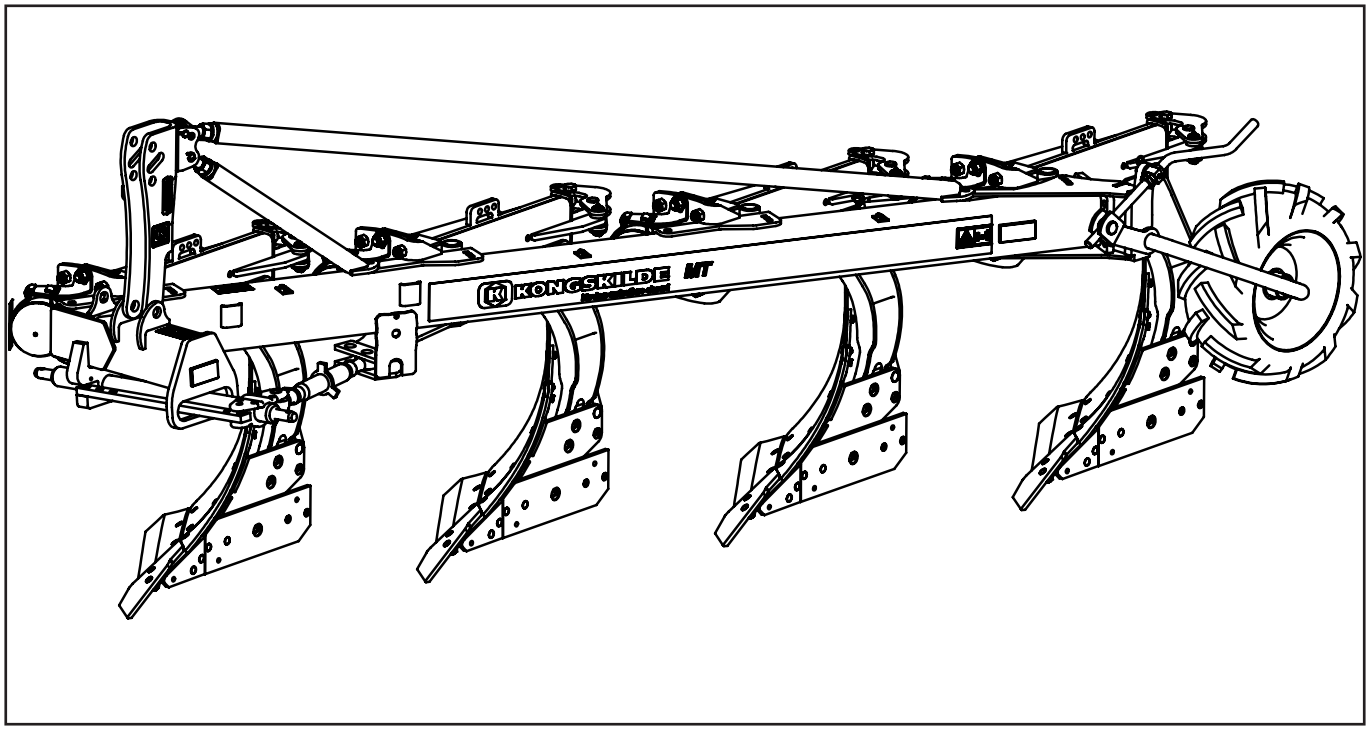
Conventional Ploughs
MT-MS



Instruction Manual
"Original Instructions"

EN

Edition:
190108

KONGSKILDE

EF-overensstemmelseserklæring/ EG-Konformitätserklärung/ EC Declaration of Conformity/ Déclaration CE de conformité/ Dichiarazione CE di conformita/ EG Verklaring van Overeenstemming/ EG-försäkran om överensstämmelse/ EY-vaatimustenmukaisuusvakuutus/ Declaración de conformidad CE/ Deklaracja Zgodności WE./ Декларация за съответствие ЕО/ EK Megfelelőségi Nyilatkozat /ES Prohlášení o shodě/ EB Atitikties deklaracija/ ES prehlásenie o zhode/ Declaraţia de conformitate CE/ Vastavuse Deklaratsioon EÜ /ES Izjava o skladnosti/ Δήλωση πιστότητας ΕΚ/ Declaração de fidelidade CE/ Dikjarazzjoni ta' Konformità tal-KE/ EK Atbilstības deklarācija/

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Maskine:	La máquina:	Masin:
Maschine:	Maszyna:	Stroj:
Machine:	Машината:	Η μηχανή:
Machine:	Gép:	Máquina:
La macchina:	Stroj:	Il-magna:
Machine:	Mašina:	Mašīna:
Maskin:	Stroj:	
Laite:	Maşina:	

KONGSKILDE

Type:	MT MS
Designation:	Plough
VIN:	301626-320000

- er i overensstemmelse med Maskindirektivets bestemmelser (Direktiv 2006/42/EF) og hvis relevant også bestemmelserne i EMC-direktivet 2014/30/EU.
- In übereinstimmung mit den Bestimmungen der Maschinen-Richtlinie 2006/42/EG und wenn erforderlich auch mit der EMC-Richtlinie 2014/30/EU hergestellt wurde.
- is in conformity with the provisions of the Machinery Directive 2006/42/EC and if relevant also the provisions of the EMC Directive 2014/30/EU.
- est conforme aux dispositions de la Directive relatives aux machines 2006/42/CE et également aux dispositions de la Directive sur la Directive EMC 2014/30/UE.
- é in conformita' con la Direttiva Macchine 2006/42/CE e, se pertinente, anche alla Direttiva alla Direttiva EMC 2014/30/UE.
- in overeenstemming is met de bepalingen van de Machine richtlijn 2006/42/EG en wanneer relevant ook met de bepalingen van de EMC richtlijn 2014/30/EU.
- är i överensstämmelse med Maskindirektivets bestämmelser (Direktiv 2006/42/EG) och om relevant också bestämmelserna i EMC-direktivet 2014/30/EU.
- täyttää Konedirektiivin (Direktiivi 2006/42/EY) määräykset ja oleellisilta osin myös EMC-direktiivin 2014/30/EU.
- es conforme a la Directiva de Maquinaria 2006/42/CE y, si aplica, es conforme también a la Directiva EMC 2014/30/EU.
- pozostaje w zgodzie z warunkami Dyrektywy Maszynowej 2006/42/WE i jeżeli ma to zastosowanie również z warunkami Dyrektywy dot. kompatybilności elektro magnetycznej EMC 2014/30/UE.
- отговаря на изискванията на Директивата за Машините 2006/42/ЕО и ако има приложение на изискванията на Директивата за електромагнитна съвместимост 2014/30/ЕС.
- Megfelel a 2006/42/EK Gépi Eszközökre vonatkozó előírásoknak és amennyiben felhasználásra kerül, a 2014/30/EU Elektromágneses kompatibilitás Irányelv feltételeinek.
- odpovídá základním požadavkům Strojní směrnice 2006/42/ES a jestliže to její uplatnění vyžaduje i s podmínkami Směrnice 2014/30/EU týkající se elektromagnetické kompatibility.
- atitinka Mašinų direktyvos Nr. 2006/42/EB ir, jeigu taikoma, Elektromagnetinio suderinamumo direktyvos Nr. 2014/30/ES reikalavimus.

- je v súlade s podmienkami Smernice 2006/42/ES o strojných zariadeniach a pokiaľ si to jeho uplatnenie vyžaduje aj s podmienkami Smernice 2014/30/EÚ o elektromagnetickej kompatibilite.
- îndeplineşte prevederilor Directivei de Maşini 2006/42/CE şi dacă este utilizată de asemenea cu prevederile Directivei referitoare la compatibilitatea electro-magnetică EMC 2014/30/UE.
- on vastavuses Masinate Direktiivi tingimustega 2006/42/EÜ ning sammuti juhul, kui on tegemist sammuti on vastavuses Elektromagnetilise kokkusobivuse Direktiivitingimustega EMC 2014/30/EL.
- z določili Direktive o strojih 2006/42/ES ter, če je to relevantno, tudi z določili EMC Direktive 2014/30/EU.
- παραμένει σύμφωνη με τους όρους της Οδηγίας περί Μηχανών 2006/42/ΕΚ και σε περίπτωση που αυτό εφαρμόζεται και με τους όρους της Οδηγίας περί ηλεκτρομαγνητικής συμβατότητας (ΗΜΣ) 2014/30/ΕΕ.
- Está de acordo com exigências das Directivas das Maquínarias 2006/42/CE e no caso em que tiver igualmente aplicação com as exigências das Directivas referentes a compatibilidade electromagnética EMC 2014/30/UE.
- tikkonforma mad-dispożizzjonijiet tad-Direttiva dwar il-Makkinarju 2006/42/KE u jekk rilevanti wkoll mad-dispożizzjonijiet tad d-Direttiva EMC 2014/30/EU.
- atbilst mašīnu direktīvai 2006/42/EK, kā arī nepieciešamības gadījumā elektromagnētiskās saderības direktīvai EMC 2014/30/ES.

Zedelgem
Antoon Vermeulen

FOREWORD

DEAR CUSTOMER!

Please read these instructions carefully. If you follow the instructions given, you can expect good results along with a good economic return from your choice of plough.

If carefully operated, adjusted and maintained, the plough will meet all reasonable demands made on it and will give you reliable service in years to come. Should you need further instructions, which are not included in this manual, or require the help of experienced service personnel, we advise you to contact one of our local representatives, which also will have spare parts in stock.

It has always been the ambition of Kongskilde to constantly improve its products. Consequently, in the interest of product improvement, no specification is final or binding and we reserve the right to alter the design of new machine series and equipment without previous notice.

KONGSKILDE

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Tel.: +45 61 80 50 00
E-mail: office@kongskilde.com

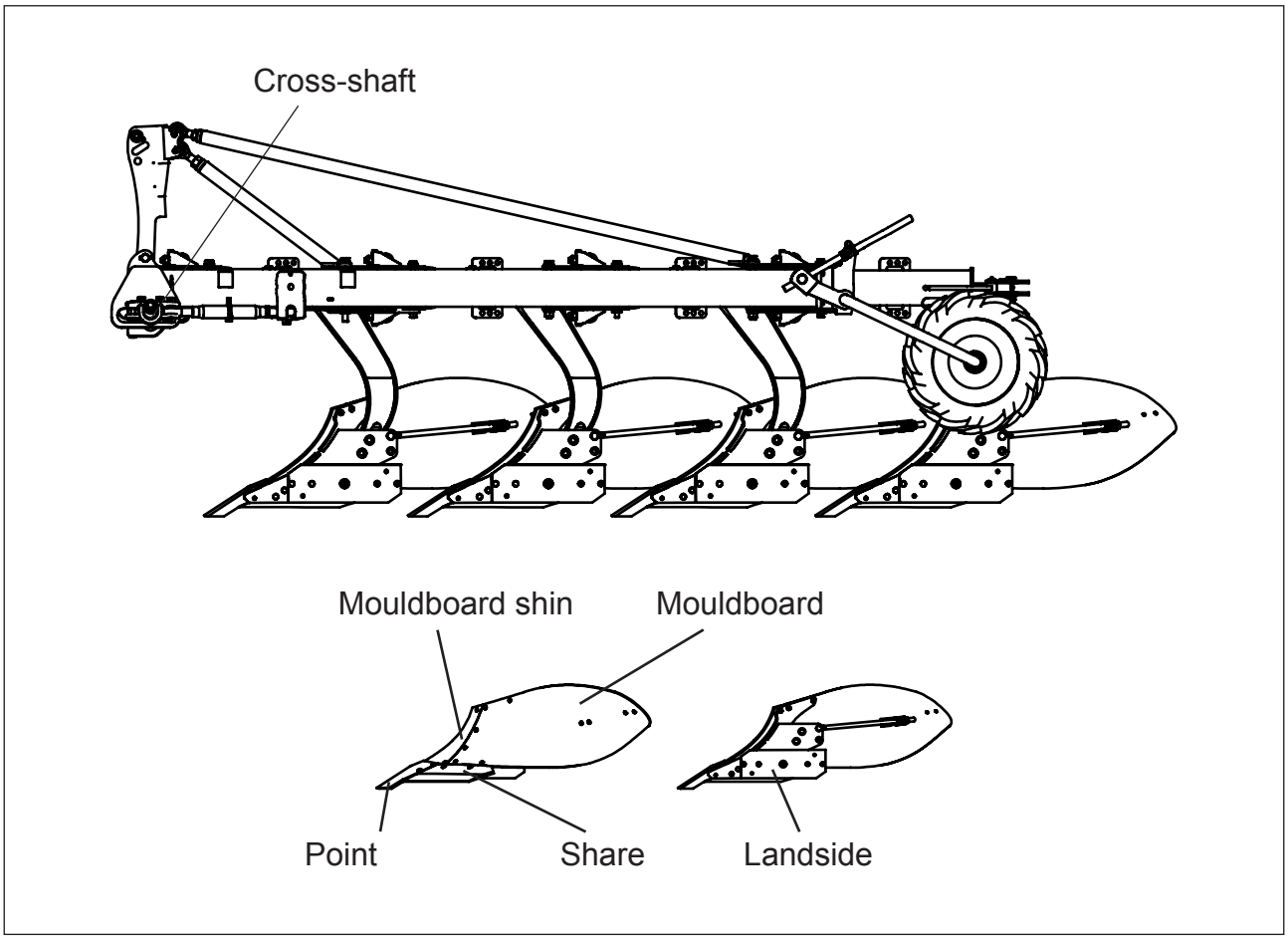
CONTENTS

1. INTRODUCTION

DESCRIPTION OF FUNCTION

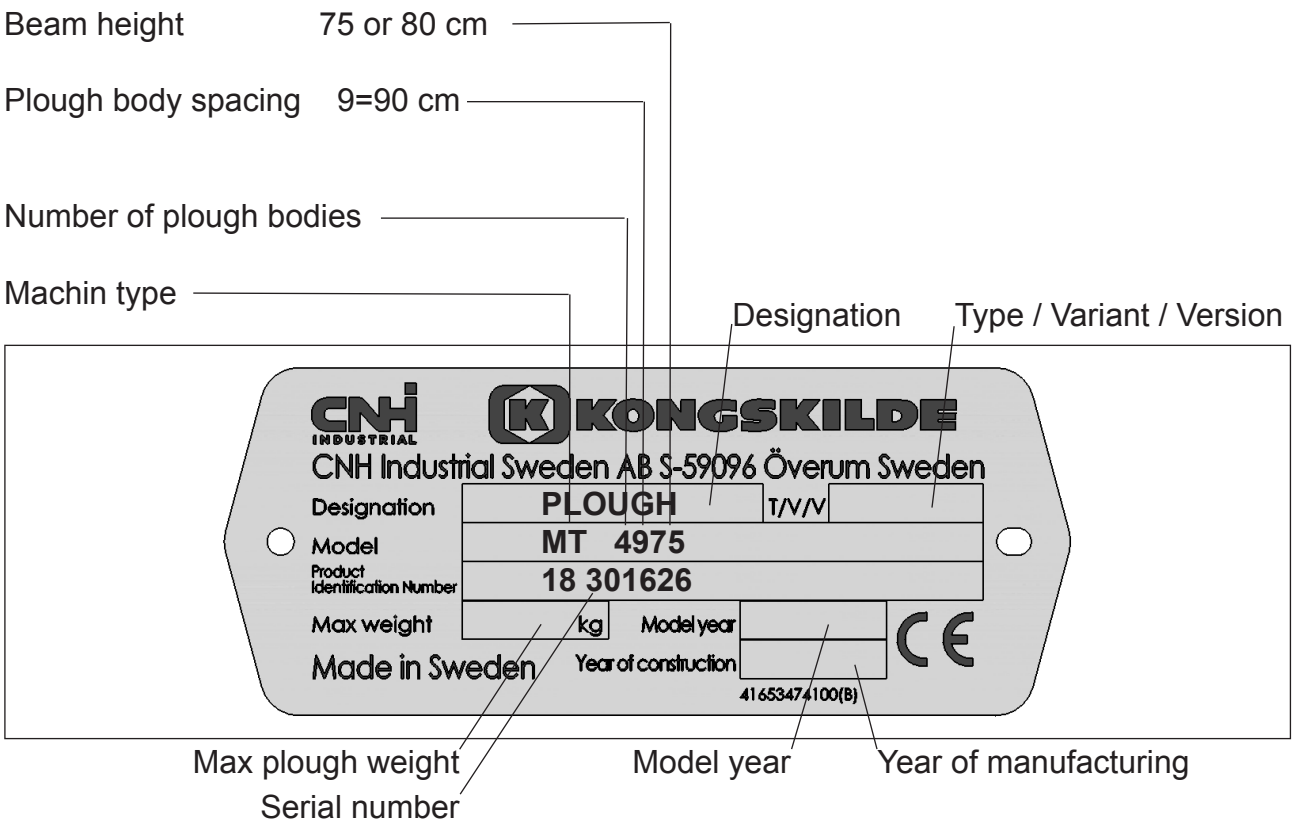
The plough is designed only for “Conventional ploughing”, and for transport between the farm and the different fields.
MT ploughs that are equipped with a hydraulic stone trip system can be used for all types of soil. MS ploughs that are equipped with a shear bolt protection are to be used only in soils that are free of stones.

The plough is to be attached to the three-point linkage at the rear of the tractor, with the hydraulic systems connected to the appropriate hydraulic outlets.



IDENTIFICATION OF PLOUGH

Type designation
MT 3975-5975
MS 3975-5975



Complete the sign below with the Machine type and Serial number of Your plough.

SAFETY REGULATIONS

READ THE INSTRUCTION MANUAL. SAFETY IS YOUR RESPONSIBILITY.

You should read the instruction manual before you change any settings or start using the plough. The plough is designed and manufactured with as many safety features as possible, but we cannot foresee all possible circumstances that can involve safety hazards with this machine.

Your responsibilities as owner or operator are to ensure the safety of any personnel in connection with: the operation, transport, maintenance or storage of the machine. If you have questions not answered in this manual, please contact your dealer or distributor.

Be aware of your responsibilities. The most important safety device is a safety conscious operator, whose training and experience must include:

- Operator competence, the operator must be able to carry out a correct and complete adjustment of settings and to ensure safe and reliable operation. Training in safety issues is to be reviewed or repeated annually.
- Being aware of their environment to the extent that unforeseen safety issues that may arise are dealt with to ensure the safety of all personnel (including operators, maintenance personnel and bystanders).

This symbol means: SAFETY ALERT!
The safety decals in the instruction manual are used to highlight given instructions that involve safety of all personnel. Failure to comply with a given instruction could result in severe injury or death.

SAFETY ALERT decals Note! The decals on the machine can differ from the decals in this instruction manual.

GENERAL SAFETY INSTRUCTIONS

Keep a safe distance
Do not stand under, on or close to the plough when it is in operation or when it is connected to the tractor.

Support the Plough
Do not stand under, on or close to the plough if the plough is not properly supported.

Lower the plough
The plough should be lowered to the ground when standing still.

Front ballast weights
The front of the tractor should be fitted with balance weights as required to maintain optimal traction and directional stability. Ensure that at least 20% of the tractor’s weight is carried by the front wheels.

Be alert
Ensure that no person is on, underneath or in the hazardous area of the plough during transport, ploughing or when maneuvering the plough. Never work under a lifted plough!

Use the support leg
Always use the support leg when the plough is parked. Park the plough on level firm surface.

Do not allow passengers
Do not allow anyone to ride on the implement when it is being transported or while in operation.

SAFETY WHEN CONNECTING AND DISCONNECTING THE PLOUGH

Risk for personal damage
An unintentional manoeuvre with the tractor may cause serious injury. Always make sure that nobody is standing between the tractor and the machine during connection and disconnection.

Make sure that the plough is locked with sufficient locking pins. During operation, negative forces can occur that push one side of the cross shaft and the lower link of the quick coupling upwards. There is a risk that the hook can release. Therefore, the quick coupling on the lower links should be secured with a bolt.
Make sure the tractors gear is in neutral before starting the engine.

Make sure that there is no pressure in the hydraulic hoses
Before the tractor engine has stopped, make sure that there is no pressure in the hydraulic hoses by activating the tractor spool valves to floating position.

Check the length of the hydraulic hoses
Check the length of the hydraulic hoses when the plough is lowered to working position. Check that they are not too tense.

Check connection of hydraulic hoses
Make sure that the hydraulic hoses are connected to the correct hydraulic outlets on the tractor. If connected incorrectly, the plough can move in an unforeseen way.

MAINTENANCE SAFETY

Avoid contact with oil and grease
To avoid oil and grease contact with your skin, wear protective gloves.

High oil pressure
The plough must be mounted to the tractor!
Be careful when the plough is examined for oil leaks or damaged fittings. Hydraulic oil under pressure can penetrate the skin and cause serious damage. Always release the pressure in the hydraulic system prior to maintenance work on the hydraulic system and make sure that all components are correctly tightened before the system is set under pressure. Always wear gloves and eye protection.
Never tamper with the gas filling valve on the accumulator!

Do the maintenance regularly
Do the maintenance work regularly as it is described in this manual, section 6 MAINTENANCE. Replace wearing parts as described. There is a risk of poor performance if the machine not is maintained properly.

Retighten all nuts and bolts
Always remember to retighten all nuts and bolts after about 3 hours of use. Make sure that bolts and nuts are tight at all times. Tightening torques are shown in section 6 MAINTENANCE.

Use protection gloves
Always use gloves when working with parts on the machine as they can have sharp edges.

TRANSPORT SAFETY

Beware of the length of the plough
The plough is long and does not completely follow the tractor in sharp turns. Avoid that the plough's rear end hits an obstacle. The tractors braking pedals must be locked together during transport driving.

The stabilizers of the lower links
The stabilizers of the lower links should be locked when the plough is in transport position, so that the plough is fixed sideways.

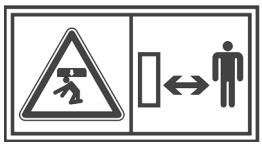
Comply with the relevant traffic regulations
The operators have to observe relevant statutory or other national regulations dealing with road safety and labor safety issues.

Drive safe, max 25km/h
Be a safe and courteous driver, yield to oncoming traffic. In all situations, do not exceed 25 km/h.

WARNING DECALS

Explanations

4165 99101 00 Read the manual!
Carefully read the instructions and observe all safety instructions before you connect the machine to the tractor.



4165 98301 00 Warning hazardous area!
It is not allowed to be within the hazardous area, on, under or close to the machine during transport driving or operation. Never work under a lifted plough. Always make sure that nobody is standing between the tractor and the machine.

4165 98300 00 High oil pressure!
Be careful when oil leaks or damaged fittings are examined. Hydraulic oil under pressure can be dangerous. Always release the pressure in the hydraulic system prior to maintenance work on the hydraulic system and make sure that all components are correct tightened before the system is set under pressure. Always wear gloves and eye protection.

4165 99102 00 Support leg
Do not stand close to the plough if not properly supported. When parking the plough always use the support leg.

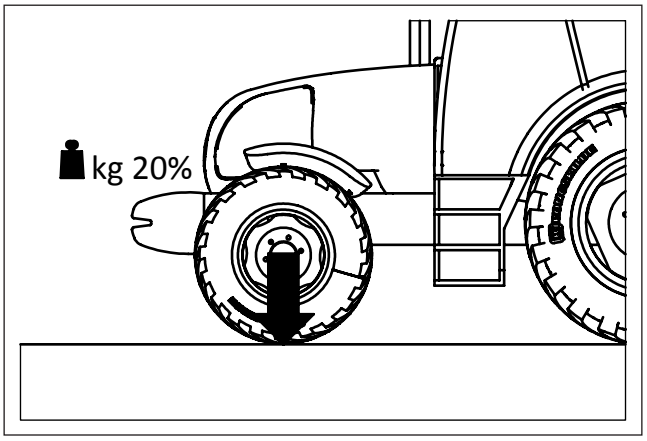
4165 25073 00 Warning! Risk of crushing
Risk of crushing injuries. Be careful!

2. TECHNICAL DESCRIPTION

CHECKING THE TRACTOR PRIOR TO PLOUGHING

TRACTOR SIZE

The tractor must have an appropriate size to operate the plough safely! Make sure that at least 20% of the tractor`s weight is loaded onto the front axle.



FUNCTION OF THE THREE-POINT HITCH

The design of the three-point linkage is based on the principle that the tractor and the plough should operate as one unit. This function is depending of the settings for the lower links and the top link. These components must therefore be maintained in a condition that enables them to be easily adjusted.

HYDRAULICS

Following external hydraulic outlets are required:
MT 1 single-acting

If the plough is equipped with hydraulic front furrow adjustment cylinder one extra double acting hydraulic outlet is required. Familarize yourself with the hydraulic systems of the tractor.

WHEEL ADJUSTMENT - TRACK WIDTH

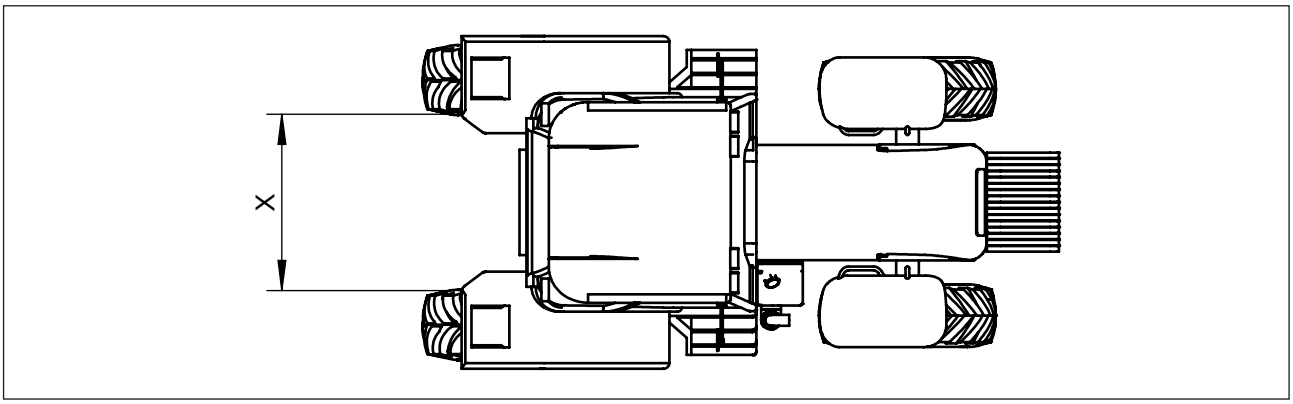
For ploughing purposes, track width is always measured between the inside walls on the tractor tyres.

The measurement between the inner walls of the front wheels must be at least equal to the inner measurement between the rear wheels, but may be up to 10 cm wider. The distance between wheels must be symmetrical, relative to the centre line of the tractor.

The following track widths are recommended: 1200 - 1500 mm
Ideal track width = 3 x the furrow width + 100-150 mm
(Example: 16” furrow width 3 x 400 + 125 = 1325 mm).

When ploughing with “wide tyres” the outside walls of the front and the rear tyres should be parallel. The furrow widener knives should be mounted on the last plough body.

Note: Large mounted ploughs can affect the stability of the tractor.



TYRE PRESSURES

Both tyre life and optimum traction are achieved by using the correct tyre pressure. Over-inflation will increase wheel slip. Make sure that both rear tyres are inflated to the same pressure.

FRONT BALLAST WEIGHTS

The front of the tractor should be fitted with balance weights as required to maintain optimal traction and directional stability.

LIGHTS

The tractor must be equipped with working lights when plowing in the dark.

PREPARATION OF THE PLOUGH

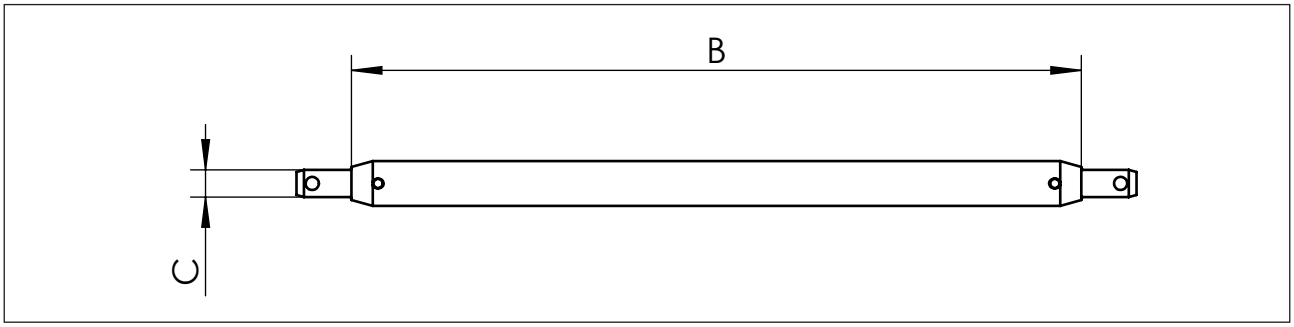
Check that the quick-couplings on the hydraulic hoses are the same type as the quick-couplings on the tractor. If required, fit the correct quick-couplings, to suit your tractor.

Check that the cross-shaft on the plough has the correct category to suit your tractor.

Cross shafts are available in different categories:
Cat. 2 means ø 28 mm cross-shaft pins
Cat. 3 means ø 36 mm cross-shaft pins

The length of the cross shaft is determined by the track widths of the tractor and the spacing of the lower links on the tractor's rear axle. When the spacing is > 550 mm on the tractor's rear axle, use the 965 mm long cross shaft.

Cat.	**B**	**C**
2	825	ø 28
2L	965	ø 28
3	965	ø 36



MOUNTING THE PLOUGH ON TO THE TRACTOR

Make sure that the lower links can be lowered approximately 20 cm below the cross shaft of the plough before the plough is mounted onto the tractor.

Check that the link ball joints are of the same category as the cross shaft pins. Lock the cross-shaft into the tractor's lower links with sufficient locking pins.

The stabilizers for the lower links should be adjusted so that the plough can move freely in working position, but when raised the side movements should be limited.

The top link should be mounted slightly higher on the plough than on the tractor.

Consult the tractor manufacturers manual on mounting implements and safe working methods.

CHECKING THE PLOUGH

- Check the tightness of all bolts and nuts
- Grease all lubrication points
- Check the tyre pressure and adjust if necessary. See chapter 6. MAINTENANCE, TYRE PRESSURE
- Check that the desired furrow width is correctly set, see chapter 3. BASIC SETTINGS, FIRST FURROW WIDTH.
- Mouldboards: In order to make it easy starting up a new plough, the frontside of the mouldboards, skim coulters and coverboards are protected with wax. The wax do not have to be removed before the plough is used for the first time.
- Check the disc coulter and skim coulter settings and adjust them so that the settings are identical.
- Raise the plough and fold up the support leg.
- **Always remember to re-tighten all nuts and bolts after about 3 hours of use, apart from that you should make sure that bolt and nuts are tight at all times.**

STONE TRIP SYSTEM

Check the working pressure by reading the pressure gauge. For suitable working pressure, see section: 4. STONE TRIP SYSTEM, ADJUSTING OF OPERATING PRESSURE.

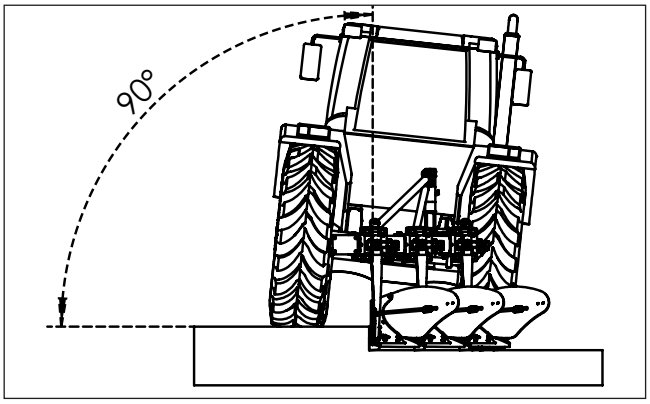
3. BASIC SETTINGS

BASIC SETTINGS OF THE PLOUGH

The basic setting can be started when the desired ploughing depth has been reached and when the tractor wheels are running in a furrow with the same depth.

1. VERTICAL ADJUSTMENT

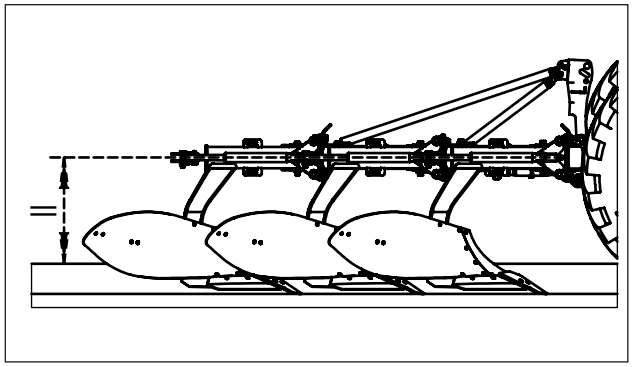
The beams should be at right angle (90 °) to the ground. If necessary, make adjustments by using the right-hand lower link of the tractor. The vertical setting can be checked by observing the plough from the rear.



2. HORIZONTAL AND DEPTH ADJUSTMENTS

Mount the top link so that it is 5 - 10 cm lower on the tractor than on the plough when in working position. The top link can be mounted in three positions on the plough. The slotted centre hole can be used on tractors equipped with lower link sensing hydraulic system, and it should be used with large ploughs. For ploughing in hard conditions using ploughs with 3-4 plough bodys, the top link should be attached in a fixed position to prevent the rear plough body from working too shallow.

Adjust the length of the top link so that the depth of ploughing is the same for the first and last bodies. The frame will now run parallel to the ground.



3. FIRST FURROW WIDTH

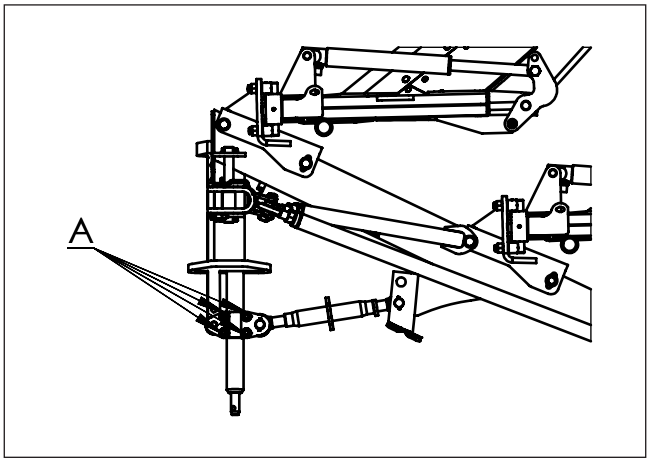
Ensure that the lower links are loose so the plough can move freely.

For ploughs equipped with a hydraulic control of the first furrow width, the following applies: Place the hydraulic cylinder in a central position so that it can be adjusted in both directions. Check that the cross-shaft has the correct angle adjustment, see section 3. ADJUSTMENT OF WORKING WIDTH. The adjustment is made with the turnbuckle.

If the width of the first furrow is not correct, loosening the four nuts **A** and move the cross-shaft sideways to achieve the correct width of the first furrow.

Drive forwards a few meters and checks the result. When the right width of the front furrow is reached, tighten the four nuts. The first furrow can now be made wider or narrower by means of the hydraulic cylinder, which moves the plough laterally on the cross-shaft. On ploughs with mechanical control of crossshaft, the basic adjustment of the cross-shaft is done in the same way. Subsequently, the width of the first furrow can be temporarily adjusted using the turnbuckle.

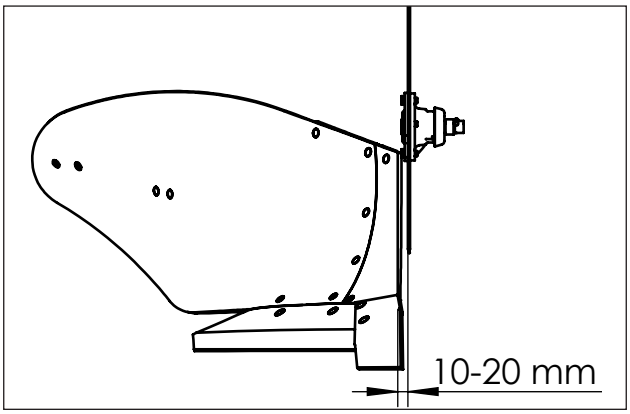
Lengthened turnbuckle gives **wider** first furrow
Shortened turnbuckle gives **narrower** first furrow

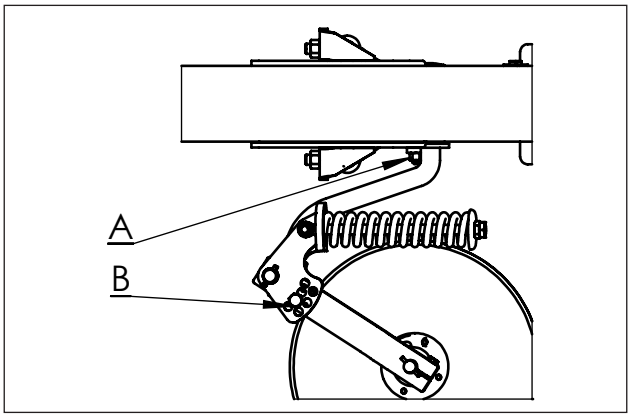


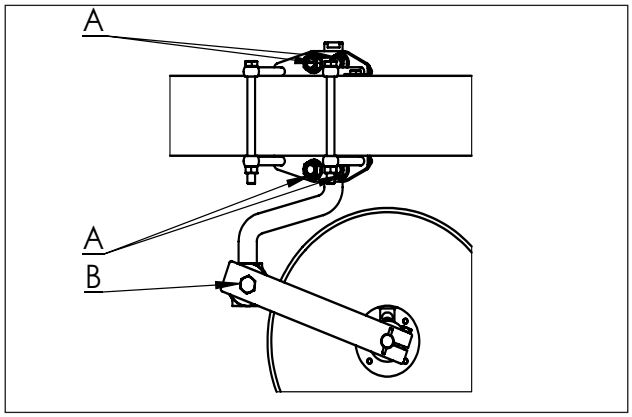
DISC COULTERS

The purpose of the disc coulters is to make a vertical cut, separating the furrow slices. There are two types of disc coulters, fixed and spring loaded. When ploughing in stony or very heavy soils, the springloaded type of disc coulter should be used. This is to protect the coulters and to ensure that they do not act like a support wheel, carrying the plough, which would prevent it from maintaining a correct ploughing depth.

Side and depth adjustment of disc coulters
The coulters should be set to produce a clean, continuous cut. Under normal conditions, the cut should be made 10 - 20 mm outside the landside, depending on type and condition of soil. The coulters are set individually by loosening the nut on bracket **A** and turning the coulter shank sideways.







Depth adjustment of disc coulters
To maintain a favourable cutting angle towards the surface, the disc coulters should never be set deeper in the ground than 1/3 of their diameter.

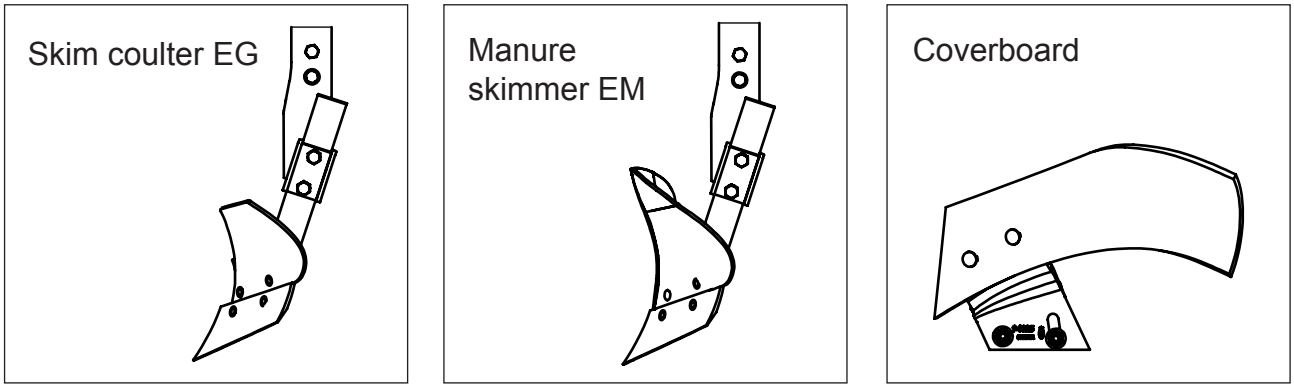
Depth adjustment is carried out by fitting the coulter arm to different positions, **B**. This applies for both fixed and spring loaded disc coulters.

Make sure that all disc coulters on the plough are set to the same depth and are on an equal distance from the landsides.

ATTENSION! Be alert, there is always a risk for injuries when adjusting disc coulters and skimmers.

ADJUSTMENT / SETTING OF SKIMMING DEVICES

The basic purpose of the skimming devices is to cut off and turn down a corner of the surface layer with crop residues and weeds so that these are well buried. Properly used skimming devices give the best mechanical weed control. Three different types of skimming devices are available for this purpose. All skimmers are equipped with shear bolt protection (Part no. 4165 20376 00)



Skim coulter EG
Skim coulter EG is used to advantage when good weed control is important and when ploughing grasslands. It works well in firmer soils, which produces a continuous furrow slice. The depth should not be set deeper than that a corner of the furrow slice is cut off and turned down. (Maximum 50 mm at the point).

When disc coulters are not mounted, the point of the skim coulter should be set to run about 10 - 20 mm outside the landside. When disc coulters are mounted, the skim coulters should run beside the disc coulters, with the points about 10 mm away from the disc.

Manure skimmer EM
Recommended for deeper skimming and heavy trash. The convex mouldboard allows the trash to go on both sides of the skim shank. Works well without disc coulter.

The point of the manure skimmer should be set to cut approximately 10 - 20 mm outside the landside.

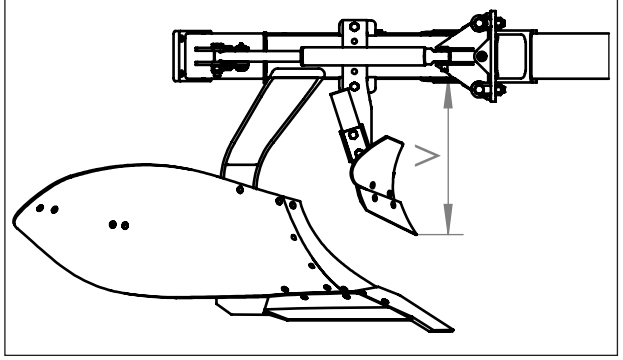
Coverboard
The coverboard does not affect the diagonal clearance of the plough. As a result, it can be used to advantage in loose soils and where considerable quantities of straw are present, but not in sticky soils.

The operation of the coverboard is dependent on the depth and speed of ploughing. The front of the coverboard should always be in contact with the mouldboard shin, whereas the outer section can be adjusted vertically to suit the ploughing depth.

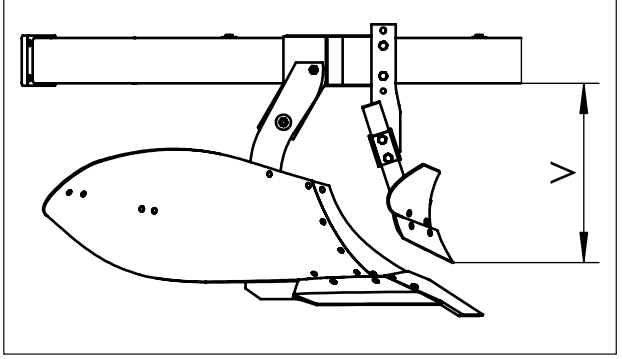
NOTE: The coverboard should only cut off a small corner of the furrow slice.

BASIC SETTING OF SKIMMERS (for 20 cm plough depth)

Hydraulic stone trip



Shear bolt protection



Hydraulic stone trip system
The mounting position of the skimmer bracket on the beam is the same if the plough is equipped with fin coulters or disc coulters.

The skimmer bracket is mounted in the rear hole as standard.

The distance **V** is measured between the beam and the skimmer share point and should be adjusted as follows:

Underbeam clearance 75 cm V = 540 mm
Underbeam clearance 80 cm V = 620 mm
(Valid for all types of skimmers EG and EM)

Shear bolt protection
The skimmer mounting brackets are to be mounted onto the beam housings.

The distance **V** is measured between the main frame and the skimmer share point and should be adjusted as follows:

Under beam clearance 75 cm V = 550 mm
Under beam clearance 80 cm V = 600 mm
(Valid for all types of skimmers EG and EM)

The skimmer share points should be set to cut approximately 10-20 mm outside the fin coulter or landside if disc coulters are mounted.

When the skimmers are adjusted, all the skimmer share points should be in a straight line.

ATTENTION!
Be alert, there is always a risk for injuries when adjusting disc coulters and skimmers.

TROUBLESHOOTING - PLOUGHING

The following common faults produce poor ploughing results, giving higher running costs and causing unnecessary wear on both the tractor and plough.

Problem	Reason	Checklist
Tractor pulls to one side and must be steered to counteract this	Plough incorrectly adjusted	Correct the plough adjustments, see basic settings: Check front and rear track widths. Check that the tractor's stabilisers are not tensioned when In Furrow ploughing.
Front end of tractor tends to lift	The front is too light. NOTE: The tractor must never be allowed to run on the back wheels.	Fit front weights or fill front tires with fluid
First furrow slice too high or low	Incorrect basic setting	Adjust as per basic settings: Front furrow width
Furrows are stepped	Incorrect basic setting	Adjust the horizontal and vertical settings
Furrow slices remain standing or aren't fully turned	Skimming devices set too low	Adjust the skimmer's to reduce skimming action.
	Soil resistance causes plough to trip	Increase the working pressure
	Plough leans excessively toward unploughed side	Adjust the vertical setting.
	Furrow width too narrow in relation to depth	Increase the furrow width
Furrow height alters within the same run	Lateral setting of disc coulters incorrect	Adjust the coulters
	Skim coulters set to different depths or have incorrect side adjustment	Adjust the skimmers

ADJUSTMENT OF WORKING WIDTH

The ploughs are assembled as standard on 16” working width.

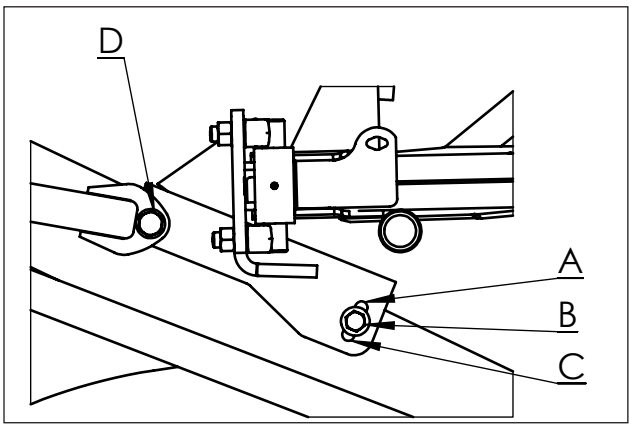
1. Alternating the beam housing position

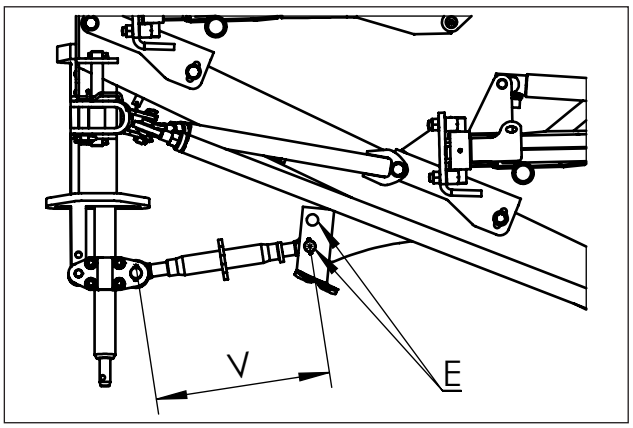
Each plough body component can swivel around the front bolt in the beam housing **D**. By placing rear bolt in one of the tree different positions **A**, **B** or **C** you will alter the working (furrow) width. The table below shows what working (furrow) widths you can achieve for the plough. When bolts have been mounted in the desired hole, tighten it up. Tightening torques are shown in section 6 MAINTENANCE.

NOTE! Remember to retighten the bolts after approx. 3 hours.

2. Adjust the cross shaft

The angle of the cross-shaft must be adjusted to correspond with the working width. This is done by using the turnbuckle **V** on the left-hand side. Adjust the turnbuckle position before adjustment of the turnbuckle length **V**, so that it is pointing straight backwards. The turn buckle can be mounted in two positions **E** in the rear frame bracket.





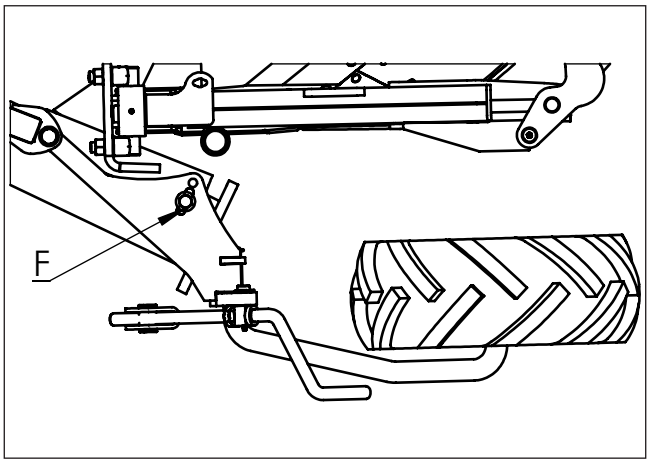
Furrow width

Point to point clearance MT ploughs 900 mm	**A** 14” 350mm	**B** 16” 400mm	**C** 18” 450mm
Turnbuckle length MT ploughs **V**	480mm	450mm	420mm

Point to point clearance MS ploughs 900 mm	**A** 12” 300mm	**B** 14” 350mm	**C** 16” 400mm
Turnbuckle length MS ploughs **V**	795mm	765mm	735mm

3. Land wheel

The angle of the land wheel must be adjusted so that it runs parallel with the landside of the last plough body. This is adjusted by altering the position of the wheel bracket, by placing rear bolt **F** in one of the three different positions, see section 3 ADJUSTMENT OF WORKING WIDTH, ALTERNATING THE BEAM HOUSING POSITION.



SELECT THE CORRECT FURROW WIDTH. The working width should be in relation to the ploughing depth, i.e. max depth = 2/3 of the working width. This gives a sufficient weight to the furrow slices and ploughing will have a good finish, see section 5 USEFUL OPERATIONAL POINTS, SELECT THE CORRECT FURROW WIDTH.

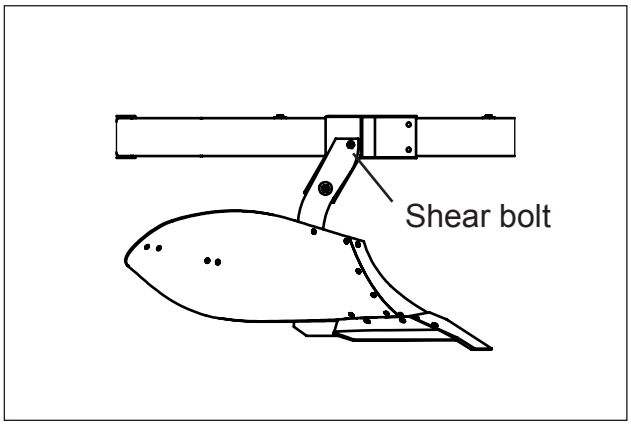
4. STONE TRIP SYSTEMS

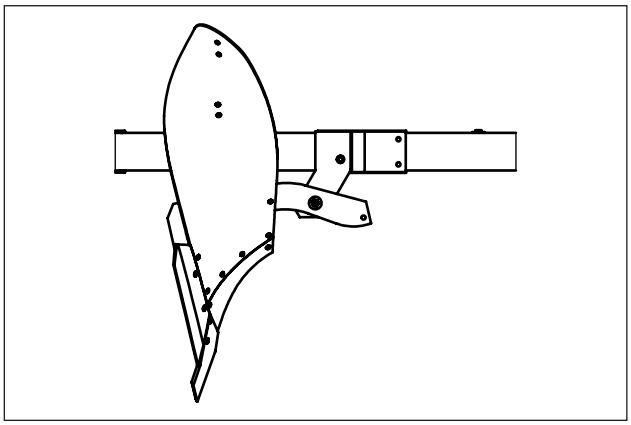
To protect the plough and tractor, all ploughs are equipped with a stone trip system.

SHEAR BOLT PROTECTION

All (fixed beam) ploughs are protected by a shear bolt in each leg (part no. 4165 91399 00).

NOTE: Always ensure that the correct grade of bolt is used for replacement. Bolt of an inferior grade may distort witout shearing, causing the plough body to get out of line.





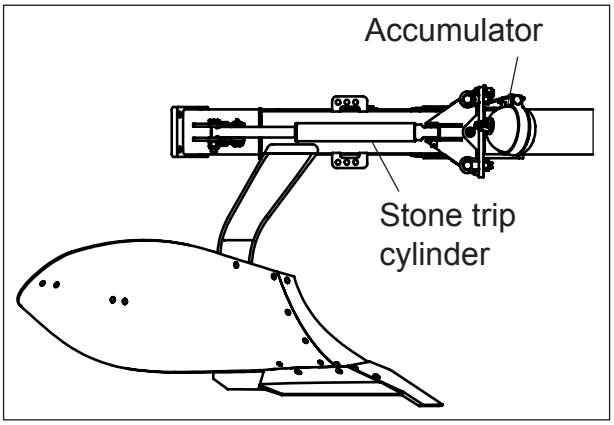
HYDRAULIC STONE TRIP SYSTEM

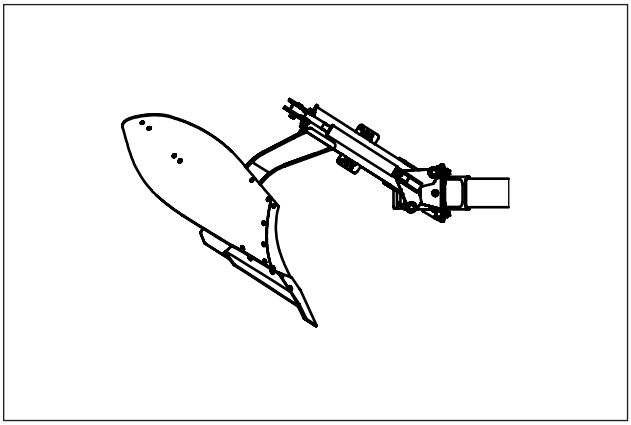
The tripping mechanism consists of a trip cylinder for each plough body. The cylinder is connected to a gas/oil accumulator. The accumulator is precharged with nitrogen gas (N_2).

The trip cylinders, pressure hoses and the accumulator are pressurized with oil = working pressure as shown by the pressure gauge.

When ploughing, the pressure of the nitrogen gas acts as a spring inside the accumulator giving the plough bodies fully automatic and individual tripping and resetting actions.

The design of the trip system allows the plough bodies to move in all directions.





The precharge pressure in the accumulator is 11 Mpa (110 bar).

The working pressure (oil pressure) is shown by the pressure gauge and should be at least 10% higher than the precharge gas pressure.
Working pressure should be between: 12,5 - 14 MPa (125-140 bar).

Rule: The working pressure should not be adjusted higher than that the bodies keep their correct positions during ploughing and do not trip solely because of soil resistance.

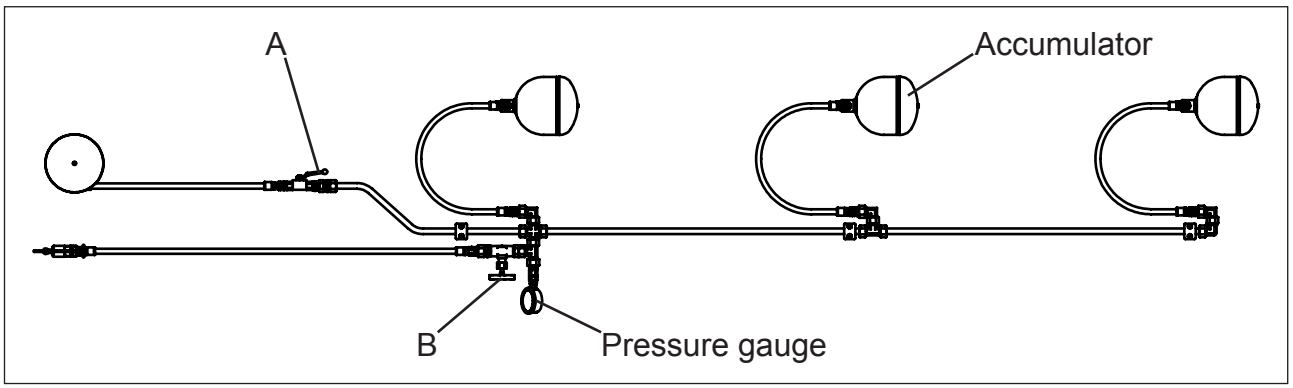
ADJUSTMENT OF OPERATING PRESSURE

The front plough bodies often require higher pressure to prevent it from tripping due to soil resistance. Therefore it is possible to use higher pressure in the accumulator for the front plough bodies.

The plough must be connected to the tractor. Connect the filling hose to a single-acting hydraulic outlet on the tractor. Open the valves **A** and **B** and adjust the pressure to the required value for the front plough bodies, using the tractor hydraulics, close valve **A** . Reduce the pressure by 10% for the other plough bodies and shut valve **B**.

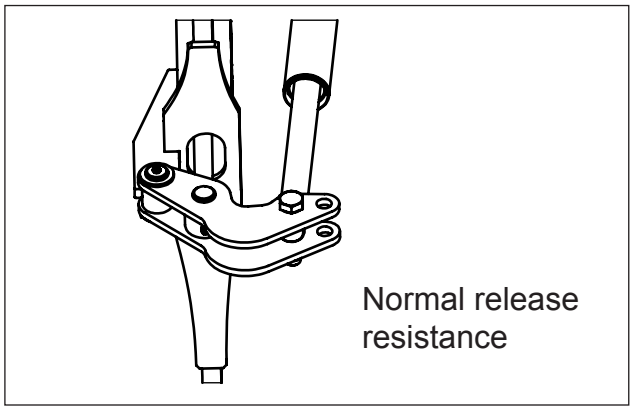
(If valve **A** is open during ploughing, all plough bodies will have the same operating pressure.)

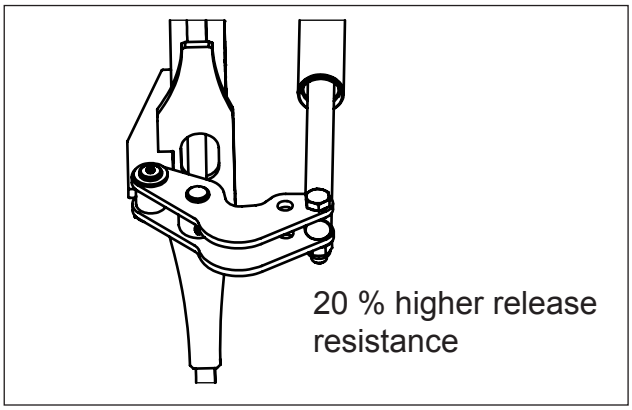
NOTE: The plough must be connected to the tractor when adjusting the pressure and when depressurizing the system. Always ensure maximum cleanliness when working with the hydraulic system.



Never attempt to disconnect any hydraulic connections while the system is pressurized!

Changing of the working pressure (mechanically)
In extremely heavy and resistant soils, where consistently high working pressures (above 13 MPa) are required to prevent the plough bodies from tripping due to soil resistance, the trip resistance can be increased mechanically.





Adjustment: Connect the filling hose for the stone trip system as described in the preceding ADJUSTMENT OF OPERATING PRESSURE, and depressurize the system.

Remove the piston rod from inner hole and relocate it in to the outer hole, this increases the leverage, which results in a 20% increase of the resistance.

CHECKING THE ACCUMULATOR

The plough must be mounted to the tractor!

The accumulator precharge pressure should be checked at regular intervals (yearly) with the help of the pressure gauge.

Connect the filling hose as described in “ADJUSTMENT OF OPERATING PRESSURE”, set the control lever on the tractor to the open return position and open the shut-off valve slightly. The working pressure will now drop slowly to a specific value and then fall rapidly to zero.

The pressure shown by the gauge at which the rapid drop occurs is the accumulator precharge pressure.

In a similar manner, the precharge pressure can be checked when filling. In this case, the reading will rise rapidly from 0 to a specific value, after which it will increase slowly. The pressure gauge reading at the end of the rapid rise in pressure is the accumulator precharge pressure.

SUMMARY: The pressure at which the gauge reading drops quickly when emptying the system and at which the reading stops rising quickly when filling the system, is the accumulator precharge pressure.

Should the pressure fall by more than 2 MPa (20 bar) below the precharge pressure specified on the accumulator, contact your local Kongskilde dealer for advice.

Never tamper with the gas filling valve. Never attempt to disconnect a hydraulic connection while the system is pressureized.
The plough must be mounted to the tractor.

5. DRIVING A CONVENTIONAL PLOUGH

Road transport:	Always remember that a relatively considerable weight is resting on the rear axle of the tractor. To ensure that the tractor retains its steering properties, fit front weights as required.
Driving speeds, transport:	Adapt driving speed to the road conditions so that the plough does not bounce behind the tractor. This could alter the plough settings and impose abnormal stresses on it.
Ploughing:	Adapt ploughing speed to the prevailing ground conditions and presence of stones. NOTE: Excessively high speed costs money in terms of wear and damage to equipment.
Transport:	Maximum transport speed 25 km/h (16 mph)

USEFUL OPERATIONAL POINTS

Marking of headlands
Always mark the headlands, working inward, towards the field with the rear body, (i.e. with an extended top-link and the front end of the plough raised).

In good regular fields, headland marking is only necessary at the short sides. In irregular fields or fields surrounded by ditches, hedges or other obstacles, the headlands should be marked out all around the field.

Headland width
Headlands should always be of an adequate width to permit the plough to be fully raised out of the ground before starting to turn the tractor. Depending on the size of the tractor and plough, the headland width should be between 10 - 20 meters.

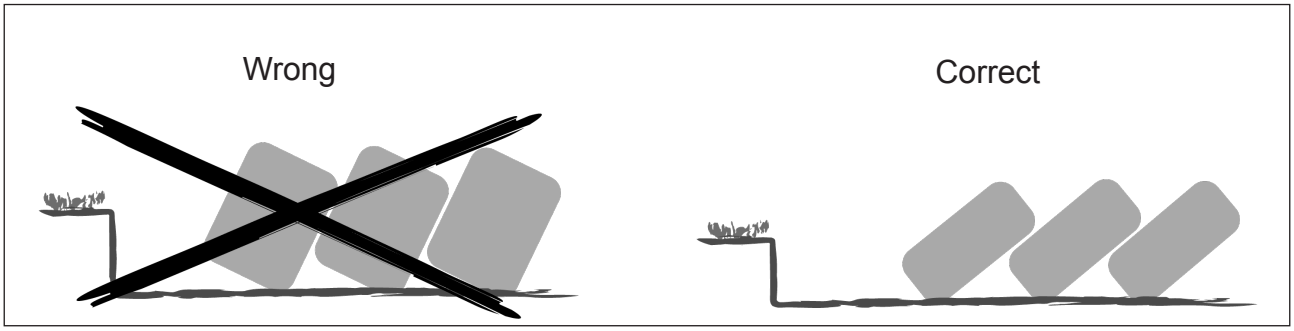
Ploughing
When starting ploughing at the edge of the field or at the side headland (if marked out all around), the first furrow slice should be laid inwards using the same plough setting as when marking the headlands. Ploughing begins with the second run in which the first furrow slice is returned. All the soil will by this be ploughed through completely. On the third run, the tractor will be running in a furrow at the correct depth and the basic settings should be adjusted.

LOWERING AND RAISING OF THE PLOUGH SHOULD BE CARRIED OUT AT THE HEADLAND MARKS.

An even edge at the headland marking will make it easier to plough the headlands and eliminate double ploughing.

Drive Straight! Crooked furrows impose high stress on both tractor and plough, and contribute to an unsatisfactory result due to poor matching. Consequently, the furrows should be straightened as quickly as possible.

Select the correct furrow width
The working width must always be proportional to the ploughing depth, i.e. the maximum depth should not exceed 2/3 of the furrow width. This to ensure that the furrow slices are correctly balanced and turned over.



6. MAINTENANCE

To ensure the plough a long life and to avoid unnecessary wear, observe the following instructions.

The plough comes with three wrenches. The wrenches are used for re-tightening the bolts and for replacing the wear parts.

REPLACEMENT OF WEARING PARTS

All wearing parts should be replaced in good time in order to protect more vital parts, which will save you money. Always use original spare parts, which will ensure that you get wearing parts with good quality and which fits the plough. This is also a condition for validity of the warranty.

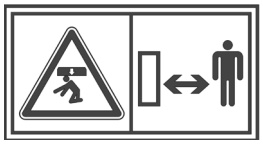
Point and shares
The points and shares must be replaced before it has been worn down so far that the frog is damaged.

Mouldboards
When replacing mouldboards, ensure that the bolts are CROSS-TIGHTENED in order to avoid tension being built into the mouldboard, which may cause it to crack.

Mouldboard shin
When replacing the mouldboard shin, ensure that the bolts are CROSS-TIGHTENED in order to avoid tension being built into the mouldboard shin, which may cause it to crack.

Landsides
If the landsides are severely worn, the plough will break out towards the unploughed land, which gives a poorer turning of the furrow slice and the plough will pull heavier.

Disc coulter blades
If a good cutting function should be maintained, the coulter blade should be replaced when 1/3 of the original diameter is worn off.



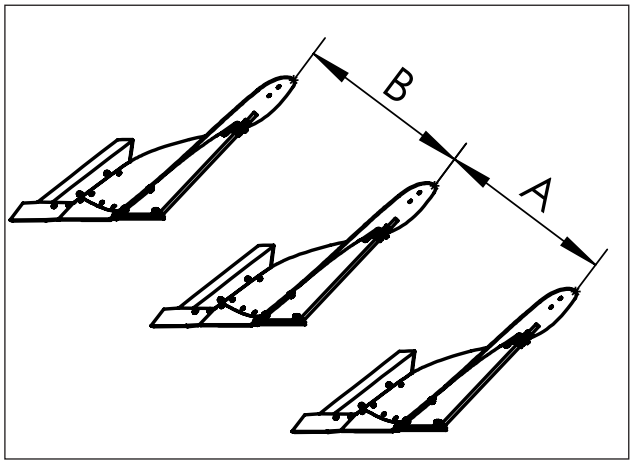
- **The plough must be mounted to the tractor!**
- **Never carry out adjustment or replacing wearing parts unless the tractor engine is stopped and the plough is louvered to leveled ground.**
- **Never work under a raised plough without securing it with a stand or similar, to avoid accidental lowering of the plough.**
- **Never rely solely on the tractor hydraulic system.**
- **Always wear gloves and protective goggles when handling worn implement parts with sharp edges.**

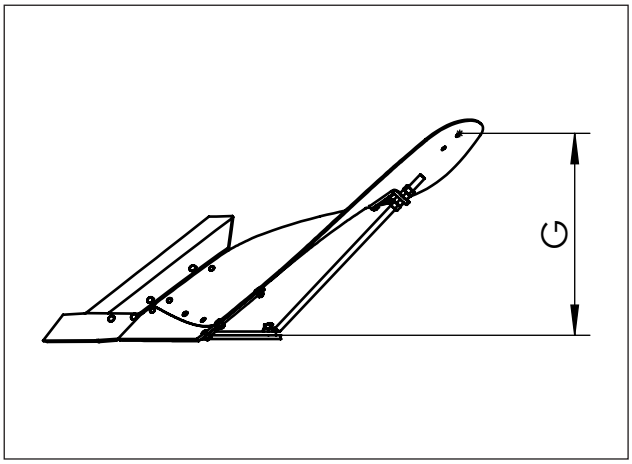
PARALLELISM AND G-MEASUREMENT OF THE MOULDBOARDS

Check the working angle of the mouldboard. The normal position is measured on the rear plough body between the extended inside line of the landside, horizontally out against the outermost hole in the mouldboard, see measurement **G**. Adjust the mouldboard stay if necessary.

AX	Mouldboard normal measurement G	= 580 mm
XLD	Mouldboard normal measurement G	= 670 mm
AH	Mouldboard normal measurement G	= 625 mm
FC	Mouldboard normal measurement G	= 550 mm
AS	Measurement to the outer end of the bottom slat	= 635 mm
	Measurement to the outer end of the top slat	= 505 mm
XSD	Measurement to the outer end of the bottom slat	= 644 mm
	Measurement to the outer end of the top slat	= 400 mm

Measure from the now adjusted rear, mouldboard forward and adjust the mouldboard stays if necessary, to the point to point clearance 900 mm **A= B**.





TIGHTENING THE BOLTS

Bolts of quality 8.8, 10.9 and 12.9 are used on the ploughs. When replacing these bolts, ensure that the same quality bolts and nuts are used. It is easier to tighten bolts and nuts to the correct tightening torque, if they are lubricated with oil.

The following tightening torque should be used for the different bolts:

Tightening torque's

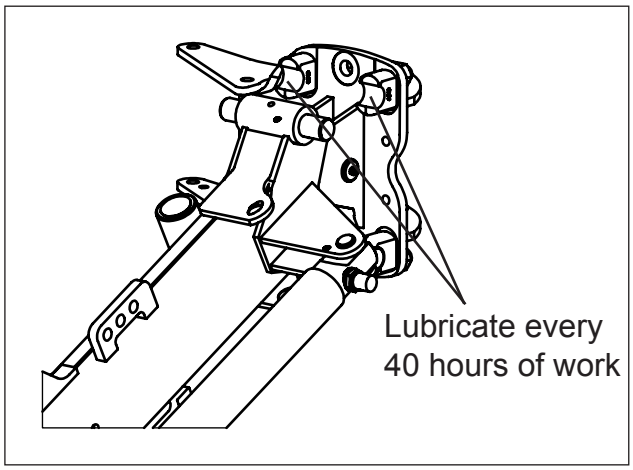
Quality	Size	Torque	
		Dry bolts and nuts	Bolts and nuts lubricated with oil
8,8	M12	81 Nm	70 Nm
8,8	M16	197 Nm	170 Nm
8,8	M18	275 Nm	236 Nm
8,8	M20	385 Nm	330 Nm
8,8	M24	665 Nm	572 Nm
8,8	M30	1310 Nm	1127 Nm
10,9	M12	114 Nm	98 Nm
10,9	M16	277 Nm	238 Nm
10,9	M20	541 Nm	465 Nm
10,9	M24	935 Nm	804 Nm
10,9	M30	1840 Nm	1582 Nm
12,9	M16*	333 Nm	286 Nm
12,9	M20	649 Nm	558 Nm
12,9	M24	1120 Nm	963 Nm

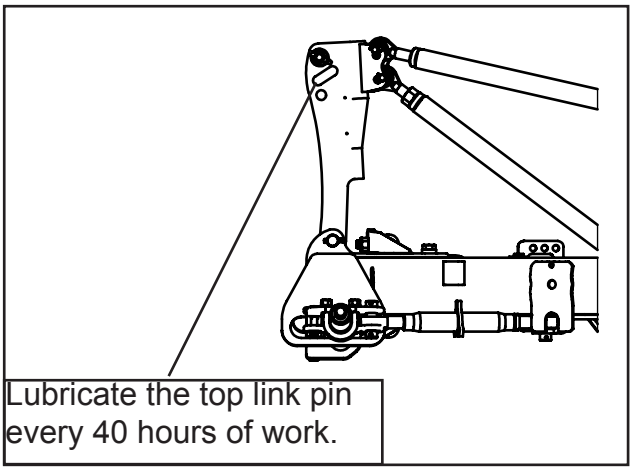
GREASING OF THE BEAM HINGE POINTS

Grease the beam hinge points weekly, in stony conditions more frequently.
Procedure: Position the plough with the bodies approx. 15 cm above the ground. For depressurising the accumulators, see section 4. STONE TRIP SYSTEM, CHECKING THE ACCUMULATOR.

The hinge points will now expose as the beams drop down. Grease all the upper hinge points (MoS2 grease is recommended) Also grease all other lubricating points in the stone trip linkage while depressurized. Lower the plough and drive slightly forward so the lower hinge point can be greased. Now pressurise the accumulators, make sure that the beams return to their correct positions. Charge the accumulators up to the correct operating pressure!

NOTE! Make sure that all beams return to their correct positions.





TYRE PRESSURE

Tyre	Recommended	Pressure
23x8.5-12	240 kPa	2,4 bar

WINTER STORAGE

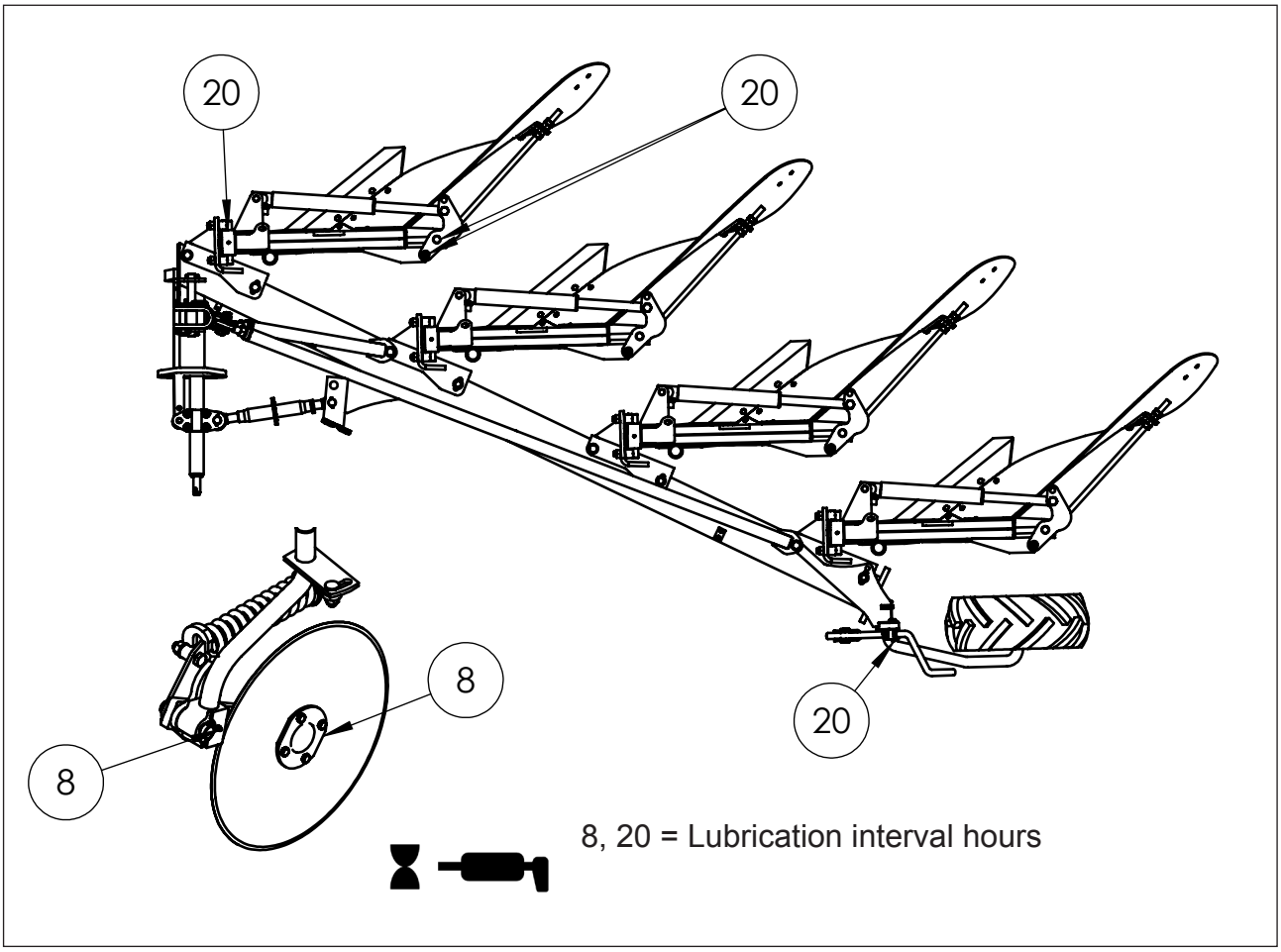
- Clean the plough properly
- Ensure that all wearing parts are in good condition, replace if necessary (so that the plough is ready for the next season)
- Tighten all bolts and nuts
- Check the pre-charge pressure in the accumulator
- Lubricate all lubrication points with grease and oil
- Protect the mouldboards and all the shiny details by lubricating them with either oil, under coat protection or acid-free grease
- The stone trip system should be stored in a pressurized condition so that all trip cylinders are fully extended and filled with oil.
- Check the hydraulic hoses on the stone trip system and replace any damageed parts.

Always use original spare parts!

LUBRICATION CHART

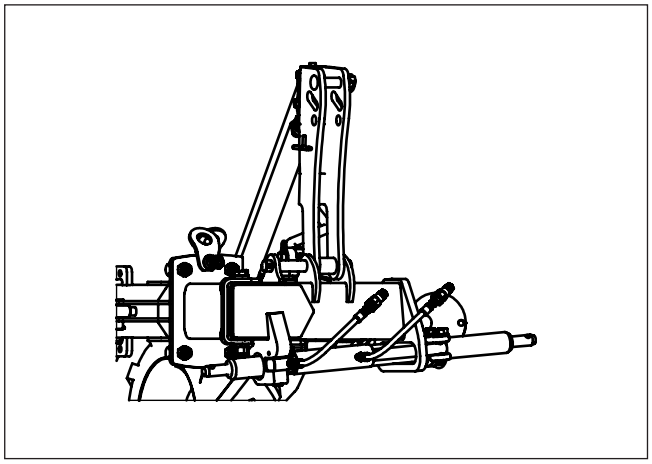
MT-MS

Lubricate the places indicated in the chart below at the indicated time interval.



7. EXTRA EQUIPMENT

Hydraulic cylinder for adjusting the width of the first furrow
Hydraulic adjustment of the first furrow is useful when different soil types and lateral slopes occur in the field, which must be compensated for.



8. USEFUL ADVICE

When you have completed a careful and accurate adjustment of your plough so that it works well and gives a good ploughing result, make a note of the following important measurements.

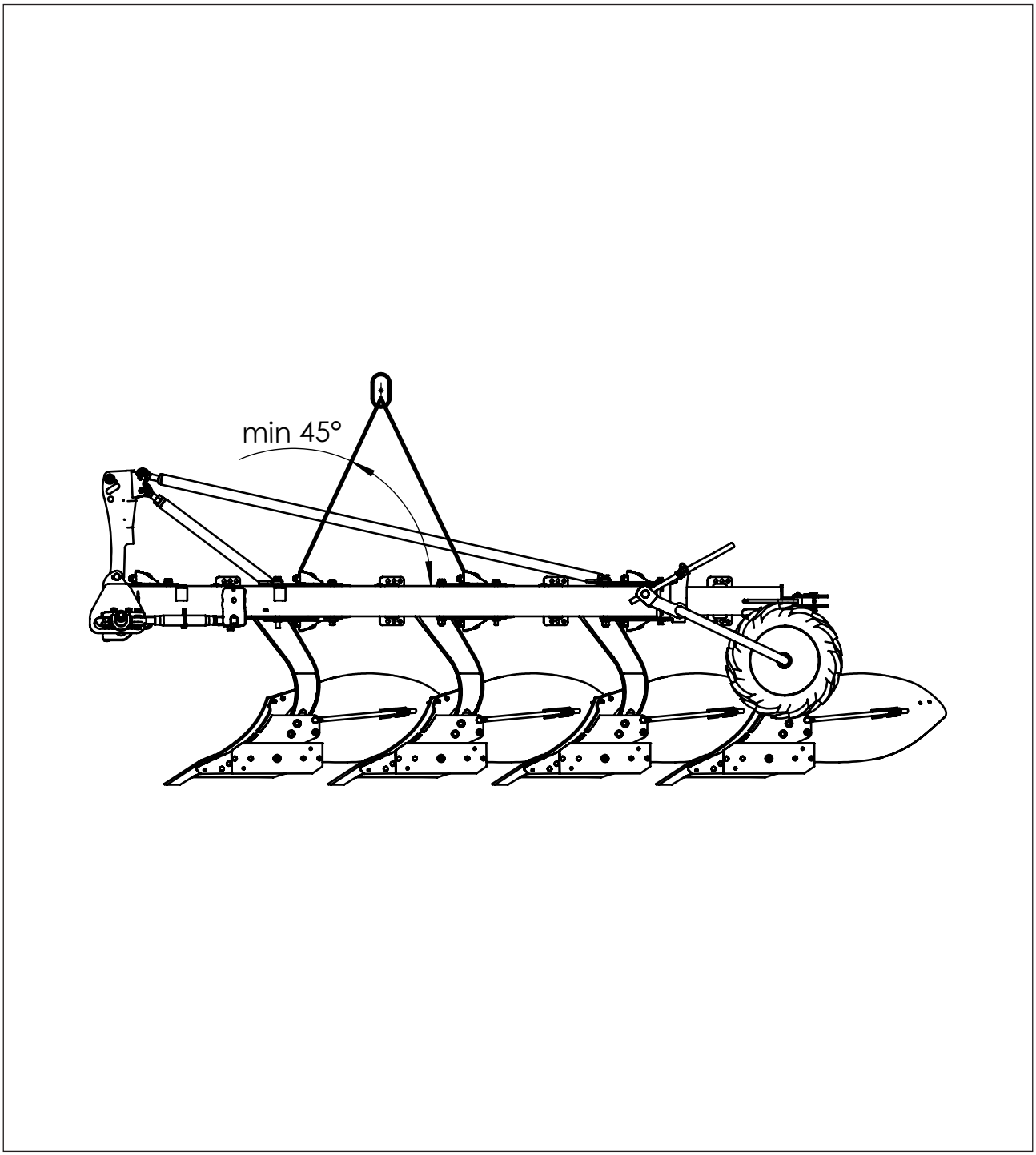
Length of top link _____

Length of right-hand lift rod _____

These measurements and similar notes will make the adjustments easier next time you start ploughing

9. LIFTING POINTS

MT/MS
Weight Max: 1320 Kg



10. TECHNICAL DATA

Model MT	Distance between plough bodies pairs (cm)	Under beam clearance (cm)	No. of plough body pairs	Work width (cm)	Recom-mended tractor size (hp)	Machine weight* (kg)	Lifting capacity approx. (kg)
3975	90	75/80	3	105-135	50-80	660	1500
4975	90	75/80	4	140-180	60-100	850	2000
5975	90	75/80	5	175-225	80-120	1025	2400

* Equipment: Support wheel, one pair of disc coulters, other knife coulters

Model MS	Distance between plough bodies pairs (cm)	Under beam clear-ance (cm)	No. of plough body pairs	Work width (cm)	Recom-mended tractor size (hp)	Machine weight* (kg)	Lifting capacity approx. (kg)
3975	90	75/80	3	100-130	50-80	570	1300
4975	90	75/80	4	135-175	60-100	725	1700
5975	90	75/80	5	170-220	80-120	870	2040

* Equipment: Support wheel, one pair of disc coulters, other knife coulters