

# OPERATION AND MAINTENANCE MANUAL DISC CULTIVATOR

**DM4000+**

**DM5000+**

**DM6000+**

Starting from serial nr. 02315116

01 / 2016





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**TRACKING THE FUTURE**



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## 1. FOREWORD

Multiva farming machinery is manufactured in Finland. The modern production technology, excellent raw materials, careful production and excellent finishing guarantee a high-class product.

Thank you for selecting a high-quality Multiva disc cultivator. We hope that the product you selected will meet your requirements and serve you for a long time. **Please read this manual carefully before operating the machine.** The inspection and maintenance measures listed in this manual are crucially important for flawless machine operation and the validity of the warranty.

All instructions, warnings and prohibitions regarding the use of the machine must always be observed. They have been issued to ensure the safety of the user and durability of the machine.

This operation and maintenance manual covers the following disc cultivator models:

DiscMaster 4000+, 5000+ and 6000+ starting from serial number 02315116.

### 1.1. Purpose of use

The Multiva disc cultivator is intended for shallow primary tillage (stubble cultivation) in the autumn or spring, the main purpose of which is to loosen and aerate the soil, bury plant residue and prepare the soil for cultivation. The disc cultivator can also be used for seedbed preparation. Use of the disc cultivator for any other purpose is prohibited! Stubble cultivation performed with the disc cultivator buries plant residue under the surface layer of the soil and compresses the surface of the field. The machine is particularly well-suited to stubble cultivation, thanks to its excellent efficiency in burying plant residue and its adjustable working depth. The front levelling board, which is available as an accessory, is intended for the cultivation of primary-tilled soil and particularly for seedbed preparation.

The Multiva cultivators are equipped with thick 5 mm conical discs that can penetrate hard soil extremely well. To prevent breakage due to rocks and other obstacles, the discs have been fitted with rubber suspension mechanisms. The weight of the cultivator, open frame structure and the dense row of roller discs are also essential in achieving an even result.

### Technical specifications

With standard equipment

DiscMaster	4000	5000	6000
Working width cm	400	500	600
Discs, pcs	31	39	47
Sections, pcs	2	2	2
Power requirement, hp, spring/autumn	140/170	170/210	200/250
Transport width, m	3	3	3
Transport height, m	3,2	3,6	4,1
Weight, kg	4420	4780	5230

Due to ongoing product development, specifications discussed herein are subject to change.

## 1.2. Type plate

The disc cultivator carries a type plate containing the information listed here. Write down the type plate information in the fields provided below. When discussing with a seller or factory representative, please state the model and serial number of the machine. This will help to prevent unnecessary delays and misunderstandings.



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Serial:

Model:

Weight kg:

CE

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### Fields in the type plate:

Serial = Serial number of the machine

Model = Model of the machine


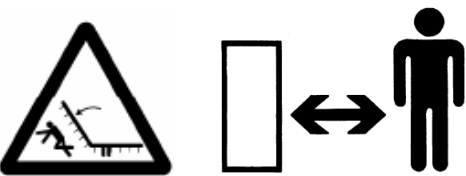
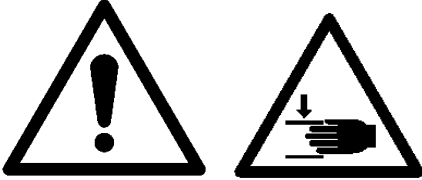

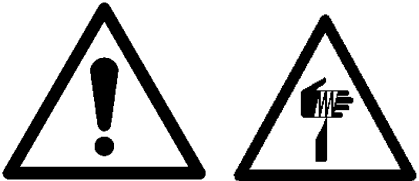
Weight = Weight of the machine with standard equipment

## 2. SAFETY INSTRUCTIONS






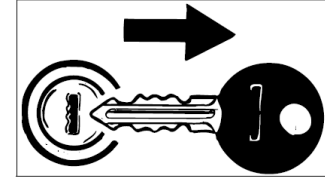
Always observe these safety instructions and distances when using the cultivator. The machine must be adjusted in accordance with this manual, and this manual must be followed when using and maintaining the machine. All persons are strictly prohibited from being on the machine when in operation or transit.

### 2.1. Warning labels

The machine contains the warning labels listed below. Always observe the safety instructions of these labels. Do not remove the machine's warning labels.

Warning label	Explanation
	<p><b>CAREFULLY READ THE OPERATION MANUAL AND THE SAFETY INSTRUCTIONS BEFORE CONNECTING THE MACHINE TO A TRACTOR!</b></p>
	<p><b>CRUSHING HAZARD! IMPACT HAZARD!</b></p> <p>Maintain a 5-metre safety distance from the machine when the side wings are up and when the machine is in operation. Do not go under the machine unless it is mechanically supported.</p>
	<p><b>CRUSHING HAZARD!</b></p> <p>There is a danger of crushing in hitching and unhitching activities. Beware the bruising of feet, fingers and arms</p>
	<p><b>RISK OF FALLING!</b></p> <p>Standing on the machine is not allowed in any situation.</p>
	<p><b>SHARP EDGES!</b></p> <p>There is a risk of injury when using the machine functions. Maintain a 5 m safety distance when connecting the machine to the tractor.</p>



 	<p><b>HIGH PRESSURE HYDRAULIC OIL!</b> Escaping hydraulic fluid under pressure can penetrate the skin causing serious injury!</p>
 	<p><b>DANGER!</b> Proper function of the locking mechanisms must be checked before any road transport; Locking of the side wings and the ball valve for the side wing hydraulics.</p>
 	<p><b>NOTE!</b> Turn off the tractor before making service or adjustments to the machine. Make sure that the tractor and machine won't move itself. Apply hand brake or wheel wedges.</p>





## 2.2. Connecting and disconnecting the cultivator

The machine can only be connected to a tractor's hydraulic hitch or to an agricultural drawbar. All tractor safety instructions must be observed when connecting or disconnecting the machine. The connection and disconnection of the cultivator pose a danger of crushing. Moreover, you must exercise caution not to injure your feet, fingers or hands. Touching the hydraulic cylinders, hoses and hydraulic connectors is strictly prohibited when the cylinders are in operation. When the cultivator is connected to a tractor, unauthorised persons must be cleared from the vicinity of the machinery.

## 2.3. Locking the wing sections

The wing sections are equipped with an automatic locking mechanism. Ensure that the lock latches are locked in place before beginning transport. The lock latches must be positioned against the limiters in the front section of the machine's frame (*Figure 1*). The hydraulic mechanism of the wing section is equipped with a double pilot operated check valve.

**The wing sections must be lowered down and lifted up only when the transport wheels are in their lowest position – machine frame is in the highest position.**

**Otherwise the disc arms may touch the ground and get damaged.**

**Lowering the roller is not sufficient. Only the transport wheels can lift the machine high enough.**



**Figure 1. Wing section lock mechanism**

## 2.4. Transport on public roads

When transporting the cultivator on public roads, always exercise caution and observe all laws and regulations applicable to road traffic and slow-moving vehicles. Before departure, check the operation and visibility of the machine's reflectors and lights in addition to the tractor's lights. Before road transport, always ensure that the machine is sufficiently clean. Do not transport or operate the machine when ill, excessively fatigued or under the influence of alcohol. The driver is responsible for any injuries and damage caused by the machine to other persons.

Before road transport, always make sure that the side wings are locked in transport position. Unintended opening of the wings should be prevented by closing the ball valve in the hydraulic hose. Turn the lever crosswise to the hose.

**The highest permissible transport speed is 40 km/h.** The speed must be reduced when driving on the roads that are in a poor condition.



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## 2.5. Using the disc cultivator

The driver must be familiar with the cultivator's operation. In addition, he or she must have the sufficient knowledge and skill to properly use the machine. The driver must carefully read the operation manual and observe its instructions.

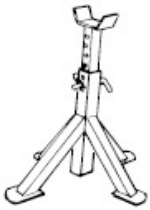
Before beginning work, always check the condition of the machine and the tightness of the bolts. Never adjust or clean a moving machine. All persons are strictly prohibited from being on the machine or within its operating range (safety distance: 5 m) when it is in operation. For purposes other than adjustment, avoid reversing the machine when the discs are lowered.

**During cultivation, do not perform tight turns with the discs down. Instead, raise the cultivator when turning.**

**Touching the hydraulic cylinders, hoses and hydraulic connectors is strictly prohibited when the cylinders are in operation.**

## 2.6. Maintenance

Always stop the machine and prevent its movement for the duration of maintenance. The maintenance must be performed on an even and stable foundation in order to ensure that the cultivator cannot tip over or move. **Do not conduct maintenance or other measures when the machine or one of its components is raised and unsupported.** When maintaining the machine, ensure safe working conditions and sufficient lightning. The machine must be supported mechanically instead of only by mechanical cylinders.



### 3. MEASURES BEFORE USING THE MACHINE

The machine has been lubricated for the first time at the factory. However, it is advisable to familiarise yourself with the lubrication points before initial use. The lubrication points are listed in Section 7 of this manual.

#### 3.1. Connecting the cultivator to a tractor

The machine can only be connected to a tractor's hydraulic hitch or to an agricultural drawbar. The disc cultivator requires three double-acting hydraulic outlets. The hydraulic hoses are colour-coded, and the quantity of the colours indicates the direction of the operation.

The hoses of the depth adjustment are connected to the double-action outlet (blue colour code).

Transport wheel hydraulics are connected to the double-acting outlet (red colour code).

The hoses for the wing section's folding hydraulics are connected to the double-acting outlet (black colour code).

The support leg must be raised all the way up.

When disconnecting the machine from the tractor, always remember to disconnect the hydraulic hoses. The hose for the plus movement of the transport wheel hoses contains a ball valve, which allows the cultivator to be left to stand on its wheels. It should be used also in the road transport to prevent the machine lowering down accidentally.

Action	Direction	Marking on the hose
Wing sections	close	1 x black
	open	2 x black
Transport wheels	up (ball valve)	1 x red
	down	2 x red
Working depth	deeper	1 x blue
	shallower	2 x blue
Levelling board	deeper	1 x yellow
	shallower	2 x yellow

***Table of hydraulic functions***



## 3.2. Adjusting the hydraulic hoses

Once you have connected the cultivator to the tractor, adjust the reach of the hydraulic hoses. The length of the hoses can be adjusted by opening the locking bolts of the hose rack (3 pcs, *Figure 2*) and changing the hose length between the tractor and the rack. Tighten the bolts after adjustment. The hose length is correct when the hoses do not touch the lower links of the tractor during turns. The hose length is too short if the hoses are tightened during turns and enter the motion range of the lower links. Turn off the tractor and release the pressure from the hydraulics before handling the hoses.



**Figure 2. Adjusting the hydraulic hoses**

## 3.3. Folding the wing sections

**When folding the wing sections, the cultivator's transport wheels must be lowered to the transport position and the working depth adjustment must be in the lowest position. Otherwise, the disc arms may be damaged.**

Figure 3 presents the cultivator with the transport wheels lowered before folding the wing sections. The working depth adjustment must also be in the lowest position, i.e. the front end of the cultivator must be as high from the ground as possible.



**Figure 3. Folding the wing sections**

## 4. ADJUSTING THE MACHINE

The cultivation depth must always be measured from the cultivated soil behind the machine. Adjust the cultivation depth according to the conditions of each field section. The cultivation depth table lists guideline depths. Under various conditions, the depth may change. However, the interval and sequence of the adjustment always stays the same.

Turn off the tractor before making any adjustments.

Note the danger of crushing when adjusting the machine.

### 4.1. Adjusting cultivation depth

To adjust the cultivation depth, change the height of the roller and drawbar in relation to the machine's frame. The height can be adjusted by changing the thickness of the depth cylinder limiters (*Figure 4*).



**Figure 4 Adjusting cultivation depth**

Reducing the thickness of the limiters (towards the right in the table) increases the cultivation depth. Conversely, increasing the thickness reduces the cultivation depth. To achieve even depth, place equally thick limiters on all roller cylinders and check the corresponding thicknesses for the drawbar cylinders from the table (Table 2). In the table, the greyed limiter values refer to tractor-specific adjustments (see Section 4.2 *Adjusting the position of the machine*).

•Jyräsylinterit •Vältcylindrar •Roller cylinders												
•Muokkaussyvyys	•Bearbetningsdjup	•Working depth										
-15	-5	0	10	20	25	35	42	50	60	80	90	100
Blue	Red	Black	Black	Black	Blue	Blue	Blue	Blue	Yellow	Red	Red	Blue
Black	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Red	Black	Black	Black	Black	Black
Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

•Puomisylinteri •Bomcylinder •Drawbar cylinder												
•Muokkaussyvyys	•Bearbetningsdjup	•Working depth										
-15	-5	0	10	20	25	35	42	50	60	80	90	100
Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red

Harmailla paloilla säädetään muokkain vaakasuoraan!  
 Vågräta läge justeras med de grämärkta begränsarna!  
 The horizontal alignment is adjusted with the grey limiters!

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**Table 2. Depth adjustment**



## 4.2. Adjusting the position of the machine

Adjust the drawbar cylinder after changing the working depth in such a way that the cultivator is level in relation to the tractor. The horizontal alignment of the machine frame can be longitudinally adjusted by changing the drawbar cylinder's grey limiters. The longitudinal alignment may change during tractor towing, so it is important to check the alignment in operation.

**During cultivation, the machine's frame must be level in relation to the ground, both laterally and longitudinally.**



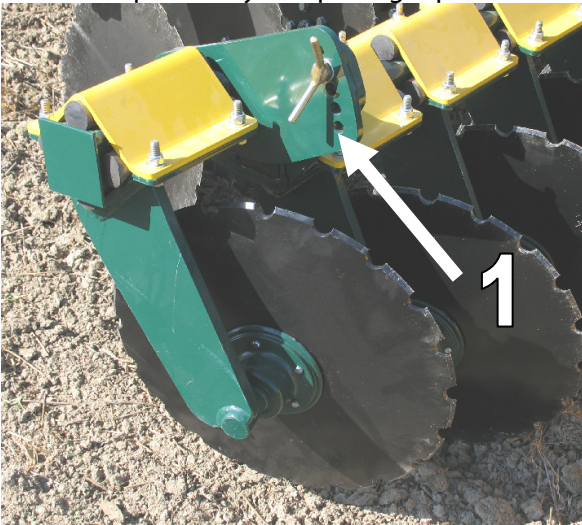
**Figure 5. Longitudinal alignment of the machine**

### NOTE!

**Position adjustment is tractor-specific and depends on the height of the tractor's towing hitch. The adjustment must be performed again if the machine is connected to another tractor. Different soil types may also require the position to be adjusted as the roller penetrates the soil differently.**

## 4.3. Adjusting the levelling disc

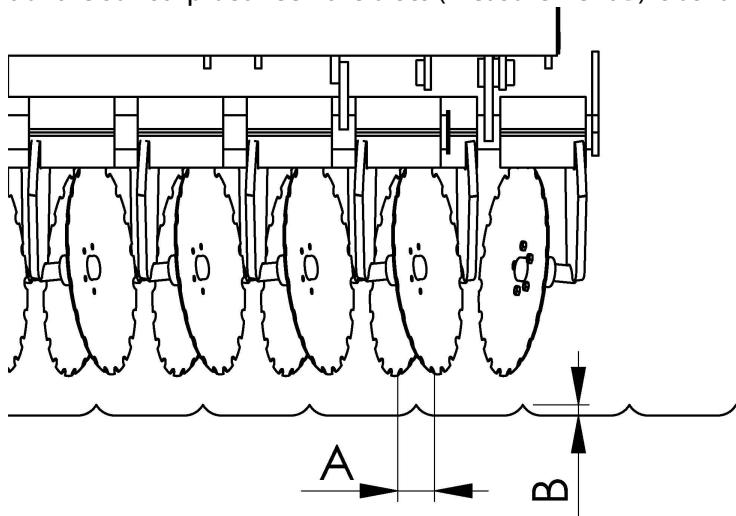
The height of the levelling disc on the left side of the disc cultivator can be adjusted. Adjust the levelling disc in such a way that no mounds or trenches are formed between passes, which leaves the surface of the field as even as possible. The adjustment can be made by changing the attachment height of the levelling disc (*Figure 6, item 1*). The adjustment includes ten different height positions. The cultivation result is improved by completing repeated runs on cultivated soil.



**Figure 6. Adjusting the levelling disc**

## 4.4. Lateral adjustment of the disc shaft

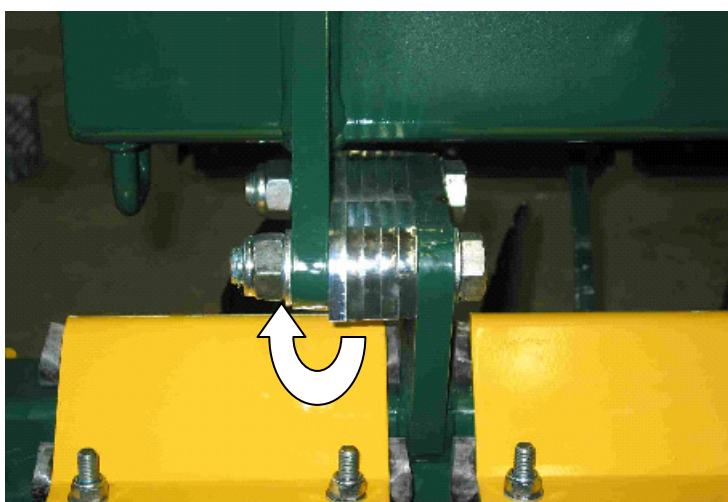
Upon significant alterations to the cultivation depth, the rear disc shaft can be adjusted in relation to the front disc shaft, in order to ensure even disc alignment. E.g When moving from uncultivated land to cultivated land. Figure 7 presents the disc alignment with correct adjustments. This ensures that the height of the soil strip between the discs (measurement B) is as low as possible.



**Figure 7. Operation of the lateral adjustment as viewed from the front of the cultivator**

Factory adjustment is intended for a cultivation depth of 8 to 10 cm under normal conditions. In shallow cultivation, move the shaft to the left (viewed from the back), which reduces measurement A in Figure 7. Loosen the bolts and remove a sufficient number of adjustment pieces. Tow the cultivator forward carefully to move the shaft. When the cultivator is raised, the shaft can also be moved laterally by pushing the disc shaft. Then reinstall the removed adjustment pieces under the nuts and tighten the bolts.

**NOTE! An equal number of adjustment pieces must be arranged in all adjustment points and in both wing sections. If a disparate number of adjustment pieces is installed onto the cultivator, the machine may break during cultivation or when lowering the wing sections!**



**Figure 8. Lateral adjustment**

Other factors that affect the cultivation result are driving speed as well as soil type and composition. The rubber suspension of a new cultivator will likely change during the cultivation of the first few dozen hectares. For this reason, you should initially check the disc alignment regularly.



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## 4.5. Roller scraper

The cleaning scrapers for the roller can be adjusted to two positions by means of a pin-locked mechanism (*Figure 9*). Adjust the scrapers according to the conditions in such a way that blockages are not formed in the roller discs. The upper hole (outer scraper position) is the default adjustment. The lower hole (inner scraper position) should be used when cultivating soil that is prone to forming blockages. The scrapers turn down for cleaning after the pins are disconnected.



**Figure 9. Adjusting the roller scraper**





## 5. STUBBLE CULTIVATION

**The Multiva disc cultivator is intended for shallow primary tillage (stubble cultivation) and seedbed preparation. Use of the cultivator for any other purpose is prohibited!**

Stubble cultivation is a method where the primary tillage of a field is not conducted by means of ploughing. In stubble cultivation performed with a disc cultivator, as little soil as possible is moved, and the cultivation is shallower than in, for example, ploughing. The plant residue is covered in the top layer of soil, which is then compressed with the roller. Energy and time consumption per area unit are lower compared to ploughing. After disc cultivation, the surface of the field must be even and the plant residue must not get in the way of future work tasks.

Numerous studies have shown that shallow cultivation improves the composition and fertility of soil in the long term. When stubble cultivation is used, this is evident in the increase of worms, micro-organisms and organic matter. Cultivation becomes easier, moisture conditions improve, and the occurrence of silt is reduced. Depending on the field, the change may take several years. Care must be taken so as to not weaken the composition of the soil by cultivating excessively moist soil.

The cultivation depth and number of passes must be determined in accordance with the situation. Factors that affect these choices are the amount of straw, length of the stubble and moisture of the soil. The stubble must not be too long and the straw must be well-shredded. One cultivation run is frequently sufficient. It should be conducted as soon as possible after threshing. If necessary, the second cultivation run is performed two to four weeks after the first one, when some of the weeds and fallen grain seeds have germinated and the straw has begun to decompose. When completing two cultivation runs, the first run should be shallow and the second one deep. A suitable speed for cultivation is 10 to 20 km/h. The cultivation result normally improves as the speed increases.

### 5.1. Spring cultivation

In the spring when performing seedbed preparation, special attention must be paid to maintaining the working depth. With various soil types, the roller penetrates the soil differently and the work depth may vary.

In the spring, the cultivation depth should not exceed the coming sowing depth, as this would dry the soil of the entire cultivated layer, which would then prevent the seeds from getting sufficient moisture. The seeds must be planted at the point where the cultivated layer and hard soil meet.

Moreover, a field that has not been cultivated before the winter must not be cultivated deeper than the sowing depth.

### 5.2. Autumn cultivation

When performing primary tillage in the autumn, the soil can be cultivated deeper than in the spring. The correct depth depends on the soil type and the methods employed. The finish can be improved by adjusting the cultivation depth as based on the straw harvest and soil type, in such a way that the straw decomposes as efficiently as possible into the cultivated layer of soil. If straw piles remain on the field or if the straw does not get into contact with the soils, the depth must be increased. Straw that is in contact with the soil will decompose more efficiently over the winter. It is advisable to vary the cultivation depth every year in order to prevent the formation of condensed soil layers.

### 5.3. Cultivation pattern

The pattern used for the cultivation should be carefully selected. Many factors affect this selection: the size and shape of the field, contours of the terrain and trench arrangements. A correctly selected pattern reduces the required work effort and enables the best result. If possible, you should align your passes with the longest side of the field so that the time spent on turns is minimised. Some examples of cultivation patterns are listed below. In the strip pattern (alternative 2 or 3), the use and adjustment of the levelling disc is particularly important. When using the spiral pattern in an anticlockwise direction, the levelling disc can be adjusted to the lowest position to function as one of the cultivation discs.



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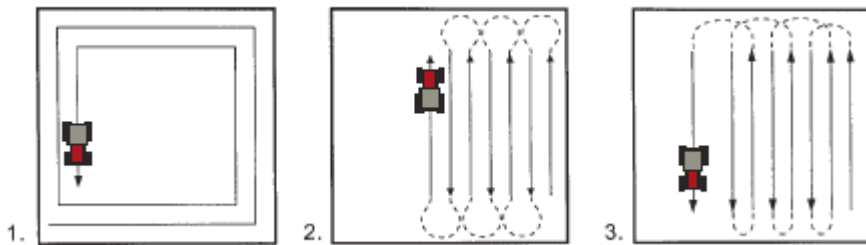
During cultivation, the machine can be made lighter to manoeuvre by lowering the transport wheels. When turning on headland, the cultivator must be raised to rest on the wheels or rollers. In order to keep the cultivation discs from being exposed to lateral stress, do not keep them in the soil during tight turns.

In the spring during seedbed preparation, the cultivator must be raised to rest on the rollers when turning on headland so that the soil is not compressed unevenly. A more even compression results in a more even seedbed for sowing.

During cultivation, the transport wheels should be raised up to a position where it is suspended by the cylinders. This keeps the wheels cleaner, and soil is not needlessly carried onto roads and highways. Under wet conditions, avoid reversing the machine when the roller is down in order to avoid blockages. You can still drive forward with the roller down.

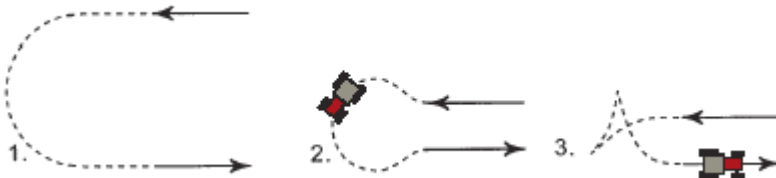
Cultivation patterns:

- 1 = Spiral pattern
- 2 = Strip pattern
- 3 = Strip pattern, overlaps



## Turning techniques in strip patterns:

- 1 = Overlap turn
- 2 = Loop turn
- 3 = Reverse turn



## Turning techniques in spiral patterns

- 1 = Loop turn
- 2 = Reverse turn

## 6. MAINTENANCE, INSPECTION

### 6.1. Inspections after 10 hours of use or daily

#### Check the tightness of all bolts.

The bolts may loosen during cultivation of the first hours.

Tightening torque table:

Disc attachment bolts (installed with thread locking compound)	90 Nm
Rubber spring plate	120 Nm
Bolts of the disc shaft brackets	600 Nm
Tightening nut of the disc hub bearing. KM6	90 Nm
Fastening bolts of the roller bearings	210 Nm
Towing eye bolts	400 Nm
Wheel bolts	320 Nm

The joint bolts of the drawbar, wing section joint and transport wheel joint must be tightened to have no clearance.

NOTE! If tightened excessively, a joint may jam or break. The correct way is to loosen the nut and tighten the joint to ensure no clearance.

#### Tyre air pressure

The tyre air pressure must be checked on a daily basis. The correct air pressure for a 500/50-17 tyre is 3 bar.

### 6.2. Inspections every 200 hours or yearly

#### Condition of the cultivator disc bearings

- The condition of the cultivator disc bearings must be checked annually. To check the bearing condition, move the disc sideways. If you detect looseness, replace the bearings.
- In connection with checking the bearings, visually inspect the condition of the hub seals and replace damaged seals.
- The bearing lock nut KM6 is locked with a tab washer which should be always replaced with a new washer if the nut is opened. Bearing will get damaged if not locked properly. Tightening torque for the lock nut is 90 Nm. Tighten the nut if needed to make the washer to fit to the next possible cap. Lock nut requires a special tool made for KM6 nut.

#### The condition of the hydraulic hoses

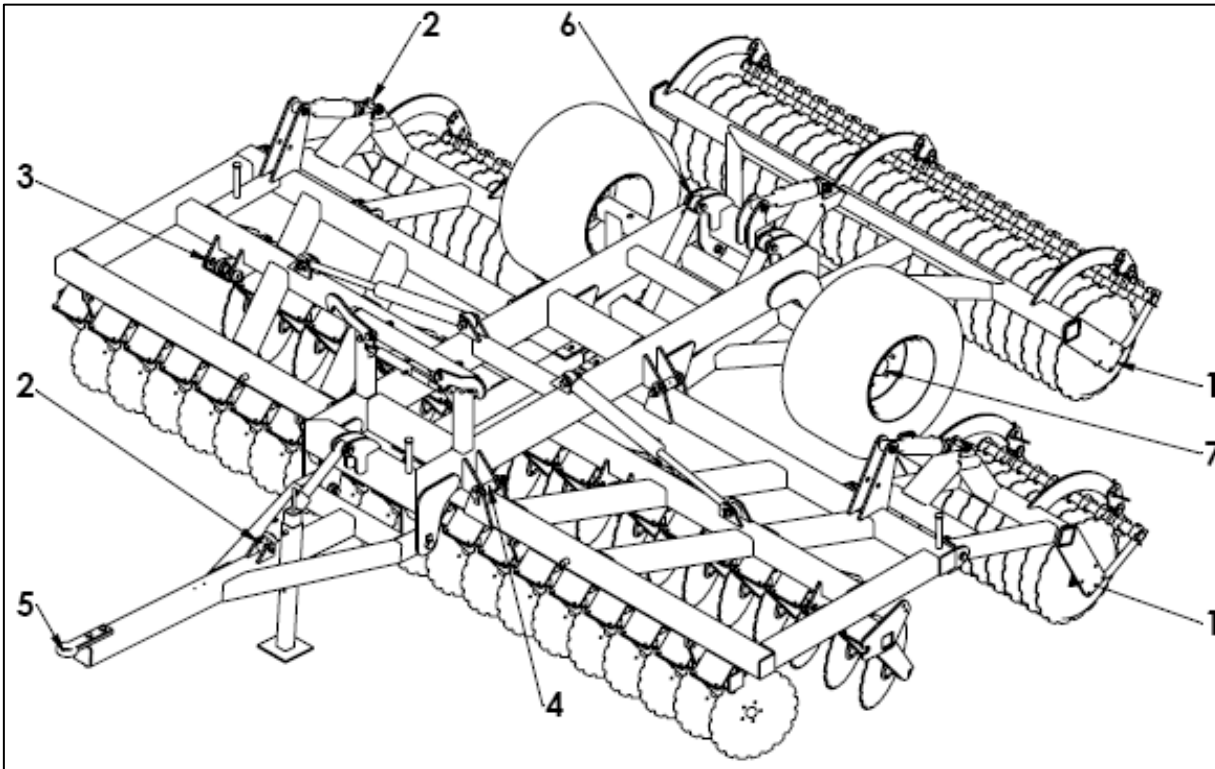
- The condition of the hydraulic hoses must be checked annually at the beginning of the operating season. Visually inspect the hoses for cuts, wear and malformations.
- When checking the hoses, take special care to ensure that any possible oil spray discharging from the hoses do not come into contact with your skin. Pressurised oil spray may penetrate clothes and skin.

#### Transport wheel bearing clearance

- The bearing clearance of wheel hubs must be checked every 200 hours. If hub bearings are found to be loose, they must be tightened.
- When tightening a bearing, lift the wheel up and open the hub cap. Remove the locking pin of the axle castle nut and tighten the nut until you feel slight resistance in the bearing. Then open the nut until the locking pin fits into the next slot where the bearing is spinning freely. Do not open the nut more than 30 degrees. Lock the pin in place. Reinstall the cap.



## 7. MAINTENANCE, LUBRICATION



**Figure 10. Lubrication points**

The cultivation disc hubs contain maintenance-free, self-lubricated double-row ball bearings.

### 7.1. Lubrication every ten hours or daily

- Roller end bearings, 6 pcs, *point 1*
- Towing eye, 1 pcs, *point 5*

### 7.2. Lubrication every 50 hours

- Wing section joint, 4 pcs, *point 4*

### 7.3. Lubrication every 200 hours or once per season

- Spherical plain bearing of the depth adjustment and drawbar cylinders, *point 2*
- Mechanism of the lateral adjustment on the rear disc axle
- Spherical plain bearing of the transport wheel cylinders, 4 pcs, *point 6*

### 7.4. Lubrication every 1000 hours

- Replacing the grease of the transport wheels, 2 pcs, *point 7*
  - Remove the old grease in its entirety and clean all components from the old grease with diesel oil. Fill the gap between the bearings and 1/3 of the cup with fresh grease.
  - When greasing wheel hubs, use lithium-based petroleum jelly with a drop point of at least 190 °C – for example, Teboil Multi-Purpose HT.

## 8. WEAR PARTS

In matters concerning spare parts and supplies, contact the machine's manufacturer or retailer.

By using original spare parts, you ensure that the cultivator remains in working order and functions as intended. When replacing a cultivator disc, it is recommended to check also the hub bearings and replace with a spare part kit if needed. The new disc should be installed with thread locking compound.

## 9. STORAGE

For long-term storage, clean the cultivator carefully and lubricate it. It is recommended to store the machine indoors. During storage, the hydraulic cylinders must be positioned in such a way that as little as possible of the chromed piston rod is visible. **The piston rod parts that remain visible must be protected with petroleum jelly or thick oil.**

Leaving the entire weight of the machine on the discs' rubber suspension for the duration of a longer storage period (winter) may damage the suspension. The best way to store the disc cultivator is to rest it on the parking support and the rollers, which takes the weight off the discs. The rear of the machine can be allowed to rest on the roller.

### 9.1. Washing the machine

Do not direct a water jet towards the disc bearing seals. High pressure water can penetrate into the bearing and damage it very fast. Most of the dirt around the discs should be rather removed mechanically before using a jet washer.

Apply grease to all lubrication points after washing the machine.





## **10. WARRANTY**

Multiva agricultural machines come with a one-year warranty.

Warranty policy:

1. The manufacturer shall replace, free-of-charge, any parts that become unusable due to defective workmanship or defective raw materials within the warranty period. However, any parts subject to wear are not covered by the warranty.
2. Damage caused by misuse, inadequate service, changes unauthorised by the manufacturer, traffic accidents and other reasons beyond feasible inspection are excluded from the coverage under this warranty.
3. Damage caused by powering the machine with a clearly over-sized tractor is also excluded.
4. If a failure is repaired by a third party, the manufacturer will only compensate the costs for the repairs if this procedure has been agreed upon in advance with a representative of the manufacturer.
5. The manufacturer is not liable for loss of income due to downtime caused by damage or for any other indirect losses caused by damaged machinery.

## 11. EC- DECLARATION OF CONFORMITY

**DOMETAL OY**  
Kotimäentie 1  
FI-32210 Loimaa  
Finland

hereby states that the machine in question

**Multiva DiscMaster 4000+, 5000+ and 6000+** disc harrows starting from serial number 02315116

meet the requirements of Machinery Directive 2006/42/EC.

The following standards were applied in the design of the machine:

**ISO 4254-1:2013**

Loimaa 12.1.2016

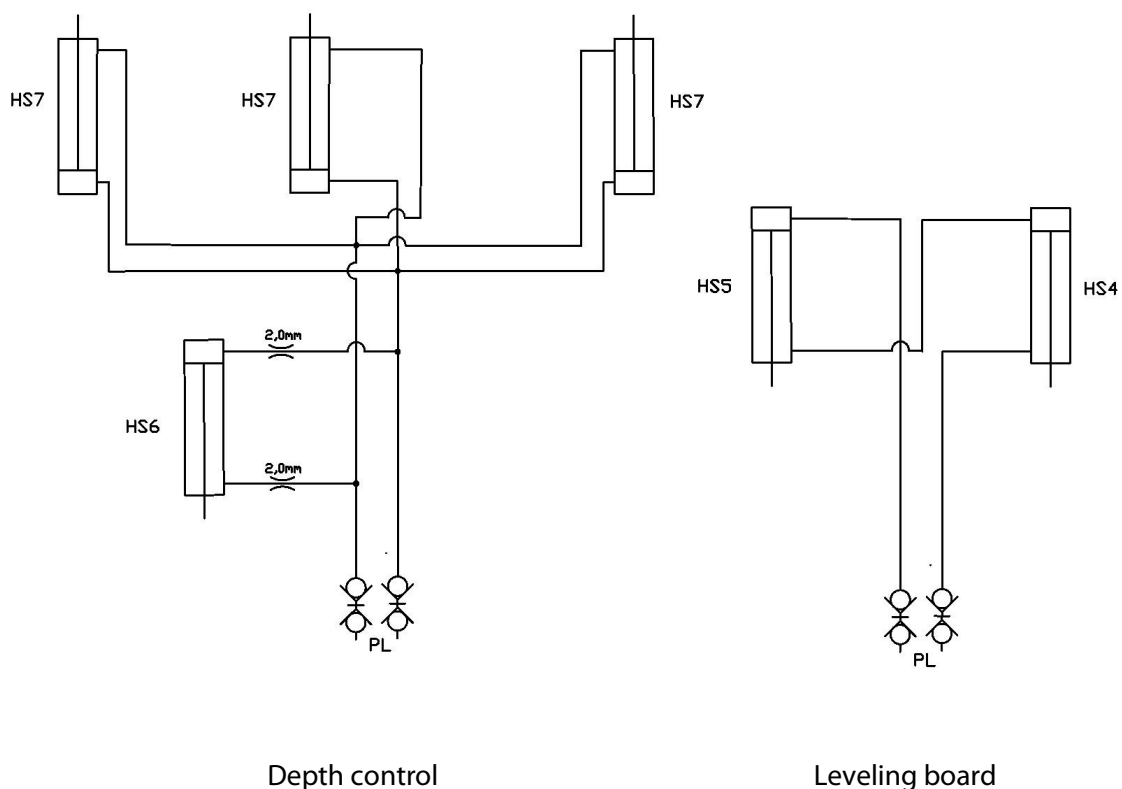
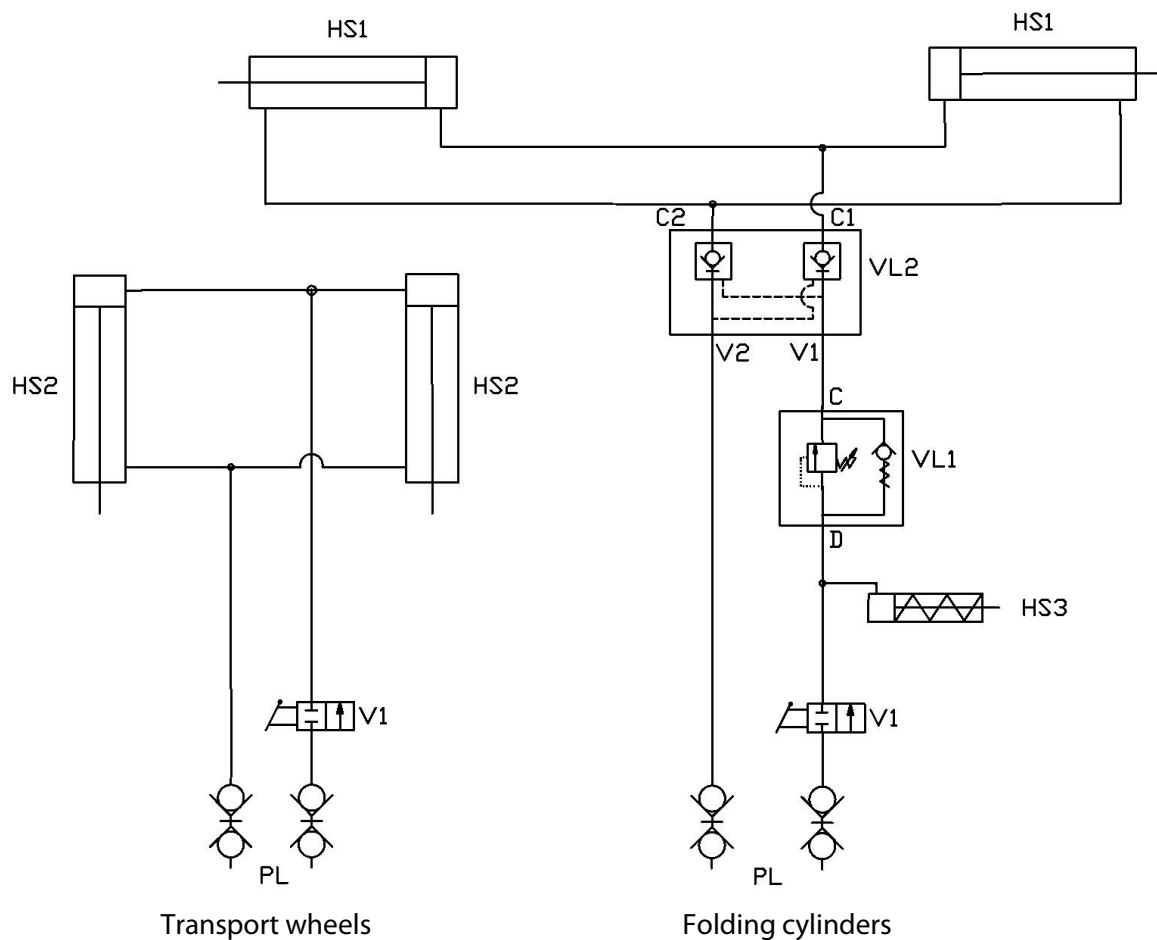


Vesa Mäkelä  
Kotimäentie 1  
FI-32210 Loimaa  
Finland

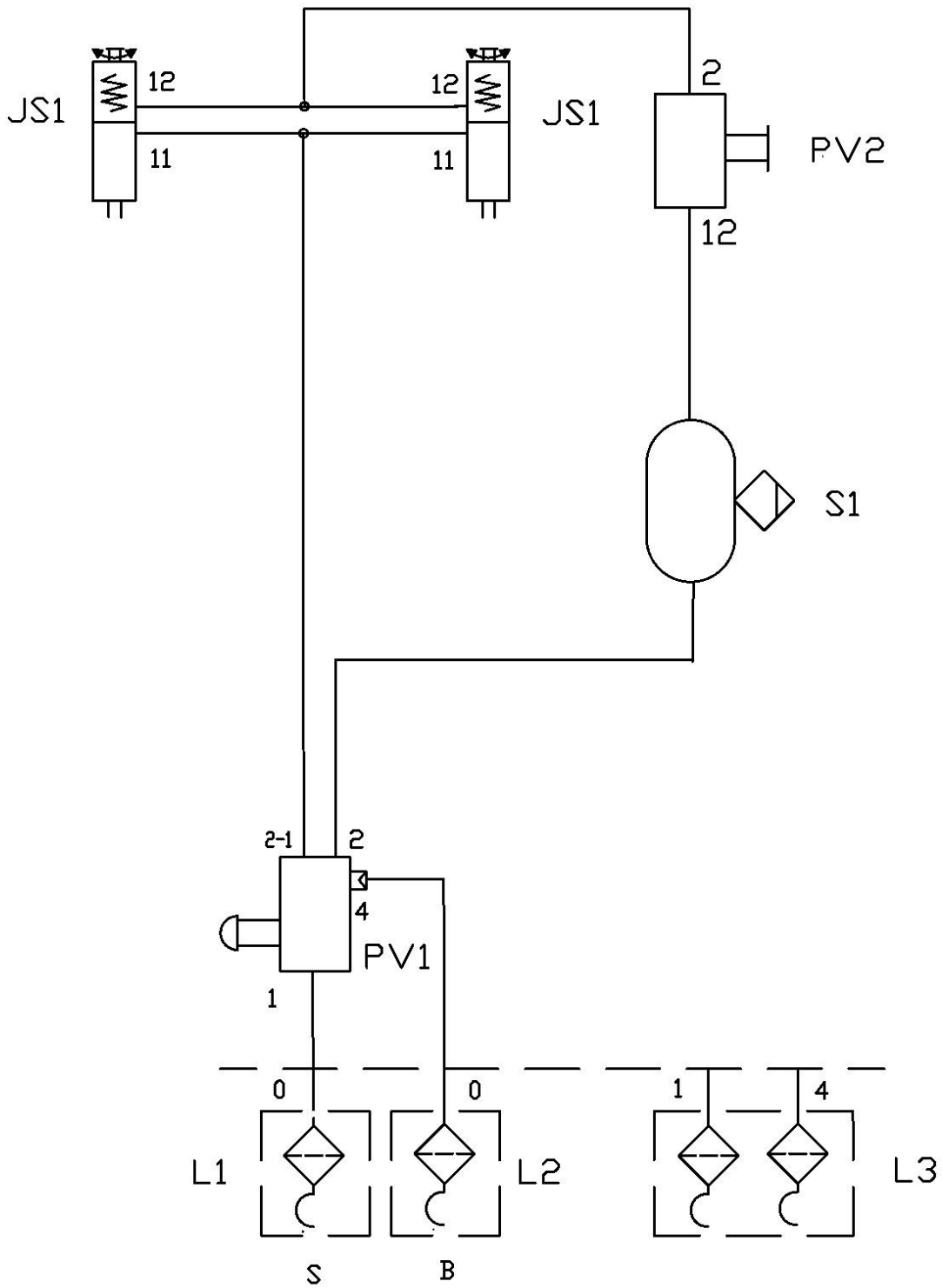
The undersigned is also authorised to compile technical documentation for the above machines.  
Translation

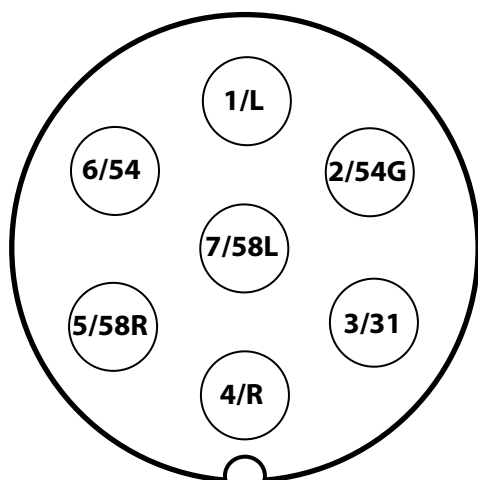


## Appendix 1. Hydraulic schematic, DiscMaster 4000+ ,5000+ and 6000+



## Appendix 2. Pneumatic brake schematic, DiscMaster 4000+ ,5000+ and 6000+



**Appendix 3. Connection socket according to SFS 2473**

1/L	Left turn signal	yellow
2/54G	Free	-
3/31	Ground	white
4/R	Right turn signal	green
5/58R	Right rear light+reg. plate light	brown
6/54	Brake light	red
7/58L	Left rear light	black