# OPERATING MANUAL

## 1. Introduction

## 3. Safety rules at work

### 3.1 Usage of Sweeper

### 3.2 Connection and disconnection of sweeper

### 3.3 Hydraulic installation

### 3.4 The sweeper’s transport

### 4.3 Maintenance

### 4.4 Working with the machine

### 4.5 The description of residual risk

### 4.6 Information and warning labels

## 5. Design and Operation

### 5.1 Basic technical data

### 5.2 General design of sweeper

### 5.3 Construction and operation of the hydraulic system

#### 5.3.1 Version with side brush and hydraulic emptying of dust tank

#### 5.3.2 Version with hydraulic emptying of dust tank

#### 5.3.3 Standard version

### 5.4 Design and operations of sprinkler system

---

Table of contents

1. Introduction ................................................................................................................................. 4
3. Safety rules at work ......................................................................................................................... 6
   3.1 Usage of Sweeper ....................................................................................................................... 6
   3.2 Connection and disconnection of sweeper ................................................................................. 7
   3.3 Hydraulic installation ............................................................................................................... 7
   3.4 The sweeper’s transport ......................................................................................................... 8
   4.3 Maintenance ............................................................................................................................. 8
   4.4 Working with the machine ..................................................................................................... 9
   4.5 The description of residual risk ............................................................................................ 10
   4.6 Information and warning labels ............................................................................................ 11
5. Design and Operation .................................................................................................................. 13
   5.1 Basic technical data ................................................................................................................. 13
   5.2 General design of sweeper ..................................................................................................... 14
   5.3 Construction and operation of the hydraulic system ............................................................... 15
   5.3.1 Version with side brush and hydraulic emptying of dust tank ........................................... 15
   5.3.2 Version with hydraulic emptying of dust tank .................................................................. 16
   5.3.3 Standard version ............................................................................................................... 16
   5.4 Design and operations of sprinkler system .......................................................................... 18

---
ATTENTION!

Read this operating manual before use and comply with its safety rules.

The operating manual is the basic equipment of the machine!
The manual should be kept in a safe place, available to the user and operator through the entire lifetime of the machine.
In the case of losing or damage you must purchase a new copy by ordering it from the points of machine sales or manufacturer.
In the case of sale or providing the machine to other user, the manual must be accompanied with the declaration of conformity for the machine.
The manufacturer reserves all rights to the operating instructions.
Copying, processing of manual, and its parts without the consent of the manufacturer - forbidden.
1. Introduction

Before the first activities related to the use of sweeper, this operating manual must be read and understood and all instructions contained therein must be followed.

This manual contains a description of the risks that may occur when non-compliance with safety rules during operation and maintenance of sweeper. The manual lists the precautions to be taken to minimize or avoid risks. The manual also contains rules of proper use of sweeper and explains what maintenance work should be performed at the same time. If the information contained in this manual is unclear, please ask for their explanation directly to the manufacturer.

ATTENTION!
Read the operating manual before use

ATTENTION!
This symbol warns against risk.
This warning symbol indicates to an important information about the risk given in the manual. Please read the given information carefully, follow the instructions and take full precaution.

2. Intended use

KOLASZEWSKI sweeper is used for removing impurities formed on all paved surfaces. Ideal for sweeping squares, traffic routes and car parks, which are covered with paving stones, asphalt or concrete.

The possibility of installing to a lift truck, tractor or loader allows to use it in agriculture, horticulture, as well as municipal companies and industrial plants.

Using the machine in other conditions will be construed as improper. Strict compliance with the requirements for the use of the machine, maintenance and repair according to the manufacturer’s recommendations is a condition for the intended use.

The machine should be operated, serviced and repaired only by persons familiar with its specific characteristics and the rules of conduct in terms of safety.

Accident prevention regulations and all basic rules of work safety and hygiene, as well as traffic rules should always be followed.

Unauthorised changes in construction of the machine without the consent of the manufacturer, exempt the manufacturer from responsibility arising from any resulting damages.
3. Safety rules at work
Sweeper can only be operated by adults who are familiar with its operation and the contents of this manual and have the appropriate qualifications. Sweeper should be operated in compliance with all the precautions, in particular:

3.1 Usage of Sweeper
- Obey this manual instructions as well as the general principles of health and safety.
- Obey the machine’s warning symbols.
- Sweeper should be operated in compliance with all the precautions, in particular:
  - Obey the machine’s warning symbols.
  - Sweeper can be operated by a person with licence to driving the vehicle to which it is mounted, according to the manufacturer’s recommendations.
  - Please note that there are many places on the machine that could cause injury (sharp edges, projecting parts, etc.). When working, keep extra precautions when moving around these critical places and absolutely use personal protective measures such as:
    - protective clothing,
    - protective gloves,
    - protective footwear,
    - protective glasses,
- Before working with the sweeper, please read the manual instruction, safety rules and recommendations for maintenance and adjustment.
- Sweeper must be equipped with all safety shields (specified by the manufacturer) before accessing to moving parts. Shields must be complete and fully functional.
- There is the risk of residual danger and therefore the safety rules and common sense should be the basic principle of the use of the machine.
- It is forbidden to operate the machine by persons under the influence of alcohol or other drugs.
- Never allow the vehicle operating the sweeper be driven by a person other than its operator, and in any case, do not let that while working, the others remained in the vehicle and near the machine.
- It is forbidden to use the machine contrary to its purpose. Using the machine for other purposes than is specified by the manufacturer is contrary to machine’s purpose and may void your warranty. Manufacturer assumes no responsibility for any consequences arising from the improper use of the machine.
- If the information contained in this manual is unclear, please contact with your dealer or manufacturer.
3.2 Connection and disconnection of sweeper

- It is forbidden to connect the device to the carrier vehicle, if used hydraulic oils are of different types
- It is forbidden to connect the sweeper when the fastening of the suspension system is not compatible with the vehicle’s fastening
- The carrier to which the machine will be connected to must be in technically working condition and comply with the manufacturer's conditions
- It is forbidden to reside, operate between the vehicle and machine. Assistants on sweeper’s aggregating must be outside the danger zone and be always visible to the vehicle’s operator
- While connecting and disconnecting the machine take precautions
- Sweeper disconnected from the vehicle must be based on all three supporting wheels, and stored on a flat, balanced, paved surface in a place inaccessible to bystanders and animals
- To connect the machine, use only original bolts
- When adjusting, do not put your fingers and limbs between the structural elements of the machine.
- Protective covers (three-point hydraulic system) of sweeper’s bolts should be made only by means of conventional protection in the form of pins. Working with other protections is prohibited.

3.3 Hydraulic installation

- The hydraulic system during operation is under high pressure.
- Check the condition of connectors and hydraulic hoses regularly, any leaks or damages are unacceptable.
- In case of emergency, immediately discontinue using the machine until the fault is rectified
- Use oil recommended by the manufacturer, it is forbidden to use sweeper when in the vehicle is different type of hydraulic oil than in the machine
- In case of injury by a stream of oil, you should immediately go to the doctor. Hydraulic oil can cause infection. If the oil gets into your eyes, rinse thoroughly with water and contact your doctor. In case of oil’s contact with skin, wash the place of dirt with soap and water. Do not use solvents (gasoline, kerosene)
- Used oil must be stored in sealed containers and periodically provided to the points running its purchase (disposal).
• Rubber hydraulic hoses must be replaced every 3 years regardless of the technical condition
• Repair and replacement of the elements of the hydraulic system should only be done by qualified person

3.4 The sweeper’s transport
• When driving the vehicle with a mounted, not working sweeper, make sure about the safe transport height ~ 0.3 m.
• Take special care when traveling on public roads, and adapt to the applicable provisions of the highway code.
• Adjust transport speed according to the condition of the road surface, it should not exceed 20km / h.
• Carrying persons or objects on the machine is forbidden.
• Do not leave the vehicle with the sweeper on the slopes or other inclines without securing the vehicle against self-rolling. Put a chock under the vehicle’s wheels of the vehicle chocks and apply the parking brake. Leave the machine during stopover.
• Inspect the operating condition for safety, in particular, the elements of the suspension system and hydraulic system
• Reckless driving and excessive speed may cause an accident.

4.3 Maintenance
• Upon sweeper’s receipt and transport check that the machine has not been damaged by checking its technical condition.
• It is forbidden for persons to stay under the raised sweeper, you could be crushed by structural elements.
• Do not use unbuttoned, hanging working clothes during operation, assembly, disassembly, adjustment. Keep them away from the structural elements that can catch them.
• Due to the natural use you should monitor the condition of: bearings, bolted joints, hydraulic system components
• Before working on the hydraulic system, the residual pressure oil must be compensated for
• Any modifications to sweeper relieve "Firma Kolaszewski” manufacturer from responsibility for damages or personal injury
• It is forbidden to do any work (maintenance, repair) under the raised and unsecured machine
• Obey the general safety and health at work
• Repair, maintenance and cleaning works should be done only when the ignition key is taken out, the vehicle’s parking brake is applied and protected against access by third parties
• When replacing parts, use only original manufacturer’s spare parts, Firma Kolaszewski is not responsible for problems arising from the use of non-original parts
• In case of work requiring raising of sweeper use for this purpose approved mechanical or hydraulic jacks. After lifting the machine stable and strong supports should be additionally used. It is forbidden to work only under the carrier vehicle’s suspension system and use supports from fragile elements (blocks, bricks, concrete blocks, etc.)
• After lubricating remove the excess of grease

4.4 Working with the machine
• Before starting the carrier vehicle, check that the installation of outer hydraulics is not running, which can lead to uncontrolled start of the machine
• Before lifting or lowering the machine, make sure that there are no bystanders (especially children) or animals nearby. The machine operator is obliged to ensure proper visibility and space to perform the operations
• Operator’s work station while working with the sweeper is the cab of the vehicle, to which the machine is mounted to. It is forbidden to exit the cab during work.
• When filling the water tank, lower the machine to the working position and turn off the engine

Failure to follow these rules may pose a risk to the operator or bystanders and may cause damage to the sweeper.
For damages resulting from non-compliance with this rules it is the user’s responsibility.

4.5 The description of residual risk
The company Firma Kolaszewski put every effort to eliminate the risk of an accident. There is, however, some residual risk that could lead to an accident, and is connected mainly with the actions described below:
Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Risk</th>
<th>Risk source (reason)</th>
<th>Measures to protect against risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overloading the musculoskeletal system (physical overloading)</td>
<td>Working in a standing position, stooped-forced, walking, moving</td>
<td>Getting acquainted with the manual, workplace training taking into account lifting standards while performing manual handling, proper techniques for lifting and lifting weights, using the help of another person, devices to facilitate movement such as a jack, winch</td>
</tr>
<tr>
<td>2</td>
<td>Fall on the same level (stumble, slip, etc.)</td>
<td>Uneven ground, mess – lying and standing objects, wires lying on the roads, slippery surfaces</td>
<td>Proper safety shoes, even ground, staying focused, keeping clean, reading the manual</td>
</tr>
<tr>
<td>3</td>
<td>Hitting fixed and sticking out parts of the machine</td>
<td>The machine and its surrounding</td>
<td>Proper setting of the machine, safe amount of space to move, proper organisation of work, staying focused, reading the manual</td>
</tr>
<tr>
<td>4</td>
<td>Being hit by moving objects</td>
<td>Objects, rocks, etc. thrown by the machine</td>
<td>Staying focused, marking the danger zone, prohibition of movement near the machine running, use of personal protective equipment – safety helmet, safety glasses, reading the manual</td>
</tr>
<tr>
<td>5</td>
<td>Dangerous sharp edges</td>
<td>Sticking out structural elements, using manual tools</td>
<td>Personal protective equipment – safety gloves, zipped overalls, exercising particular care</td>
</tr>
<tr>
<td>6</td>
<td>Hydraulic system</td>
<td>High pressure in the hydraulic system, bad condition of the hydraulic connectors and rubber hoses, leaks</td>
<td>Prohibition of movement near the machine running and its regulation, exercising particular care, use of protective equipment, use of protective glasses, regular checks of hydraulic system, reading the manual</td>
</tr>
<tr>
<td>7</td>
<td>The weight of the hung standing</td>
<td>Improper installation, aggregation, improper setting</td>
<td>Exercising particular care, use of personal protective equipment – safety shoes, safety gloves, safe installation</td>
</tr>
</tbody>
</table>
4.6 Information and warning labels
All labels should always be clear and clean, visible to the user as well as for those who may find themselves near the machine. In the absence of any sign of safety or damage, it should be replaced with a new one. All elements that have safety labels exchanged during repairs to the new should be provided with these labels. Safety signs can be purchased from the manufacturer or retailer.

<table>
<thead>
<tr>
<th>No.</th>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image1.png" alt="Symbol 1" /></td>
<td>Before starting work, read the instruction manual</td>
</tr>
<tr>
<td>2</td>
<td><img src="image2.png" alt="Symbol 2" /></td>
<td>The liquid under high pressure. Keep a safe distance from the working machine.</td>
</tr>
<tr>
<td>3</td>
<td><img src="image3.png" alt="Symbol 3" /></td>
<td>Risk of injury due to ejected items. Keep a safe distance from the working machine.</td>
</tr>
</tbody>
</table>
4. Do not approach or touch the rotating brushes

5. Turn off the engine and remove the key before starting maintenance or repair

6. Warning: pressure occurring in the hydraulic system

7. Places of sweeper grip when moving

8. Commercial designation

5. Design and Operation

5.1 Basic technical data

<table>
<thead>
<tr>
<th>Table 3.</th>
<th>Model</th>
<th>Sweeper 1500</th>
<th>Sweeper 1800</th>
<th>Sweeper 2300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweeping width</td>
<td>1500</td>
<td>1800</td>
<td>2300</td>
<td></td>
</tr>
<tr>
<td>Recommended sweeping speed</td>
<td></td>
<td>5 km/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of operating elements</td>
<td>Roller brush</td>
<td></td>
<td>+ side brush (option)</td>
<td></td>
</tr>
<tr>
<td>Propulsion</td>
<td>External hydraulics of carrier vehicle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theoretical capacity of the dirt container</td>
<td>165 l</td>
<td>195 l</td>
<td>245 l</td>
<td></td>
</tr>
<tr>
<td>Own weight</td>
<td>150 kg</td>
<td>180 kg</td>
<td>190 kg</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>RPM of the roller brush:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>recommended</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>max</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rev/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity of the water tank</td>
<td></td>
<td></td>
<td>175 dm³</td>
<td></td>
</tr>
<tr>
<td>Number of spray nozzles</td>
<td>5+1</td>
<td>5+1</td>
<td>7+1</td>
<td></td>
</tr>
<tr>
<td>Power supply of the sprinkler system</td>
<td></td>
<td></td>
<td>12V or 24V from the socket of the carrier vehicle</td>
<td></td>
</tr>
<tr>
<td>Overall dimesions with the side brush (length x width x height)</td>
<td>2000x1800x1200 (mm)</td>
<td>2000x2100x1200 (mm)</td>
<td>2000x2550x1200 (mm)</td>
<td></td>
</tr>
<tr>
<td>Overall dimensions without the side brush (length x width x height)</td>
<td>2450x2250x1200 (mm)</td>
<td>2450x2550x1200 (mm)</td>
<td>2450x3000x1200 (mm)</td>
<td></td>
</tr>
</tbody>
</table>

2 General design of sweeper
(1.) Suspension system; (2.) – Dirt tank; (3.) – Sweeping roller; (4.) – Side brush; (5.) – Hydraulic system; (6.) - Sprinkler; (8.) – Supporting wheel;

The sweeper’s suspension system (1) mounted on the frame via pivot allows rotation and work before or after the carrier vehicle and the operation of the machine at an angle. The sweeping roller (3) driven by a hydraulic motor directs the dust to the tank (2), which emptying is carried from the operator’s position by the hydraulic system (5). Sweepers additionally equipped with side brush (4) allow sweeping along walls or curbs. Controling the sprinkler system (6) is carried out by the electrical system. Castor wheels are used to support the machine on the ground during work (7).

5.3 Construction and operation of the hydraulic system

5.3.1 Version with side brush and hydraulic emptying of dirt tank

(1) - hydraulic motor of sweeping roller’s drive; (2) - hydraulic cylinder of dirt tank’s tipper; (3) - hydraulic couplings; (4) - flow regulator; (5) - non-return valve; (6) - three-way ball valve; (7) - hydraulic motor of side brush’s drive
5.3.2 Version with hydraulic emptying of dirt tank

(1) - hydraulic motor of sweeping roller’s drive; (2) - hydraulic cylinder of dirt tank’s tipper; (3) - hydraulic couplings; (4) - non-return valve

5.3.3 Standard version

(1) - hydraulic motor of sweeping roller’s drive; (2) - hydraulic couplings

The duties of the user associated with the hydraulic system operation include:
- leakage checking of cylinder and hydraulic connections;
- check the technical condition of hydraulic hoses and couplings;
The hydraulic system should be completely tight. Check seals locations, if you see a leak, stop using the machine until the fault has been rectified.
Danger
Do not attempt to repair the hydraulic system on your own, repairing any defects must be performed by trained personnel.

Danger
Before working, reduce the residual pressure
During work, use personal protective equipment, ie. Protective clothing, footwear, gloves, goggles. Avoid oil contact with eyes and skin. In the event of injury or irritation, rinse with plenty of water and consult a doctor.

ATTENTION
Hydraulic oil in the form of oil mist is harmful to the respiratory tract

ATTENTION
In case of fire toxic compounds are released, the fire should be extinguished using carbon dioxide (CO2), foam or extinguishing steam, in any case, do not use water !!!

For work with the new sweeper, the manufacturer recommends the use of hydraulic oil HL32

Table 4 Characteristics of hydraulic oil HL32

<table>
<thead>
<tr>
<th>NO.</th>
<th>TITLE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Viscosity classification acc. to ISO 3448VG</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>Kinematic viscosity at 40 ° C</td>
<td>28.8 - 35.2 mm²/s</td>
</tr>
<tr>
<td>3</td>
<td>Quality classification acc. to ISO 6743/99</td>
<td>HL</td>
</tr>
<tr>
<td>4</td>
<td>Quality classification acc. to DIN 51502</td>
<td>HL</td>
</tr>
<tr>
<td>5</td>
<td>Flash-point, ° C</td>
<td>above 210</td>
</tr>
<tr>
<td>6</td>
<td>Maximum operating temperature, ° C</td>
<td>80</td>
</tr>
</tbody>
</table>

5.4 Desing and operations of sprinkler system
The main elements of a sprinkler system are water tank (1) water pump (2) water filter (3) spray nozzles (4) placed on the strip spray behind the sweeping roller and on the attachment of side brush effectively prevent the formation of dust during machine operation. Controlling the system is done via a plug connected to the vehicle's electrical system. Operation of the sprinkler system involves periodic review of the water system as well as cleaning water filter located on the suction hose (it is recommended to clean once a year, the frequency of cleaning depends on the degree of dirt in water) and strainers located in the nozzles.

6. Preparing work

Before starting work:
- make a visual assessment of the sweeper’s condition, if you detect any defects promptly remove them
- attach the sweeper onto the carrier vehicle,
- connect the sweeper’s hydraulic hoses to sockets of one section hydraulic distributor outside the vehicle,
- lift up sweeper at about 30 cm from the ground to check the accuracy of couplings’ connection, if the sweeping roller will rotate in the wrong direction or it will not rotate, then switch places of couplings’ pins,
- set sweeper so that it is based on all three supporting wheels, suspension components marked with a red arrow in Fig. They have to be in the middle position as shown in the figure, which allows for independent work of sweeper in relation to the carrier vehicle

**DANGER**
During the aggregate, do not stand between the machine and the vehicle. The person who helps to aggregate the machine should be placed outside the danger zone and be visible all the time for the operator.

7. Proper installation of the sweeper

7.1 Roller brush

Roller brush should be installed properly. The installation of the roller brush and the tank should be done simultaneously.

The working surface of the roller brush should be set between 6 and 12 cm (Look, picture 1). Depending on the amount of impurities, the push may be set individually. The setting of the push is done by moving converging wheels in the rails. The mounting of the tank and servomotor should be set before each usage.

During the installation of the roller brush pay attention to the same setting of push on the whole length of the roller. Uneven installation causes faster wear of the roller brush.

7.2 Dirt tank
The height of the dirt tank should be set between 4-5 cm with a slight lean towards the
swepted surface. The regulation of the lean of the spoon is done by screwing or unscrewing
rod tip or Roman screw, depending on the version. In case the roller brush is worn, or when
the push of the brush is too small, you should:
- lower and set proportionally
  the height of the tank in the rails
  in relations to the suport wheels
  (front and back)
- tighten the tank against the
  roller brush. To do so, you must
  unscrew 4 screws M12x90,
  move the rails towards the brush
  and tighten the screws
- proper regulation of the
  servomotor in the regulatory
  holes (actuator arm, dirt tank)

**ATTENTION:** Too big push of the brushes against the cleaned surface causes
faster wear of the brushes

7.2.1 Manual emptying of bath
Bath opening and closing is done by
pulling the cord which causes the joint
to break in order to open and close.
7.2.2 Hydraulic emptying of bath

The bath emptying is made via the change of the direction of oil in the hydraulic system where the return of oil creates the pressure needed for bath opening. After the bath emptying the original oil circuit is re-set in order to allow the sweeper to work.

ATTENTION !!!
Bath opening and closing can be performed only with raised sweeper!!!
When using the bath with hydraulic emptying

Disconnect the servomotor form the installation by unplugging the servomotor where the quick release “Push Pull” clutch bushings are mounted, (1) next, remove upper and lower bolt (2) of the servomotor mounting, secured with the “B” type cotter (3). Unscrew the M8 wingnuts of the dirt tank’s rubber screen, remove the pressing bar, put the lower holes of the rubber screen on the body screws and secure them with M8 wingnuts (4). Next, unscrew M10x90 nuts (5) in order to remove the locking and remove the bath from the rails.

Attention!!!! Do not remove the screen completely. The rubber screen secures from the stones and other materials that the sweeper may throw during the operation without the bath.

7.3 Side brush

Setting the height of the side brush is performed by change of the position in the holes. By setting the correct height of the brush the optimal wear of the brush is set. The push of the brush is regulated with M10x30 adjusting screw placed above the arm of the brush. Losen the M10x30 screws (2 pcs.) and turn the rack clockwise. The brush should be set the way 1/3 of its surface touch the ground. Fasten the screws.

When there is no need to use the side brush, remove the pin (1) lift the brush and secure it with the pin in the hole (1) and change the position of the ball valve to close the flow of the hydraulic fluid to the brush.
7.4 Angling

Angling is possible only when the sweeper works without the dirt tank. Remove the plugs and the pin and move the flat bar to the first or the last hole (depending on the direction of the sweeping) and secure the pins. In order to restore the original setting move the flat bar to the middle hole.

Picture 11: Third supporting wheel

7.5 Third supporting wheel

When using the sweeper with third supporting wheel it should be noted that the sweeper was based entirely on three wheels as well as not to be based on the coupling, which would limit its movement.
When operating and shutdown the sweeper without dirt tank

While operating and shutdown: After connecting the sweeper to vehicle and Turing shutdown.
The front supporting wheel must be fitted!!!

Reason: If the front supporting wheel will not be fitted, the whole machine weight will Rest on roller brush and cuase its deformity.

8 Maintenance and replacement of parts

8.1 Assembly and disassembly of roller brush

Before replacing, make sure that the sweeper is disconnected from the power supply and the resulting pressure in the hydraulic system has been released.

8.1.1 Hydraulic engine:

Unscrew the fixing screws of engine cover and next the hydraulic engine with the body. Attention !!! This operation does not need removing the hydraulic motor from the shaft, instead unscrew the engine’s hydraulic hoses.

8.1.2 Bearing unit:

Unscrew the cover screws of bearing unit (1) from the body. Bolt securing the longitudinal movement need to be loosened using the 4 mm Allen key and unscrew the bolts connecting the bearing cover with the body. Cover with bearing remove from the shaft. Lift the machine (eg. using a forklift), secure with stable supports. Then remove the retaining ring Z40 (2) and remove the flange securing (3) longitudinal move of brush’s segments (4) - which allows for the exchange of individual segments of the roller brush by sliding them out of the shaft (5).

During assembly carry out the same action, but in reverse order. Use new washers under screws and new retaining ring.
Attention:
- Pin of shaft should be lubricated before installation.
- It should be noted that the brush roller has not twisted during assembly.

8.2 Installation and replacement of side brush

Unscrew M10x40 screws (3 pcs.) to disassembly the side brush. Remove the worn brush and replace with new one and then rescrew the screws.

9. Defects and methods of repairing them

TABLE 4

<table>
<thead>
<tr>
<th>TYPE OF DEFECT</th>
<th>REASON</th>
<th>METHOD OF REPAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweeping roller does not rotate or rotates in the hydraulic system</td>
<td>Not connected or incorrectly connected hydraulic system</td>
<td>Check connection</td>
</tr>
</tbody>
</table>

TABLE 4
<table>
<thead>
<tr>
<th>Problem Description</th>
<th>Possible Causes</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong direction</td>
<td>Not operated or incorrectly operated circuit of vehicle’s hydraulic system</td>
<td>Include correct hydraulic circuit in the vehicle</td>
</tr>
<tr>
<td></td>
<td>Damaged hydraulic system</td>
<td>Report to the service centre</td>
</tr>
<tr>
<td>Side brush does not rotate</td>
<td>Not connected or incorrectly connected hydraulic installation</td>
<td>Check connection</td>
</tr>
<tr>
<td></td>
<td>Side brush’s driver turned off</td>
<td>Turn on the brush drive’s lever distributor</td>
</tr>
<tr>
<td></td>
<td>Damaged hydraulic system</td>
<td>Report to the service centre</td>
</tr>
<tr>
<td>Side brush rotates too slow or too fast</td>
<td>Incorrectly adjusted oil flow regulator in the sweeper’s installation</td>
<td>Set the brush’s rotation using knob of oil flow regulator</td>
</tr>
<tr>
<td>Dust tank does not open or does not close</td>
<td>Not connected or incorrectly connected hydraulic installation</td>
<td>Check connection</td>
</tr>
<tr>
<td></td>
<td>Not operated or incorrectly operated circuit of vehicle’s hydraulic system</td>
<td>Change the direction of oil flow in the hydraulic circuit using the distributor’s lever in a vehicle</td>
</tr>
<tr>
<td>Sprinkler system does not work</td>
<td>Sprinkler system does not work</td>
<td>Connect the plug to the socket of vehicle's electrical system</td>
</tr>
<tr>
<td></td>
<td>Not connected electrical installation of water pumps power</td>
<td>Check the connection plug’s socket in the vehicle</td>
</tr>
<tr>
<td></td>
<td>Lack of water in the tank</td>
<td>Make up with water</td>
</tr>
<tr>
<td></td>
<td>Plugged sprinkler system</td>
<td>Check the efficiency of the system, clean the mesh cartridges of water filter and sprinklers</td>
</tr>
<tr>
<td></td>
<td>Damaged water pump</td>
<td>Report to the service centre</td>
</tr>
<tr>
<td>Sweeper does not collect the dirt correctly</td>
<td>Too low rotation speed of sweeping roller</td>
<td>Increase the engine speed</td>
</tr>
<tr>
<td></td>
<td>Incorrectly set pressure of the sweeping roller</td>
<td>Adjust according to instruction</td>
</tr>
<tr>
<td></td>
<td>Incorrectly set dirt tank</td>
<td>Adjust according to instruction</td>
</tr>
<tr>
<td></td>
<td>Incorrectly set side brush</td>
<td>Adjust according to instruction</td>
</tr>
<tr>
<td></td>
<td>Too high speed driving</td>
<td>Adapt the speed of driving</td>
</tr>
<tr>
<td></td>
<td>Dirt tank is full</td>
<td>Empty the tank</td>
</tr>
<tr>
<td></td>
<td>Excessively worn brushes</td>
<td>Change</td>
</tr>
<tr>
<td>Rapid wear of brushes</td>
<td>Incorrectly set pressure of the sweeping roller. Incorrectly set side brush</td>
<td>Adjust according to instruction</td>
</tr>
<tr>
<td>Throwing dirt from the sweeper</td>
<td>Too high rotation of brushes. Incorrectly set brushes. Incorrect setting on the vehicle</td>
<td>Check and adjust according to instruction</td>
</tr>
</tbody>
</table>

10. Lubrication points

Lubrication points of the suspension system should be lubricated at least once a week with machine grease LT43.
Lubrication point on shaft bearing (Assuming continuous use for 8 h) should be lubricated everyday before work with machine grease LT43.

11. Disassembly, scrapping and environment protection

Protect your hands (body) against injury and harmful effects of grease, oil. Wear protective gloves and tools in good condition.

Machine parts, which during disassembly can move or rotate must be adequately protected.

Worn or damaged parts obtained during repair (scrapping) must be stored in a separate location with limited access of people and animals. Worn parts must be delivered to the scrap yards. Worn plastic parts must be sent to a storage point (disposal) of chemical waste.

At the time of refilling or change of oil do not allow to spill it. Used oils should be stored in sealed containers and periodically provided to the points that purchase them (disposal).

Abandoned parts or machine elements, spilled oil may result in accidents and cause environmental pollution and violate applicable laws.

12. Warranty

WARRANTY CARD

<table>
<thead>
<tr>
<th>Serial no.</th>
<th>.......................................</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>.......................................</td>
</tr>
<tr>
<td>Year built</td>
<td>.......................................</td>
</tr>
<tr>
<td>KJ</td>
<td>.......................................</td>
</tr>
</tbody>
</table>

Under this warranty, the manufacturer undertakes to repair for free, the physical defects revealed during the warranty period, which is valid for 12 months from the date of sale.

The manufacturer is exempt from responsibility under the guarantee in case of:

- Mechanical damage to the machine after the transfer to the user;
- Improper operation, maintenance, machine storage, in particular, contrary to the instructions;
- Repairs by unauthorized persons without the consent of the manufacturer to carry them out;
- Design changes without consulting with the manufacturer;

The warranty card is valid if it has the seller's signature and the date of sale certified by company stamp of a traded unit. It must not contain erasures and corrections by unauthorized persons.

The duplicate of warranty card may be issued upon written request upon presentation of proof of purchase by the user.

In the case of unjustified request for warranty service, costs associated will be on the user's account.

User reports complaints immediately after the occurrence of the damage, either directly to the seller or manufacturer.

The manufacturer provides warranty service within 14 days from the date of notification to the date of repair.

The warranty is extended by the period of repair, counting the date of notification to the time of the service if the defect has prevented the use of the machine.

The warranty does not cover natural wear of parts such as bearings, support wheels, roller brushes, side brushes, hydraulic installation components (hydraulic couplings, hydraulic engines, rubber hoses, valves and controls, etc.), sprinkler system components (water pump, water filter, spray nozzles), rubber cover, fasteners, etc.

Sale date: 
__________________________
(day, month, year) 
__________________________
(signature and stamp of store)

RECORD OF WARRANTY REPAIRS

Filled in by the manufacturer

<table>
<thead>
<tr>
<th>The date of claim:</th>
<th>The date of claim:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The extent of claim and replaced parts:</td>
<td>The extent of claim and replaced parts:</td>
</tr>
<tr>
<td>______________________________</td>
<td>______________________________</td>
</tr>
<tr>
<td>______________________________</td>
<td>______________________________</td>
</tr>
<tr>
<td>______________________________</td>
<td>______________________________</td>
</tr>
</tbody>
</table>

Date of settling the claim: ______________________

Warranty extender until: ______________________

________________________
(signature and stamp of service)

________________________
(signature and stamp of service)
The date of claim: __________________
The extent of claim and replaced parts: _________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Date of settling the claim: ______________
Warranty extender until: ______________
_________________________________________________________________
(signature and stamp of service)

The date of claim: __________________
The extent of claim and replaced parts: _________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Date of settling the claim: ______________
Warranty extender until: ______________
_________________________________________________________________
(signature and stamp of service)