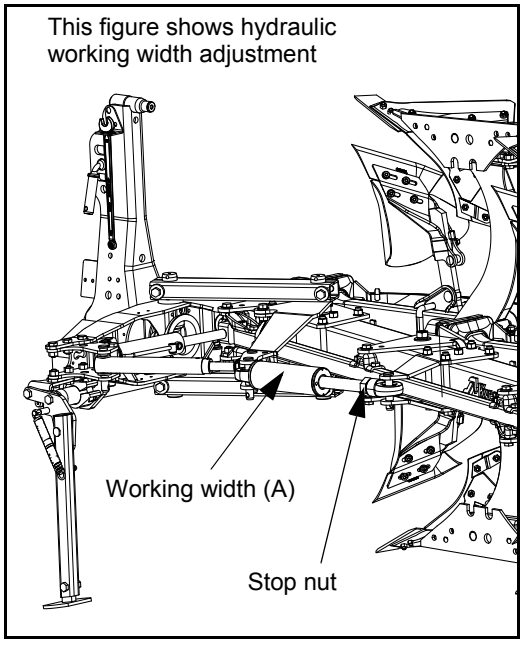
Adjustable linkage (D)
The length of the adjustable linkage (D) must initially always be 525 mm (21 inches) - irrespective of the plowing width.
The length can be changed to correct crooked drawing of the plow, if applicable.

Hydraulic folding in
To facilitate turning or provide clearance from the ground, the adjustable linkage (D) is equipped with a cylinder.
When plowing, it must be at a length of 525 mm (21 inches). The working width is changed as described above.

Working width - Variomat

Working width
On plows with an infinitely variable working width - Variomat - is adjusted as follows:

Mechanical
In place of the cylinder (A), this model has a turnbuckle. The infinitely variable plowing width is set by changing the length of the turnbuckle. Shortening the turnbuckle produces a greater working width.
The first furrow must be set separately.

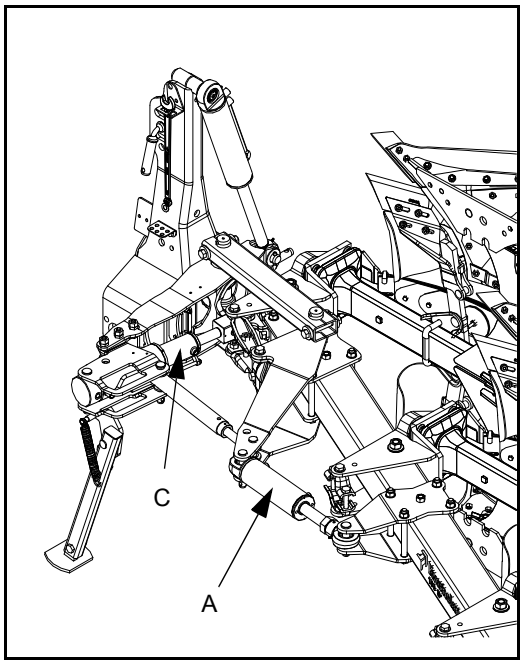


Hydraulic
The working width is set by adjusting the length on the cylinder (A). Shortening the cylinder produces a greater working width.
The first furrow must be set separately.

Hydraulic, with memory
The working width is set by adjusting the length on the cylinder (A). Shortening the cylinder produces a greater working width. When turning, the plow will be automatically retracted to the smallest working width and return to the set working width after the plow has turned.
The first furrow must be set separately.

Hydraulics with memory including first furrow

Setting of the working width and turning is as described above. Plows equipped with this type of hydraulics also have hydraulic setting of the first furrow. This is coupled to the Variomat cylinder (A) and the width of the first furrow will be changed along with the rest of the plow.



The furrow width is set using the Variomat cylinder (A). This cylinder is a master cylinder which is coupled to and controls the inner (smallest) section of the telescopic cylinder, which is a slave cylinder (C). The outer (largest) section acts as a side adjustment cylinder and determines the width of the first furrow. The telescopic cylinder can be fitted in two different positions according to the tractor's track width.

Return position for the plow's furrow width adjustment (i.e. synchronisation of the master (A) and slave cylinder (C))

The piston in cylinder (A) and slave cylinder (C) is equipped with an overflow valve. The plow is returned by these cylinders being moved to the inner position (largest furrow width), and maintained under a constant supply of oil for a short while.

Adjusting the plow

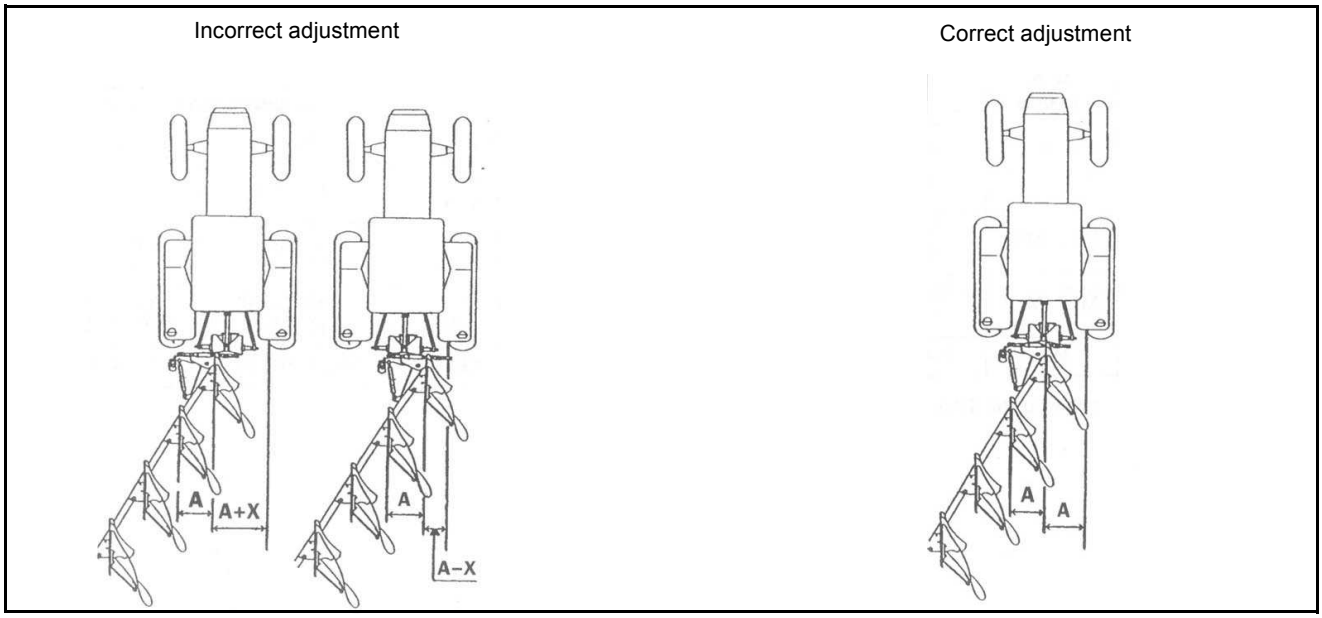
First furrow width

WARNING

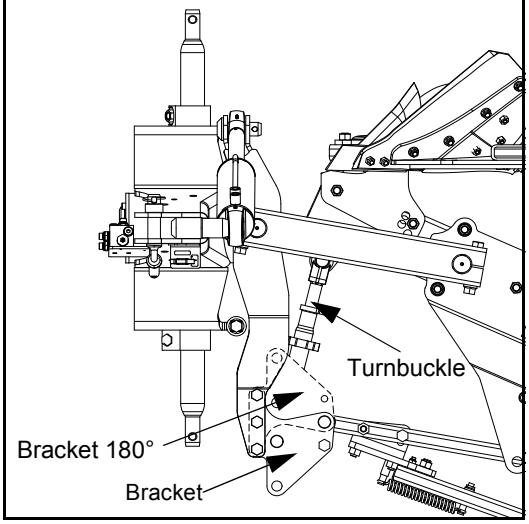
Do not adjust when lifted
Do not adjust the first furrow width when the plow is lifted from the ground. This may lead to damage or injury.

In general, the first furrow should match the width of the other furrows. Please be aware of the following:

- When using wide tires on the tractor, decrease the first furrow width, to ensure a good connection with the previous furrows.
- On slopes, compensate for the plow's downwards drift.
- When using a furrow opener on the last body, make the first furrow width 13 cm (5 inches) smaller than the width of the other furrows.



This figure shows mechanical first furrow adjustment



Mechanical

> Adjust the first furrow width the adjustable screw. Use the spanner supplied.

Hydraulic

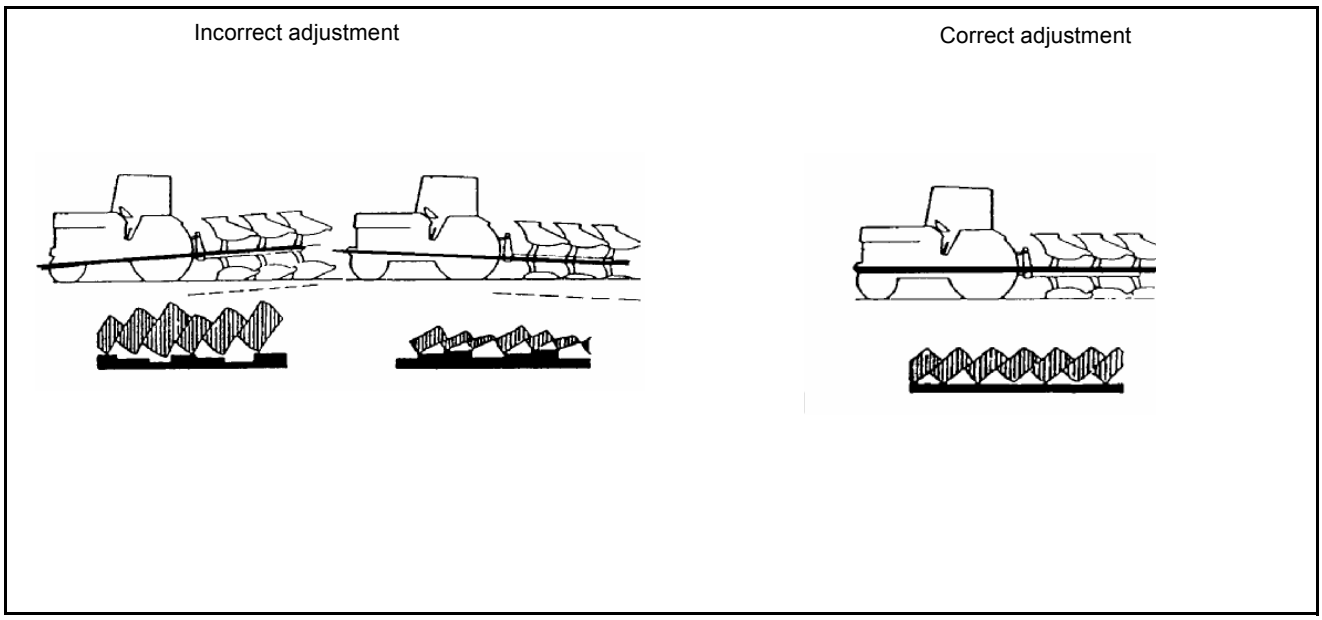
> Adjust the first furrow width cylinder using the tractor's spool valve control.

Brackets

> The brackets can be rotated 180° to obtain the correct first furrow width.

Working depth

- The plow frame should always be parallel to the ground.
- The top linkage should be in the centre of the slot.
- After changing the working depth, ensure the sideways levelling is checked (see next paragraph)

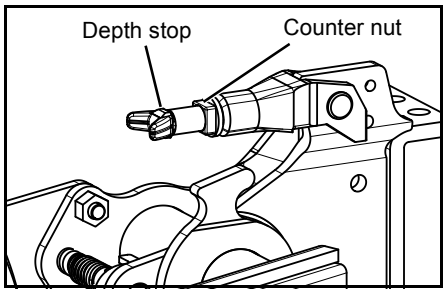


To change the plowing depth

> Lift the plow carefully
> Adjust the depth wheel (see below)
> Adjust the lower draw arms with the tractors three-point control
> Adjust the length of the top linkage
> Level the plow sideways

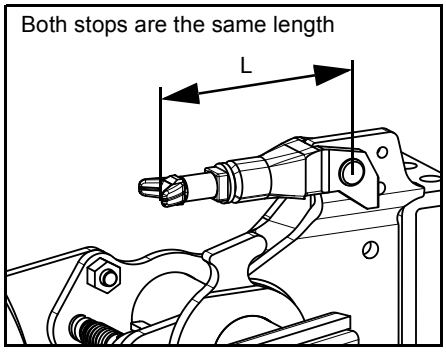
→ »Levelling«

Depth wheel



To adjust the depth wheel, carry out the following on both depth stops

> Loosen the counter nut
> Adjust the depth stops
> Retighten the counter nut

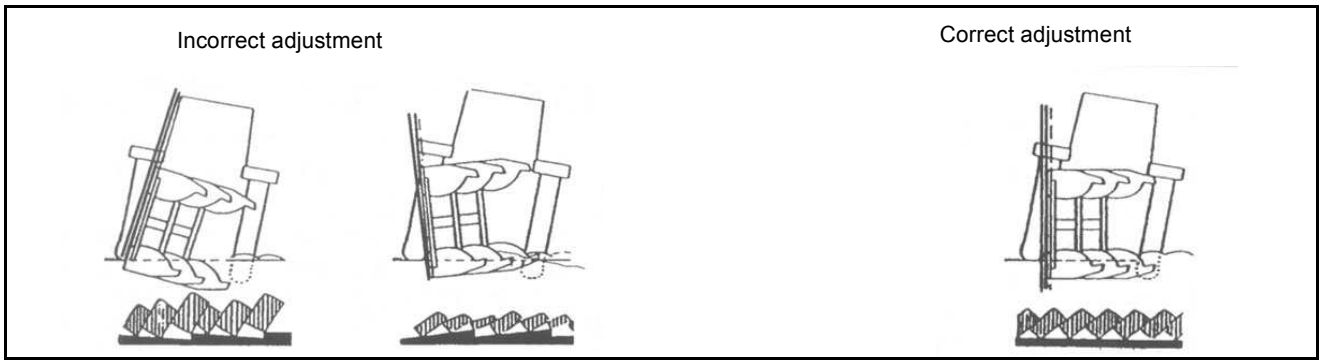


TIP! A practical way of measuring the working depth on both the left and right

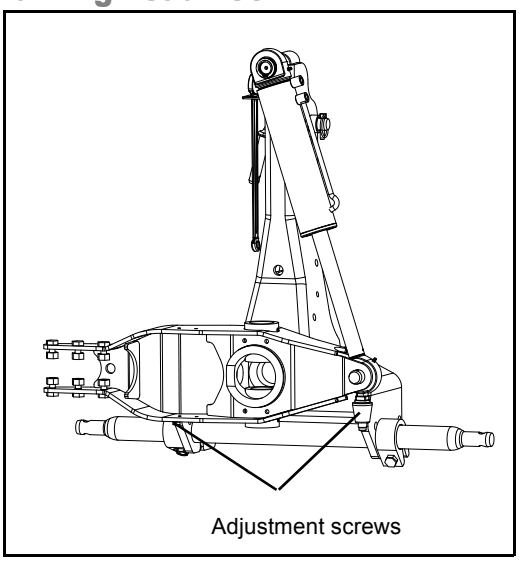
> Measure the depth of the last furrow
> Measure the length of both stops. Ensure both stops are the same length.

Levelling

Seen from the rear, the plow beams should be at 90º to the ground.



Turning head 150



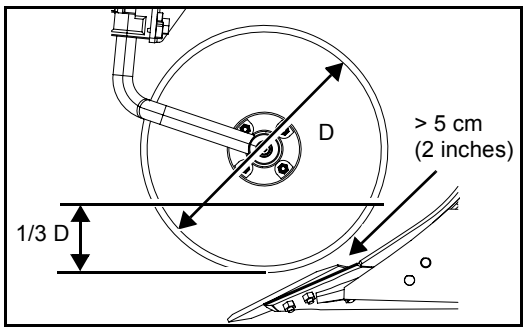
To level the plow

> Turn the plow slightly

> Turn the adjustment screws on the turning head. Initially adjust so both sides are the same.

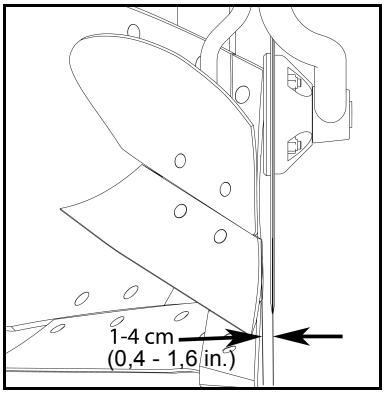
> You can adjust the left and right hand sides differently.

Disc coulter [+]



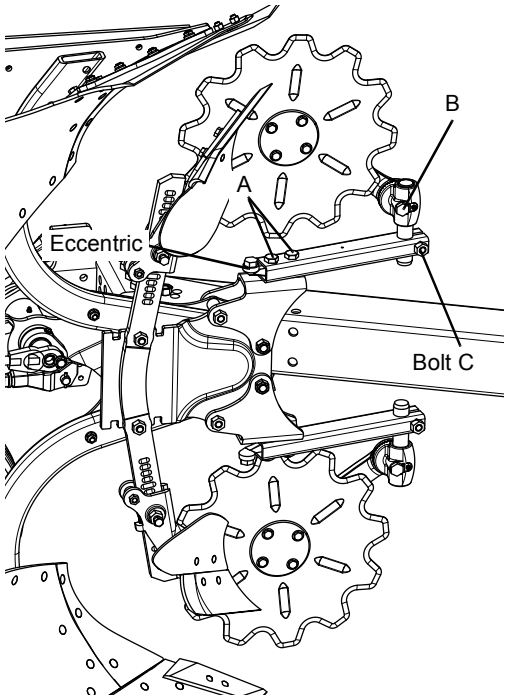
The disc coulter is correctly adjusted

- When the disc coulter cuts approximately half the working depth in the ground.
- When the distance between the disc coulter and the body is at least 5 cm (2 inches). In stony soils, increase this distance.
- When the rear disc coulter does not collide with the depth wheel.
- When all disc coulters are adjusted equally



TIP! • When the distance between the disc coulter and the landside is between 1 and 4 cm (0,4 - 1,6 inches).

RM 2000



To adjust the depth

> Support the disc coulter to prevent it from dropping down
> Loosen bolt (B)
> Turn the arm
> Retighten bolt (B)

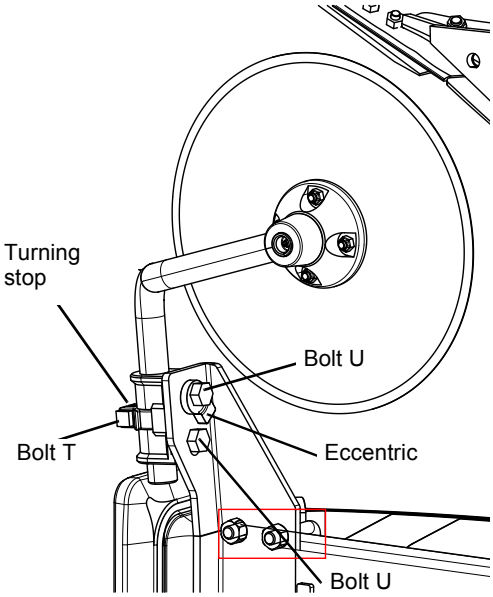
To adjust the depth further for very shallow or deep plowing

> Support the disc coulter to prevent it from dropping down
> Loosen bolt (C)
> Adjust the axle position
> Retighten bolt (C)

To adjust the sideways position

> Loosen bolts (A)
> Turn the eccentric
> Retighten bolts (A)

RM 2005; without parallel side adjustment



To adjust the depth

> Support the disc coulter, to prevent it from dropping down
> Loosen bolt (T)
> Adjust depth
> Tighten the bolt (T) again

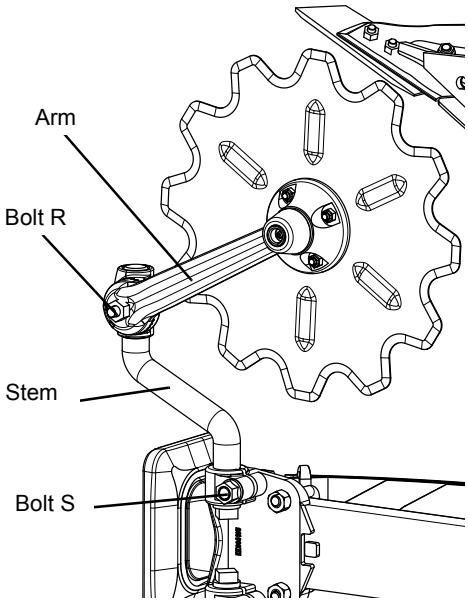
To adjust the sideways position

> Loosen bolts (U)
> twist the eccentric
> retighten bolts (U)

To adjust the turning range

> Support the disc coulter and hold it in place
> Loosen bolt (T)
> Twist the turning stop
> Tighten the bolt (T) again

RM 2005; with parallel side adjustment



To adjust the depth

> Support the disc coulter, to prevent it from dropping down
> Loosen bolt (R)
> Turn the arm
> Retighten bolt (R)

To adjust the sideways position

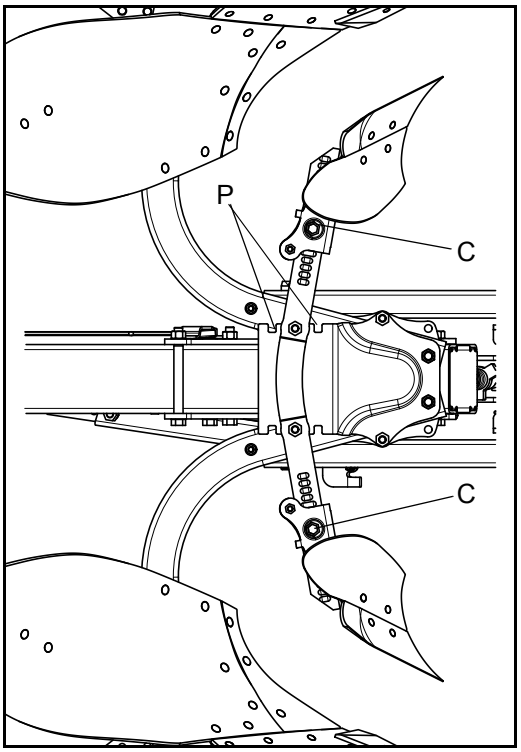
> Loosen bolt (S)
> Twist the stem
> Retighten bolt (S)

Skimmer [+]

The skimmers are correctly adjusted when

- The skimmers have a working depth of approximately 3 to 5 cm (1 to 2 inches).
- All skimmers are adjusted equally.

RM 2000



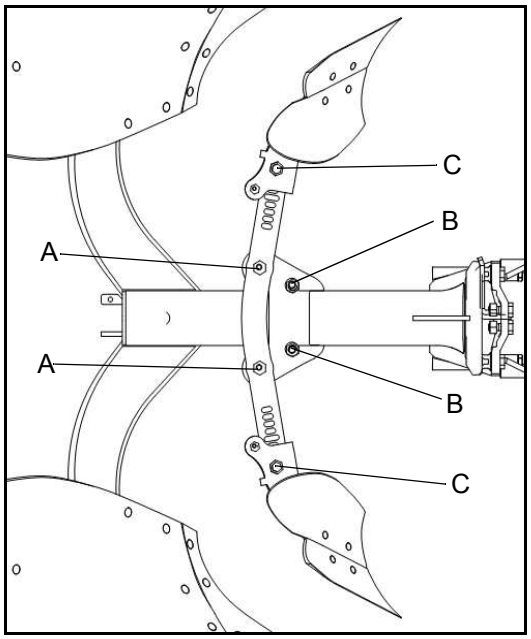
To adjust the depth

> Support the skimmer to prevent it from dropping
> Loosen the nuts on bolt C
> Loosen bolt C, one side at a time
> Adjust the skimmer to the desired position and count the markings
> Retighten bolt (C)
> Tighten the nuts on bolt (C)

To change the forward position

> Support the skimmers
> The skimmer can be adjusted to 3 positions (P)

RM 2005



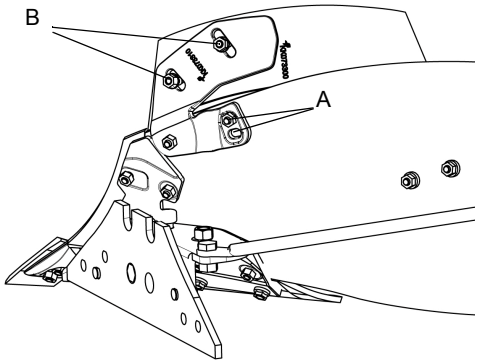
Adjusting the depth

> Support the skimmers to prevent them dropping down
> Loosen the nut on bolt C
> Loosen bolt C, one side at a time
> Adjust the skimmers to the desired position, and count the markings
> Tighten the bolt again (C)
> Tighten the nut again (C)

Adjusting the forward position

> Loosen the nuts (A) at the same time
> Loosen the nuts (B) at the same time
> Adjust the skimmers to the desired position
> Tighten the nuts again (B)
> Tighten the nuts again (A)

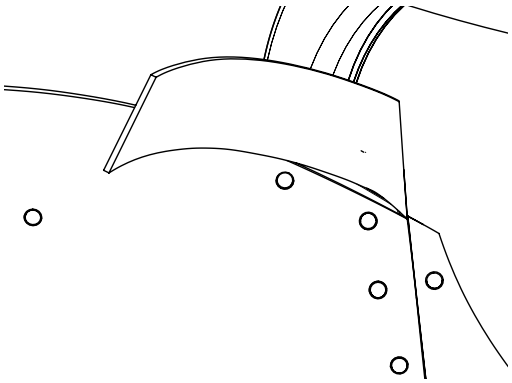
Trashboard [+]



The trashboard should be placed with the front edge close to the mouldboard, the rear edge should be adjusted according to the plowing depth.
There are two adjusting holes in the bracket for the trashboard, one for deep plowing and one for shallower plowing (A). In addition, there are two slotted holes in the trashboard for additional adjustment (B).

TIP! When commissioning the new plow, it is a good idea to adjust the trashboard in the upper position to strip the paint from the plow bodies when plowing.

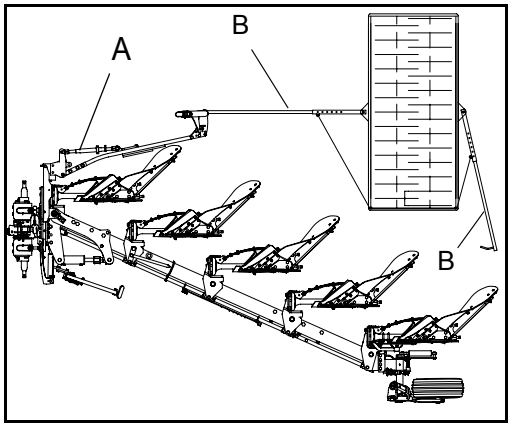
TIP! It may be a good idea to adjust the height of the trashboard when changing the working width.



The trashboard is set from the front. It is important that the trashboard is fitted with the front edge completely lowered against the mouldboard to prevent plant waste or similar from becoming caught up.

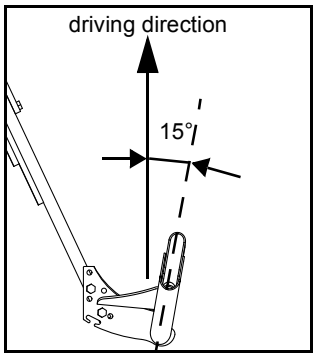
Trailed packer arm [+]

Position of the packer

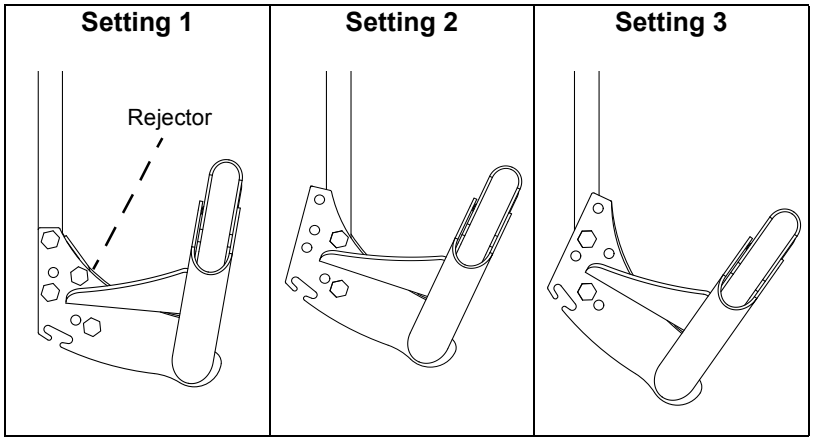


- Place the conventional soil packer so that the packer is at least two furrows from the current turn. Overlapping of the packing between the two turns is the best option.
- The arms (B) must be adjusted in length so that the hook catches easily in the soil packers link hook, but is also adjusted so that the arms (B) do not collide with the tractor covers at the next turn.
- Adjust the turnbuckle (A) so that the arm is as close to the plow's mouldboard as possible to ensure the best possible draw line. At the same time, keep a certain distance in case the plow body comes out.

Direction of the packer arm



- The packer arm should preferably be mounted at an angle of 15° to the driving direction.
- There are three settings. In setting 1 there is a rejector for protecting the hydraulic hose.



Safety

WARNING

Be careful when turning
Be careful when you turn while driving backwards (when turning with the bodies under)
Be careful when turning the plow while driving backwards. There is a risk that the mouldboards or depth wheel will hit the ground.This may result in damage or injury

Release the lift rods
Destabilize the tractor’s lift rods prior to plowing. Plowing with the lift rods still stabilized may damage the tractor or plow.

Plowing on slopes
Do not turn the plow when the tractor is standing sideways on a slope. If the plow is turned, it may destabilize the tractor.

Prior to plowing

Before you start plowing

> Remove oil and grease from parts which comes in contact with the soil.
> Release the lower link arms
> Turn the depth/transport wheel into the plowing position

→ »Place in plowing position«, page 33

Checks during plowing

During plowing, check the following regularly.

Soil penetration
In hard and dry soil, the plow may not penetrate the soil well. To improve the penetration

> Replace worn parts. Worn points do not penetrate the soil well.
> Connect the top linkage to a fixed hole on the turning head. This will transfer weight from the tractor to the plow.
> Connect the top linkage as flush as possible to the tractor and plow.

Slip on tractor wheels (on two wheel driven tractors)
To reduce slip on the tractor wheels.

> Connect the top linkage to a fixed hole on the turning head and make the top linkage shorter. This prevents the rear end of the plow from tipping up.
> Set the tractor's depth control more towards the resistance regulator or do not plow so deep.

Checklist

Turn the plow

CAUTION

Complete the turning sequence
Always complete the entire turning sequence. Only then will the turning cylinder be locked, and will not creep during plowing.

The plow turns when you apply pressure on the P-side of the turning valve.The turning sequence depends on the type of turning valve.

> Operate the tractor's spool valve, until the turning sequence is completely finished.

Different turning systems

Turning valve - only for turning the plow

- The plow turns fully from one side to the other

Turning sequence valve

- The plow is firstly aligned to the narrowest working width
- The plow turns fully from one side to the other
- The plow returns to the working width set with the mechanical stop.

Trailed packer arm [+]

When you use a packer arm for a conventional packer, you need to release the soil packer before coming to the marker furrow

> Briefly operate the tractor's spool valve in the opposite direction to turning.

This chapter explains how to maintain and care for the plow.

Safety

CAUTION

Use original spare parts
Only use original Kverneland spare parts. Using other products may lead to malfunction of the machine or a reduced safety. Warranty is not valid if parts not produced by Kverneland are used.

WARNING

Wear protective clothing
Wear protective clothing, e.g. gloves, when working with sharp parts of the plow. In particular, parts which come into contact with the soil can be very sharp. Careless handling can result in injury.

Avoid skin contact with oil and lubricants
When handling oil or lubricants, avoid contact with the skin by using oil-resistant gloves. Oil and lubricants can damage the skin.

Before maintenance

WARNING

Before maintenance is carried out on the plow

> Ensure that the plow is correctly secured to prevent overturning. Use additional safety devices when required
> Depressurize the hydraulic system
> Whenever possible, uncouple the tractor
> Place all controls in neutral or park
> Set tractor parking brake



> Switch off the tractor and remove the ignition key
> Ensure the machine is standing on firm, secure and level ground, and provide additional support, if necessary
> Secure the machine against rolling away (use wheel chocks)
> Clean the plow around the area requiring maintenance

Maintenance chart

The following maintenance chart displays the interval of the different maintenance operations.

	after the first few hours of use	daily	before the plowing season	after the plowing season	after power cleaning	yearly/after 200 ha	when worn / damaged	After 1000 km of transport	every 6 years
Check the condition of the plow		X	X						
Lubrication		X	X	X	X				
Replace the hydraulic hoses							X		X
Replace wearing parts							X		
Retighten bolts and nuts	X					X			
Check the tire pressure			X			X			
Corrosion protection of parts in direct contact with the soil				X					
True the bodies						X			
Replace the cross shaft								X	

Cleaning

Thorough cleaning will give the plow a longer service life.

- The plow can be cleaned with a power cleaner, but never aim it directly at the bearings.
- Lubricate all nipples after power cleaning.

Lubrication

Use appropriate grease
Only use EP (Extreme Pressure) grease. The use of unsuitable grease will reduce the bearings' service life.

Lubricate the plow

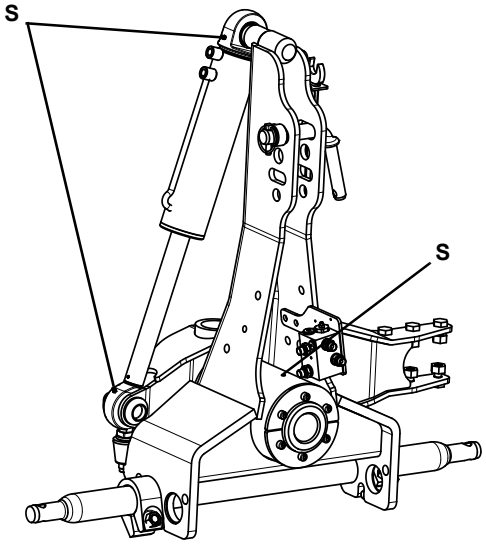
- Daily when plowing. This prevents the ingress of water and dirt into the bearings and moving parts.
- After power cleaning
- Before and after the plowing season.

> Lubricate all lubrication points until grease comes out of the bearing.
> Remove all excess grease. Excess grease attracts dust and earth.

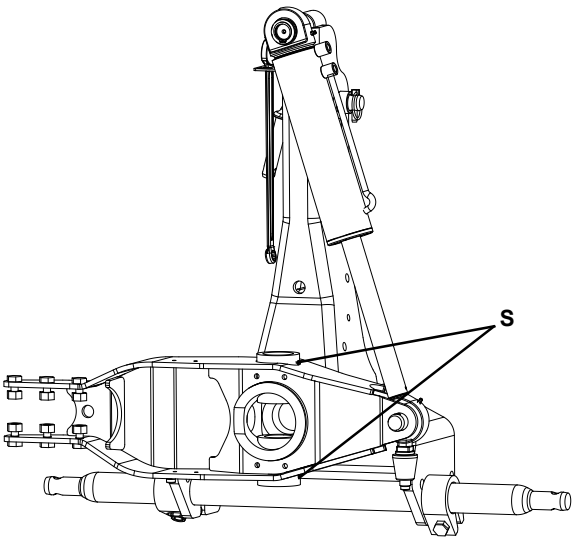
The illustrations below show the lubrication points (S)

Lubrication points (S)

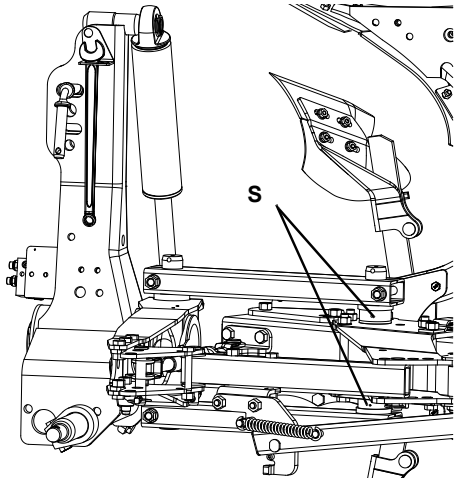
Turning head 150



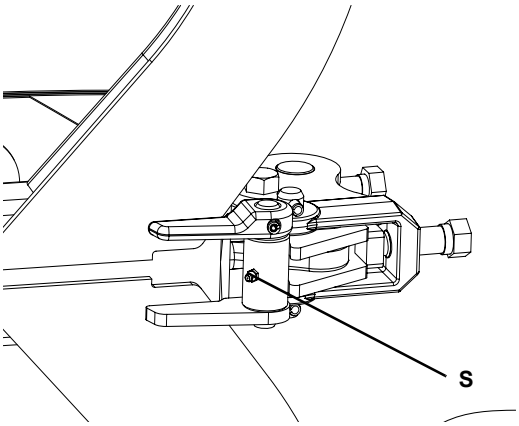
Turning head 150



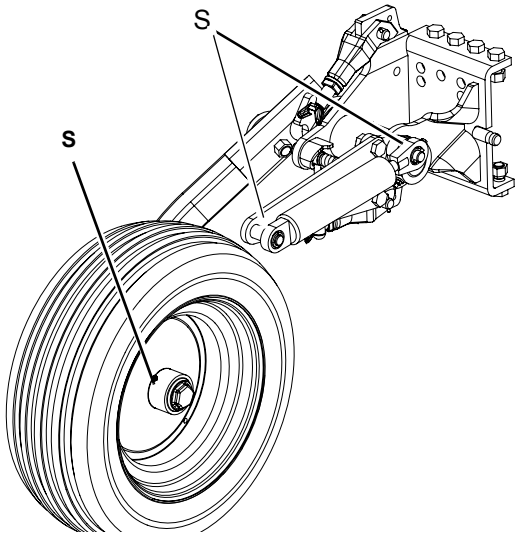
Frame



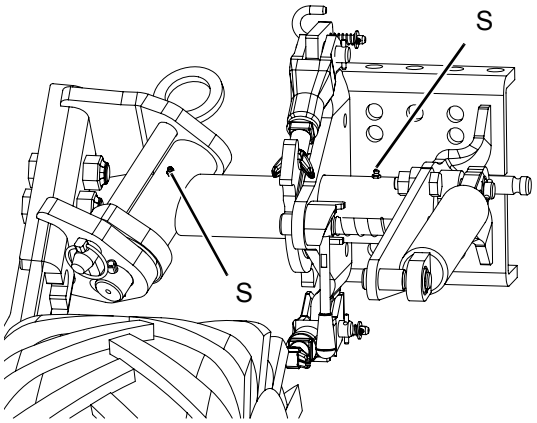
Auto-reset beam RM 2005



Depth wheel



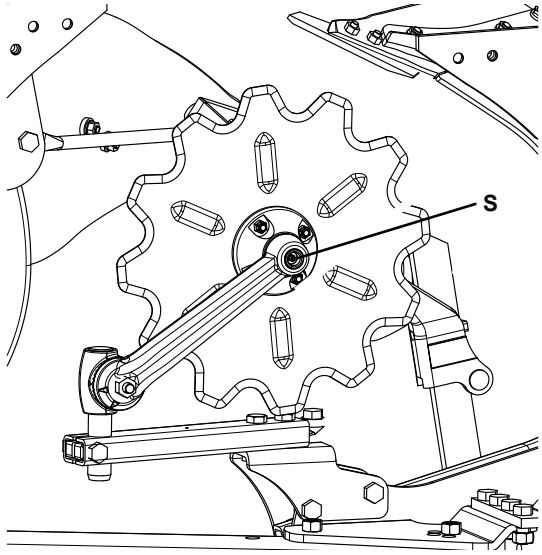
Depth/Transport wheel for half-turned position



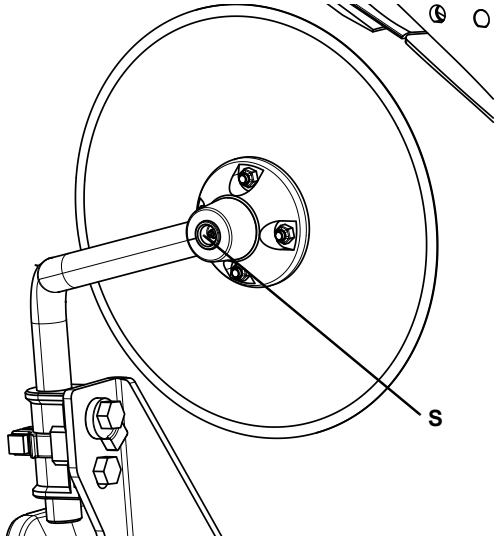
The illustrations below show the lubrication points (S)

Lubrication points (S)

Disc coulter RM 2000



Disc coulter RM 2005



Replace hoses

WARNING

Check the length of the hose
Check the length of the hose on the plow for sufficient slack. Overly taut or stretched hoses can become damaged or broken.

WARNING

Replace the hydraulic hoses
- Immediately when they have become worn or defective.
- Every 6 years

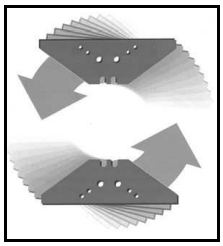
> Relieve the pressure in the hydraulic system
> Disconnect the hoses from the tractor
> Remove the old hose.
> Fit the new hose
> Tighten all couplings fully

Replace wearing parts

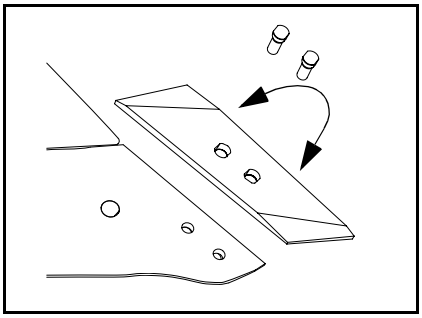
- Replace parts in contact with the soil and other parts when they are worn or damaged.
- Use only genuine Kubota spare parts.

> Remove the old part.
> Fit the new part
> Remove paint from any surfaces in contact with the soil

TIP Landsides
When reversible landsides are worn to approximately 5 mm (2 inches) at the end, they can be reversed from the right to be used on the left hand side.



TIP Reversible point
When reversible points are worn at the end, they can be reversed.

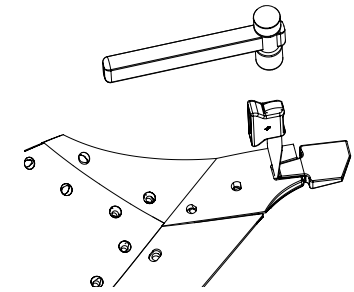


Replacing Quick-fit points

WARNING

Wear eye protection

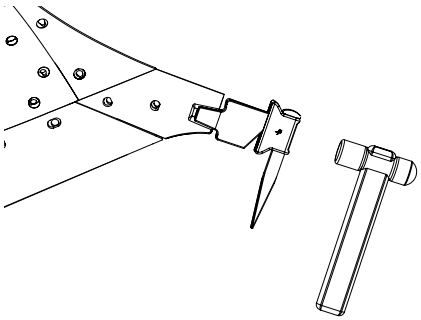
- Wear eye protection when replacing Quick-fit points. Otherwise, there is a risk that splinters from the Quick-Fit points can cause eye damage.



Removing a worn point

> Place the gore tool

> Knock the point out



Fitting a new point

> Place the new point the right way around

> Use the gore tool as a buffer between the point and the hammer

> Knock the point into place

There must be no paint on the angled surfaces

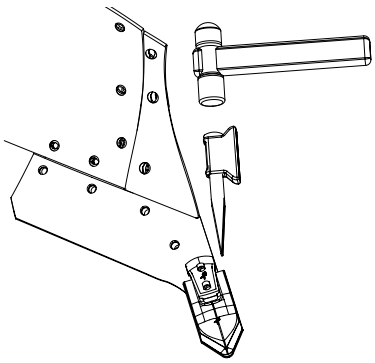
TIP! Rotating the Quick-fit points.
When the Quick-fit points are approximately 50% worn, they can be moved from the body on the right-hand side to the left. This gives better penetration.

Replacing Knock-on® points

WARNING

Wear eye protection

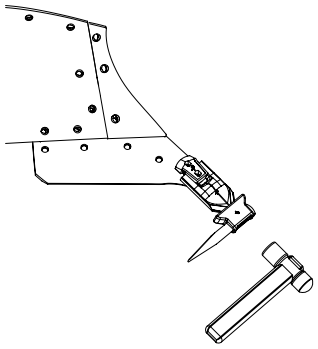
- Wear eye protection when replacing Knock-on® points. Otherwise, there is a risk that splinters from the Knock-on® points can cause eye damage.



Removing a worn point

> Place the gore tool

> Knock the point out



Fitting a new point

> Place the new point the right way around

> Use the gore tool as a buffer between the point and the hammer

> Knock the point into place

There must be no paint on the angled surfaces

Tighten bolts and nuts

Retighten all bolts and nuts on the plow.

- After the first few hours of use
- When necessary
- Yearly/after 200 ha

General

For most bolts and nuts the following table applies.

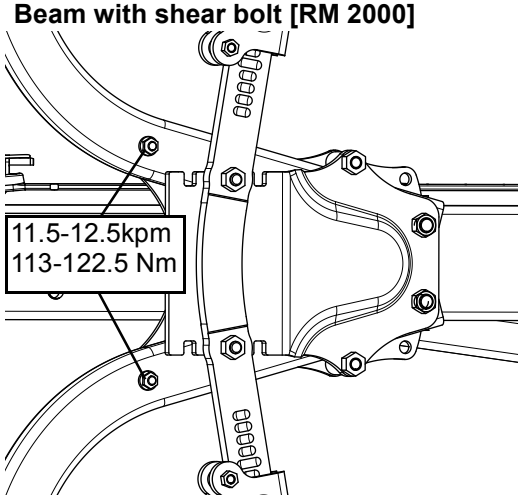
Bolt diam.	Tightening torque			
	10.9 Bolts		12.9 Bolts	
	kpm	Nm	kpm	Nm
M12	11.5 - 12.5	113 - 122.5	14 - 15	137 - 147
M14	18.5 - 20	181.5 - 196	22 - 24	216 - 235.5
M16	28.5 - 31	279.5 - 304	34 - 37.5	333.5 - 368
M20	55.5 - 61	544.5 - 598.5	65.5 - 73	652 - 716
M24	95 - 105	932 - 1030	115.5 - 127	1133 - 1246

Tightening torque of the hydraulic connections

Thread dimension		Torque Nm
BSP R 1/4	With sealing ring	43-48 Nm
BSP R 3/8	With sealing ring	65-75 Nm
BSP R 3/8	Swivel	35-40 Nm
BSP R 1/2	With sealing ring	80-90 Nm
BSP R 1/2	Swivel	57-63 Nm
BSP R 3/4	With sealing ring	160-180 Nm
M18X1.5	D 12 pipe	40-45 Nm*
M22X1.5	D 15 pipe	65-75 Nm*
* If the cone is not compressed, the nut must be tightened in accordance with special guidelines		

Specific tightening torque

Beam with shear bolt [RM 2000]



Replace the shear bolt [RM 2000]

Only fit original shear bolts
Only fit original shear bolts. Failure to use original shear bolts can damage the plow.

The RM 2000 is equipped with shear bolts for protection against objects stuck in the soil.
When a shear bolt shears off:

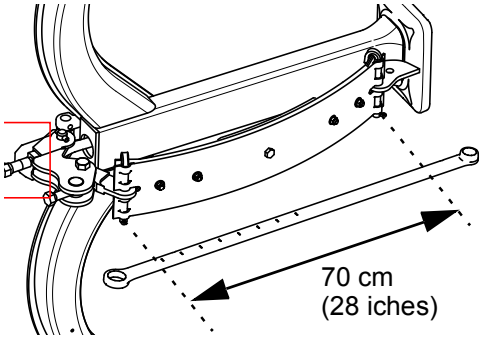
> Replace it with an original shear bolt
> Tighten all the bolts again (see diagram)

Check the spring is the correct length [RM 2005]

The length of the springs from pin to pin must be 70 cm (28 inches). This results in maximum spring tension. Over time, the spring adjustment can change gradually and needs to be corrected.

> Check the spring length every year.
> Adjust the length if it is shorter or longer than 70 cm (28 inches).

→ page 58



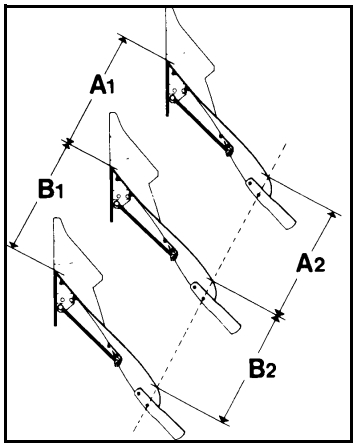
TIP!

Use the long spanner to measure the length of the spring. The notches on the spanner indicate 70 cm (28 inches).

Tire pressure

Make sure that the tires' air pressure meets requirements.
→ »Tire pressure«, page 19

Align bodies



New plows are delivered with correctly adjusted bodies. Use of the plow can gradually alter the alignment. Therefore the alignment of the bodies must be checked after every plowing season

The bodies are correctly aligned when

- A2 = A1
- B2 = B1
- A2 = B2

The maximum permitted deviation between A1 and A2 is 5 mm (0.2 inches). When there is greater deviation, adjust the bodies with the nuts on the supports.

> Start with the middle bodies.

> Loosen the counter nut

> Adjust the nut until the body is in the desired position

> Tighten all nuts, including the counter nut

> Continue with the other subsequent bodies.

Also make sure that left and right hand bodies are parallel.

> From above, take a quick look at the left and right hand supports, to check that they are parallel

> Adjust when necessary.

The spring release system [RM 2005]

This paragraph explains how to

- Remove and fit an auto-reset beam
- Change the auto-reset beam release force
- Adjust the spring tension on the auto-reset beam

Safety

WARNING

Support the beam
Support the beam firmly when disassembling it, by using appropriate equipment. Dropping down of the beam may lead to damage to the plow or personal injury.

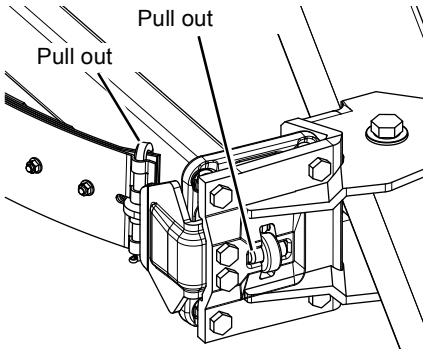
WARNING

Use an even, horizontal floor
Only remove a beam when the plow is parked on a horizontal and even floor. Otherwise, the beam could fall. This can result in damage to the plow or personal injury.

Fitting and removing

Remove and fit an auto-reset beam

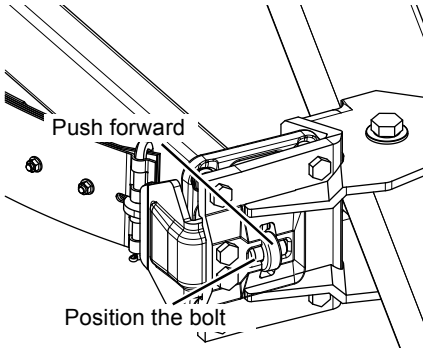
- when the beam has been dislocated after hitting an object in the ground
- to change the release force of the beams
- to remove the last body for lighter pulling
- in other unforeseen cases



To remove the beam

> Release the spring tension
→ page 60

> Pull out the spring bolt if necessary
> Pull out the axle



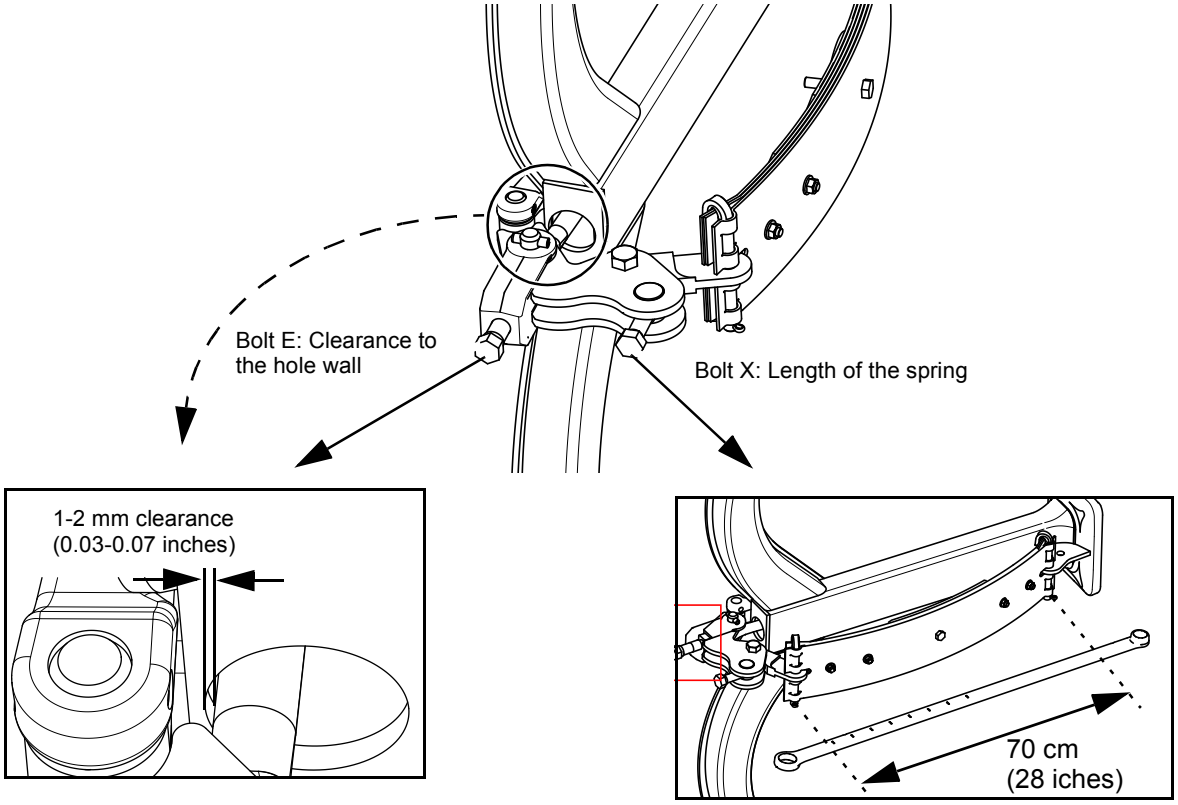
To fit the beam

> Place the beam against the beam holder
> Push the tension bar forward
> Place the bolt in the hole

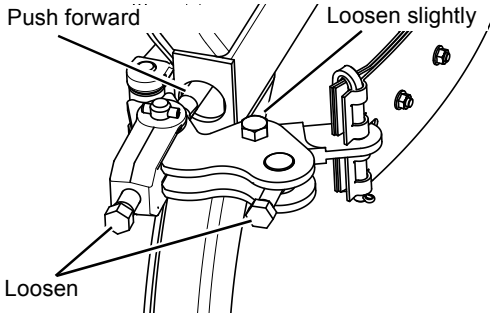
> Increase the spring tension
→ page 60

Spring tension

The spring tension can be changed using the release system with 2 bolts. The illustration below explains how the two bolts operate.



For instructions, see the next page.

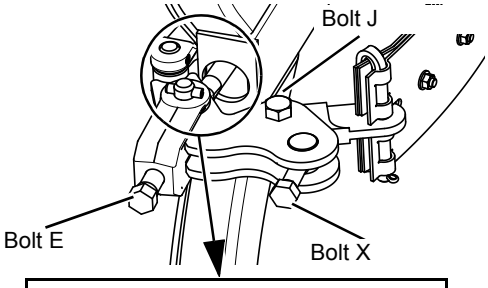


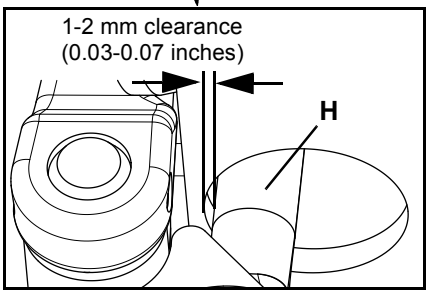
To release the spring tension

> Park the plow on a firm, level floor.

> Support the beam correctly. Place a wedge under the rear of the landside

> Loosen bolts





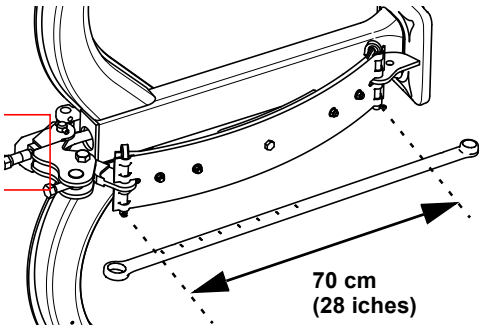
To apply spring tension

> Screw in bolt (X) halfway

> Screw in bolt (E), until the clearance between the spring suspension rod (H) and the hole in the wall is 1-2 mm (0.03

> Screw in bolt (X) until the length of the spring is 70 cm (28 inches).

> Tighten bolt (J)



TIP!

Use the long spanner to measure the length of the spring. The notches on the spanner indicate 70 cm (28 inches).

Change the release force setting

The auto-reset beam's release force is correct if the beams are only released during plowing when they meet an obstacle.

The release force for the auto-reset beam can be changed by

- adding or removing spring leaf no. 5
- using a double spring kit

Carry out the following

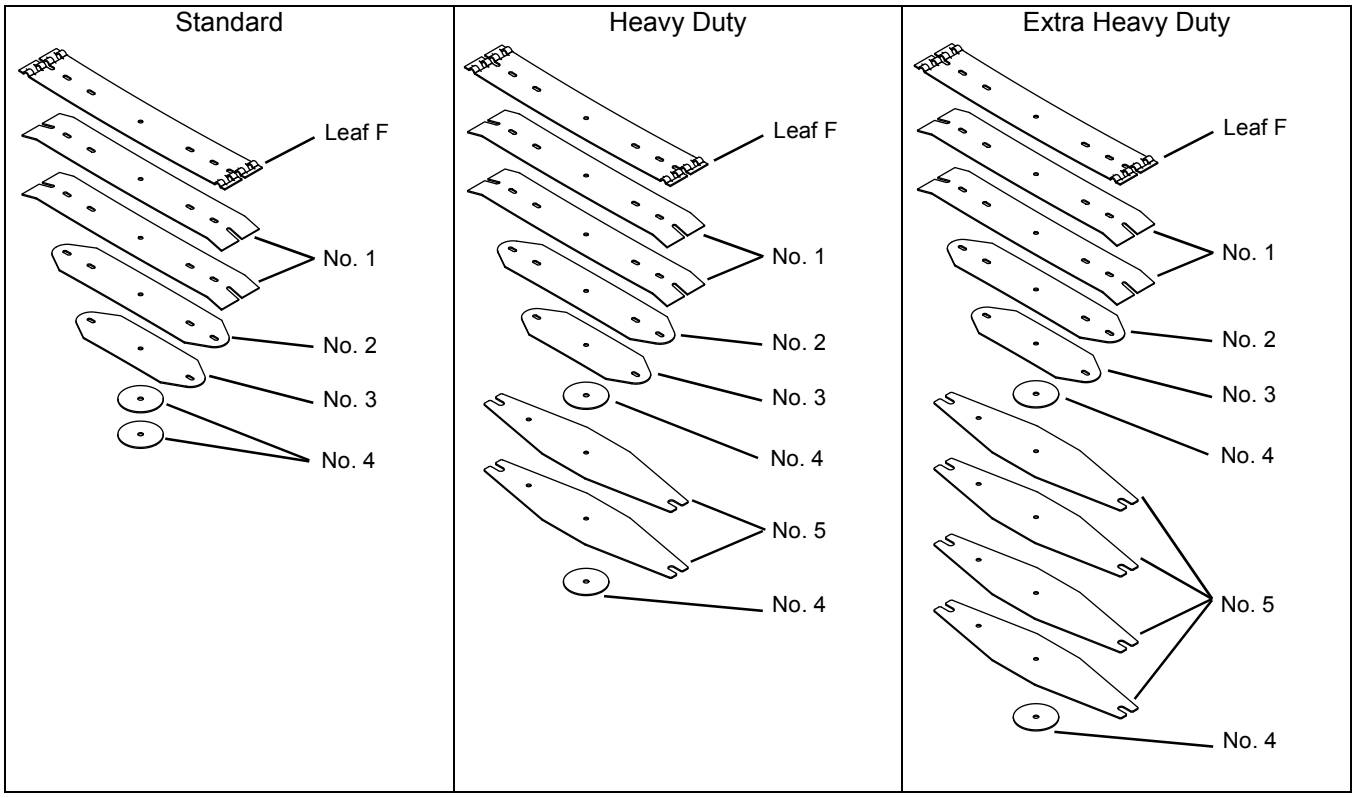
> Release the spring tension, see page 60

> Change the configurations of the auto-reset beam's spring.

> Increase the spring tension again, see page 60

Type of springs	Release force* kN
Standard	7.0
Standard + 1 leaf no. 5	8.0
Standard + 2 leaves no. 5 (Heavy Duty)	9.0
Standard + 3 leaves no. 5	10.0
Standard + 4 leaves no. 5 (Extra Heavy Duty)	11.0
Standard + 5 leaves no. 5	12.0
Double (2 x standard)	14.0

*These values apply for low beams (under-beam clearance of 70 cm /28 inches)



Adjust the switching pressure in the turning valve

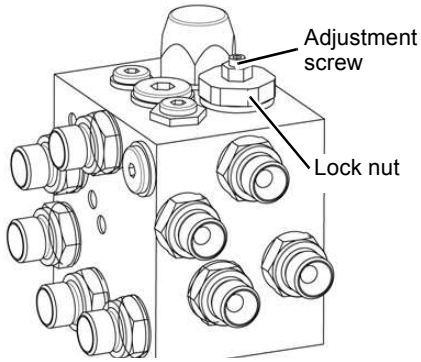
WARNING

Do not open the valve
Never open the valve yourself. Once opened, valves are difficult to refit, and dirt may penetrate the valve. This may result in damage or injury. The valve must only be opened by trained service personnel.

To turn the plow safely and securely, the supplied pressure should be at least 160 bar (2321 PSI). The recommended oil flow is 25-35 l/min (6.6-9.2 gpm).

The turning valve controls the direction of the oil flow to the turning cylinder. In some cases it is necessary to adjust the switching pressure.

Problem	Possible solution	Turn the adjustment screw
The plow turns halfway and returns to the original position.	Increase the switching pressure.	Clockwise (1 full turn = 5 bar/72.5 PSI)
The plow turns halfway and stops	Reduce the switching pressure	Anticlockwise (1 full turn = 5 bar/72.5 PSI))



To adjust the switching pressure
> Loosen the lock nut
> Turn the adjustment screw
> Retighten the lock nut

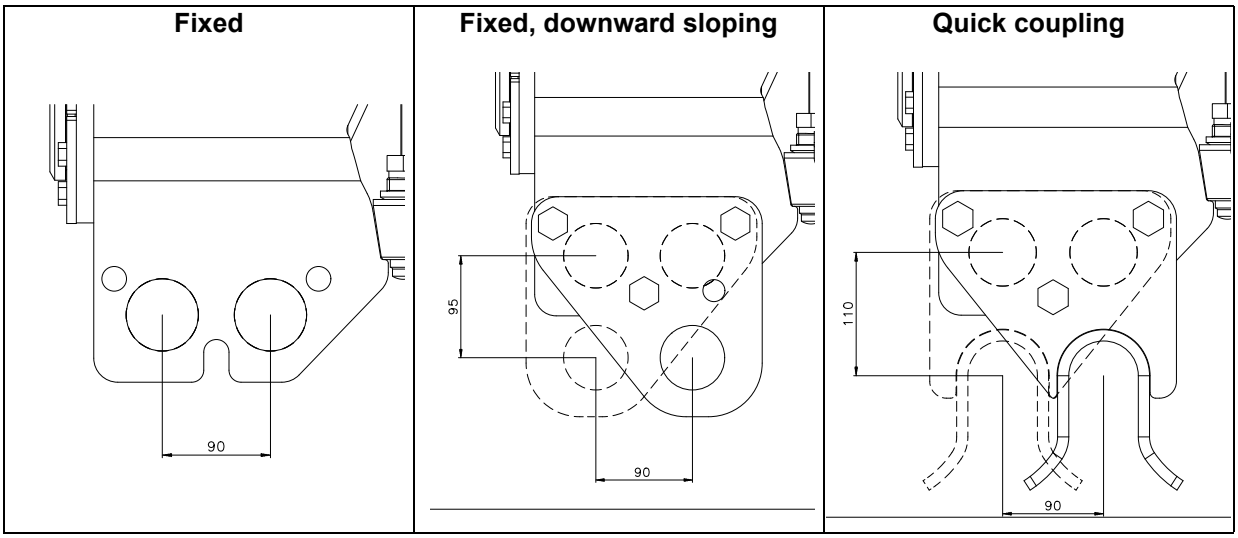
The position of the cross shaft

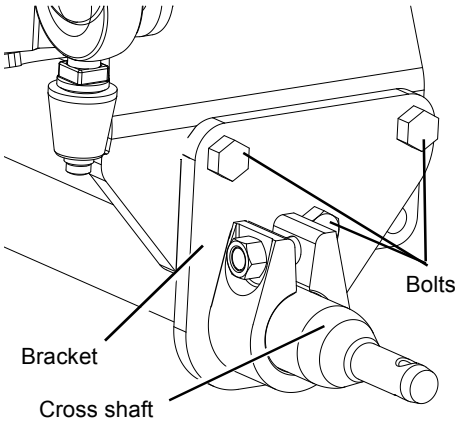
The cross shaft can be placed in several configurations to change

- the clearance from the tractor
- the clearance from the ground during turning
- the lifting requirement

Turning head 150

The illustrations below show the different configurations.





To change the forward position of the cross shaft (both quick coupling and fixed cross shaft)

> Remove the cross shaft
> Unscrew the bolts
> Turn the brackets and fit on the opposite side of the turning head
> Retighten the bolts
> Fit the cross shaft

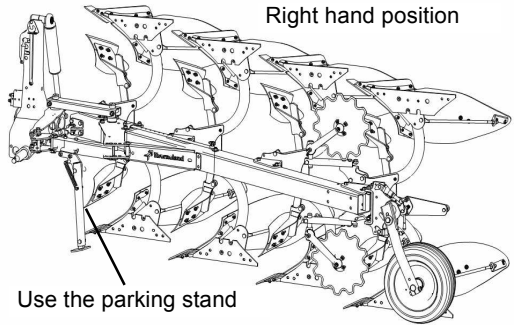
Safety

WARNING

Parking stand
Use the parking stand when parking the plow. If the plow is not properly supported, it may tip over. This may damage the plow or lead to injury.

Park on a firm, level floor
Park the plow on a firm, level floor.

Parking and storage



Parking

> Place the plow in the right hand position.
> Pressurise the hydraulic automatic release system [+] to 100 bar (1450 PSI), to avoid gas leaking into the accumulator.
> Use the parking stand
> Park the plow
> Disconnect the plow from the tractor
> Lubricate all parts that come into direct contact with the soil. Use only biodegradable oil and grease.
> Perform all required maintenance when storing the plow.

Plows with Eco-shares [+]

When the plow is equipped with an eco share on the last body only

> Remove the share before parking
> Park in the normal way

or alternatively

> Extend the parking stand by 10 cm (4 inches)
> Place a 10 cm (4 inches) high wooden block under the first body
> Park the plow

When the plow is equipped with eco shares on all bodies

> Extend the parking stand by 10 cm (4 inches)
> Park the plow

Storage

The plow is equipped with plastic and rubber components, and should therefore be stored out of direct sunlight during long-term storage. This applies especially to the mouldboards on the bodies and the skimmers and wheels.

Problem	Possible cause	Solution
Turnover system		
The plow will not start turning	The connections to the tractor are mounted incorrectly.	Check that the quick–couplings are properly engaged and correctly connected (see colour coding on the hoses)
The plow does not start turning - the plow reacts with a sudden vibration and pressure rise in the turning valve	The switching pressure is incorrect	Increase the switching pressure by turning the turning valve a couple of turns clockwise.
The plow turns halfway and stops, or goes back to the original position.	The restrictor is mounted in the wrong port	Change the position of the restrictor
	The switching pressure is incorrect	Increasing or reducing the switching pressure. See Switch pressure in the turning valve.
The turning stops in the first turning cycle with a plow with Packomat, or when turning the plow with the bodies under the main frame	The switch-over takes place prematurely, just before dead centre is reached	Increase the switching pressure by a couple of turns clockwise. Ensure that the restrictor in the turning cylinder is correctly positioned.
Vibrations occur during turning	The restrictor is mounted in the wrong port	Change the position of the restrictor
Turning is a slow process on heavy plows and may not be completed.	Incorrect oil flow	Try out whether various oil flow rates affect the turning by adjusting the motor speed or flow rate on the tractor valve. Turning valves operate best at 25-35 l/min. A high flow rate can return pressure and lead to a reduced turning performance
The turning or folding-in cylinder creeps during plowing or transport	The turning phase is not completed and the cylinder is not locked	Complete the turning phase, apply the switching pressure, see »Turn the plow«, page 47. On plows with a memory system, any adjustment of the working width should be carried out using the vari-width lever, not the turnover lever
	The washer(s) in the turning cylinder is/are leaking	Contact your dealer
	Leakage in turning valve	Contact your dealer
Operational		
The first furrow width is different when plowing on the left and right hand sides	The cross shaft is not positioned centrally on the turning head	Position the cross shaft centrally under the turning head
	The air pressure in the tractor's rear tires is not equal	Adjust the air pressure
	The sideways levelling is incorrect	Adjust the levelling

Checklist

Tractor

Check

- Is the inner wheel distance 110-160 cm (43-63 inches)?
- Is the pressure in the left and right tires equal?
- Are both lower link arms at the same height?

Mounting

Check

- Are the hoses trapped or stretched?
- Is the top linkage inclining slightly from the plow towards the tractor?
- Is the linkage geometry point of draft slightly behind the tractor front axle?
- Is there sufficient clearance from the tractor?
- Is there sufficient rear clearance for the depth wheel?

Driving on the road

The following must be carried out:

> Adjust the plow to the narrowest transport width (if it folds in) [+]
> Stabilize the lower draw arms
> Lock the shut-off on the folding-in cylinder [+]
> Activate the transport lock [when transporting in the half-turned position]
> Use the transport wheel
> Disconnect the top linkage (when using the transport wheel)

Plowing

The following must be carried out:

> Destabilize the lower draw arms

Check

- Is the first furrow width the same as the other furrows?
- Is the first furrow width the same as the left and right furrow widths?
- Is the plow frame parallel to the ground?
- Are the beams square to the ground?
- Are the disc coulters, trashboard and skimmers the same on all bodies?

Daily maintenance

The following must be carried out:

> Check the condition of the plow
> Lubricate the plow

Regular maintenance

The following must be carried out:

> Replace worn parts
> Retighten bolts and nuts

Check

- Is the tire pressure correct?
- Are the bodies all aligned?

Storage

The following must be carried out:

> Lubricate all parts that come into direct contact with the soil.
> Carry out the required maintenance - see »Regular maintenance«.

Dispose of the plow correctly at the end of its service life. Please observe the waste disposal regulations in force in your area.

Metal
All metal components can be sent for ferrous metal recycling.

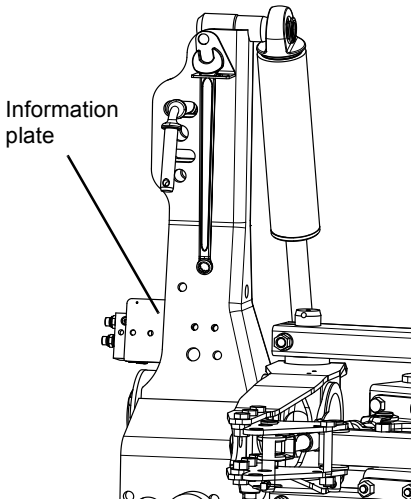
Tires
Tires can be sent to tire recycling facilities.

Oil
Store fluid from the hydraulic system in suitable containers for disposal at a used oil facility.

Plastic
Plastic parts can be disposed of with normal domestic waste, if specific national regulations permit.

EC Declaration of conformity

In accordance with EU Directive 2006/42/EC



We

Kverneland Group Operations Norway AS
Plogfabrikkvegen 1
N-4353 Klepp Stasjon
Norway

declare under our sole responsibility that the product

RM 2000 Series and accessories

to which this declaration relates, conforms to the relevant basic health and safety requirements of EU Directive 2006/42/EC.

Kverneland Group Operations Norway AS
Kverneland, 01.03.2017

Magne Svendsen
General manager

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