

# RAIKO

## ICEBREAKER

### The P14 model

USER MANUAL



Note! P13 in the picture.

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## FOR THE USER

Sah-Ko Oy congratulates you on purchasing an excellent and high-quality Raiko product. This manual provides you with instructions on safe and efficient use of your Raiko machine. By using the machine in accordance with the operating and maintenance instructions, you can ensure long service life and optimal operation of the machine. The manufacturer and retailer are happy to answer your questions and serve you in all Raiko-related matters.

### **Sah-Ko Oy**

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# 1 SAFETY INSTRUCTIONS

## 1.1 General safety instructions

Read these operating instructions carefully. Make sure that you have understood all instructions. When used correctly, the Raiko Icebreaker does not cause any danger to the user or other parties. These operating instructions do not concern the safety and operating instructions of the working machine in use. All persons who are involved with the use of the machine must adhere to the relevant instructions.

Place this user manual with the working machine in a location where it is readily available.

Check the items listed below before commissioning.

- Familiarise yourself with the operating instructions before commissioning the icebreaker.
- The user is always responsible for the safe use of the machine.
- Ensure that no other persons are too close to the machine while starting up, using it or moving it (the safety area is 10 m).
- Use appropriate protective clothing.
- Before connecting the icebreaker to the working machine, ensure that there are no loose parts on top of the icebreaker.
- Before exiting the working machine, check the following issues: the icebreaker has been lowered to the ground, the parking brake of the working machine has been engaged, the control devices have been put in neutral position, and the engine has been switched off.
- Do not make any modifications to the icebreaker that would endanger its safety.
- Do not loan the machine to a person who is not accustomed to using it.

**IMPORTANT! Please, notice the warning sticker on the valve.**

## 1.2 Safety instructions to be observed while using the machine

**IMPORTANT!**

**Before commissioning ensure that the Raiko Icebreaker is properly connected and locked on the working machine and that the hydraulic hoses are connected correctly!**

- Familiarise yourself with the working machine and its control devices before using the icebreaker.

- When driving on public roads, ensure that you have switched on all lights and installed all devices required by traffic regulations.
- Drive carefully and observe all country-specific traffic regulations.
- Ensure that the icebreaker does not block your view while driving.
- Do not drive too close to buildings, cars or any fixed obstacles.
- Take other road users and the environment into consideration.
- Handle the machine carefully and never go under it.

### 1.3 Safety instructions to be observed while servicing the machine

#### **IMPORTANT!**

#### **Never work under the icebreaker when it is supported only by the hydraulics!**

- The general safety instructions must be observed also while servicing the machine.
- Before performing any maintenance, adjustment or cleaning procedures on the machine, perform the following steps: lower the icebreaker to its lowest position, switch off the engine of the working machine, set the gear in neutral position, and engage the parking brake.
- Disconnect the hydraulic hoses from the working machine.
- Always use personal protective equipment while performing maintenance or repair work on the machine.
- Use only appropriate tools and spare parts listed in the spare parts list.
- Keep the working area tidy.

### 1.4 Safety instructions concerning oils and greases

- Ensure that the hydraulic hoses are free of pressure before starting maintenance work. Do not tighten any pressurised, slightly leaking hydraulic hose or connector – it may crack if tightened. Pressurised oil can penetrate the skin and cause serious injury.
- Protect yourself from oil and grease by using safety gloves and safety goggles.
- Familiarise yourself with the material safety data sheets of the greases and oils used.
- Use hydraulic hoses and connectors recommended by the manufacturer.
- Hydraulic oil is hazardous waste that must be handled in accordance with the waste regulations.
- Store oils in a fireproof location.

**IMPORTANT! In case of fire, extinguish the fire with a foam or powder extinguisher.**

**Do not use water!**

## 2 COMMISSIONING

The Raiko Icebreaker is designed for use together with a belly blade to remove hard-packed ice layers from traffic routes. However, it can be used in repairing gravel and dirt roads in summertime as well. It should be noted, however, that in summertime use the spikes wear out much more quickly.

Use, maintenance and repair of the Raiko Icebreaker are only permitted for persons trained to perform these tasks.

Before commissioning the machine in summertime or in new targets, please contact the retailer or manufacturer for further information.

### 2.1 Measures to be taken before commissioning

Familiarise yourself thoroughly with the instruction manual as a whole before starting to use the machine. Remember that the warranty becomes void if the machine is used incorrectly or carelessly.

Before commissioning, remove package material and other irrelevant items from the icebreaker.

Ensure the compatibility of the icebreaker with your working machine.

The Raiko Icebreaker has been greased in the factory and it is ready for use.

### 2.2 Connecting

- Read also the operating instructions for the working machine.
- Connect the Raiko Icebreaker to the front-end loader. Ensure that the icebreaker locks on to the bracket.
- Connect the hydraulic hoses to the working machine.
- Connect the electric cable of the 6-way valve to the working machine (optional accessory).
- Lift and lower the icebreaker and tilt it forwards and backwards. This means you can check that it is properly connected and locked on to the working machine.

## 2.3 Disconnecting

- Check that the icebreaker is on a steady surface, properly supported on the ground.
- Disconnect the hydraulic hoses.
- Remove the icebreaker from the working machine.

## 2.4 Use

- Set the icebreaker in a horizontal position and press it against the surface.
- Start driving and, at the same time, press the belly blade against the surface to be removed.
- Ensure that you press the roller or belly blade just enough to remove the surface layer that must be removed to gain the optimal roughness and uniform surface.
- In order to obtain the optimal results, the driving speed must be 25–40 km/h.
- The highest allowed working speed for the Raiko Icebreaker is 40 km/h.

### **IMPORTANT!**

**The manageability of the working machine is reduced if the icebreaker is pressed too heavily against the ground.**

**Adjust the working speed to ensure that the manageability of the working machine remains good and that you cannot cause any damage to yourself, other persons or the working environment.**

**The maximum allowed working speed is 40 km/h.**

**Please note that too high pressure and speed cause heating and possible damage to the rubber elements.**

**Always observe the country-specific general and special traffic regulations in both public and private areas.**

## 2.5 Transport and loading

### **IMPORTANT!**

**When lifting the icebreaker, observe general instructions and these special instructions on safe lifting, and familiarise yourself with the operating instructions of the forklift, hoist, etc.**

### 2.5.1 Lifting

- Ensure that the lifting gear can be used for this type of lifting and that it has sufficient lifting capacity.
- Connect the lifting cords or chains in the lugs as indicated in the picture on the left (Picture 1. Lifting with lugs). If you use a forklift, ensure that the icebreaker rests steadily on the platform before lifting (Picture 2. Lifting with a forklift).



*Picture 1. Lifting with lugs*



*Picture 2. Lifting with a forklift*

### 2.5.2 Transferring to a stand or to a truck

- Lift the icebreaker as indicated in the instructions and transfer it carefully to a stand or truck.
- Ensure that the icebreaker stays securely in place and remove the lifting cords/chains.

### 2.5.3 Transporting on a working machine

- Lift the icebreaker.
- Ensure that the working machine has sufficient lifting capacity considering the weight of the icebreaker and the centre of gravity.
- Avoid uneven surfaces.
- Always use a flashing warning light.



## 3 MAINTENANCE INSTRUCTIONS

Observing the maintenance instructions is crucial for ensuring the proper functioning of the machine. Mechanical maintenance and regular greasing ensure long service life and correct operation. Please note that before performing the first maintenance the Raiko Icebreaker has been greased in the factory.

### **IMPORTANT!**

**Use only greases and oils that meet the requirements of the standard mentioned in this manual (Section 3.6, greasing points)!**

#### 3.1 Daily maintenance

- Check all screw connections.
- Check the fastening and wearing of the joint pins.
- Check the hoses and connectors.
- Check the hydraulic cylinders.
- Check the axle of the spiked roller unit.
- Check the fastenings of the mounting plate.
- Check the saw blades of the plough and change if necessary.

#### 3.2 Maintenance performed after every 40 hours of operation

- Grease all axles and joints on the greasing points (Picture 4, greasing points).

#### 3.3 Maintenance performed after every 200 hours of operation

- Check the frame of the icebreaker.

#### 3.4 Maintenance performed after every 500 hours of operation

- Check and grease the bearings of the spiked roller unit (Picture 3. Bolts and bearing housing cover).

#### 3.5 Maintenance of the spiked roller unit

Detaching the spiked roller unit:

- Ensure that the icebreaker is securely on a steady platform.
- Remove 2 bolts/side (Picture 3. Bolts and bearing housing cover).
- Lift off the frame.

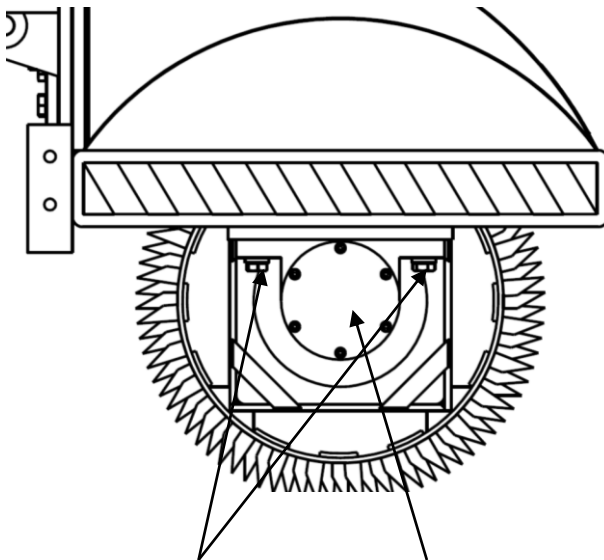
Greasing the bearings of the spiked roller unit:

- Remove the bolts (6 bolts/side) and remove the bearing housing covers.
- Grease the bearings from the inside by using a sharp-headed grease nozzle.

**IMPORTANT!**

**Always contact the retailer or manufacturer before changing the elements of the spiked roller unit or repairing the spikes.**

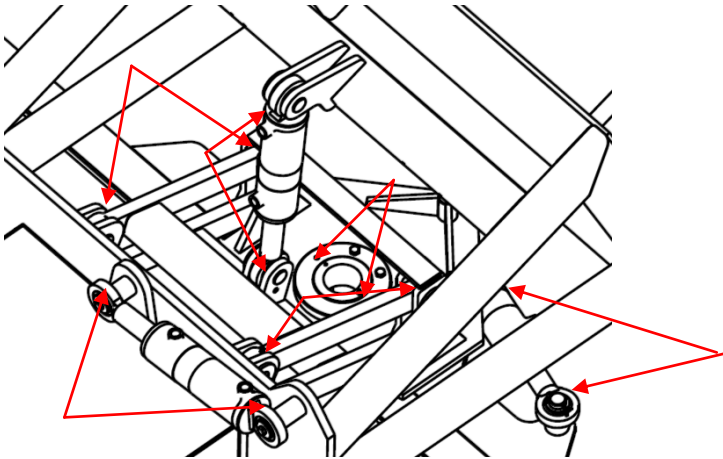
**Always remove the icebreaker from the working machine before welding. Place the ground clamp as close to the welding spot as possible before welding, in order to protect the bearing surfaces from damage.**



*Picture 3. Bolts and bearing housing cover.*

### 3.6 Greasing points

- Only use Shell Retinax Grease EPL2 or another grease that meets the requirements of the same standard.
- Only use Shell Tellus Oil S46 as the hydraulic oil in the hydraulic cylinders or another hydraulic oil of the same classification.



Picture 4. Greasing points.

Greasing points:

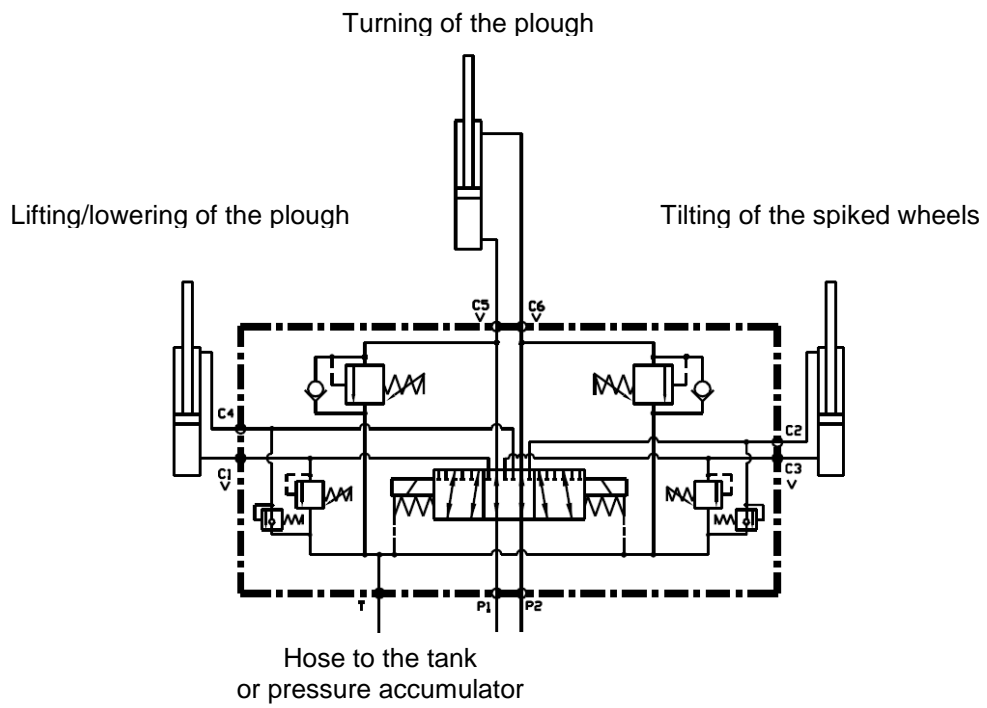
- Hydraulic cylinder: 3x2 grease nipples
- Lower beam: 4 grease nipples
- Upper beam: 4 grease nipples
- Hub: 2x2 greasing points
- Joints.

## 4 TECHNICAL SPECIFICATIONS



Item	P14
Total width (mm)	2,780
Total length (mm)	1,994
Height (mm)	1,403
Weight (kg)	2,150
Working width (mm)	2,470
Oil demand (l/min)	20
Working pressure (bar)	180
Recommended weight of the working machine (kg)	> 5,000

## 5 CONNECTION OF THE HYDRAULICS UNIT



Picture 5. Connection diagram of the hydraulics unit.

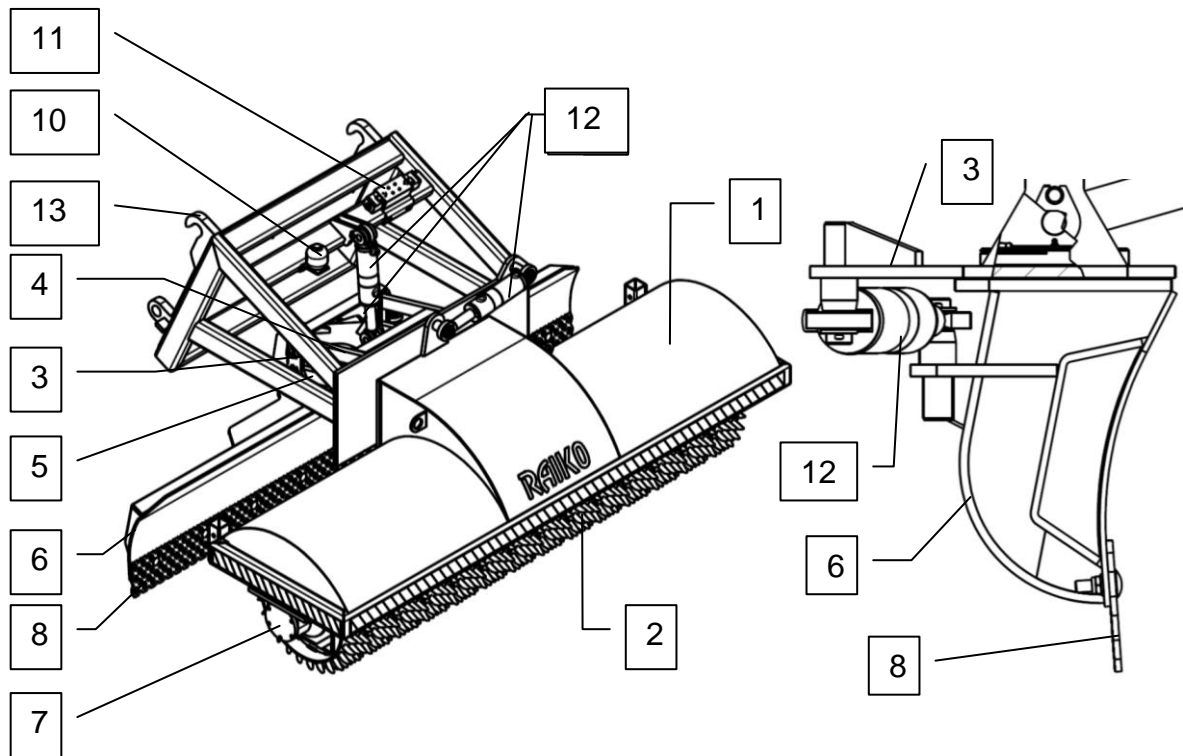
## 6 SPARE PARTS LIST

When ordering spare parts, use the spare part numbers used in the spare parts list that was delivered with the machine. Always provide the following information:

- Serial number of the Raiko machine
- Version of the Raiko machine
- Spare part number
- Number of the parts to be ordered
- Method of delivery
- Name of the orderer
- Delivery address.

Provide the spare part number stated in the manual delivered with the icebreaker. This ensures the suitability of the delivered part for your machine.

Always use original Raiko spare parts!



Picture 6. Spare parts for the P14 Icebreaker

Reference No.	Spare part No.	Pcs	Name
1	R1001	1	Frame 14
2	R1003	1	Spiked wheels 14
3	R1005	1	Rotary table
4	R1006	1	Upper beam
5	R1007	1	Lower beam
6	R1008	1	Leveller 14
7	R1160	2	Bearing housing, assembled
8	R1020-21	1	Hole blade
10	R1020-50	1	Pressure accumulator
11	R1020-51	1	Valve
12	R1020-21	3	Hydraulic cylinder
13		1	Hltch plate
13-1	R1046	-	Euro combi p.16 (7.1)
13-2	R1119	-	Kunta 500 p. 17 (7.2)
13-3	R1129	-	Kunta 500 vino p. 17 (7.3)
13-4	R1115	-	Volvo p.18 (7.4)
13-5	R1128	-	Volvo vino p.18 (7.5)

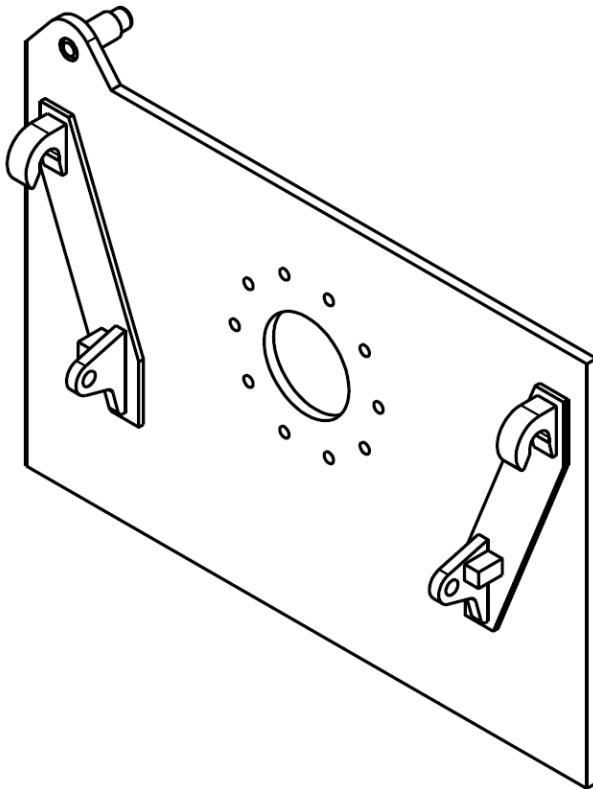
## 7 HITCH PLATE

Before commissioning the Raiko Icebreaker, ensure the compatibility of the hitch plate with the working machine.

Connect the icebreaker to the working machine by using the brackets on the hitch plate.

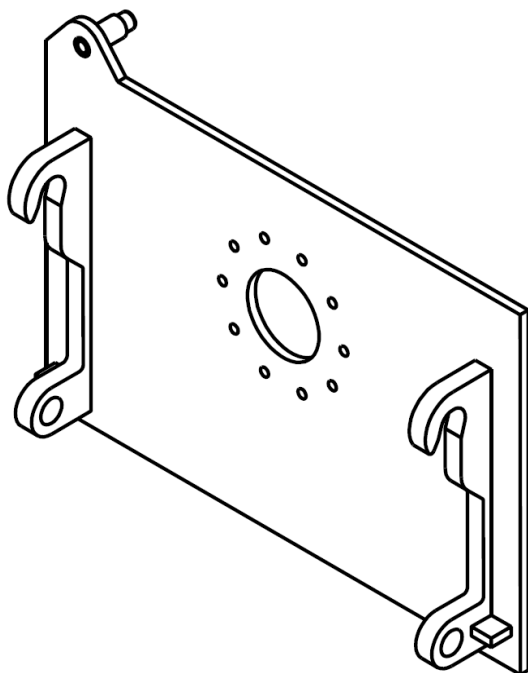
Check that the hitch plate is mounted securely on the working machine.

### 7.1 Euro combi

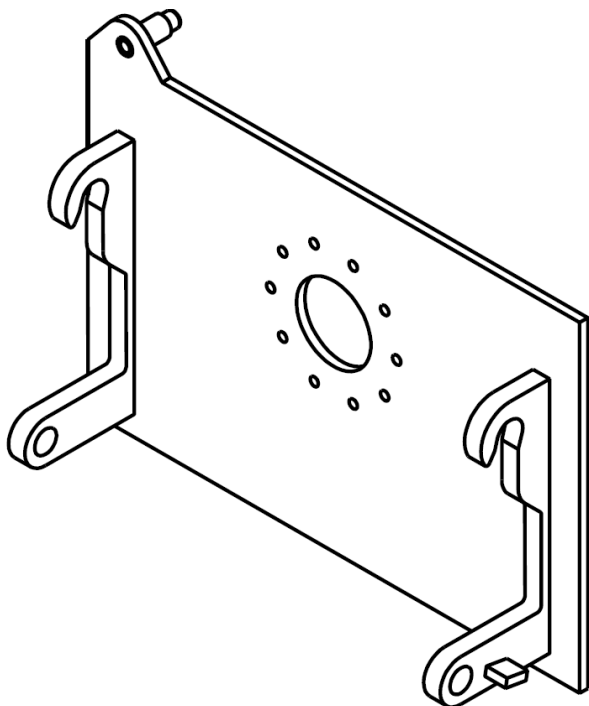




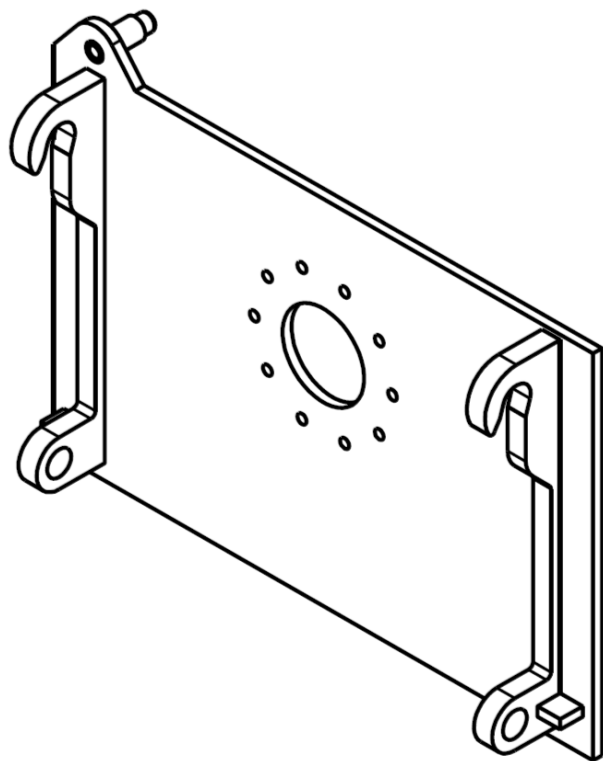
7.2 Kunta 500



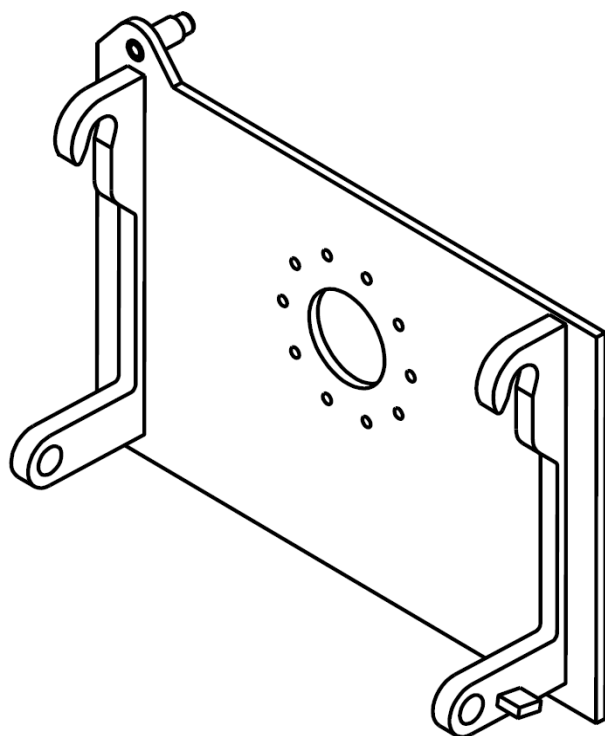
7.3 Kunta 500 vino



#### 7.4 Volvo



#### 7.5 Volvo vino



## 8 WARRANTY POLICY

We provide a warranty for our machines with the following terms:

1. The warranty covers all defects caused by a manufacturing or material defect except for defects in the machine components that are classified as wearing parts, such as the spiked wheel unit as a whole, including the rubber elements.
2. The warranty shall be valid for 12 months from the date of delivery.
3. The warranty shall not be valid if the machine has been used contrary to the instructions given in the operating instructions or for purposes other than those intended by the manufacturer or if spare parts other than original spare parts have been used in the machine or if the maintenance procedures stated in the instructions have been neglected.
4. A warranty claim must be presented to the seller or manufacturer of the machine in writing as soon as a defect is detected.
5. In case of a warranty claim, the manufacturer or its authorised representative must be given the possibility to perform an extensive examination of the machine either by asking questions or performing check-ups. Unless agreed otherwise, the user must deliver a faulty spare part to the manufacturer for closer examination.
6. Repair under warranty requires that the customer states the serial number of the machine and is able to reliably demonstrate that the warranty is valid.
7. Repair under warranty also requires that the machine, or a part of it, has not been repaired in any way before the defect has been reported in writing to the seller, manufacturer or importer of the machine.
8. Repair under warranty can be performed only by a party authorised by the manufacturer or importer. Any washing or cleaning procedures, oils or greases needed in connection with correcting the defect are not included in the warranty.
9. The machine manufacturer shall not reimburse for possible travel costs incurred due the damage/repair of the machine.

10. The repair work costs are reimbursed in accordance with the terms specified by the manufacturer.
11. All bearings and hydraulic and electrical components fall within the scope of the third party warranty, but the repair under warranty is applied for via the machine manufacturer.
12. The new part is delivered free of charge by using a public mode of transportation generally used for delivery of such shipments, within the standard schedule.
13. The costs of special deliveries, such as express deliveries, are paid for by the recipient of the delivery.

IMPORTANT!

**Observing the maintenance instructions is absolutely necessary for ensuring the proper functioning of the machine. Any deviations from these instructions will void the warranty.**

Retail and import: [www.polannepois.fi/jalleenmyyja-fin.html](http://www.polannepois.fi/jalleenmyyja-fin.html)