

**DALBO®**

# MAXIROLL



**GB**  
**530, 630, 760, 830**  
**Serial no. 100-XXX**

**MADE IN D ENMARK**



# MAXIROLL

Type 530, 630, 760, 830cm

Congratulations on your new MAXIROLL. To ensure **safe operation** and to obtain optimal use of the machine, read the rules and instructions of the following operator's manual carefully before **operating the machine**.

© Copyright 2008. All rights reserved DALBO A/S

## Your MAXIROLL:

Type No.: \_\_\_\_\_ Serial No.: \_\_\_\_\_  
Month of manufacture: \_\_\_\_\_ Net weight (kg): \_\_\_\_\_

For prompt service, always quote your machine serial number when making enquiries regarding spare parts or service. A comprehensive index of spare parts can be found in the back of this manual to give you an overview of MAXIROLL components and to facilitate ordering.

## EU DECLARATION OF CONFORMITY

**DALBO A/S**  
**DK-7183 Randbøl**  
**+4575883500**

Hereby declare that the above-mentioned machine has been manufactured in compliance with the provision of the Council Directive on the approximation of the laws of the Member States relating to machinery 2006/42/EC, which replaces Council Directive 98/37/EC and amendments 91/368/EEC, 93/44/EEC and 93/68/ECC concerning the Essential Health and Safety Requirements for the design and manufacture of Machinery.



This machine complies with the safety requirements stipulated by the European safety regulations.

DALBO A/S

Date: \_\_\_\_\_

Alessio Riulini, CEO

# Table of Contents

<b>SAFETY .....</b>	<b>6</b>
GENERAL .....	6
HYDRAULIC SYSTEM .....	7
HITCHING .....	7
MAINTENANCE AND REPAIRS .....	7
TRANSPORT .....	7
CORRECT USE .....	8
<b>TECHNICAL DATA .....</b>	<b>9</b>
<b>HOW TO USE THIS MANUAL .....</b>	<b>10</b>
DELIVERY .....	10
<b>APPLICATION.....</b>	<b>11</b>
<b>HITCHING AND UNHITCHING .....</b>	<b>12</b>
HITCHING .....	12
HYDRAULIC SYSTEM .....	12
UNHITCHING.....	12
<b>ADJUSTMENTS AND SETTINGS .....</b>	<b>13</b>
ADJUSTING HITCH HEIGHT .....	13
ADJUSTING THE MIDDLE SECTION.....	14
ADJUSTING WING FOLD STOP.....	14
<b>OPERATING AND DRIVING INSTRUCTIONS.....</b>	<b>15</b>
UNFOLDING AND FOLDING .....	15
<i>Unfolding</i> .....	15
<i>Folding</i> .....	16
ADJUSTING HYDRAULIC WEIGHT TRANSFER.....	16
<i>Too much pressure</i> .....	17
<i>Too little pressure</i> .....	17
TRAVEL SPEED.....	18
<i>Power requirements</i> .....	18
TIRE PRESSURE .....	18
<b>TROUBLESHOOTING.....</b>	<b>20</b>
<b>OPTIONS.....</b>	<b>21</b>
CRACKERBOARD.....	21
<i>Power requirements</i> .....	21
<i>Hose markings</i> .....	21
<i>Adjusting tine angle</i> .....	21
<i>Operating and driving instructions</i> .....	22
<i>Mounting after delivery</i> .....	22
<i>Locking Kit</i> .....	23

<b>MAINTENANCE.....</b>	<b>25</b>
LUBRICATION .....	25
ADJUSTMENT .....	26
<i>Adjusting the rings.....</i>	26
<i>Wheels.....</i>	26
<i>Wearing points .....</i>	26
HYDRAULIC SYSTEM .....	27
<b>REPLACEMENTS AND REPAIRS .....</b>	<b>28</b>
HYDRAULIC SYSTEM.....	28
<i>Changing wing fold cylinders.....</i>	28
<i>Replacing wing fold cylinder seals .....</i>	29
<i>Assembly.....</i>	30
<i>Changing tilting cylinder .....</i>	30
<i>Replacing tilting cylinder seals.....</i>	31
<i>Assembly.....</i>	31
<i>Changing Crackerboard depth adjustment cylinder .....</i>	32
<i>Replacing depth adjustment cylinder seals.....</i>	32
<i>Assembly.....</i>	33
DISMOUNTING/MOUNTING OF WHEELS.....	33
<i>Changing wheel bearings .....</i>	33
DISMOUNTING ROLLER AXLE .....	34
<i>Changing wing axles .....</i>	34
<i>Mounting of axle with roller rings. ....</i>	35
<i>Changing the middle axle .....</i>	35
CHANGING AXLE, BEARINGS OR ROLLER RINGS.....	35
<b>SCRAPPING .....</b>	<b>37</b>
<b>HYDRAULIC SYSTEM DIAGRAM .....</b>	<b>38</b>
<b>SPARE PARTS .....</b>	<b>39</b>

## Safety



The safety alert symbol is used throughout this manual to identify important safety warning messages concerning your safety, the safety of other users or the functional safety of the implement. Observe all safety instructions and make them readily accessible to all users of the equipment.

### General

- The operator must be thoroughly familiar with all safety precautions and operations of this equipment prior to using.
- The safety signs on the MAXIROLL contain important instructions concerning your safety, the safety of those around you, and the correct operation of the machinery.
- Never allow anyone to ride on the implement during operation or transport.
- Never allow bystanders within the operating radius of the MAXIROLL when the implement is in operation. Operate the MAXIROLL only while seated in the driver's seat of the tractor.
- Ensure that wing section locks are engaged when the MAXIROLL is in a folded position. Secure control levers against unintentional operation.
- Before performing any adjustments, maintenance or repairs on the machinery, always unfold the MAXIROLL and lower the implement to the ground or secure in transport position, set the tractor brakes, turn off the engine and remove the ignition key.
- Remember to secure the drawbar stand and the lift arms (if applicable) with lynch pins.
- Operate the tractor and MAXIROLL only while seated in the driver's seat.
- Always drive according to conditions.
- Do not use the MAXIROLL unless all safety signs are installed. Replace defective safety signs immediately.

## Hydraulic System

- Before performing maintenance or repairs on the hydraulic system, lower the implement to the ground, relieve pressure in the system, turn off the engine and remove the ignition key.
- Clean the hydraulic fittings thoroughly before connection. Ensure that the pressure is relieved in the hydraulic system before connecting the hydraulic hoses to the tractor's hydraulic services.
- After making repairs to the hydraulic system, thoroughly bleed air out of the system.
- Regularly check hydraulic hoses for defects such as cracks, bends, chafing or leaks.
- Avoid spilling oil on the ground. In case of spills, collect the oil and dispose of it properly.
- In case skin should come in contact with hydraulic oil or grease or in case clothing should become stained with oil, remove the stained clothes immediately and wash the affected skin areas thoroughly. Oil and grease are harmful to the skin.
- Escaping hydraulic oil under high pressure can penetrate the skin and cause severe injury. If an accident occurs, see a doctor immediately.

## Hitching

- An individual is in danger of being crushed during the hitching process. Never place yourself or anyone else between the tractor and the MAXIROLL, or between parts that must be attached or connected.

## Maintenance and Repairs

- Before servicing or making adjustments to the machine, securely block or unfold the machine, engage the tractor and machine brakes, stop the engine and remove the keys.
- Tighten all nuts, bolts hydraulic fittings or any other fastened assemblies after a few hours' use. Check often to make sure that they remain thoroughly tightened. Inspect all pins, screws and bolts for wear or damage and make sure that all are securely in place to avoid any possible damage or breakdown of the machine.
- Dispose of oil, grease and filters according to applicable environmental regulations.

## Transport

- All safety and warning signs and devices required by law must be displayed, mounted and tested for public road use. The driver is responsible for the correct use of lights and markings in compliance with the present Traffic Act and Highway Code of the local traffic legislation.
- It is the responsibility of the driver to consult with local traffic authorities in order to ensure that the size, weight and load of the machinery may be transported on public roads.
- When towing the implement, the total weight of the tractor and the maximum allowed axle load must not be exceeded. The weight on the front axle must not be less than 20 percent of the total mass of the tractor. If it is less than 20 percent, extra weight must be added to the front of the tractor.

### **Correct Use**

- Correct use of the MAXIROLL includes adherence to the instructions of the manufacturer concerning operation, maintenance and repair, as well as the use of genuine factory replacement parts.
- Do not allow anyone to operate, maintain or repair the MAXIROLL unless they are familiar with the implement and they are thoroughly aware of the possible hazards.
- The manufacturer does not accept any liability for injury or warranty if the equipment has been altered in any way without prior authorization from the manufacturer or if the injury is a result of incorrect use of the implement. The user accepts complete responsibility in these cases.
- Never load extra weight onto the MAXIROLL.



## Technical Data

### MAXIROLL

Size (cm)	530	630	760	830
HP (recommended)	80-110	90-130	130-160	160-190
<b>Gross weight kg:</b>				
Cambridge 50	2650	3075		4200
Cambridge 55	3020	3600		7425
Cambridge 60	3790	4560	5400	6025
Crosskill 53	2280	2550		3320
<b>Sections (pc.)</b>	3	3	3	3
<b>Hydraulik:</b>				
1 D + 1 single	X	X	X	X
<b>Options:</b>				
Crackerboard kg	670	785	940	1010

### Wheels

Under 4000 kg: 10.0/75x15.3

Over 4000 kg: 11.5/80x15.3

In the matrix below you can see the quantities of hydraulic oil that is going back to the tractor when MAXIROLL is unfolded.

Model	Oil in liter
530/630	0,6
760/830	1,8

## How to Use This Manual

If the order of points described under the main subject areas of the manual seems confusing or illogical, refer to the Table of Contents where all subject headings can be found.

The main points of the operator's manual are placed into five main categories:

- Safety
- Set-up and Operation
- Options
- Maintenance
- Repairs

The following safety alert symbols are used throughout this manual to indicate:



Points that are extremely important for the function and life of the machinery.



Points that involve safety.

### Delivery

MAXIROLL is delivered fully assembled on a flatbed lorry.

If the MAXIROLL needs to be lifted, it is recommended that you lift with straps around the middle section, raising the machine so that it hangs in balance.

## Application

The MAXIROLL is an extra rugged roller with a special construction enabling the easy attachment of additional tillage equipment.

The MAXIROLL is a three-section roller in which the sections move independently of each other. Hydraulic weight transfer is standard on all models.

Fig. 1



MAXIROLL 2007, 630

The MAXIROLL roller prepares the soil before sowing by breaking up clods, and after sowing it conditions the soil to promote germination and to press down stones. MAXIROLL can also be used to break up crusted soil surfaces of both grain and grass fields.

MAXIROLL can be equipped with optional attachments such as the hydraulic Crackerboard. The Crackerboard is primarily used for seedbed preparation. The vibrating action of the tines breaks up clods, prepares and levels ploughed fields as well as previously worked fields. If you do not wish to use the Crackerboard, it can be folded up and the MAXIROLL can be used alone as a roller.

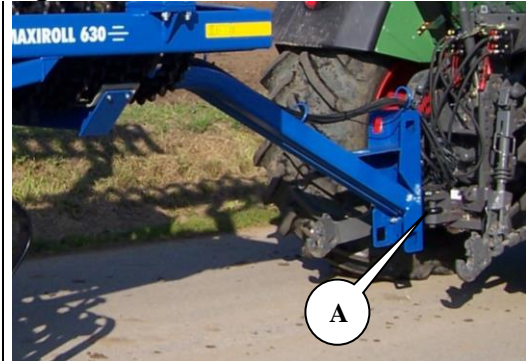
## Hitching and Unhitching

### Hitching

Attach the MAXIROLL to the fixed drawbar of the tractor, positioning the drawbar eye of the MAXIROLL (A) between the yoke end of the tractor drawbar.

Insert the hitch pin and remove the drawbar jack stand.

Fig.2



Remember to lock the hitch pin with a lynch pin or another proper locking pin.

### Hydraulic System

The MAXIROLL requires one double- and one single acting hydraulic services. The double acting for wing folding and the single acting for raising/lowering (tilting) the roller.

Table 1. Hydraulic hose markings

Cylinder Name	Colour	Service	Function
Tilting cylinder	White	Single-acting	Raise MAXIROLL up onto the wheels and lower it down into a working position.
Wing fold/ Weight transfer	Red	Double-acting	Fold wing sections in/out and transfer weight from the middle section to the wing sections.



- Wing fold/ weight transfer cylinder requires a hydraulic service with a floating position.
- Check the hydraulic hoses for kinks or pinches.

### Unhitching

Mount the drawbar jack stand. Remove the hitch pin and disconnect the hydraulic hoses.



- Remember to relieve the pressure in the hydraulic system before disconnecting the hoses.
- The MAXIROLL can be folded up or unfolded before unhitching.

## Adjustments and Settings

The MAXIROLL is preset in the factory, but it will always be necessary to make some fine adjustments before use. Numerous adjustment possibilities make your MAXIROLL more versatile and allow you to obtain optimum performance from the implement.

### Adjusting hitch height

To ensure an even distribution of pressure on the field, the pendulum on the middle section (Fig. 5) must be flushed with the adjacent fixed frame part. At the same time the drawbar (Fig. 4) must be accurately aligned with the towing tractor.

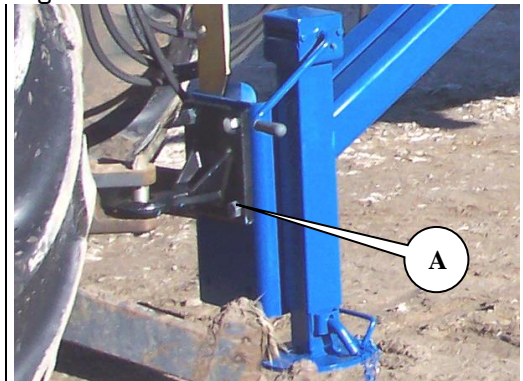


An Incorrect towing height results in an uneven packing of the field, as the roller will not pack the soil evenly on all the sections.

Fig. 3

To obtain optimal towing height, it is possible to adjust the drawbar end bracket hitch, so that the height of the drawbar eye matches that of your tractor hitch.

With MAXIROLL resting on the jack stand, loosen bolts (A) and move the end bracket hitch for accurate alignment with the towing tractor..

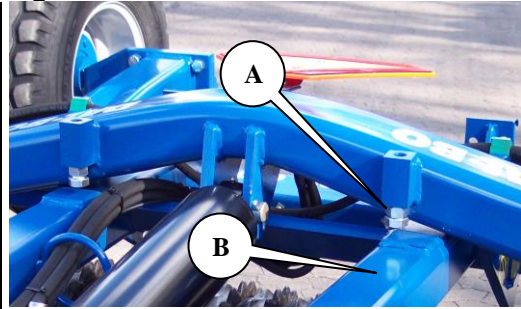


## Adjusting the middle section

With MAXIROLL in an unfolded position (see “Operating and Driving Instructions”), check if the bolts (A) is touching the tube (B).

This control must be made with the MAXIROLL attached to the tractor. And after the drawbar end bracket hitch is adjusted for the towing tractor.

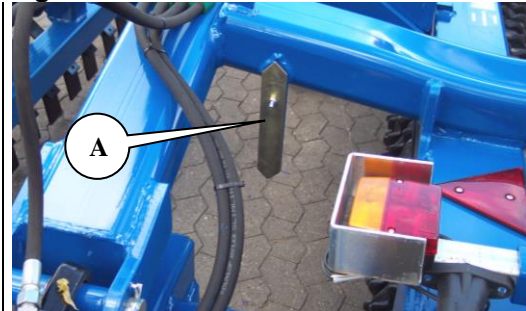
Fig. 4



The pendulum on the middle section must at the same time be flush, with the adjacent fixed frame part.

It is important to locate the MAXIROLL on **level** ground in order to set the middle section correctly.

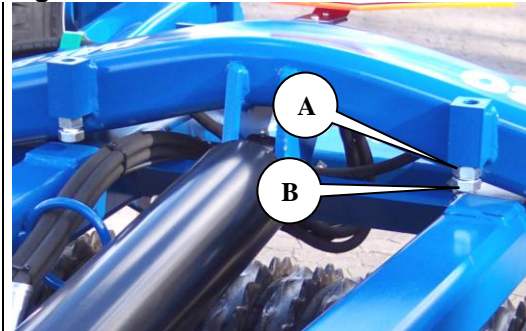
Fig. 5



If the bolts (A, Fig. 6) is not touching the tube and the pendulum is not flushed with the adjacent fixed frame part, the bolts must be adjusted.

1. Loosen the locking nut (A).
2. Adjust the bolt (B).
3. Tighten the locking nut (A).
4. Check the pendulum and that the towing height is correct.
5. The bolt (B) must touch the tube. Otherwise drive the tractor a little forward and check the settings.

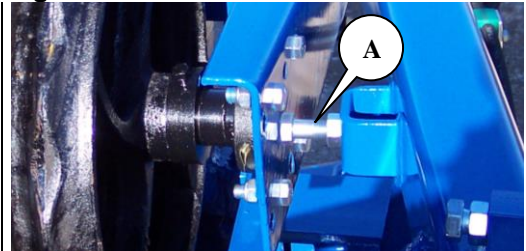
Fig. 6



## Adjusting wing fold stop

To ensure the correct transport position of the wing sections, it is possible to adjust the backstop (A) for the wing sections.

Fig. 7



## Operating and Driving Instructions

Proper operation is essential for optimum performance of your MAXIROLL. Proper operation concerns both the carrying out of tillage operations in the field as well as the following of safety precautions. Make sure that you have a thorough understanding of all safety precautions.

### Unfolding and Folding

Always unfold and fold the wings of the MAXIROLL while the equipment is stationary and the tractor is parked.

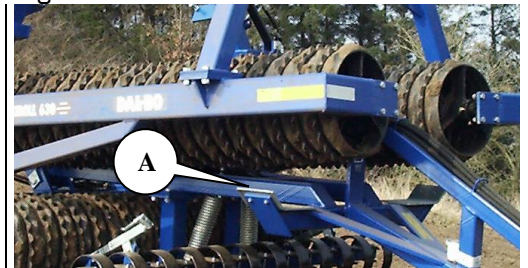


When unfolding and folding with the Crackerboard, make sure that the Crackerboard is fully raised in the top position, since the tines could collide with each other (see "Options, Crackerboard").

### Unfolding

- 1 Lift the wing sections out of the transport locks (A) using the tilting cylinder (marked white).

Fig. 8



- 2 Activate the wing fold cylinders (marked red) and completely unfold the wing sections.
- 3 Activate the tilting cylinder and lower the roller onto the ground. Put the handle for the tilting cylinder in floating position. (see "Adjustments and Settings").

Fig. 9



Before operating the roller, the weight transfer must be adjusted correctly (see "Adjusting hydraulic weight transfer").

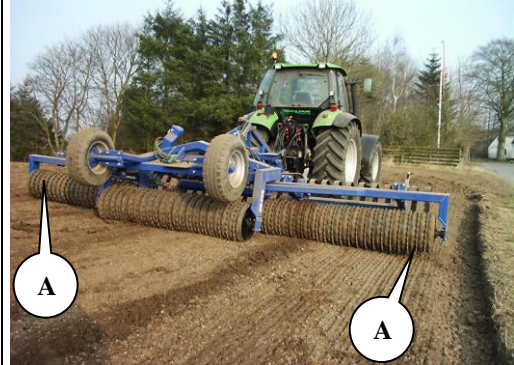


**Folding**

If the Crackerboard is mounted, it must be fully raised to the top position before folding (see "Options, Crackerboard, Operating and driving instructions").

1. Activate wing fold cylinders (marked: red) to the fully extended position, so that the outermost ends of the wing sections (A) are raised.

Fig. 10



2. Activate the tilting cylinder (marked: white) to the fully extended position and raise the roller off the ground.

Fig. 11



3. Activate the wing fold cylinders again and fold the wings up (wing fold cylinders must be fully retracted).
4. Activate the tilting cylinder and lower the roller down into the transport locks.

Fig. 12



**Adjusting hydraulic weight transfer**

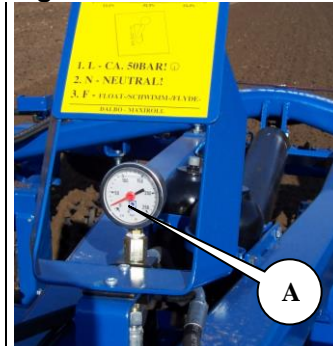
The hydraulic weight transfer system ensures the even distribution of weight across all sections of the roller.



1. With the roller in an unfolded position, relieve the pressure in the wing fold cylinders (marked: red). Activate the lever for the wing fold cylinders in the opposite direction.

Fig. 13

2. After a moment, a reading will be displayed on the manometer. Increase the pressure until approx 15 bar.



3. Set the cylinders in the floating position. The floating position is necessary to achieve hydraulic weight transfer, in which the sections are free to move individually.
4. It may be necessary to adjust the hydraulic weight transfer again. It might also be necessary to operate the machinery at a higher or lower pressure, depending on soil conditions.

#### Too much pressure

1. The pressure on the outermost rings of the wing sections will be too great. The rings will be pressed too far down into the soil and they will leave clearly visible ridges on the outside of the wing sections.
2. The middle section will not pack the soil sufficiently, which can be seen when the soil trailing behind the middle section is higher and it is not as compressed as that after the wing sections.

#### Too little pressure

1. There is not enough pressure on the outer rings of the wing sections to press the rings sufficiently for an even field finishing.
2. The middle section packs the soil too heavily, which can be seen when the soil after the middle section is left much more compressed than that worked by the wing sections.



For the durability of MAXIROLL and for the result in the field, it is very important that MAXIROLL is set in floating position when working in the field



Incorrect use of MAXIROLL, as not setting the implement in floating position, can in worse cases cause breakdown on the implement as breach on the mainframe.

## Travel speed

A working speed between 6-10 km/hour is recommended, but always drive according to conditions.

When travel speed is increased, wear on the implement is increased, especially under dry soil conditions. Damage to the discs may also result from driving too fast under unfavourable conditions.

### Power requirements

Power requirements change according to soil type, terrain, travel speed and roller rings.

Table 2, **Guidelines for power requirements in HP** (without Crackerboard)

Working width (cm)	530 cm	630 cm	760	830
Power requirements (hp)	80-130	100-130	130-160	160-190

## Tire pressure

The tables below show the load, speed and tire pressure in relation to each other at the different tire combinations.

### 300/80-15,3 Starco

300/80-15.3 STARCO AW (SG-316) FREE WHEEL 131A8 (128B)													
1.0 bar	1.2 bar	1.4 bar	1.6 bar	1.8 bar	2.0 bar	2.2 bar	2.4 bar	2.6 bar	2.8 bar	3.0 bar	3.2 bar	3.4 bar	SPEED
1335	1485	1625	1755	1880	2000	2115	2225	2335	2435	2540	2635	2730	10km/h
1270	1410	1545	1670	1790	1905	2010	2115	2220	2315	2410	2505	2595	15km/h
1205	1340	1465	1585	1695	1805	1905	2005	2105	2195	2285	2375	2460	20km/h
1135	1260	1380	1495	1600	1700	1800	1895	1985	2070	2155	2240	2320	25km/h
1070	1190	1300	1405	1505	1600	1695	1785	1865	1950	2030	2110	2185	30km/h
1000	1115	1220	1320	1415	1505	1590	1675	1755	1830	1905	1980	2050	35km/h
955	1060	1160	1255	1345	1430	1510	1590	1665	1740	1815	1885	1950	40km/h
880	980	1070	1160	1240	1320	1395	1470	1540	1605	1675	1740	1800	50km/h

### 400/60-15,5 Alliance

MAXIROLL

Size	Rim	Unloaded Dimension		Loaded Static radius mm	Rolling Circumference mm	Load Index PR Symbols	Inflation Pressure bar	Recommended Load							
								Speed							
		Drive wheel						Free rolling							
		10 kmph	25 kmph					40 kmph	50 kmph	10 kmph	25 kmph	40 kmph	50 kmph		
400/60-15.5	13.00DC	404	874	377	2510	148A8 136A8	1	1320	1120	940	846	1860	1580	1330	1200
								1970	1680	1410	1269	2790	2370	1990	1790
								2250	1920	1610	1449	3180	2700	2270	2040
								2740	2330	1960	1764	3860	3280	2760	2480
								2970	2520	2120	1908	4170	3550	2980	2680
							4.4	3140	2670	2240	2016	4410	3750	3150	2840

10.0/75-15,3 Alliance

Size	Rim	Unloaded Dimension		Loaded Static radius mm	Rolling Circumference mm	Load Index PR Symbols	Inflation Pressure bar	Recommended Load							
								Speed							
		Drive Wheel						Free rolling							
		10 kmph	25 kmph					40 kmph	50 kmph	10 kmph	25 kmph	40 kmph	50 kmph		
10.0/75-15.3	9	268	784	343	2260	12PR	4.7	1650	1400	1180	1062	2380	2020	1700	1530
						126A8⊕ 114A8⊖									

480/45-17 Alliance

Size	Rim	Unloaded Dimension		Loaded Static radius mm	Rolling Circumference mm	Load Index PR Symbols	Inflation Pressure bar	Recommended Load																
								Speed																
		Drive Wheel						Free Rolling																
		10 kmph	25 kmph					40 kmph	50 kmph	10 kmph	25 kmph	40 kmph	50 kmph											
480/45-17	16.00x17	491	866	380.35	2562	14	0.8	1430	1290	1020	918	2020	1710	1440	1300									
						146A8 134A8										1.5	2060	1850	1470	1323	2910	2480	2080	1870
																2.8	2970	2670	2120	1908	4200	3570	3000	2700
																3	3090	2780	2210	1989	4370	3710	3120	2810

## Troubleshooting

Problem	Cause	Action
Too much pressure on middle section	<ul style="list-style-type: none"> <li>Insufficient weight transferred to wing sections</li> </ul>	<ul style="list-style-type: none"> <li>Activate the lever of the hydraulic wing fold, so that more pressure is transferred to the wings (see "Operating and Driving Instructions").</li> </ul>
	<ul style="list-style-type: none"> <li>The pressure is too high</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the hitch and the middle section (see "Adjusting hitch height" and "Adjusting middle section").</li> </ul>
	<ul style="list-style-type: none"> <li>Middle section is not horizontal</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the hitch and the middle section (see "Adjusting hitch height" and "Adjusting middle section").</li> </ul>
Too much pressure on the outer edges of the wing sections	<ul style="list-style-type: none"> <li>Insufficient pressure on the middle section</li> </ul>	<ul style="list-style-type: none"> <li>Activate the lever of the hydraulic wing fold, so that more pressure is transferred to the middle section (see "Operating and Driving Instructions").</li> </ul>
	<ul style="list-style-type: none"> <li>The pressure is too low</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the hitch and the middle section (see "Adjusting hitch height" and "Adjusting middle section").</li> </ul>
	<ul style="list-style-type: none"> <li>Middle section is not horizontal</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the hitch and the middle section (see "Adjusting hitch height" and "Adjusting middle section").</li> </ul>
Pressure falls on the manometer	<ul style="list-style-type: none"> <li>Lever is not in the floating position</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the pressure on the weight transfer and move the lever to the floating position (see "Adjusting hydraulic weight transfer")</li> </ul>
	<ul style="list-style-type: none"> <li>Pilot operated check valve is defective</li> <li>Cylinder (set of seals) leak</li> </ul>	<ul style="list-style-type: none"> <li>Set the weight transfer to 15 bar and move the lever into the floating position. Leave the MAXIROLL in a stationary position for 1/2 hour. If the pressure falls, the pilot operated check valve is defective or there can be dirt in the valve (take the valve apart and clean the parts).</li> </ul>
Wing sections do not follow the terrain	<ul style="list-style-type: none"> <li>Hydraulic weight transfer system is not in the floating position</li> </ul>	<ul style="list-style-type: none"> <li>Set the hydraulic weight transfer in the floating position (see "Adjusting hydraulic weight transfer")</li> </ul>

## Options

Your MAXIROLL can be equipped with optional equipment, depending on individual needs.

- Crackerboard

### Crackerboard

The greatest advantage of the Crackerboard lies in the fact that the tines can move independently and thus flex individually in response to counter pressure from land contours. This provides the user with greater flexibility than a levelling board, since the entire levelling unit does not have to be disturbed because of a single obstacle.

Fig. 14



#### Power requirements

Compared to a fixed levelling board, the Crackerboard does not require as much power, although it depends on how the Crackerboard is used.

Table 3, Power requirements of the Crackerboard in HP

530	630	760	830
30-50	35-60	45-75	50-85



Moving as little soil as possible reduces fuel consumption and material wear.

#### Hose markings

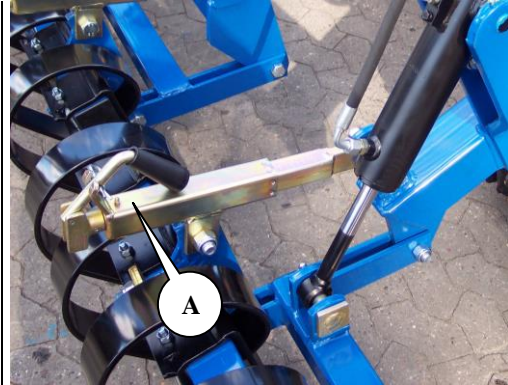
Table 4. Hose markings

Cylinder	Colour	Service	Function
Depth adjustment	Green	Double-acting	To regulate the working depth of the Crackerboard

#### Adjusting tine angle

Fig. 15

The working depth of the Crackerboard is hydraulically adjustable. The tine angle is adjusted manually by means of the spindles (A). The sides of the spindles are marked with numbers to facilitate uniform angle adjustment.



The tine angle will remain set regardless of the depth, since the tines are mounted in a parallelogram formation.

- For an **aggressive tine** (vertical tine), shorten the spindles.
- For a **passive tine** (tine lying down, lengthen the spindles).



To adjust the angle of the tines, the Crackerboard must be in upper position.

Adjust tine angle to accommodate different field operations. If the tine is set aggressively and the penetration depth is set in the upper soil layer, the maximum amount of vibrations will be achieved to finely crush clods. This setting is recommended for most field work.

If the tine is lying down, it can more easily avoid obstacles. The point of the tine is also in a more vertical position, which gives a more uneven field surface.

**Operating and driving instructions**

The Crackerboard is a versatile piece of equipment, with several application possibilities in one unit. At a depth setting of approx. 5 cm, the vibrating power of the tines will crush clods.

A deeper setting of the Crackerboard provides a greater levelling effect than a levelling board, as a small amount of soil builds up in front of the tines.

Fig. 16



The Crackerboard is **not** designed to function as a dozer blade, but rather to perform light soil cultivation. Since each tine moves independently and responds individually to land contours, the Crackerboard is easy to tow and requires less adjustment than the levelling board during operation.

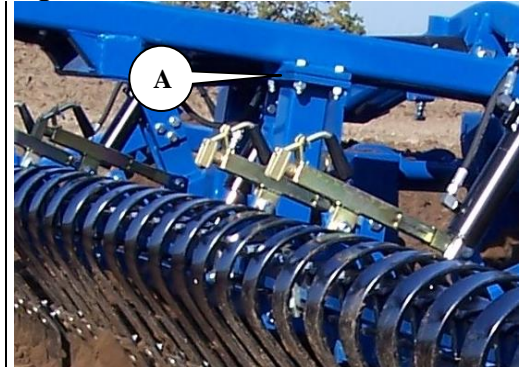
If the Crackerboard sections do not operate at uniform depth, it may be necessary to “reset” the Crackerboard by raising the board to the highest, top position.

**Mounting after delivery**

The Crackerboard can be mounted at the factory, but it can also be delivered at a later time if needed. A crane or similar equipment is required for mounting.

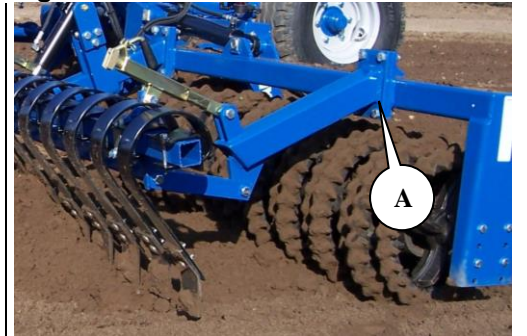
- 1 Unfold MAXIROLL.
- 2 First mount the middle section to the flanges (A) of the drawbar.

Fig. 17



- 3 Mount the side sections to the flanges (A).
- 4 Mount the hydraulic cylinders.
- 5 Connect the hoses to the cylinders.

Fig. 18



- 6 Tighten the clamp holding the hoses (A) and insert the hoses through the hose clamps on the drawbar.
- 7 Tighten all fittings and connect the Crackerboard to the hydraulic system of the tractor.

Fig. 19



It is important to thoroughly bleed air out of the system to avoid personal injury. Move the depth adjustment cylinders up and down to the fully extended position several times to get air out of the system.

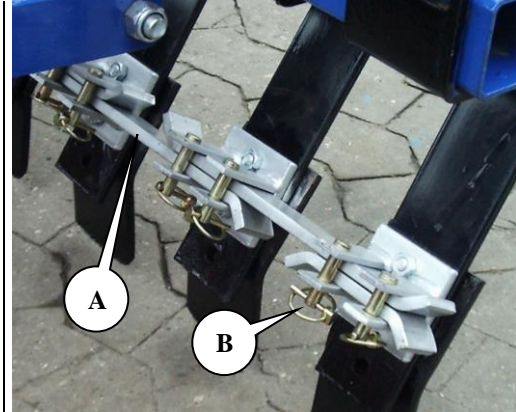
#### Locking Kit

As an accessory to the Crackerboard, a locking kit is available. The locking kit interlocks the tines into a long board divided into three sections. The Crackerboard will then function more like a levelling board.

Fig. 20

**Mounting**

Mount the locking kit to the backside of the tines with wearing points, using longer bolts. The tines are fastened together with a fastening plate (A), that is held together with pins (B).





## Maintenance

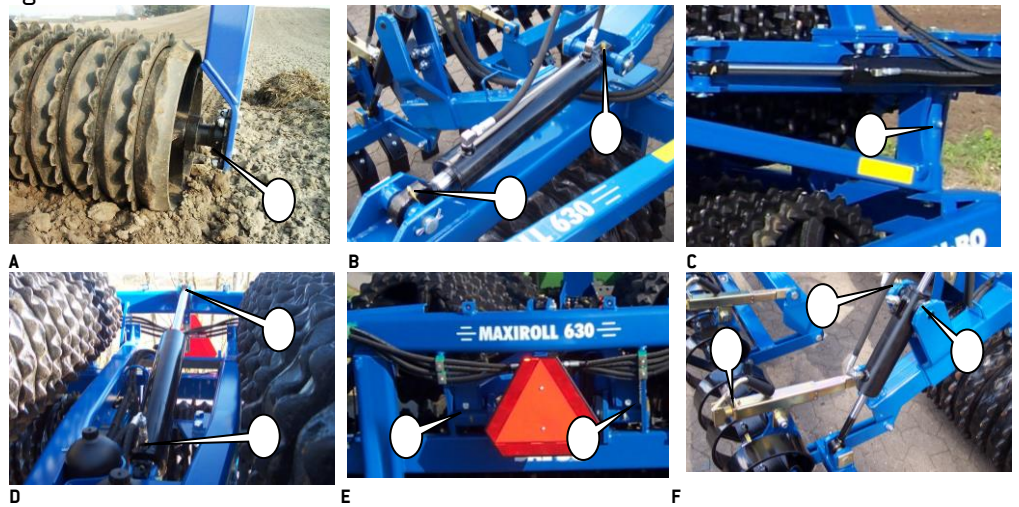
Proper maintenance ensures a long life for the MAXIROLL and also optimum performance from the implement. To facilitate maintenance, grease fittings have been mounted on those locations where wear on the equipment is the greatest.



Tighten all nuts, bolts, hydraulic fittings or any other fastened assemblies after the first workday. Inspect all pins and bolts for wear or damage and make sure that all are securely in place to avoid any possible damage or breakdown of the machine. Check for leaks in the hydraulic system.

### Lubrication

Fig. 21



Lubrication points	Number of fittings	Lubrication interval [hours]	Photo
Flange bearings	6	50	A
Cylinder for wing folding/unfolding	4	50	B
Centre pin for unfolding of wings	2	50	C
Tilting cylinder	2	50	D
Centre pin for tilting	2	50	E
Crackerboard cylinder	6	50	F
Crackerboard spindle	6	100	F
Wheel bearings	2	200	



Lubricate all lubrication points at least once a year.

## Adjustment

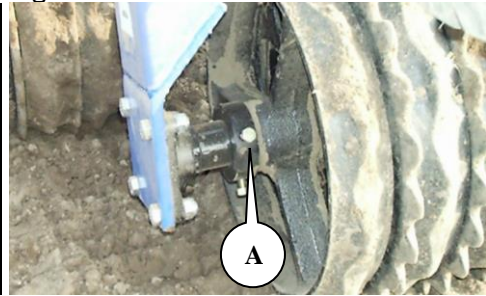
### Adjusting the rings

After the first season, the rings will have worked themselves loose on the axle. By moving the collars on the axle the rings can be pushed together, eliminating the slack.

The easiest way to adjust the rings is with the MAXIROLL in a folded position.

1. Loosen the screws (A) and push the rings together.
2. Tighten and loosen the collar screws several times at the same place on the axle, enabling the screws to bite firmly into the axle.

Fig. 22



### Wheels

Lubricate and adjust the wheel bearings once a year. Make sure that the tyre pressure is correct (see tyre).

Adjustment and lubrication of wheel bearings

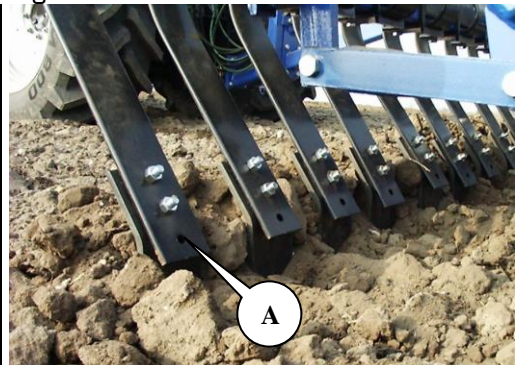
1. Remove the hubcap.
2. Take out the split pin.
3. Tighten the castle nut  $1/6$  of a rotation until the hole is lined up with the axle. The wheel must be able to rotate freely. There should be a little slack in the hub when the wheel is moved from side to side. If there is a lot of slack in the hub, repeat the process.
4. Replace the pin.
5. Fill the hubcap  $3/4$  full with lubricant and reinstall.

### Wearing points

The points are mounted into the highest holes of the tines at the factory. Move the points into the lowest holes (A) before the tines start to wear.

After the points are worn, while in the lowest holes, replace the points.

Fig. 23



## Hydraulic System



Inspect all hydraulic hoses for chafing or leaks. Check hoses for pinching.



To avoid rust, any projecting piston rods should be coated with oil or grease if the MAXIROLL is to be parked for a long period of time. Remember to remove the oil or grease prior to operation.

## Replacements and Repairs



Safety is important in connection with **all** repair work on the MAXIROLL. The following safety precautions and the precautions listed in the beginning of this manual must be observed.



Before performing any adjustments, maintenance or repairs on the machinery, always unfold the MAXIROLL and lower the implement to the ground or secure in transport position, set the tractor brakes, turn off the engine and remove the ignition key to avoid unintentional operation.



Pay careful attention to safety when performing repair work on the hydraulic system. Remove hydraulic pressure prior to doing any maintenance, and block the part if needed.



After making repairs to the hydraulic system, always bleed air out of the system before operating the MAXIROLL again to avoid any possible personal injury or mechanical breakdown or damage.

### Hydraulic system

#### Changing wing fold cylinders

When performing repairs, make sure the MAXIROLL is unfolded and resting on the ground.

1. Relieve the pressure in the cylinders. **Make sure the no pressure is displayed on the manometer.**
2. Disconnect the hoses.
3. Remove the split cotter pins and the other pins. The cylinders are now free.
4. Install new or repaired cylinders. Remember to make sure that the pin is engaged in the stop and that the pins are secured with split cotter pins.
5. Connect the hoses. After connection, make sure that there is no danger of the hoses becoming ripped off or pinched.

Fig. 24





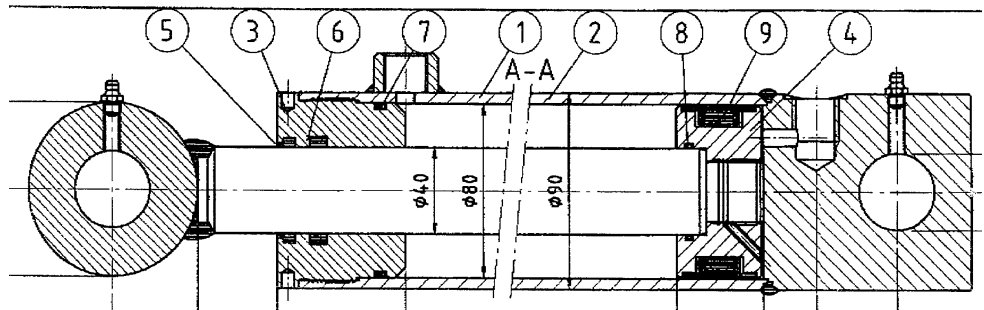
After mounting the cylinder, activate the wing fold cylinders until the piston rods begin to move in the cylinders. Next, activate the cylinders in the opposite direction until the cylinder is back in the starting position. Move the cylinders several times in this way. Then move the MAXIROLL up onto the wheels and unfold the wing sections out into the fully extended position to bleed air out of the system.



Never allow bystanders within the operating radius of the implement.

### Replacing wing fold cylinder seals

Fig. 25



1. For removal of the cylinder, see "Changing wing fold cylinders".
2. Empty the oil from the cylinder by moving the cylinder back and forth.
3. Move the piston to the middle position. Unscrew the gland (pos. 3) from the cylinder casing (pos. 1). (A special tool is needed to remove the gland). If the gland is stuck, it may help to warm up the very front of the socket. When the gland has been unscrewed, pull the piston towards the gland. Pull the piston rod completely out of the cylinder casing.
4. Remove the self-locking nut (pos. 4) holding the sleeve.
5. Pull the sleeve (pos. 4) off the piston rod.
6. Pull the gland (pos. 3) off the piston rod.
7. Remove the seals from the gland and the sleeve (pos. 5+6+7+8+9).
8. Clean all parts thoroughly. Check for filings, shavings, burrs, and make sure that there is no rust around the scraper ring (pos. 5) in the gland. If rust is found, it must be removed.

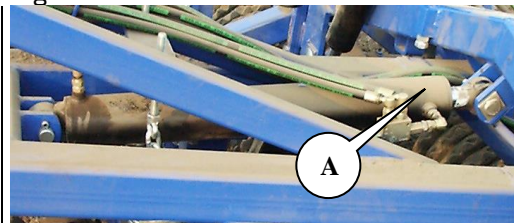
### Assembly

1. Assemble the new seals (pos. 5+6+7+8+9) into the gland and the sleeve. Make sure the seals are facing in the correct direction.
2. Lubricate the screw threads on the gland (pos. 3) and the cylinder casing with oil.
3. Mount the gland (pos. 3) onto the piston rod.
4. Mount the sleeve (pos. 4) and screw on the self-locking nut **with Loctite**. Make sure that the screw threads are completely clean and free from oil or other impurities before using Loctite. **Do not refill the oil for the first 12 hours after the application of Loctite.**
5. Lubricate the outermost seal of the sleeve that has contact with the cylinder casing and the inside of the cylinder casing, then guide the piston rod into the middle position of the casing.
6. Screw the gland onto the casing and tighten.
7. Mount the cylinder (see "Changing wing fold cylinders").

### Changing tilting cylinder

Unfold the MAXIROLL and relieve the pressure in the tilting cylinder (A).

Fig. 26



1. Disconnect the hoses from the cylinder.
2. Support the cylinder.
3. Remove the split cotter pins and the pins.
4. The cylinder is now free and can be dismantled.
5. Mount a new or repaired cylinder.



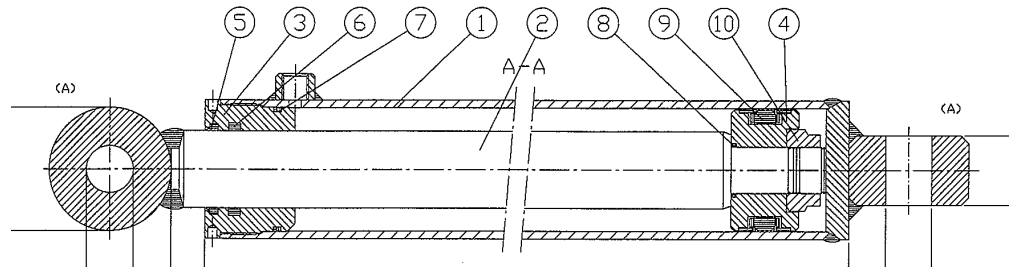
After mounting the cylinder, activate the wing fold cylinders until the piston rods begin to move in the cylinders. Next, activate the cylinders in the opposite direction until the cylinder is back in the starting position. Move the cylinders several times in this way. Then move the MAXIROLL up onto the wheels and unfold the wing sections out into the fully extended position to bleed air out of the system.



Never allow bystanders within the operating radius of the implement.

## Replacing tilting cylinder seals

Fig. 27



1. Empty the oil from the cylinder by carefully moving the cylinder back and forth.
2. Move the piston to the middle position. Unscrew the gland (pos. 3) from the cylinder casing (pos. 1). [A special tool is needed to remove the gland]. If the gland is stuck, it may help to warm up the very front of the socket. When the gland has been unscrewed, pull the piston towards the gland. Pull the piston rod completely out of the cylinder casing (pos. 1).
3. Remove the self-locking nut (pos. 10) holding the sleeve (pos. 4).
4. Pull the sleeve (pos. 4) off the piston rod (pos. 2).
5. Pull the gland (pos. 3) off the piston rod (pos. 2).
6. Remove the seals from the gland and the sleeve (pos. 5+6+7+8+9).
7. Clean all parts thoroughly. Check for filings, shavings, burrs, and make sure that there is no rust around the scraper ring (pos. 5) in the gland. If rust is found, it must be removed.

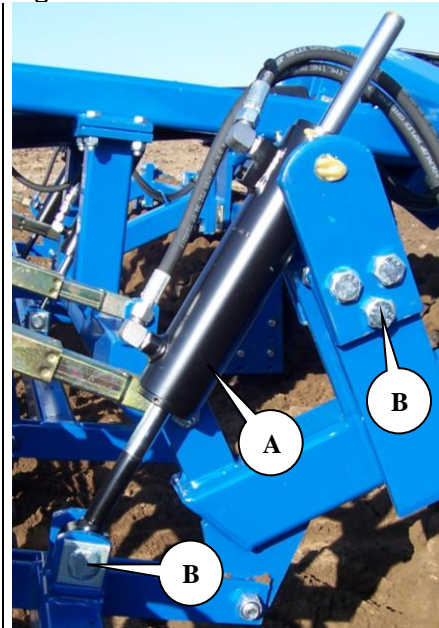
### Assembly

1. Assemble the new seals (pos. 5+6+7+8+9) into the gland and the sleeve.
2. Lubricate the screw threads on the gland (pos. 3) and the cylinder casing (pos. 1) with oil.
3. Mount the gland (pos. 3) onto the piston rod.
4. Mount the sleeve (pos. 4) and screw on the self-locking nut **with Loctite**. Make sure that the screw threads are completely clean and free from oil or other impurities before using Loctite. **Do not refill the oil for the first 12 hours after the application of Loctite.**
5. Lubricate the outermost seal of the sleeve that has contact with the cylinder casing and the inside of the cylinder casing, then guide the piston rod into the middle position of the casing.
6. Screw the gland onto the casing and tighten.
7. To mount the cylinder, (see "Changing wing fold cylinders").

### Changing Crackerboard depth adjustment cylinder

1. The MAXIROLL must be unfolded and resting on the ground.
2. Lower the Crackerboard and relieve the pressure in the hydraulic system.
3. Disconnect the hoses from the cylinders.
4. Remove the bolts, split cotter pins and the pins (B).
5. Mount a new or repaired cylinder.
6. Remember to secure the pins and the split cotter pins.

Fig. 28

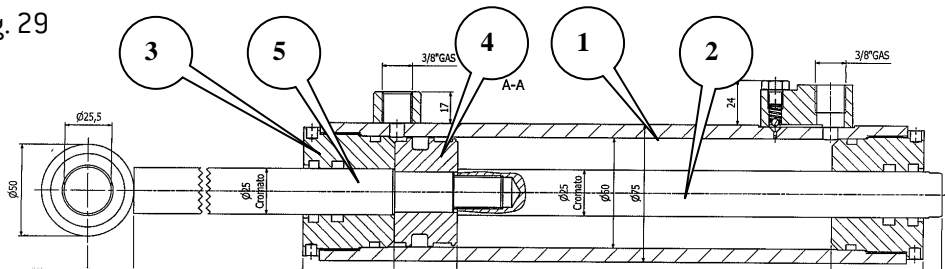


After reinstalling the cylinders, and with the MAXIROLL in an unfolded position, move the depth adjustment cylinders up and down several times to bleed air out of the system.



### Replacing depth adjustment cylinder seals

Fig. 29



#### Cylinder 25/60/25-205

- 1 Empty the oil from the cylinder by carefully moving the piston back and forth.
- 2 Move the piston to the middle position. Unscrew the gland (pos. 3) from the cylinder casing (pos. 1). (A special tool is needed to remove the gland). If the gland is stuck, it may help to warm up the very front of the socket. When the gland has been unscrewed, pull the piston towards the gland. Pull the piston rod completely out of the cylinder casing (pos. 1).
- 3 Remove the piston rod (2) from the sleeve (4)
- 4 Pull the sleeve (pos. 4) off the piston rod (pos. 5).
- 5 Pull the gland (pos. 3) off the piston rod (pos. 5).
- 6 Remove the seals from the gland and the sleeve.
- 7 Clean all parts thoroughly. Check for filings, shavings, burrs, and make sure that there is no rust around the scraper ring in the gland. If rust is found, it must be removed.



**Assembly**

- 1 Assemble the new seals into the gland and the sleeve.
- 2 Lubricate the screw threads on the gland (pos. 3) and the cylinder casing (pos. 1) with oil.
- 3 Mount the gland (pos. 3) onto the piston rod.
- 4 Mount the sleeve (pos. 4) and the piston rod **with Loctite**. Make sure that the screw threads are completely clean and free from oil or other impurities before using Loctite. **Do not refill the oil for the first 12 hours after the application of Loctite.**
- 5 Lubricate the outermost seal of the sleeve that has contact with the cylinder casing and the inside of the cylinder casing, then guide the piston rod into the middle position of the casing.
- 6 Screw the gland onto the casing and tighten.
- 7 To mount the cylinder, see "Changing Crackerboard depth adjustment cylinder".

**Dismounting/mounting of wheels**

To dismount the wheels, lower the MAXIROLL until the discs are resting on the ground and the wheels are clear off the ground.

Remove the lug nuts. The wheel can then be removed. After mounting a new wheel, screw on the lug nuts and tighten with a "hard hand". Next, lower the wheels until they are touching the ground and tighten the nuts to a torque of 300 Nm.



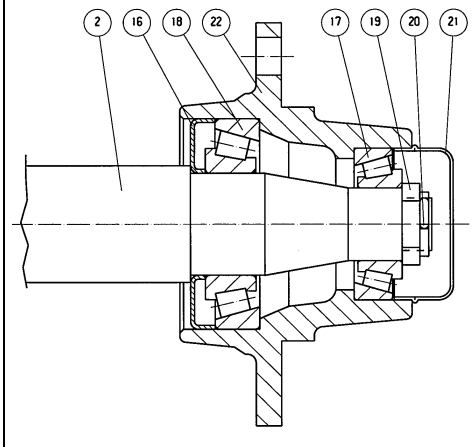
It is important that the wheel lug nuts and the mounting surface of the rim are clean; otherwise the nuts will become loose.

**Changing wheel bearings**

1. Remove the hubcap (pos. 21).
2. Take out the split cotter pin (pos. 20).
3. Unscrew the castle nut (pos. 19).
4. Knock the hub off the axle (pos. 2).
5. Remove the bearings (pos. 17+18).
6. Remove the seal (pos. 19).

Fig. 30

FL55-6



**Assembly**

1. Mount the outer rings of the bearings (pos. 17+18) into the hub (pos. 22).
2. Position the seal (pos. 16).
3. Place the inner ring of the bearing (pos. 18) onto the axle (pos. 2) and mount the axle into the hub.
4. Place the inner ring of the bearing (pos. 17) onto the axle (pos. 2).
5. Screw the castle nut onto the axle (pos. 2) and turn the hub (pos. 22) at the same time. Tighten the castle nut until there is drag on the hub as it is turning. Next, loosen the castle nut a quarter turn or until the hub turns around easily.
6. Replace the split cotter pin (pos. 20).
7. Fill the hubcap (pos. 21) half full with ball bearing grease and reinstall.

**Dismounting roller axle**

Carry out all repairs on level ground. The MAXIROLL must be hitched to a tractor and unfolded, with the roller rings resting on the ground. It would be a great help to have a crane or a similar machine available for both dismounting and mounting operations.

**Changing wing axes**

If no crane is available, both wing axes must be dismounted so that the roller does not fall.



1. Loosen the bolts (A).
2. Lift with straps on the square frame tube of the wing section until the bolts (A) are loose and can be removed.
3. Activate the tilting cylinder and tilt the MAXIROLL up onto the wheels.
4. The axle with roller rings can be rolled away from the roller.

Fig. 31



If no crane is available, MAXIROLL's weight transfer can be activated slightly and moved into a position in which the bolts are loose and can be removed.

**Mounting of axle with roller rings.**

1. Place the axles with roller rings and bearings in a position that is similar to that of the MAXIROLL when it is unfolded and resting on the ground.
2. Unfold the MAXIROLL and carefully tilt down to the axle.
3. Replace the bolts (A).



Never allow bystanders within the operating radius of the implement when/if the hydraulic system is activated.

**Changing the middle axle**

1. Loosen the bolts (A).
2. Activate the tilting cylinders and tilt MAXIROLL until the wheels are resting on the ground and the bolts are loose.
3. Remove the bolts.
4. Tilt the MAXIROLL until the wheels are lifted off the ground again, as high as they can move.
5. The axle with the roller rings can be rolled away from the roller.
6. Mount in reverse order.

Fig. 32

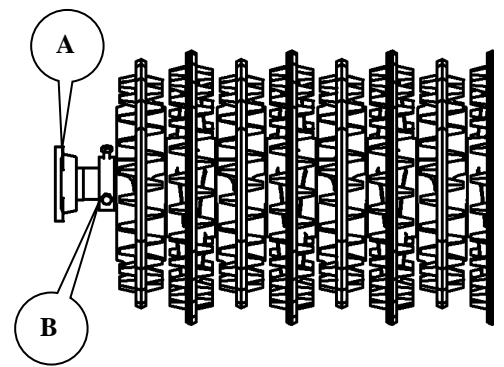


Never activate the hydraulic system when there are bystanders within the operating radius of the implement.

**Changing axle, bearings or roller rings**

1. Loosen the set screws in the bearings and slide the bearings (A) off the axle.
2. Loosen the screws in the collars. Slide off the collars (B).
3. The roller rings can be taken off the axle.
4. Mount in reverse order.
5. Apply Loctite to the set screws in the bearings.

Fig. 33



Tighten and loosen the screws in the collars several times to make sure that they are tight on the axle.



When mounting the axle with bearings, make sure to position the bearings with the grease fittings facing towards the back, enabling easier access for lubrication and protecting them from stones.



Make sure that the roller rings are positioned tightly against each other and check the direction of rotation of the Crosskill rings. Always end the row on the axle with small rings (smallest hole) (see "Spare Parts Diagrams")

## Scrapping



The MAXIROLL must be unfolded. It is important to remove the pressure in **all** cylinders.



When dismantling/mounting components, always pay attention to the weight of the part that you are about to handle. It is **important** to support or secure the part so that it cannot fall.

Dismount all hydraulic hoses and cylinders and empty the oil. To avoid pollution of the ground and the surrounding area, collect as much oil as possible. Dispose of the oil and the hoses properly.

All iron used in the machine is recyclable.

# Hydraulic System Diagram

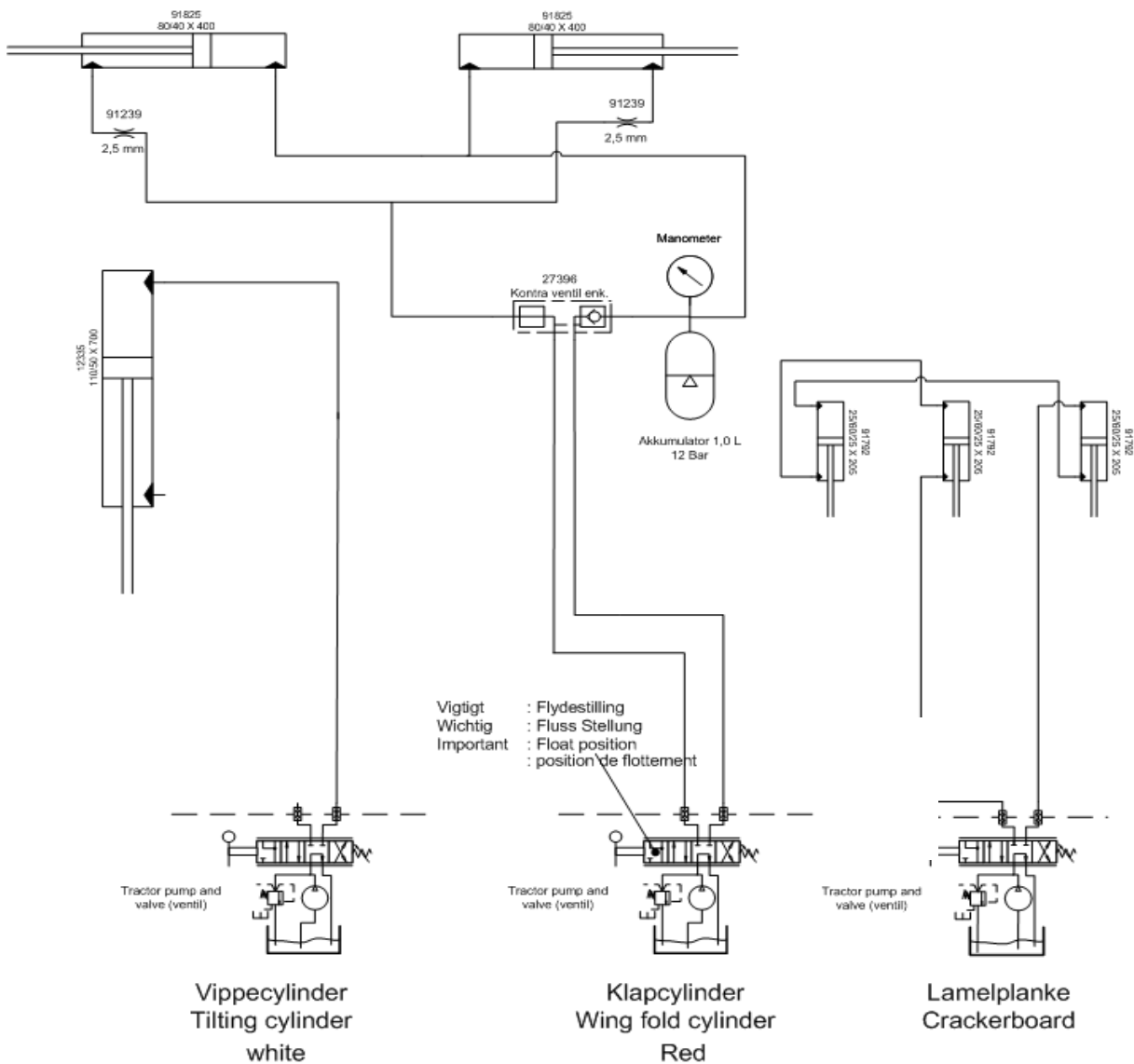
Fig. 39

Hydraulik diagram for

## Maxiroll 2007



Med Lamelplanke  
With Crackerboard



## Spare Parts