

DALBO®

CULTITRAIL



EN
500/600 cm
Serial no.: 00174 – XXXX

MADE IN **D**ENMARK

CULTITRAIL

Type 500/600 cm

Congratulations on the purchase of your new CULTITRAIL. For **safety reasons** and to achieve optimum service from the product, please read the User Guide **before use**.

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This product has:



If contacting the manufacturer regarding spare parts or service, please state type and serial number. A spare parts list is included at the back of this manual.

EU DECLARATION OF COMPLIANCE

DALBO A/S
DK-7183 Randbøl

declares herewith that the above machine is manufactured in accordance with the provisions of directive 2006/42/EC, which replaced directive 98/37/EC and change directives 91/368/ECC, 93/44/ECC and 93/68/ECC on harmonisation of member state legislation concerning health and safety requirements related to the construction and manufacture of machines.



This machine corresponds to the safety requirements in the European Safety Guidelines.

DALBO A/S

Date: _____

Alessio Riulini, CEO

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Safety



This symbol appears in the instruction manual each time there is a safety warning concerning your safety, the safety of others or functionality of the machine. All safety instructions must be observed and made available to all users of the machine.

General

- Ensure you are familiar with all aspects of the machine before use
- There are safety stickers on the machine containing important instructions for the safety of yourself and others, and correct use of the machine.
- Do not carry passengers during operation or transport.
- Ensure there are no personnel within the machine's working radius before operating. Operate machine only from inside the tractor.
- Before leaving the tractor or making adjustments, performing maintenance or repairs on the machine, fully lower machine to the ground, apply tractor hand-brake, switch engine off and remove ignition key to prevent accidental operation.
- Remember to secure top arm and lift arm (if relevant) with split rings.
- Never leave driver's seat whilst machine is moving.
- Always adapt speed to conditions.
- Do not use machine unless all safety devices are in place. Defective safety devices must be replaced immediately.

Hydraulics

- Ensure there are no personnel within the machine's working radius when activating the hydraulic system to avoid danger of crushing.
- Lower machine fully for any repair work on the hydraulic system. Relieve hydraulic pressure, switch engine off and remove ignition key.
- Clean hydraulic connections thoroughly before reconnecting. When connecting hydraulic hoses to tractor hydraulics, ensure they are not under pressure.
- Bleed the hydraulic system thoroughly after any repairs.

- Check hydraulic hoses regularly for defects such as cracks, splits, crimps, wear or breaks. Defective hoses must be replaced immediately.
- Avoid spilling oil on the ground. If oil is spilt, collect and deliver to a destruction point.
- Clean hands thoroughly after contact with oil and grease. Change oil-stained clothing immediately. Hydraulic oil can be harmful to the skin.
- Hydraulic oil released under high pressure can penetrate the skin and cause severe injury. In the event of injury, seek medical help immediately.

Assembly

- Danger of crushing! Ensure no personnel are between implement and tractor, or between the parts to be connected.

Maintenance and repair

- Ensure machine is adequately supported or fully extended for all repair and maintenance work. Ensure tractor and machine are properly braked, engine stopped and ignition key removed.
- Tighten all screw connections after a few hours use. Check all screw connections regularly and tighten as required. Check all split pins and bolts to avoid mechanical failure.
- Dispose of oil, grease and filters in accordance with local environmental protection rules.

Road transport

- All safety and warning precautions mandatory by law must be fitted and tested before transporting the machine on public roads. The driver is responsible for correct lighting and warning signs in accordance with traffic regulations.
- Check with local traffic authorities whether transport on public roads is allowed given the machine's dimensions.
- When transporting, ensure permitted total weight for tractor is not exceeded and that loading on tractor front axle is not less than 20% of tractor net weight. If this is the case, use weights on tractor front.

Correct use

- Correct use of the machine includes observing the manufacturer's operating, maintenance and repair instructions, and that original spare parts are always used.

- The machine may only be used, maintained or repaired by personnel familiar with it and who are aware of the risks that can be involved.
- The manufacturer cannot be held liable for injury or damage arising from modifications made to the machine performed without prior permission from the manufacturer. Neither can the manufacturer be held liable for injury or damage arising from incorrect use. Such liability rests solely with the user.
- Do not add extra weight to the machine.

Technical data

CULTITRAIL

Model/working width (cm)	500	600
HP (recommended)	80-140	100-160
Gross weight kg:	2300	2500
Transport width	2.5m	2.5m
Transport height	2.9m	3.4m
Wheels (300/55-14.5)	4	4
Tines (no.)	63	77

Delivery

The machine is delivered complete on a trailer. The machine can be partially dismantled if exported.

If lifting the machine, we recommend the use of straps on the mid-section to maintain balance.

How to use this manual

The sequence of subject matter in this manual can seem illogical. Please refer to the table of contents for page numbers for individual items.

The manual is divided into main sections:

- Safety
- Description, including settings
- Starting routine and running
- Accessories
- Maintenance
- Repairs

The following symbols represent:



Points which are important to functionality and service life.



Points relevant to safety.

Constraints to use

Descriptions of what the machine can and cannot be used for:

- Can only be used for breaking down sowing beds on agricultural land under cultivation. Areas worked must be in normal agricultural maintenance, i.e. with no significant unevenness or holes.
- The machine can only be used towed behind an agricultural tractor, and must be connected to the tow bar.
- Maximum working speed is 15 kph. But always adapt speed to the nature of the area to be worked.

Use of the machine which does not fulfil the conditions above will be regarded as non-authorised, and will invalidate the factory guarantee.

Description

Construction

CULTITRAIL is a robust 5-bar, towed sowing bed harrow, with the following construction:

- The harrow consists of 3 sections. A centre frame which is identical on the 5 and 6 meter models. And 2 wings, which can be hydraulically folded to achieve a transport width of 2.5 metres.
- The harrow tines are 8 cm apart across the full working width.
- The frames are designed so that the tines are in an offset pattern with a 400 mm gap between each tine. This ensures good soil penetration.
- CULTITRAIL has a heavy-duty crackerboard at the front to level the soil and crush clods. The crackerboard depth is hydraulically adjustable from the tractor cab.
- Harrow depth is controlled by the 4 large wheels which are steered by a hydraulic system to ensure the same depth is always maintained. A simple mechanical stop mechanism on the 4 wheel cylinders provides depth regulation without the use of tools.
- The harrow is designed to lift the entire frame parallel to the ground. Along with a lifting height of almost 400 mm, this means the tractor can reverse with the harrow without risk of damage.
- The harrow can be fitted several different types of post-harrows or packing rollers. A rear-mounted levelling board can also be mounted with these.

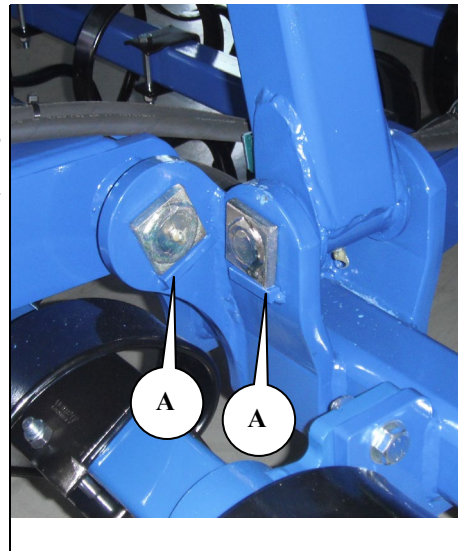
Fig. 1



Construction with pin stop

All pins on the machine have square heads. The frame elements they fit in also have a pin stop (A). Pin length allows the pin to be inserted fully, allowing the pin stop to prevent the pin from rotating when the machine parts move in relation to each other. This construction ensures that the pins bear the brunt of wear and tear, rather than the frame. Low maintenance costs and long service life are the result.

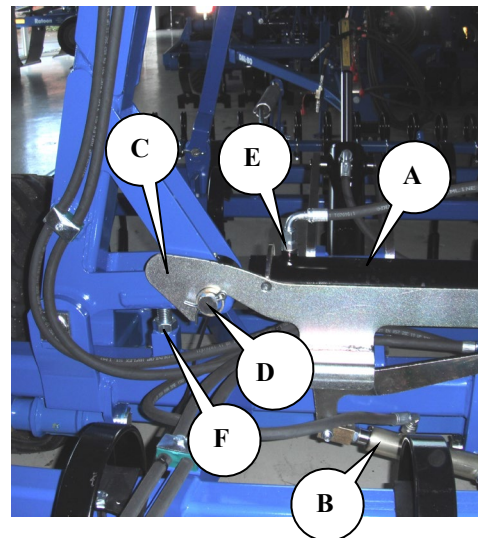
Fig. 2



Hydraulics to raise/fold side sections

Hydraulic cylinders (A) and (B) are linked to the same hose via a T-piece. Folding out requires min. pressure in cyl. (B). Lock (C) is therefore lifted free of pin (D) before the side section is pressed outwards/downwards. Throttle nipple (E) controls lowering speed of the side sections when they pass the point of gravity. Cyl. (B) has an internal spring which retracts it as soon as the hose is depressurised. The lock automatically engages around the pin when folding up. Use stop screw (F) to adjust side section transport position. Side sections are factory-set to be fully symmetrical in transport position to ensure the lock engages when meeting the stop screw. The side sections are thus completely locked into place for transport.

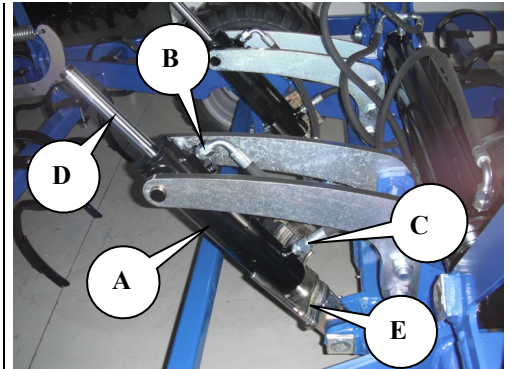
Fig. 3



Hydraulics for levelling board and wheel frame

The hydraulic cylinders (A) are linked in series with the corresponding wheel frame cylinder on the side section. When the wheel frame is raised, the tractor pumps oil to (B) the centre cylinders. The oil which then flows out of (C) is linked to (B) on the side section cylinder. As the cylinders have free ram shafts (D), the amount of oil moved on each side of the ram is identical for any given movement. This ensures that the side cylinders move to exactly the same extent as those in the centre.

Fig. 4



Bleeding the system

If the machine has not been used for some time, air can get into the system. This can cause one or both side sections to not reach the same working depth as the centre section. Bleed the system by moving the spacer blocks (E) on both cylinders to the side, so that the cylinder can fully retract. The cylinders are designed to allow the oil to pass over the ram through a channel when fully retracted. The harrow is then fully lowered using the tractor hydraulic system. Hold the handle in lower position (not flow position!) for a several minutes after the cylinder has fully retracted, even if using the tractor's over-pressure valve. The system will now be bled.

The hydraulic cylinders for the front levelling board are linked in the same way. Use the same procedure for bleeding.

Connecting and disconnecting

Connecting

1. Connect CULTITRAIL to the tractor's tow bar [A].

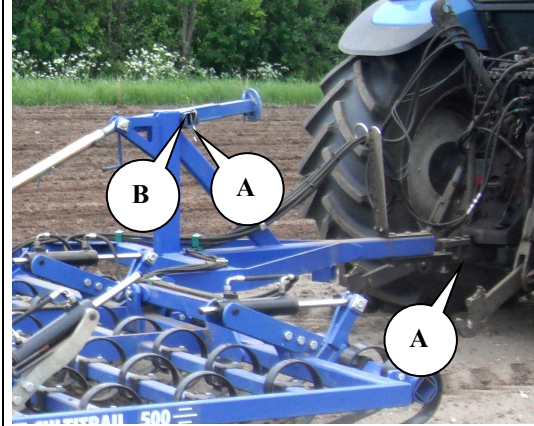
Remember to secure the tow bar bolt with a split pin

2. Raise the support leg
3. Remove the support leg, and place in the designated holder [B] on top of the tow bar.

Remember to secure the support leg split pin [C].

4. Fit hydraulic hoses and open ball cock for flow to wheel frame.

Fig. 5



Hydraulic hoses

A double action outlet is required to connect CULTITRAIL.

Hose markings

Function	Colour
Wheel frame (ball cock)	White
Extension/retraction of side sections	Red
Crackerboard	Green



Check hydraulic hoses for crimping.



Close ball cock for wheel frame when transporting.



Adjust main frame to horizontal. See section on adjustment.

Disconnection

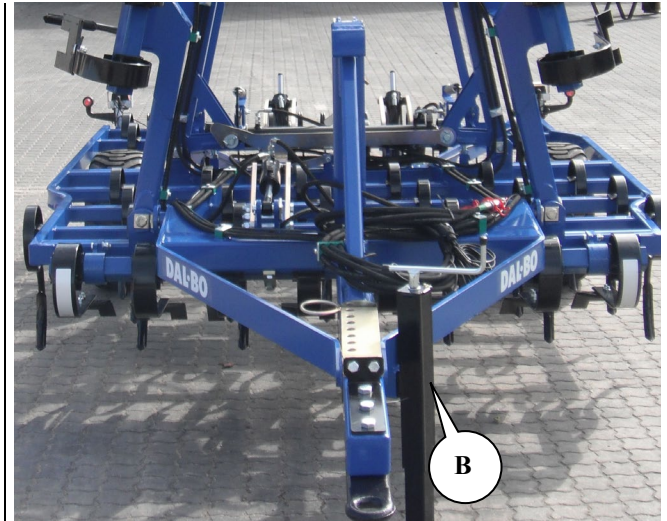
Fig. 6



CULTITRAIL can be disconnected when extended or retracted.

Close wheel frame ball cock

Remember to depressurise hoses before disconnecting them.



If connecting machine in transport position, check transport safety device (A) is engaged.

Place the machine on a firm, flat surface. Fit support leg "B" on draw bar, and lower until draw bar is lifted free of the tow bar. The machine can now be disconnected.

Setting up

CULTITRAIL comes with factory settings, but must be finely adjusted before use. Numerous adjustment options make the machine more flexible and ensure maximum use.

Basic setting

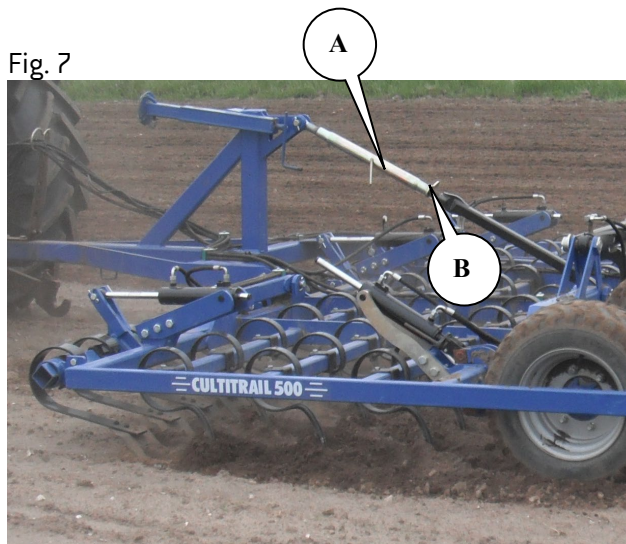


To achieve uniform effect on the soil, it is important that the main frame is horizontal when in use.

Adjustment is made using the top bar (A). Extend to raise the front end of the harrow frame.

Remember to tighten the reverse thread wing nut (B) when adjustment is complete.

Fig. 7



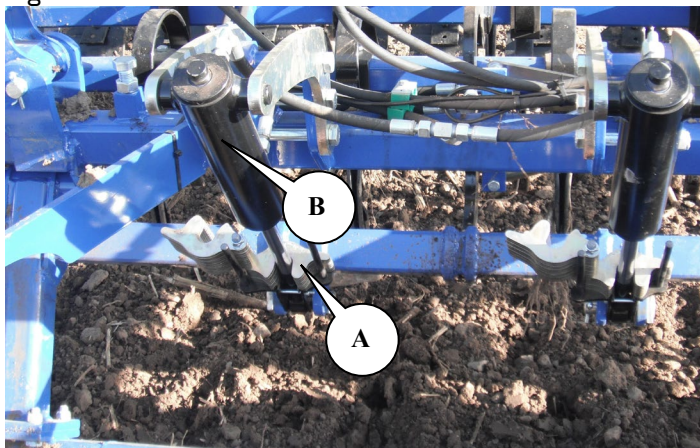
If the harrow is raised, the weight on the top bar will be very heavy. Lower before adjusting top bar. Adjustment can be made easier by pressing the front cracker-board hard into the soil using the tractor hydraulic system.

Working depth

Adjust working depth using the hose length limiters fitted on the 4 wheel-lift cylinders on the wheel frame. The spacer blocks (A) can be swung in front of the lift cylinders.

Raise the harrow to free the spacer blocks.

Fig. 8





To achieve uniform working depth on both sides, it is important that **the same number** of spacer blocks limit **all lift cylinders**. Each block adjusts working depth by approx. 15 mm. **To avoid uneven working depth, please never work with the wheel cylinders in float position. It means, that these cylinders must be pressed against the spacers every time the harrow sink down to work position.**



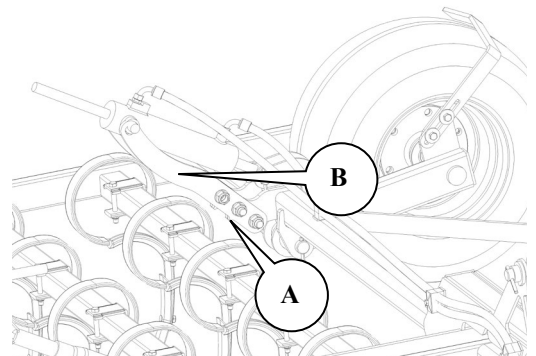
Always comply with the safety instructions when inserting/removing spacer blocks.

Side pull

If the machine shows a tendency to pull to one side, use the wheel cylinder suspension brackets on the side sections to adjust. Adjustment procedure: Example: if the machine is pulling **to the right**, **lower** the wheel cylinder bracket on **the right side section** a little. This will raise the entire side section a little, counteracting side pull. The setting only needs to be made once - and only if side pull is occurring. The setting option is standard on machines with serial numbers higher than 00127. New adjustable cylinder brackets can be supplied for older models if side pull is occurring.

Wheel cylinder bracket (A) on the side sections has oblong bolt holes. Slacken the bolts and adjust bracket downwards. Tighten bolts. Bracket and chassis frame have a tooth (B). When both teeth are aligned, the bracket is in its standard setting = lowered to maximum.

Fig. 9



Wheel scrapers

Fig. 10

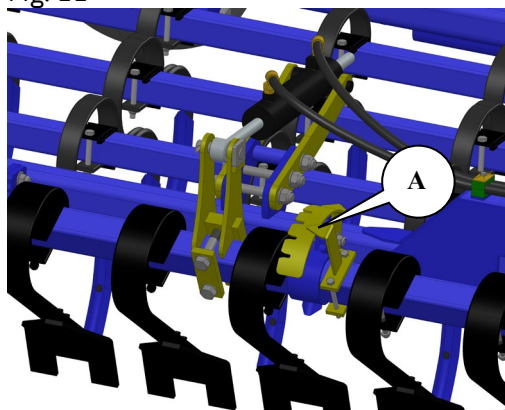
The harrow wheels determine the harrow depth. It is therefore important that they are kept clean. All wheels are therefore fitted with wheel scrapers (C). The scrapers are adjusted close to the tyres, yet still allowing the wheel to turn a full circle without touching the scraper.



Adjusting crackerboard

The foremost implement, the crackerboard, is fully hydraulically adjustable from the tractor. Depth is shown on the indicator (A), which is visible from the driver's seat. The crackerboard hydraulic system is fitted with a throttle to ensure smooth, even movement regardless of the amount of oil coming from the tractor.

Fig. 11



The board is not intended to work as a dozer blade, to avoid dragging large amounts of accumulated soil. This increases fuel economy and saves wear on the tractor and machine.

Operation

Correct operation is vital for optimum use. This applies to working in the field and for safety.

We recommend running at a slight angle to the sowing direction for the final pass for the best results.



Adjustment of the main frame to keep it horizontal may be necessary after adjusting depth.

Extending and retracting



The machine must be parked on a level surface for extending and retracting. This is important for safety reasons, and to ensure the transportation locks engage.



Before the machine can be extended or retracted, **the tractor driver must ensure there are no personnel near the machine**. Otherwise, there can be a risk of injury.

Extension

Activating the hydraulic handle (red) for extension and retraction releases the automatic transportation lock, and the side sections will extend.

When the side sections are fully extended, set the hydraulic handle (red) to flow position.

Fig. 12

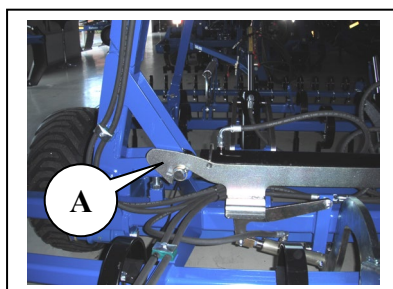


The hydraulic handle for extension and retraction **must be in flow position** when working in the field, allowing the machine to follow the lie of the land without affecting performance.

Retraction

Fig. 13

Check that the automatic transportation lock (A) is engaged after retraction.



Close ball cock for wheel frame when transporting. The ball cock will now act as a lock, preventing accidental operation.

Operating speed

To achieve optimum cultivation, a speed of between 8 and 12 km/h is required. **But always work according to the conditions.**

Please note that wear increases significantly in line with the speed. The tines can also be damaged if operating at excessive speeds in unfavourable conditions.



Wear will increase significantly at high speeds, particularly under dry conditions.

Tire pressure

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

300/55-14,5 Starco

300/55-14,5 STARCO SG Flotation (SG-802) FREEWHEEL 132A8																		
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	3.6 bar	3.8 bar	4.0 bar	4.2 bar	4.4 bar	SPEED
1175	1310	1435	1550	1660	1755	1865	1955	2060	2150	2240	2325	2410	2490	2570	2650	2725	2800	10km/h
1120	1245	1360	1470	1575	1680	1775	1855	1955	2040	2125	2210	2290	2365	2440	2515	2590	2660	15km/h
1060	1180	1290	1395	1495	1590	1680	1770	1855	1935	2015	2090	2170	2240	2315	2385	2455	2520	20km/h
1000	1115	1220	1315	1410	1500	1585	1670	1750	1830	1905	1975	2045	2115	2185	2250	2315	2380	25km/h
940	1050	1145	1240	1330	1415	1495	1570	1645	1720	1790	1860	1925	1990	2055	2120	2180	2240	30km/h
885	985	1075	1165	1245	1325	1400	1475	1545	1615	1680	1745	1805	1870	1930	1985	2045	2100	35km/h
840	935	1025	1105	1185	1250	1335	1405	1470	1535	1600	1650	1720	1780	1835	1890	1945	2000	40km/h

Accessories

Equipment for final soil processing

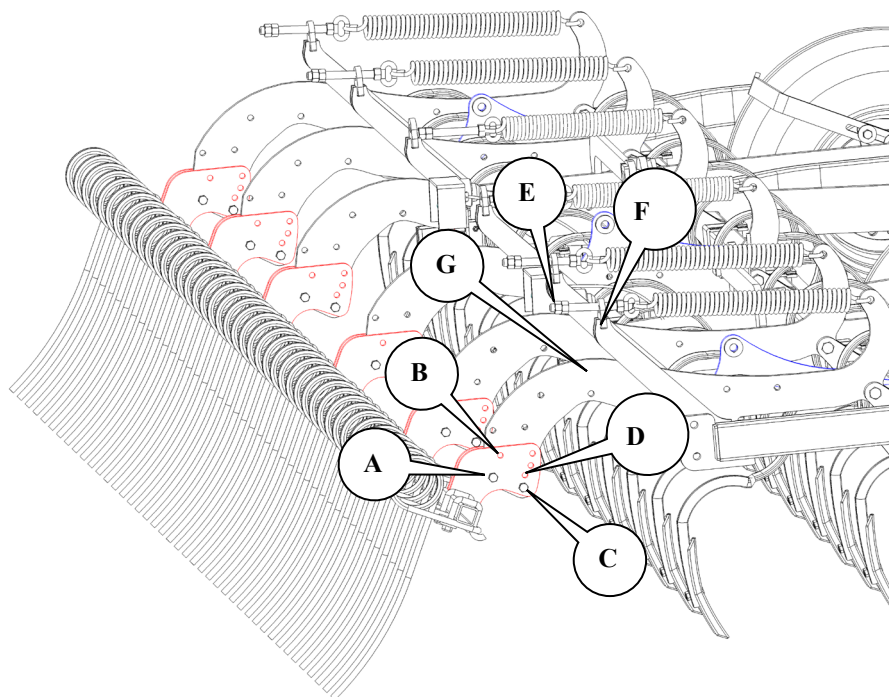
CULTITRAIL can be fitted with various types of equipment to achieve the desired finished sowing bed. The following are available:

- **Post-harrower**
- **Rear levelling board. Can be used in combination with the others.**
- **Tubular packing rollers**
- **Flat iron rollers**
- **Crosskill rollers**

Post-harrower

Several things can be adjusted on the post-harrower. Depending on working depth, (A) can be moved to (B). The post-harrower will then work deeper. Aggressiveness can be reduced by moving (C) to (D). Finally, spring tension can be adjusted using the nuts (E). This adjusts how much of the harrow weight is transferred to the post-harrower.

Fig. 14

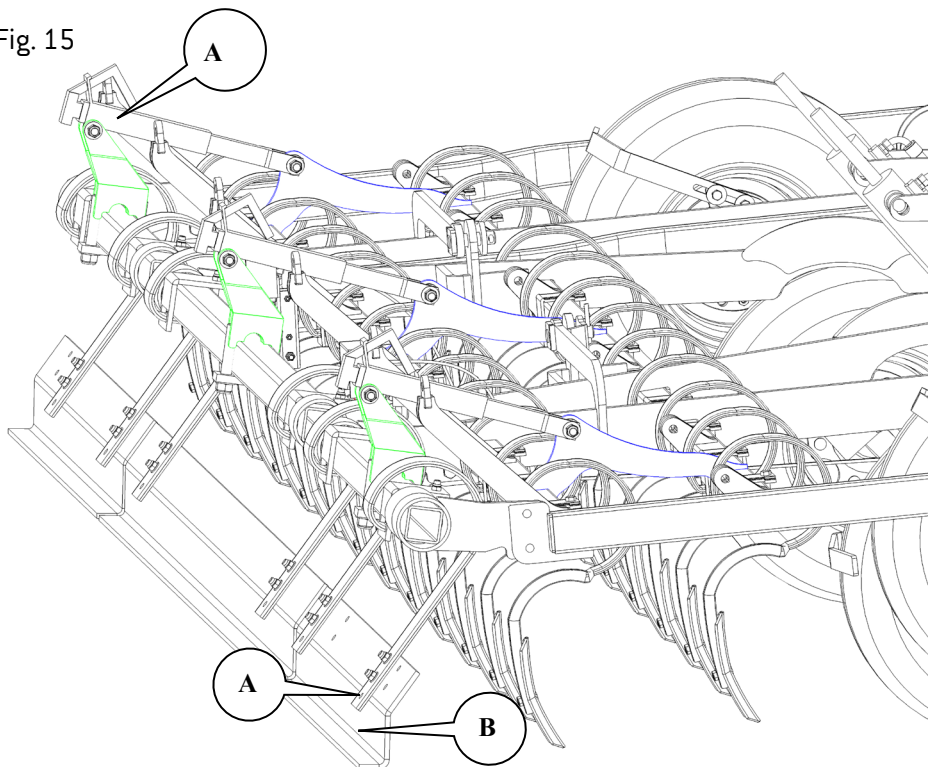


The post-harrower working depth cannot be adjusted such that the suspension arms (G) are constantly forced up against the top of the spring holder (F). This will prevent the arm from avoiding stones. The risk of damaging the post-harrower will be increased.

Rear levelling board

The levelling board for mounting on the rear can be set in different ways. Use the spindles (A) to adjust pressure exerted on the ground. Move the board to the lowest holes (A) to change attack angle. If moving the board down to these holes, the spindles (A) must be shortened to avoid the board exerting too much pressure on the ground.

Fig. 15

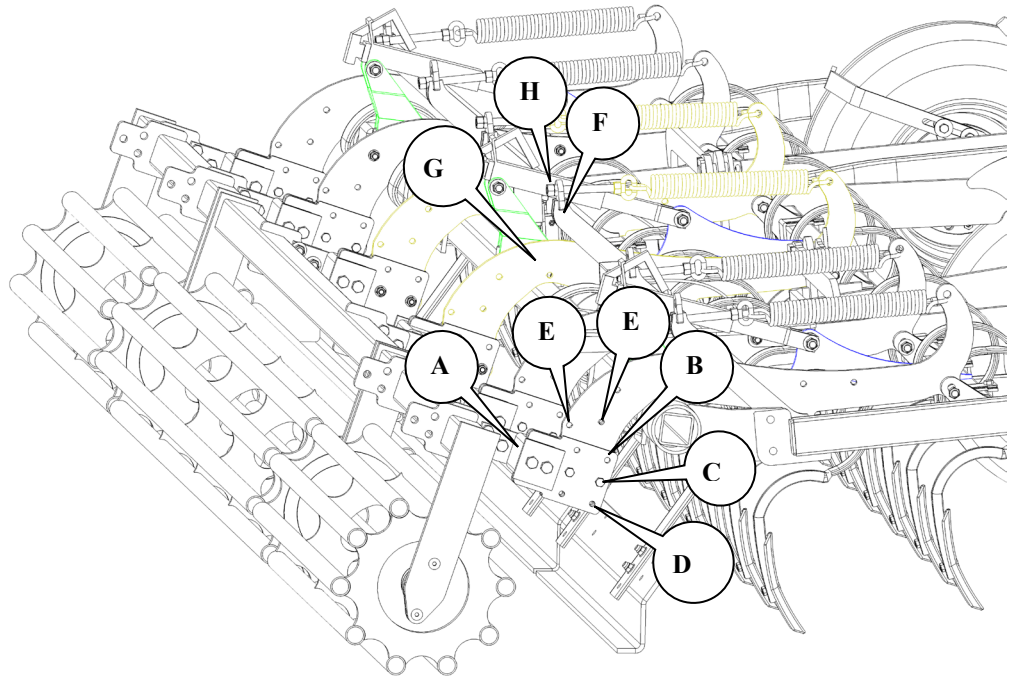


The purpose of the board is to level the soil surface after the harrow tines, and to crush/press down clods. If the board is forced downwards too hard or works at an angle which is too flat (if using holes (B)) clods could roll over the board and be left on the soil surface. We therefore do not recommend applying too much pressure to the board.

Tubular packing rollers

The tubular packing rollers are mounted on the same suspension arms and spring brackets as described under "Post-harrow". Between the arms and the packing rollers, the brackets are also fitted with special suspension units (A) to protect the rollers from being damaged by stones. Depending on working depth, the packing rollers can be mounted in either (B) or (C). (D) can **not** be used, as they mean the rollers are set too deep. However, it is impossible to mount the arms in (D). The mounting holes (E) in the suspension arms can be used to mount the packing rollers, **but only if** the machine is not mounted with a rear levelling board. Otherwise, there is not enough room for the board to avoid stones. The weight transferred by the packing rollers from harrow to ground can be adjusted using the nuts (H). If the springs are tightened, more weight is transferred to the rollers.

Fig. 16

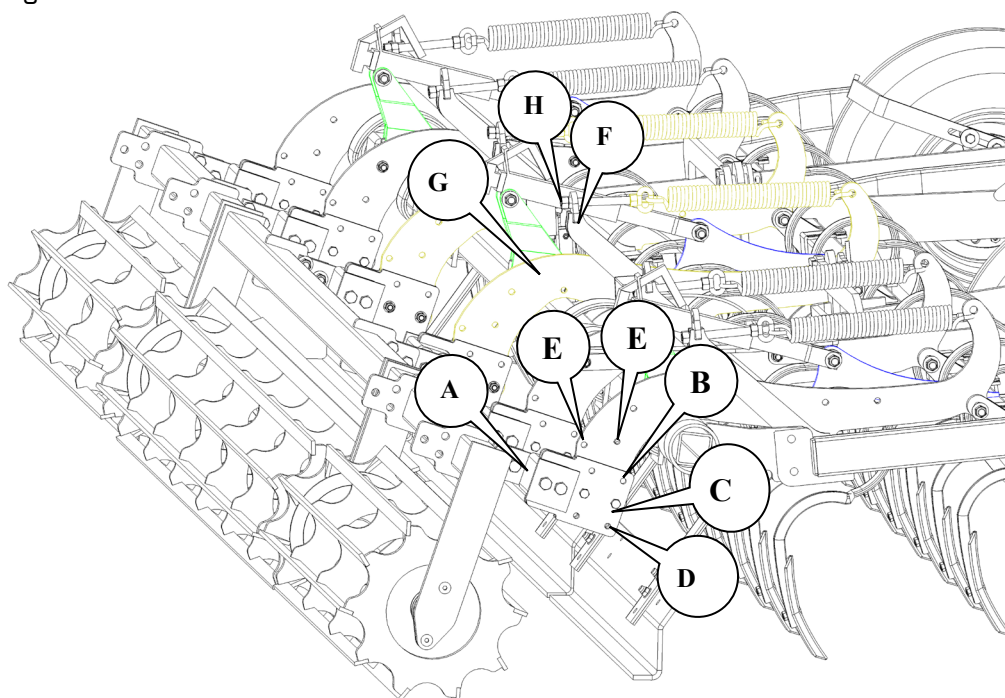


The depth of the packing rollers cannot be adjusted such that the suspension arms (G) are constantly forced up against the top of the spring holder (F). This will prevent the arm from avoiding stones. The risk of damaging the rollers will be increased.

Flat iron rollers

Flat iron rollers are mounted on the same suspension arms and spring brackets as described under "Post-harrow" and "Packing rollers". Between the arms and the rollers, the brackets are also fitted with special suspension units (A) to protect the rollers from being damaged by stones. Depending on working depth, the rollers can be mounted in either (B) or (C). (D) can **not** be used, as they mean the rollers are set too deep. However, it is impossible to mount the arms in (D). The mounting holes (E) in the suspension arms can be used to mount the rollers, **but only if** the machine is not mounted with a rear levelling board. Otherwise, there is not enough room for the board to avoid stones. The weight transferred by the rollers from harrow to ground can be adjusted using the nuts (H). If the springs are tightened, more weight is transferred to the rollers.

Fig. 17

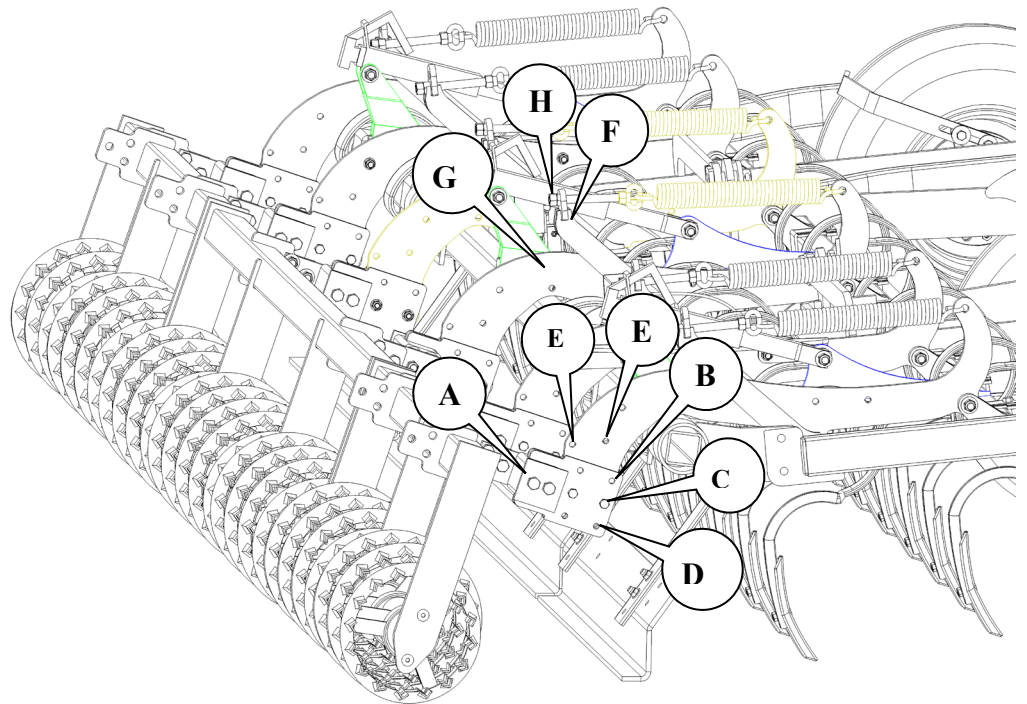


The depth of the flat iron rollers cannot be adjusted such that the suspension arms (G) are constantly forced up against the top of the spring holder (F). This will prevent the arm from avoiding stones. The risk of damaging the rollers will be increased.

Crosskill rollers

Crosskill rollers are mounted on the same suspension arms and spring brackets as described under "Post-harrow", "Packing rollers" and "Flat iron rollers". Between the arms and the rollers, the brackets are also fitted with special suspension units (A) to protect the rollers from being damaged by stones. Depending on working depth, the rollers can be mounted in either (B) or (C). (D) can **not** be used, as they mean the rollers are set too deep. However, it is impossible to mount the arms in (D). The mounting holes (E) in the suspension arms can be used to mount the rollers, **but only if** the machine is not mounted with a rear levelling board. Otherwise, there is not enough room for the board to avoid stones. The weight transferred by the rollers from harrow to ground can be adjusted using the nuts (H). If the springs are tightened, more weight is transferred to the rollers.

Fig. 18



The depth of the crosskill rollers cannot be adjusted such that the suspension arms (G) are constantly forced up against the top of the spring holder (F). This will prevent the arm from avoiding stones. The risk of damaging the rollers will be increased.

Maintenance

Good maintenance ensures long service life and optimum use. Grease nipples are fitted where wear is heaviest.



Tighten all screw connections after first working day. Check all split pins and bolts to avoid mechanical failure. Check hydraulic system for leaks.



All maintenance and repair work can only be performed when the machine is lowered to the ground, the tractor is braked, engine stopped and ignition key removed to prevent accidental start and crushing.

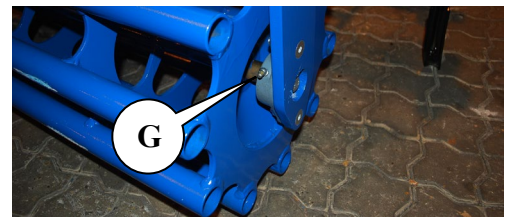
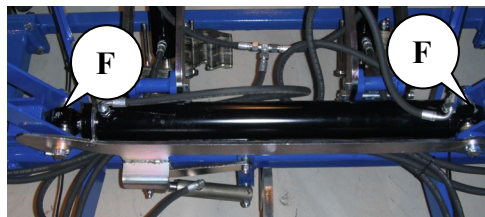
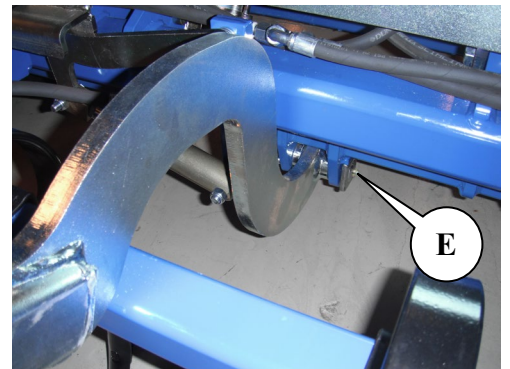
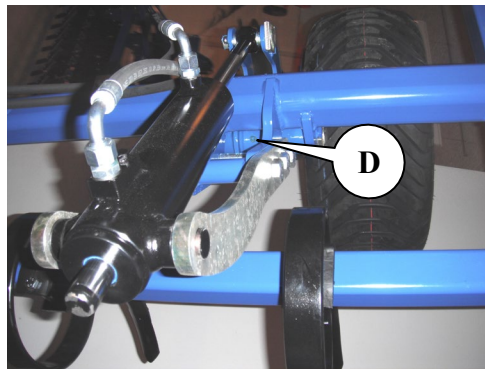
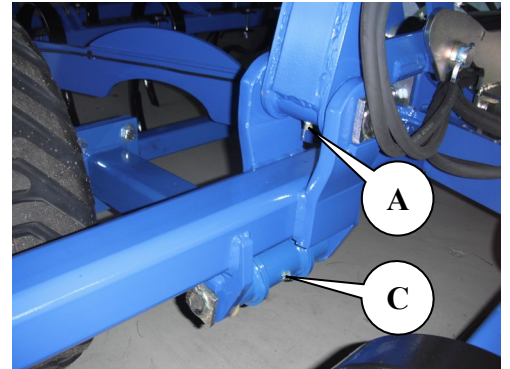
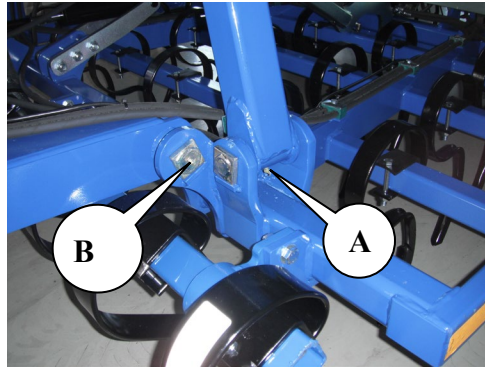
Lubrication



Hydraulic cylinder maintenance

All hydraulic cylinders are high quality and fulfil anti-corrosion requirements. Nevertheless, long periods of inactivity can mean a risk of rust attack on exposed ram shafts. In such instances, new cylinders will have to be fitted. It is therefore important to apply grease or thick oil to exposed ram shafts if the machine is not to be used for some time. Using a brush is the easiest method. This also applies to the "free" ram shaft all cylinders on the levelling board and wheel frames are fitted with.

Fig. 19



Lubrication points	Lubrication interval, hours	Nipples number	Illustration
Side section, hinges	20	4	A
Draw bar, hinges	50	2	B
Wheel frame bracket on main frame	50	2	C
Wheel frame bracket on side section	50	2	D
Top bar eye, bottom	20	1	E
Cylinder for retraction	50	2	F
Bearings in Flat iron or tubular roller (optional extra)	50	6	G
Bearings in Crosskill roller (optional extra)	50	14	G



Lubricate all lubrication points at least once annually.

Removal/fitting wheel

To remove wheels, extend and lower machine until the tines rest on the ground, but are still supported by the wheels. The wheel bolts can be slackened without the wheel rotating. Lift wheels free of the ground, remove nuts and wheels

Replace wheel, hand-tighten wheel nuts. Lower wheels to ground. Tighten wheel nuts to 200 Nm.



Ensure wheel nuts and wheel surfaces are clean to avoid nuts loosening.

Adjustment and lubrication of wheel bearings

1. Remove wheel
2. Remove hub caps.
3. Remove split pin.
4. Tighten castle nut 1/6th of a turn until hole aligns with axle. Hub housing should be able to rotate freely with no play when moved from side to side. If play is excessive, repeat process.
5. Replace split pin
6. Fill hub cap $\frac{3}{4}$ full with grease. Replace.

Hydraulics



Check all hydraulic hoses for wear or cracks. Check all hoses for crimping.

Tips

The tips of the tines are reversible and must be turned before wear occurs on the tine.

Replacement and repairs



Safety is vital for **all** repair work. Always observe the following points, plus those under Safety First in the instruction manual.



All maintenance and repair work can only be performed when the machine is lowered to the ground, the tractor is braked, engine stopped and ignition key removed to prevent accidental start.



Particular attention must be paid to safety when repairing hydraulics. Depressurise the hydraulic system before starting work.



When replacing cylinders, always fill new cylinder with oil before pressurising system. We recommend fitting cylinder to frame first, fill with oil, before completing fitting at top.

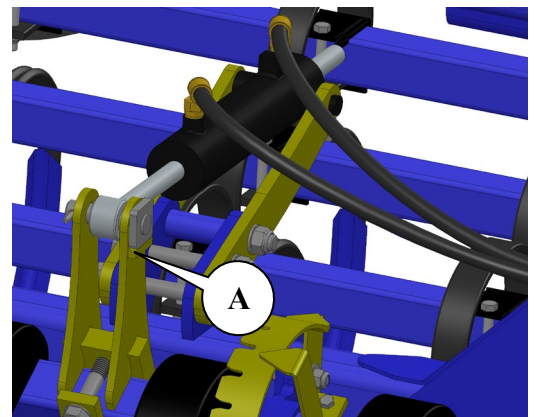
Hydraulic cylinders

Hydraulic cylinder replacement



The machine must be fully extended and standing on ground for repairs. If a wheel cylinder is to be replaced for example, bring the wheels to a position in which the wheel rests on the ground. Depressurise the cylinder by putting the tractor's hydraulic handle in the flow position.

1. Depressurise cylinders. Disconnect hoses.
2. Remove split pins and pins. Cylinder will now be free.
3. Fit new or repaired cylinder. Check pin locks into the pin stop (A), secure pins with split pins.
4. Connect hoses. Check there is no danger of hoses being ripped or crimped after fitting.



Bleeding



Always ensure hydraulic system is bled after repairs and before use to prevent mechanical breakdown and injury to person. Bleed by activating the cylinder functions to their maximum settings repeatedly.



If a cylinder is not bled correctly as described above and the machine is activated, there is a risk of parts of the machine **suddenly moving much faster than normal**. This is because air can be compressed (which oil cannot). An example of what can go wrong is a side section **falling to the ground** if bleeding is not performed properly.



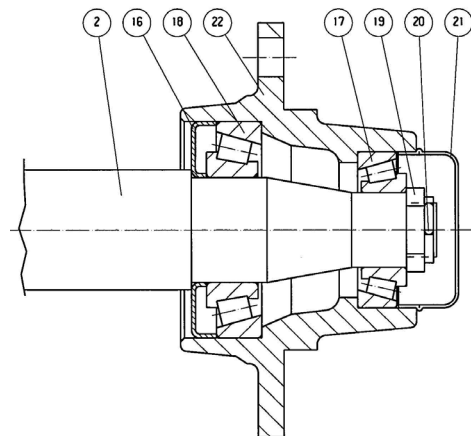
Ensure no personnel are within the extension radius of the side sections.

Replacing wheel bearings

1. Remove hub cap pos. 21.
2. Remove split pin pos. 20.
3. Remove castle nut pos. 19.
4. Remove hub cap pos. 22.
5. Remove bearings pos. 17+18.
6. Remove seal ring pos. 16.

Fig. 20

FL55-6



Assembly

1. Fit bearing outer rings pos. 17+18 in hub housing pos. 22
2. Fit seal ring pos. 16.
3. Fit bearing inner ring pos. 18 on axle pos. 2 and fit axle in hub housing
4. Fit bearing inner ring pos. 17 on axle pos. 2
5. Screw castle nut onto axle pos 2, whilst turning hub housing pos. 22. Tighten castle nut until hub housing revolves slowly. Slacken castle nut a quarter turn or until hub housing revolves easily.
6. Fit split pin pos. 20.
7. Fill hub cap pos. 21 three quarters full with ball bearing grease and fit to hub

Replacing tips



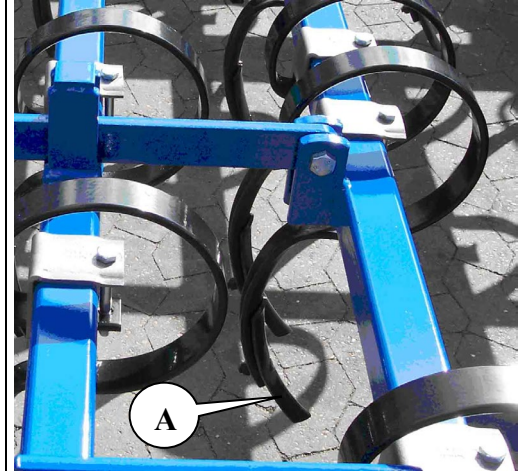
Support machine securely to avoid danger of crushing or falling. Turn all spacer blocks inwards in front of the wheel cylinders to free tips from the ground.

The tips [A] are reversible and bolted on. Reverse or replace tips if the tine is worn.

When turning tips, old bolts can be reused, but when replacing them, use new bolts.

Remove any accumulated soil between tine and tip.

Fig. 21

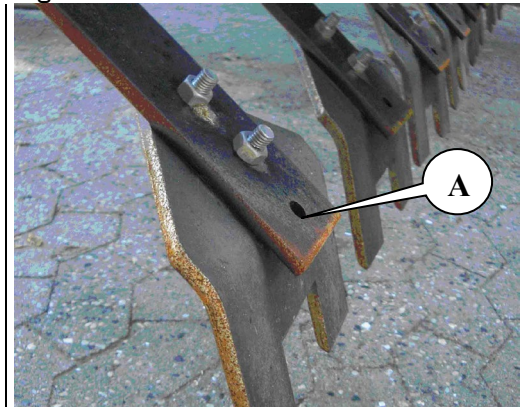


Crackerboard

Reverse or replace tips if before the tine becomes worn.

The tips can be moved down to hole [A] if necessary.

Fig. 22



Scrapping



Depressurise hydraulic system.



Beware of the weight of any given part when removing or disassembling. All parts **must** be supported or lifted to avoid danger of falling.

Disconnect hydraulic hoses and cylinders and drain oil. Collect oil in container to avoid pollution. Send oil and hoses for destruction.

All iron used in the machine can be recycled.

Scrapping of waste must take place in accordance with local legislation.

Guarantee

Dalbo A/S provides a 1 year guarantee on all new machines sold by an authorised Dalbo dealer. The guarantee is valid for 1 year from date of delivery to the end-user.

The guarantee covers material and manufacturing defects.

The guarantee will become invalid in the following instances:

- **The machine is used for purposes other than those described in the user guide**
- **The machine is misused or treated negligently**
- **Damage caused by incorrect setup**
- **Lack of maintenance**
- **Unrelated incidents such as weather, falling objects etc.**
- **Transportation damage**
- **Unauthorised repairs**
- **Modifications to the machine without the written consent of Dalbo A/S**
- **Non-original spare parts used.**

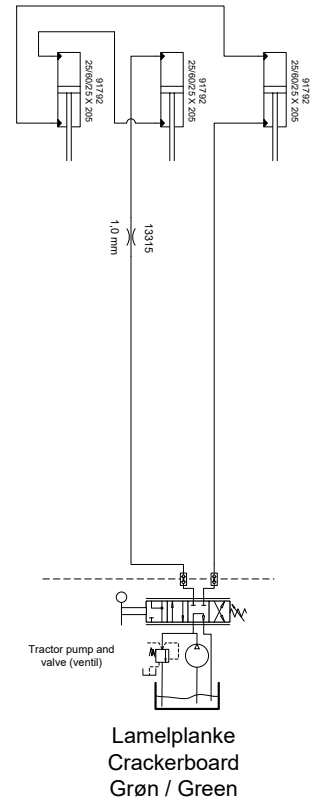
Dalbo A/S cannot be held liable for consequential damage, loss of earnings or production as a result of defects. Dalbo A/S cannot be held liable for the cost of labour apart from that reasonably incurred for repair or replacement covered by the guarantee.

Dalbo A/S cannot be held liable for the following costs:

- **Setting the machine**
- **The cost of normal maintenance, cleaning, lubrication and replacement of wear parts**
- **Transportation of the machine to and from a repair workshop**
- **The dealer's expenses, such as transportation of personnel or parts to and from the machine and/or repair workshop.**

The guarantee is conditional on the following:

- **The guarantee will become invalid if the dealer has not prepared the machine and instructed to owner in its use.**



Spare parts