



Kindly read the manual before operating the machine.  
(Original Instructions - English)

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Prepared by KM, NPM-TD Dept.

## INTRODUCTION

### Preface

**Dear Customer,**  
We are pleased with your having chosen the **Flipper<sup>+</sup>** machine for your floor cleaning requirements. Backed by our industry expertise that spans across decades, we assure you that the machine comes with our Roots promise of quality, efficiency and performance.  
We advise you to carefully read through the instructions prior to the operation of the machine. This manual contains detailed instructions for the proper operation of the machine, along with important information regarding its handling, care, maintenance and service needs.  
We are sure that you will find the machine and its performance to your utmost satisfaction. Once again, we thank you for choosing **Roots Multiclean Ltd. (RMCL)** as a trusted partner for your cleaning requirements and solutions.

### Usage, Handling and Modification

Use of the product beyond the specified scope of functioning is deemed improper and the manufacturer cannot be held liable for any damages which may arise due to this.  
This machine may be used only by persons who are trained or are familiar with the machine and are aware of the possible hazards involved. The appropriate Accident Prevention Regulations as well as applicable general regulations pertaining to Safety and Health at the work place must be adhered to by the user. Modifications made to machine without the manufacturer's consent will relieve the manufacturer of responsibility and any possible liability for consequential damage.

### Notes on Domestic Warranty

Please refer to the Limited Warranty card supplied along with the machine for additional information. This Warranty Policy is applicable only for the product sold within India. If the product requires repair or maintenance work to be performed, please ensure that you get the machine serviced from an authorised service center or dealer of RMCL to ensure that the warranty is not void.

### Acceptance of the Machine

On arrival of the machine at the shipping address, please check for any damage that may have occurred as a result of transit. In the event of any such damage, the purchaser is bound by responsibility to send a claim letter to the concerned RMCL branch/dealer with a copy of the invoice. The letter should be sent within 24 hours of receipt of the machine.

### The Manual

All information contained is without obligation. RMCL particularly reserves the right to modify any equipment, technical specifications, colours, shapes, materials and the like so as to adapt them to local conditions all without previous announcement and without giving reasons. RMCL may stop manufacturing certain models without previous notice.  
The Owner's Manual corresponds to the latest information available for this machine at the time it was printed. Minor deviations resulting from enhancements of the design cannot be entirely represented. The Owner's Manual is an integral part of the machine and must not be misplaced.  
Roots reserves the right to change the product or contents of this manual without prior information. For Battery, Motors, Engines and other OEM components related kindly refer to their manufacturers manual supplied along with the machine for instructions regarding usage, maintenance and service.

Please note down the serial number of your machine below:

Serial number: .....

Date of commissioning: .....

## SAFETY INSTRUCTIONS

All paragraphs in this manual referring to you personal safety, the safety of your machine and the environment protection are attributed one of the following warning symbols.

Symbol (Hazardous for)	Description
Safety Provisions (persons and goods)	Safety provisions in dangerous situation caused by misuse inaccurate adherence of instruction or prescribed work routine.
Caution (the machine)	Important information on handling the machine in order to maintain operability.
Ecological hazard (the environment)	Due to use of substances representing an inherent danger to health of environment.
Read Manual	Prior to first operation, read the manual carefully and strictly comply with the instructions contained.

### Safety Instructions

- Apart from information contained in this manual, generally applicable legal provisions for safety and prevention of accidents must be adhered to.
- Do not put this manual aside without having read it, even if you have already operated similar ground cleaning equipment before.
- Allow yourself the time to do so in order to save time at a later time.
- The operator is responsible for all persons in the working area.
- Children must be kept away from the machine during operation.
- No person must be allowed to stay in the zone of danger.
- The warning and instruction plates attached to machine give important advice on safe operation.
- Replace lost or illegible stickers.
- Before starting to work, the operator has to check that the machine and its working implements are in proper and safe operating condition.
- Machines with known defects must not be used.

### Safety Instructions

- It is important for operators and all persons likely to use the product, to familiarize themselves with all accessories and controls, as well as their functions, before starting operations.
- Abiding by the above general instructions can help you avoid having to read this book while trying to run the machine.

### Safety During Machine Operation

- The machine is applicable for **DRY** sweeping only.
- Ground cleaning machines may be run by qualified personnel only.
- The machine may be used for cleaning such surfaces approved by the owner or this authorized representative.
- The operator must use the machine in accordance to its intended fields of application.
- During operation, the operator must take account of local conditions (stairs, obstacles) and of other persons, particularly children.



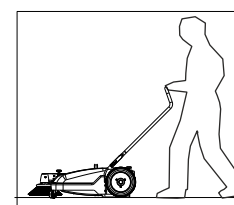
- Use only genuine spare brooms as specified by the manufacturer. Use of other than the indicated broom types may affect safety.
- Never collect explosive fluids, undiluted acids and solvents. This includes e.g. gasoline paint thinners or fuel oil, which when combined with air, may form explosive vapors or mixtures. Acetone, undiluted acids and solvents can be aggressive to the material used for the machine components.
- The machine may be used only on indoor hard floorings and for operation on level grounds with a maximum inclination of up to 2%.
- Do not clean the machine by means of vapour jet or high pressure cleaning equipment.
- Do not USE the machine on steps.
- Use of the machine in areas prone to explosion hazards is strictly forbidden.

### Transport

- Incorrect lifting techniques may create a personal injury. When transporting the machine ensure that all components and removable parts are securely fastened.
- Do not lift or transport the machine whilst containing dirt as this will add considerable weight.
- Take extreme care when moving the machine up or down steps or stairs.



Bumping over thresholds, kerbs and similar obstacles can damage the machine. Small obstacles can be overcome by pulling the machine backwards.



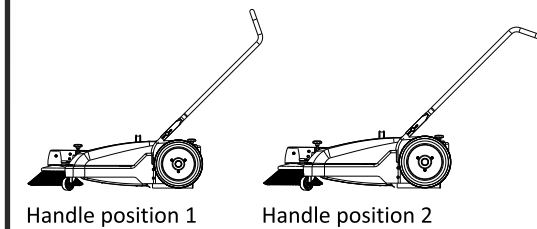
## MACHINE OPERATION

This machine is exclusively designed for Dry Sweeping on Solid, Level and Dry surfaces.

### Assembly

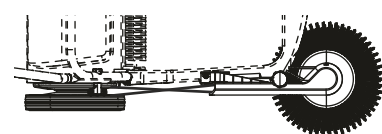
For ease of packing, the handle and side broom assembly are packed separately. These parts must be installed before the machine is put into operation. The handle is mounted by means of knobs.

Handle can be fixed in two different positions as shown below.

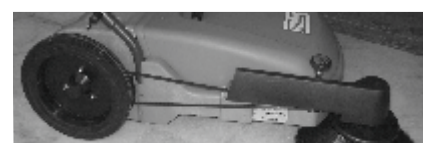
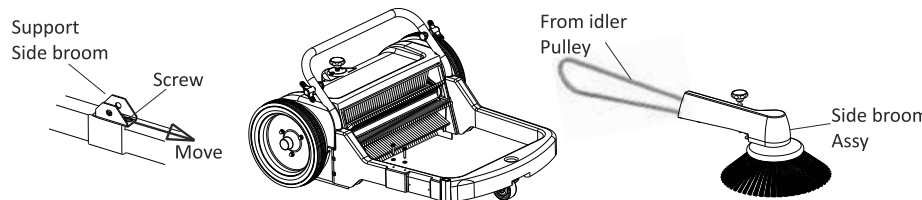


### Side Broom Assembly

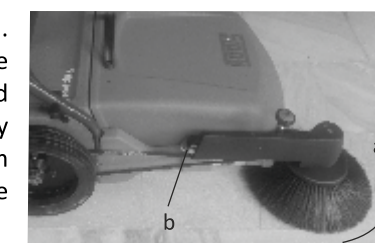
- Mount the side broom to the broom plate on the side arm assembly using hex head bolt and nylock nut.
- Position the V-Belt from the side arm assembly around the pulley attached to the backside of the right wheel. In order to do this it will be necessary to twist the V-Belt. The lower loop of the v-belt should be coming from the idler pulley (not from the broom pulley).



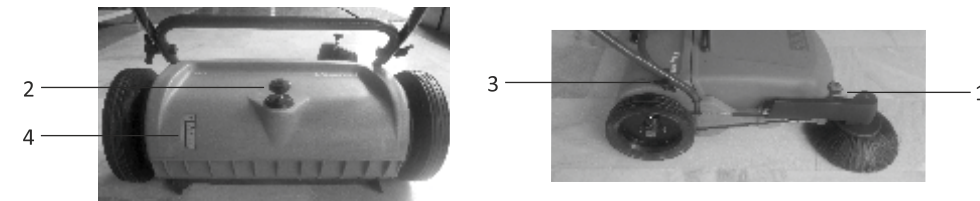
- To attach the side arm assembly to the main frame remove the two screws that have already been inserted into the right side of the main frame.
- Place the V-Belt on to the drive pulley on the wheel, adjust the arm assembly forwards or backwards for the desired tension. Fasten the arm assembly by tightening the screws. Check the broom for free rotation.



- Check for proper rotation and operation of the side broom. The broom should rotate counter clockwise(a) when the sweeper is pushed forward-if not the V-Belt was installed incorrectly. If the belt slips the tension can be adjusted by loosening the 2 screws(b) that attach the support side broom to the frame, move the bracket forward, then re-tighten the screws.

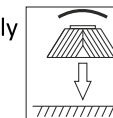


### Controls



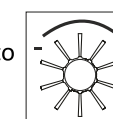
#### 1. Pressure Adjustment Knob for Side Broom

- Used for setting of the side broom pressure. The side broom may touch the floor only by its one third section, so as to throw the swept matter into the machine.
- The castor wheel is to keep the pre-set working height of the side broom.



#### 2. Pressure adjustment knob for Main Broom

- Used for setting of the main broom pressure. The pressure must be set so as to assure perfect cleaning operation.



Excess pressure will cause unnecessary wear of the broom, increased load for the operator and will cause a formation of a dust cloud.

#### 3. Knobs

- Used to secure the handle to the machine or to reposition it.

#### 4. Main Broom Pressure Reading Scale

Indicates the pressure at which the main broom has been set. Setting must be performed as described below:

- Set the main broom by turning the knob clock-wise to increase the pressure, at this position the scale should read '5'.
- Starting with this setting, the main broom pressure can be increased to meet the requirement. (As the broom wears out)
- Turn the knob in counter-clockwise direction to reduce the main broom pressure according to the requirement.



### Working Principle

The machine operates with two brooms. The side broom takes dirt from the edges/corners into the reach of the main broom. The main broom maintains its direction of rotation to throw the dirt into the hopper in forward direction of the machine. To use the machine, simply push it at a normal walking speed.

### Overcoming Obstacles

In case of normal obstacles coming in the way of sweeping the machine should be pressed down at the handle. This will cause the two brooms to lift off from the floor and the machine can easily surmount these obstacles.

### Emptying of Dirt Hopper

The dirt hopper can be easily lifted by using the handle provided. The dirt hopper is secured to the machine by means of the frame. The dirt hopper must be in direct contact with the broom compartment in order to prevent leakage of dirt.

### Renewal of Broom Assemblies

The main broom consists of a broom shaft with two broom core assemblies fastened with six self tapping screws. The broom cores can be replaced as below:

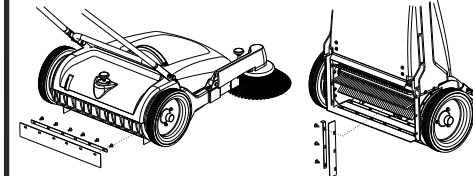
- Unscrew the self tapping screws.
- Pull the broom core assembly to the front (broom viewed from user side) to remove it from the broom shaft.



When reassembly of the broom ensure the split pins are fixed in the holes to guide the broom.

### Rubber Sealing Aprons

The rubber aprons avoid leaking of the dust produced by the broom. Damaged or used aprons cannot fulfil this task any longer and must be replaced.

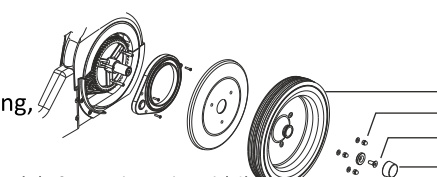


## MAINTENANCE

### Greasing of the Main Wheels

For cleaning and greasing of the wheel axle and the gear ring, the main wheels must be removed as described below.

- Remove hood (a), remove the bolt (b) and domed cap nut (c) from the wheel (d) and pull the main wheel.
- Unscrew the gear cover and apply grease in the gear area.
- Reposition the main wheel.



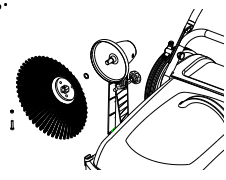
### Replacement and Tensioning of the V-belt

- Lift up the side broom arm.
- Loosen the clamp screw and pull out the side broom from the broom arm.
- Place the V-belt through the broom arm and put it on the V-belt pulley on the broom shaft.
- Push the side broom back into the broom arm and re-tighten the clamp screw.
- Place V-belt into the groove of the right-hand main wheel.

When the broom arm is lowered down, the V-belt must be tensioned so as to allow a perfect drive transmission, if necessary re-tighten by shifting of the side broom arm bearing.

### Replacement of the Side Broom

The side broom can be replaced after removing hex-bolts from the side broom axle.



### Regaining of Bristles

If the bristles have been bent inwards in transit the side broom must be placed on a flat base, the bristles pointing outward and a weight must be placed on the plate. The bristles will regain their correct position gradually. If the bristles have been bent outwards, bring them together apply a rubber band around the bristles and allow it to stay for sometime. The bristles will regain their correct position gradually.

### Maintenance Works

Compliance with our operating and maintenance instructions will ensure trouble free and smooth operation of the machine we have supplied.

The machine requires minimum maintenance apart from the checks by the operator such as Dirt hopper, Brooms, V-Belt.

### Maintenance Intervals

Daily	Weekly	Monthly
- empty dirt hopper.	- clean & lubricate.	- grease the main wheels, check the main/caster wheels for wear.
- clean the unit.	- clean & grease trunnion - main broom	- check V-belt tension, if necessary, re-tighten.
- check Brooms and Sealing Aprons.		
- remove the ropes, tapes etc entangled in the main broom shaft.		

### Maintenance Chart

Maintenance works	Operating hours			
	Daily	Every 50	Every 100	Every 200
Check main & side broom pressure	●			
Check rubber sealing aprons in frame & hopper	●			
Check gear & pinion				●

### Troubleshooting

Trouble	Remedial Action
Machine hard to push/pull	Decrease main broom pressure setting, grease main wheels.
Sweeping unsatisfactory	Increase main/side broom pressure, clean main/side broom, check broom for loose bristles.
Traces of dirt left behind the machine	Check side/rear rubber aprons.
Side broom not rotating	Check V-belt for transmission.

## DO'S & DON'T'S

### Do's

- Use the machine in even surface.
- Clean the dirt hopper each and every time after every use.
- Service the machine at the specified intervals regularly for proper functioning of the machine.
- Before each operation check the main broom, side broom & dirt hopper of the machine for its proper function.
- Rubber sealing aprons must be replaced when it is damaged or after a long use.
- Park the machine in a dry place.
- Use only the genuine brooms of Roots or specified by Roots Service Center.
- When the dirt hopper is full beyond its filling capacity, empty the dirt hopper.
- Children must be kept away from machine during the operation.
- Side broom to be used only for cleaning corners & edges.

### Don't's

- Do not use the machine in wet slushy and rough areas.
- Do not force the machine to collect heavy debris.
- Do not clean the machine with vapour jet or high pressure cleaning equipment.
- Do not let the debris stay in the dirt hopper for a long period of time.
- Do not abuse the machine beyond its operational tolerance.
- Do not use the machine to carry objects.
- Do not transport the machine down the stairs by pushing or pulling.
- Do not transport the machine when the dirt hopper is full.
- Do not park the machine in harsh sunlight.
- Do not use the machine on steps.
- Do not collect lengthy ropes/tapes.

## TECHNICAL SPECIFICATION

Technical data	Units	Values
Sweeping Width (with side broom)	mm	650
Sweeping Width (without side broom)	mm	460
Theoretical area coverage	m <sup>2</sup> /h	2600
Dirt Hopper capacity	L	40
Length (without / with side broom)	mm	800 / 1000
Width (without / with side broom)	mm	725/785
Height (without / with handle)	mm	400 / 1020
Weight	kg	23.5