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ROAD SWEEPER

mod. S 150



USE AND MAINTENANCE MANUAL

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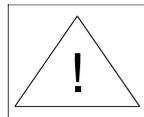
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1. SAFETY AND GENERAL RULES

1.1. INTRODUCTION

This User Manual is an integral part of the machine and its purpose is to provide all the information aimed at:

- Properly informing operators about safety issues;
- Allowing in depth knowledge of machine operation and limitations;
- Allowing proper use under safety conditions;
- Carrying out maintenance operation in safe and proper way;
- Dismantling the machine safely and in compliance with applicable standards on protection of both operators and the environment.



WARNING

The operators concerned are required, in accordance with current standards, to read the contents of this Instruction Manual and ascertain operators and maintainers read the parts concerning their specific tasks. The time taken for the purpose will be largely compensated by the correct operation of the machine and by its use under proper safety conditions.

This document assumes that, in the place the machine is meant to be used, all applicable safety and hygiene standards are complied with.

The instructions, drawings and documents contained in this Manual are of technical confidential nature, an exclusive property of the Manufacturer and may not be reproduced in any way, either wholly, or in part.

The customer also has the responsibility to make sure that, if this document is modified by the manufacturer, only the updated versions of the Manual are actually present at the workplace.

1.2. WARRANTY

The MANUFACTURER warrants the road sweeper for a period of twelve (12) months from the date of purchase or for different periods when specially agreed. Such a warranty only covers those parts that, after being carefully examined by the Technical Office of the MANUFACTURER, are actually deemed faulty. Labour, as well as any operation costs, is always charged to the customer or the dealer.

The warranty, excluded any liability for any direct or indirect damage, is considered limited to defects in material and is considered void if the faulty parts turn to be removed, tampered with or repaired outside the factory or authorized Service Centres. Shall prevail, however, the delivery document to the user.

In any case, the user will be charged the costs afforded for the replacement of lubricants, for transport costs, any customs duties and VAT.

The replacement or repair of parts under warranty will not extend in any case the terms thereof.

1.2.1. WARRANTY EXCLUSIONS

The warranty does not cover damage caused by neglect, abuse, misuse and improper use or mishandling of the road sweeper. Removal of safety devices the road sweeper is equipped with will automatically void the warranty and any MANUFACTURER'S liability.

In addition, the warranty and liability are voided if not original spare parts are used. The User can assert his rights on the warranty only if he has complied with the conditions relating to the relevant provisions stated on the supply contract.

1.3. TERMINOLOGY

The "*Section 2 - General safety rules*" contains all the terms that will allow the user to operate correctly and safely with the road sweeper and to fully exploit the possibilities of use allowed.

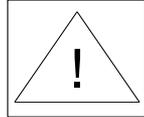
1.4. EQUIPMENT OF THE ROAD SWEEPER

Upon delivery of the sweeper the following are provided:

- EC Declaration of Conformity
- Instruction, maintenance, spare parts manual

- Road approval certificate

1.5. SAFETY.



WARNING

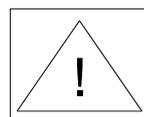
Before operating the Machine, please carefully read the instructions contained in this Manual and fully comply with them.

The manufacturer has made every effort in designing this machine, ensuring it is INTRINSICALLY SAFE as much as possible. When building a new machine the Manufacturer always tries to anticipate all possible hazardous situations, thus taking all appropriate safety measures. In any case a high level of accidents still remains, due to improper and inexperienced use of various machines.

The machine is also equipped with all guards and safety devices deemed necessary; and finally it is accompanied by sufficient information for safe and correct use.

To this end, in each chapter, when necessary and for each man-machine interaction, the following information has been indicated:

- Minimum qualification required of the operator;
- Number of workers required;
- Machine status;
- Residual risks;
- Personal protective equipment required or recommended;
- Human error prevention;
- Prohibitions/obligations relating to reasonably foreseeable misconducts.



WARNING

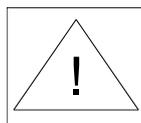
This information must be strictly observed.

The user can usefully complement the information provided by the manufacturer with additional work instructions, obviously not in conflict with the contents of this User Manual, in order to improve the safe use of the machine.

When necessary the Manual will be added by the user further recommendations on preventive measures, on personal protective equipment, information aimed at preventing human errors and prohibitions on reasonably foreseeable not permitted behaviours and actions.

However, it is essential to carefully observe the following information:

- It is strictly prohibited to disconnect the safety devices the machine is provided with.
- Washing operations must be carried out when the machine is switched off and the ignition key removed from the panel;
- Do not change any parts of the machine; in case of malfunctioning, due to a failure in complying with the above mentioned instructions, the manufacturer is not liable for the consequences. It is advisable that any changes, when deemed necessary, are directly carried out by the manufacturer;
- Clean the covers of the machines, panels and controls with soft and dry rags, do not use any solvents, such as alcohol or petrol, as these may damage the surface;
- Use the machines as stated when ordering, otherwise the manufacturer cannot be deemed liable for any faults.



This information must be strictly observed.

The manufacturer is deemed not liable for damages caused by the machine to persons, animals or property when:

- **the staff using the machine is not adequately trained;**
- **the machine is not properly used;**
- **it is used to clean surfaces with a slope greater than 10%;**
- **it is used to clean uneven surfaces (rough or presence of holes);**
- **U-turns are carried out at a speed exceeding 3km/h and slopes greater than 5%;**

- **the machine is used in not ventilated areas, with the presence of substances hazardous to health, particularly in environments with risk of explosion and/or inadequate micro-climatic conditions;**
- **power, hydraulic or pneumatic supply are defective;**
- **the installation is incorrect;**
- **scheduled maintenance is not carried out;**
- **unauthorized changes, operations or applications are carried out;**
- **non-original spare parts, or not specific for the model concerned, are used;**
- **instructions are totally or partially disregarded;**
- **use is contrary to specific national standards;**
- **disasters and exceptional take place.**

1.6. TERMINOLOGY USED

To complete the description of the various levels of danger, the situations and specific definitions that may directly involve people or machinery itself are herein described.

HAZARDOUS AREA: any area within and/or around machinery in which the presence of a person constitutes a risk to her safety and health (EEC Directive 2006/42).

EXPOSED PERSON: any person wholly or partially in a danger area. (Directive EEC 2006/42)

OPERATOR: the person/s appointed to install, operate, adjust, maintain, clean, repair and transport a machine. (Directive EEC 2006/42)

USER: the user is the person or body or company that has purchased, rent or taken over the machine and intends to use it or use it for its intended purposes.

QUALIFIED STAFF: those persons specially trained and authorized to carry out maintenance operations and/or repairs that require specific knowledge of the machine, its operation, safety standards, and operating methods and are able to recognize the dangers arising from the use of the machine and are therefore able to avoid them.

AUTHORIZED SERVICE CENTRE: the authorized service centre is the structure, legally recognized by the Manufacturer, which has a staff qualified and trained to carry out all servicing, maintenance operations and repairs of a certain complexity which are required to maintain the machine in perfect working conditions.

1.7. SAFETY MEASURES

The road sweeper is equipped with the following safety devices

- Flasher operated when the machine is turned on;
- Audible reverse alarm
- Optional reversing camera
- Safety supports to carry out operations under the raised container
- Front towing hook

1.8. SAFETY SIGNS

The machine has been designed taking all possible safety and protection measures for those using it. Nevertheless, there may be further **RESIDUAL RISKS** which are suitably marked on the machine with **adhesive symbols** indicating the various **unsafe and hazardous conditions in summary form. Keep those signs intact and clean. The user is required to replace them when loose or damaged.**

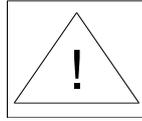
Carefully read the information given by symbols and memorize their meaning.

- Before starting the road sweeper, carefully read the user manual.
- Before any maintenance and/or adjustment, stop the sweeper, remove the ignition key and carefully follow the instructions in the manual.
- It is forbidden to transit or stand in the field of action of the machine.

1.9. SYMBOLS RELATING TO SAFETY

- **The symbols contained in a triangle indicate DANGER.**
- **The symbols contained in a circle impose a PROHIBITION/OBLIGATION**

1.10. CLOTHING



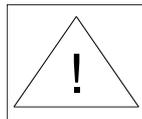
This information must be strictly observed.

The user can usefully complement the information provided by the manufacturer with additional work instructions, obviously not in conflict with the contents of this User Manual, in order to improve the safe use of the machine.

For example, it is important to pay attention to the clothing that anyone operating on the machine wears.

- Avoid using clothes with hooks that can remain attached to parts of the machine;
- Avoid using ties and other loose clothing;
- Avoid wearing bulky rings or bracelets that can entangle hands to machine components,
- It is absolutely forbidden to use loafers, clogs, slippers, or other footwear that may affect mobility and stability
- Avoid using solvents, such as alcohol or petrol, as these may damage the surface;
- Place the machine as specified at the time of the order according to the diagrams provided by the manufacturer, otherwise the latter is not liable for any inconvenience.

1.11. ECOLOGY AND POLLUTION

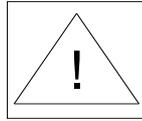


This information must be strictly observed.

Comply with the laws in force in the Country where the sweeper is operated regarding the use and disposal of cleaning and maintenance products and also observe the recommendations provided by such products manufacturers.

In the case of disposal comply with anti-pollution regulations laid down by the local regulatory Authorities in the Country of use. If necessary, perform various internal legal procedures for the disposal of machinery and/or its parts.

1.12. SAFE USE



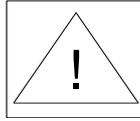
This information must be strictly observed.

The operator, whether he operates continuously or occasionally the sweeper, must have suitable knowledge and skills and follow basic and simple rules of conduct to ensure safe to him and others, also preserving the sweeper from possible damage.

It is strictly forbidden to operate or make the sweeper be operated by those who have not read and fully understood this manual, as well as those not specifically qualified and not in good health. The sweeper must be used by an adult operator and in good physical and mental condition.

- Before operating the sweeper, check that all safety devices are operational.
 - Before starting work, it is necessary to become familiar with the controls and their functions.
 - Make sure the work area is not occupied by people or things.
 - It is strictly forbidden to touch moving parts or interpose between them.
 - The area in which the sweeper must be used is to be considered "HAZARDOUS", especially for people not properly trained to use it.
 - When a person is within the "HAZARDOUS AREA" the operator must immediately act by stopping the machine and removing the person.
- When it is required to operate in the vicinity of power lines, keep the sweeper and its components at a safe distance. The sweeper mainly consists of metal, therefore, if it comes in contact with a power line or a discharge occurs between the line and the compactor, the operator may be involved suffering fatal consequences.
 - After use, remove the ignition key, located on the panel in the cab. The key of the vehicle must be exclusively kept by the operator or in any case by any other person authorized by the user.

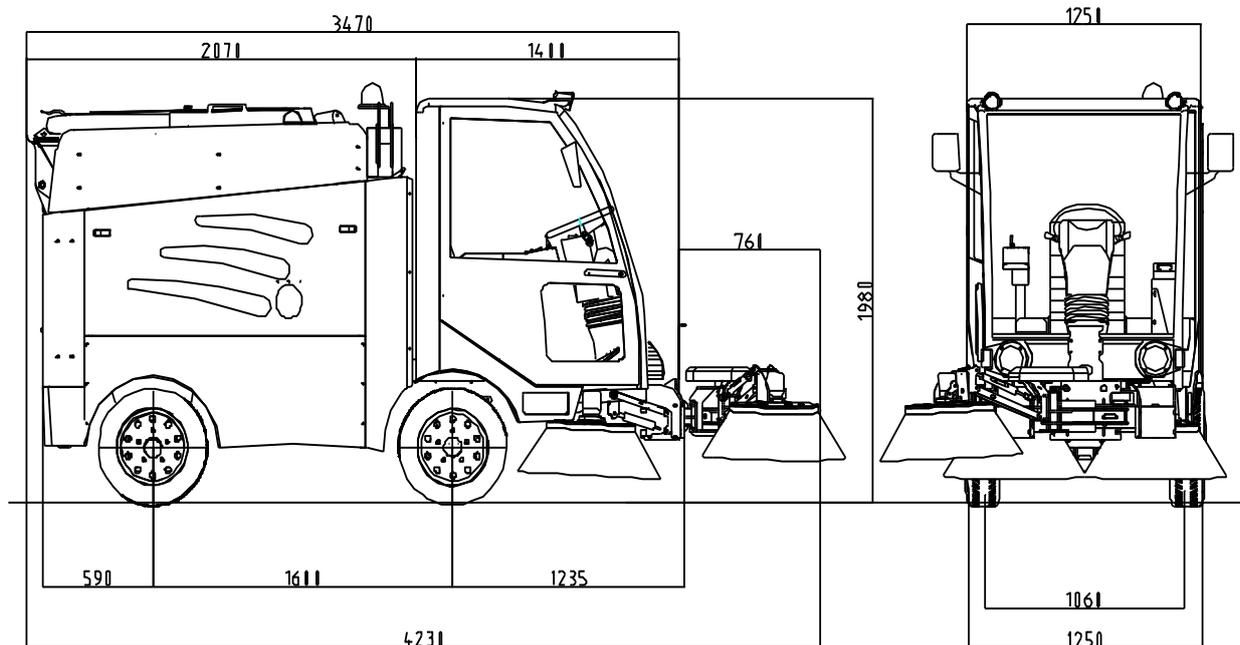
1.13. SAFE MAINTENANCE



This information must be strictly observed.

- Periodically check the integrity of the protection devices of the sweeper.
- Periodically check the tightening of frame fixing screws, the fastening and the sealing of screws distributed in the various components of the machine, the tightening of hydraulic fittings, check the state of piping and provide for possible replacement to prevent bursting.
- Use oils compliant with those recommended by the manufacturer and replace both oil and filters according to the ways he prescribes.
- ONLY USE ORIGINAL SPARE PARTS.
- It is strictly forbidden to remove or tamper with safety devices.
- The maintenance of the unit must be carried out only by qualified staff or strictly following the instructions herein contained.
- Do not perform any maintenance or cleaning operations unless the ignition key is removed and the safety support inserted. The key, then, must be guarded so as not to allow any unauthorized person to perform any maintenance operations and/or starting the machine inadvertently.
- Strictly follow the maintenance as recommended in this manual. Damaged or worn components must only be replaced by qualified staff.

2. GENERAL CHARACTERISTICS AND TECHNICAL DESCRIPTION



2.1. **MACHINE DIMENSIONS**

- Total length 3740 mm - 4230 mm (with third brush)
- Overall width: 1250 mm
- Total height: 1990mm

2.2. **FRAME**

The frame is made of steel and constitutes the supporting structure of all vehicle components. The frame is provided of four wheels arranged on two axles: the rear drive one is rigidly secured to the frame and the front steering one is equipped with leaf spring suspension.

2.3. **WASTE CONTAINER**

The waste collecting container is made of Stainless Steel. Its top is closed by an iron lid openable by gravity during unloading. The lid is provided with a metallic filter made of perforated sheet, to prevent the escape of volatile wastes such as paper, leaves, etc... At the lower part of the container is the outlet for the recovery and discharge of waste water used to remove dust at the suction mouth. The container is completely watertight and to increase its working capacity it can be loaded with about 100 litres of water to be used as recycled water. The mechanism is hand-operable though a lever-operated ball valve. Between the lid and the container is a sealing

gasket. The rear tipping at 90° is obtained through two hydraulic cylinders electro-hydraulically operated by the cab. The rotation takes place on two hinges placed at the rear part of the frame. The high position of the hinges allows the discharge also in street garbage bins. In case of emergency it is possible to carry out unloading through a pump manually operated.

2.4. DRIVER'S CAB

One seat driver's cab, with ergonomic seat placed in the middle of the structure on an elastic support spring. The cab is equipped with two side doors with sliding windows, rear view mirrors, electric single-arm front wiper and air conditioning. To the right of the driver's seat there is an armrest with the operating controls of the brushes and the suction mouth. On the floor are the advancement control pedal, the brake pedal, the brake oil tank, the flow regulator for adjusting the brushes speed, and the manual inverter to change the direction of rotation of the third brush and the pedal for opening the front flap of the suction mouth.

An adjustable steering column allows ergonomic positioning of the steering and includes the necessary tools to control the machine. At the front lower part of the vehicle are positioned two triple headlights and indicators, at the top part are two work lights.

2.5. COLLECTION AND SUCTION SYSTEM

The collection system of the sweeper is of the suction type. The suction fan is in a vertical position between the container and the water tank. The air sucked is freely discharged at the top of the tank lid. In the lower part of the duct is positioned the loading mouth, it is placed in the front of the vehicle at the centreline of the axle and can be raised using the specific cylinder during transfer for overcoming possible obstacles. At the front steered wheels are two brushes for the collection and the conveyance of waste in the mouth. The circular truncated cone-shaped brushes are driven by orbital motors and in addition it is possible to lift them for transfer or pivoting them right and left to increase the operating space. Their number of revolutions can be adjusted by acting on a manual flow adjuster, placed like all other controls, in the driver's cab. Upon request, the vehicle can be provided of a third brush placed at the front of the driver's cab to further enlarge the cleaning path and to clean ditches and side walk edges.

The sweeper is also equipped with a manual leaf vacuum hose housed externally and exposed on the lid of the tank, if necessary it can be attached to the collection tank through the appropriate door.

Water system for dust removal and/or cleaning operations.

The machine is equipped with a water system to be used to suppress dust during sweeping. The same water can be used for washing under pressure.

To wash the vehicle there is a system consisting of a high-pressure pump with a winder, placed behind the driver's cab, with spring return and water nozzle.

2.6. HYDRAULIC SYSTEM

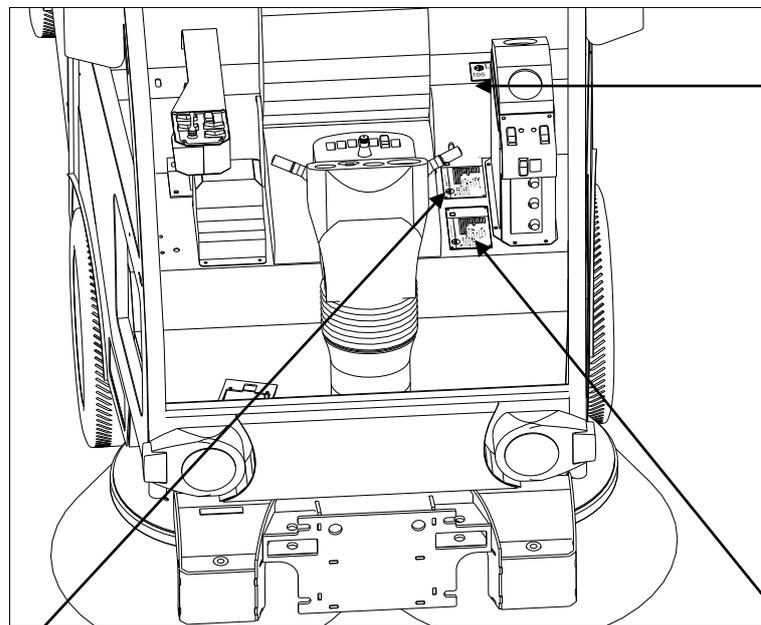
Consisting of a hydrostatic pump for traction with remote hydraulic control via the electro-hydraulic pedal in the cab; no. 1 gear pump for operating the hydraulic engine of the suction fan and the hydraulic engine of the high-pressure water pump; no. 1 pump gear for power steering and other operations; no. 1 gear pump for brush rotation. Iron tank for hydraulic oil and filter with dual-function valves, distributors, regulators for various functions as well as rigid and flexible hoses. The movements of the brushes and tipping of the container are obtained thanks to the hydraulic cylinders. The hydraulic system is completed by an emergency system consisting of a hand pump for lifting and unloading the container and for releasing the parking brake.

3. DEFINITIONS

The knowledge and positioning of the main elements of the sweeper will allow better understanding of the instructions.

3.1. IDENTIFICATION PLATE OF THE VEHICLE

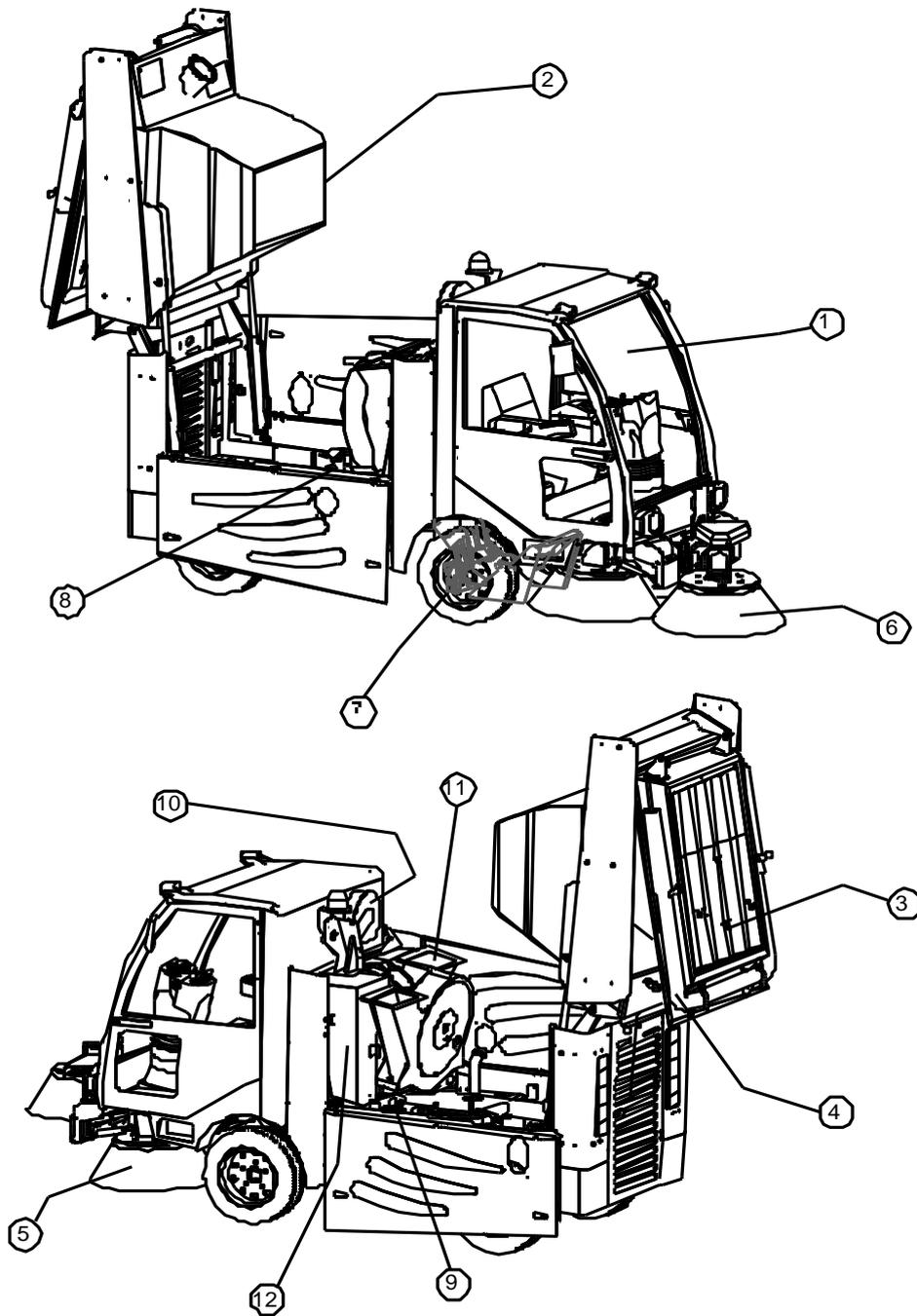
The identification plate is located in the cab of the sweeper, at the base of the column conditioning. This plate shows the recognition details of the machine and the allowable mass and load values.



ING.O.FIORENTINI spa		MADE IN ITALY	CE
Loc. Rombola 50030 - Piancaldoli (FI) Tel. 0558173610 - Fax. 055817144			
Mod. S150	S.N. 00000000000		
V 12	Hz		
Kg 3000	A	W 3300	2
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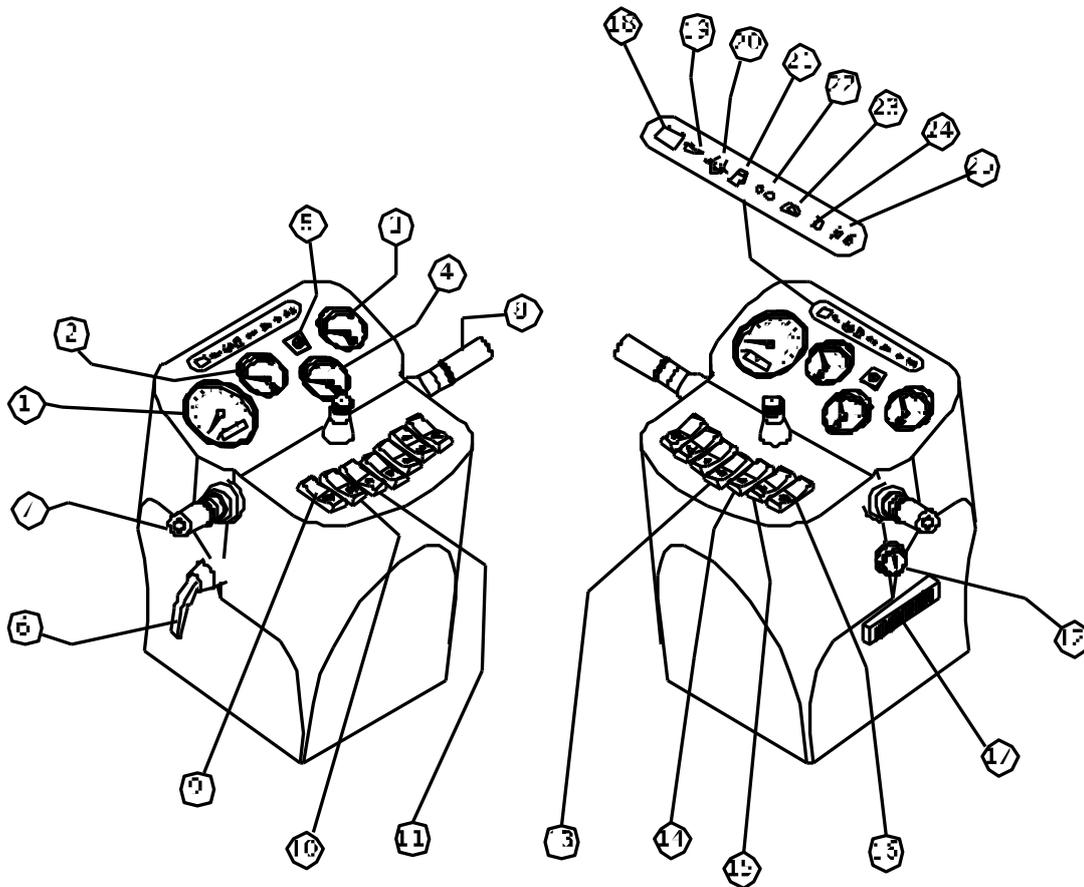
	Ing. O. FIORENTINI Spa PIANCALDOLI - FI -	 (1)
Tipo: <input type="text"/>		
N° omologazione: <input type="text"/>		
N° identificazione: <input type="text"/>		
Massa totale ammissibile (Kg): <input type="text"/>		
Carico ammissibile sul 1° asse (Kg): <input type="text"/>		
Carico ammissibile sul 2° asse (Kg): <input type="text"/>		
Massa rimorchio ammissibile (Kg): <input type="text"/>		
- non frenata: <input type="text"/>		
- con frenata indotta: <input type="text"/>		
- con frenata ad inerzia: <input type="text"/>		
- con frenata assistita: <input type="text"/>		

3.2. GENERAL STRUCTURE



POSITION	DESCRIPTION
1	DRIVER'S CAB
2	WASTE CONTAINER
3	CONTAINER LID
4	LEAF VACUUM HOSE
5	BRUSHES
6	THIRD BRUSH
7	SUCTION MOUTH
8	FUEL TANK
9	OIL TANK WITH HAND RECOVERY PUMP
10	WATER NOZZLE AND WINDER (HIGH-PRESSURE WASHER)
11	SUCTION FAN
12	WATER TANK

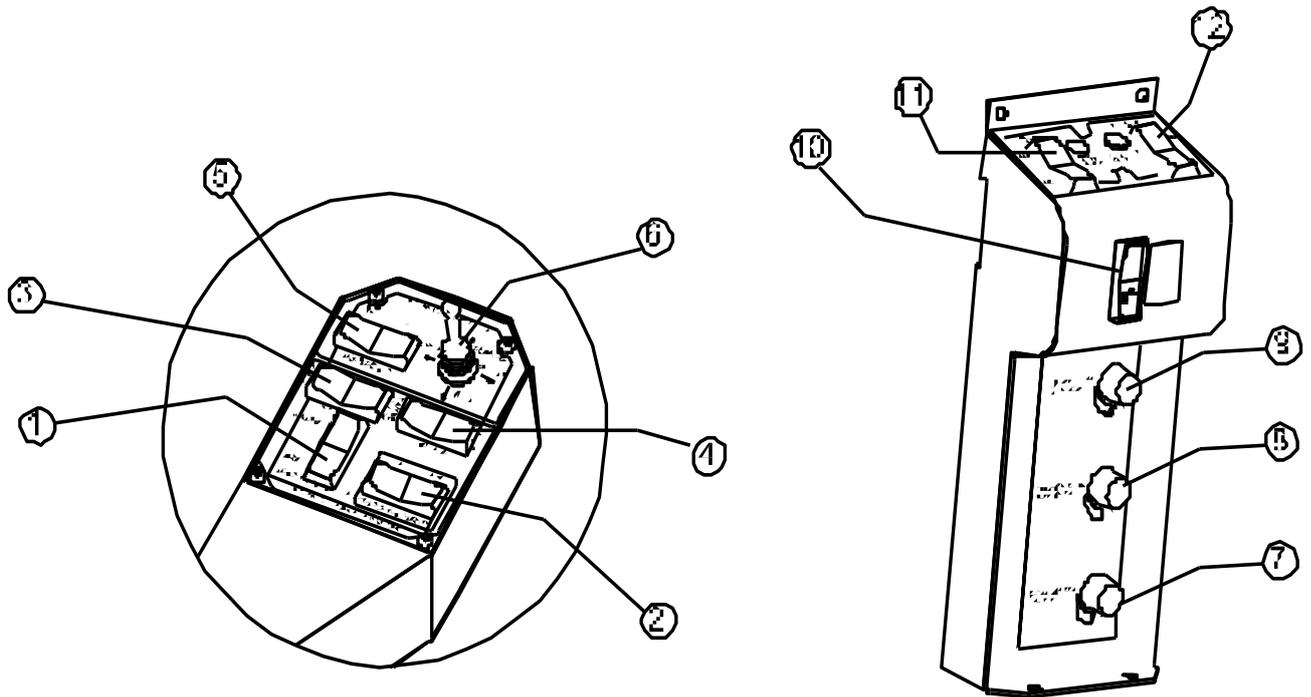
3.3. STEERING COLUMN CONTROLS



POSITION	DESCRIPTION
1	TACHOMETER WITH HOUR METER
2	WATER TEMPERATURE GAUGE
3	INDICATOR UNUSED
4	DIESEL LEVEL INDICATOR WITH RESERVE LIGHT
5	LOCATION NOT USED
6	STEERING COLUMN POSITION ADJUSTMENT LEVER
7	STEERING COLUMN SWITCH UNIT
8	STEERING COLUMN SWITCH UNIT
9	FAN POWER BUTTON
10	REAR FOG LIGHT BUTTON

11	WORKING LIGHT
12	START SWITCH
13	WIPER BUTTON
14	EMERGENCY LIGHTS BUTTON
15	BUTTON TO RAISE/LOWER THE CONTAINER
16	PARKING BRAKE BUTTON
17	FUSE BOX
18	BATTERY ALTERNATOR WARNING LIGHT
19	POSITION OFF
20	OIL PRESSURE WARNING LIGHT (Stop the engine immediately if it lights up during work)
21	RESERVE WARNING LIGHT FOR WATER (used for brushes-mouth-washes)
22	DIRECTION WARNING LIGHTS
23	WARNING LIGHT FOR CONTAINER RAISED
24	HEADLIGHTS WARNING LIGHT
25	PARKING LIGHTS WARNING LIGHT

3.4. OPERATING CONTROLS FOR BRUSHES AND SUCTION



POSITION	DESCRIPTION
1	BUTTON TO RAISE/LOWER BRUSHES AND MOUTH
2	ON-OFF BUTTON FOR SWEEPING UNIT ROTATION
3	BUTTON TO EXTEND-RETRACT LEFT BRUSH
4	BUTTON TO EXTEND-RETRACT RIGHT BRUSH
5	BRUSH FOR RIGHT-LEFT THIRD BRUSH SHIFTING
6	4-POSITION JOYSTICK FOR THIRD BRUSH HANDLING
7	THIRD BRUSH WATER TAP
8	RIGHT-LEFT BRUSHES WATER TAP
9	SUCTION MOUTH WATER TAP
10	HIGH-PRESSURE WASHER BUTTON
11	WATER PUMP BUTTON
12	WATER RECYCLING TAP BUTTON

3.5. OPERATING PRINCIPLES OF THE SWEEPER

The front brushes and the third brush convey the trash and head it towards the suction mouth.

The turbine generates a depression in the closed waste container, thus creating a suction effect in the suction mouth.

Dust removal is obtained through a water system. The water is pumped towards the nozzles, located on the brushes and on the suction mouth and hose.

In the waste container, the water seeps through the grating at the bottom of the hopper. From there it is returned without pressure to the suction mouth and then re-used to remove dust. This is called water recycling system.

4. SWEEPER OPERATION

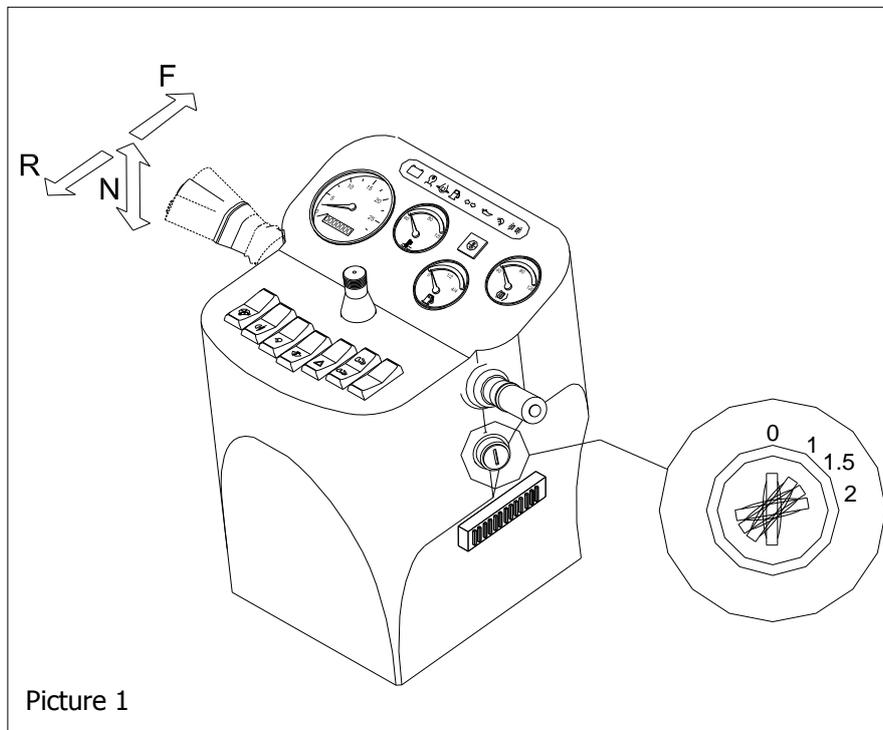
4.1. ENGINE STARTING AND STOPPING

Climb in the cab and insert the key into the ignition switch, turning it until the panel lights up (**POS 1**). [See Picture 1]

Make sure that the lever of the manipulator is in the neutral position (**M**). [See Picture 1]

Turn the switch to position **1.5** to pre-heat the glow plugs [See Picture 1]

Turn the switch to position **2** to start the engine [See Picture 1]



To stop the engine turn the key to position 0 of the switch. [See Picture 1]

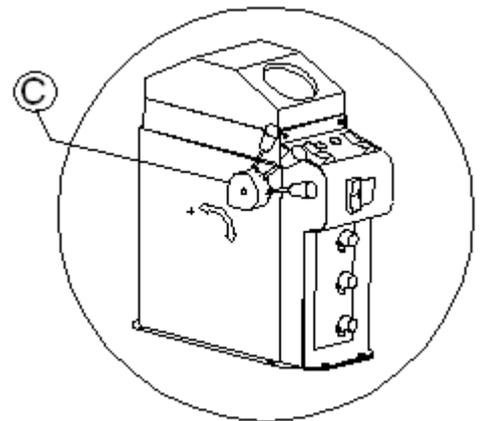
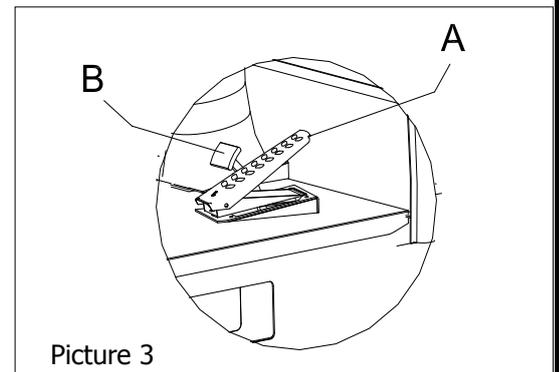
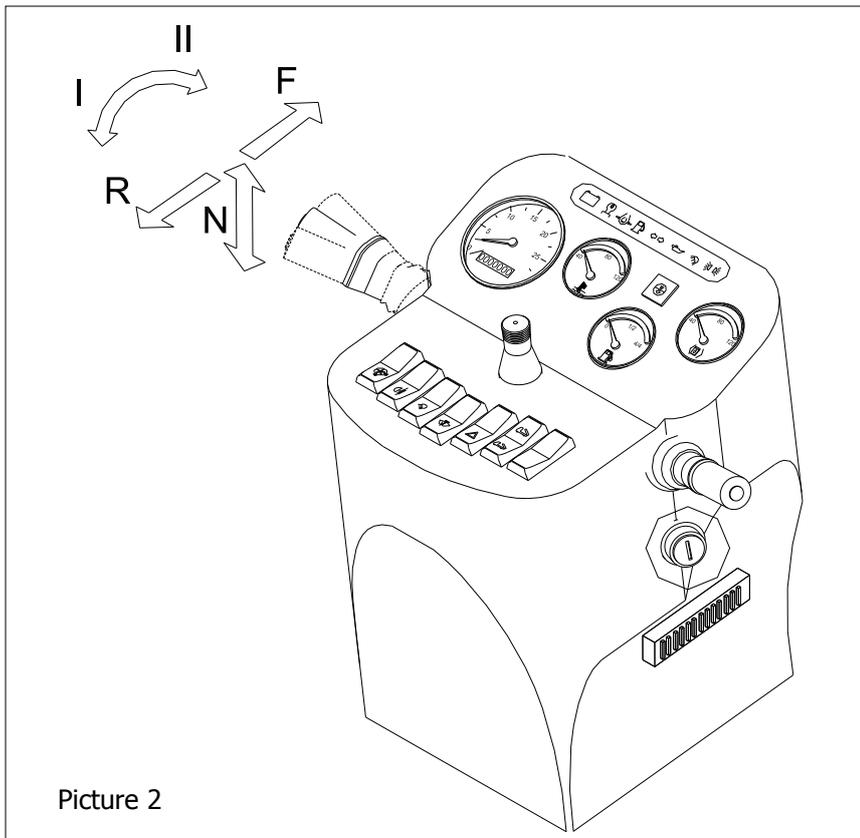
4.2. TRANSFER TO THE WORKING AREA

After starting the engine, select the steering column switch unit lever [See Picture 2] to choose the required direction of travel.

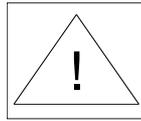
Select the speed level:

Transfer speed position **II**

To move forward, press the relevant control pedal "A"[See Picture 3]

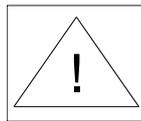


PLEASE NOTE: The transfer speed can be adjusted by varying the number of revolutions of the engine, using the manually operated lever on the column at the left of the operator and the pedal shown in Picture 3.



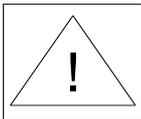
WARNING

When the forwarding pedal is released, the hydrostatic drive brakes until stopping the sweeper. If this is not enough also use the service brake "B" (see Picture). The forwarding pedal must be used and released carefully and gradually to avoid dangerous jamming of the sweeper. BEFORE START MOVING THE VEHICLE MAKE SURE THAT THE PARKING BRAKE IS OFF (switch button 16 chap. 3.3)



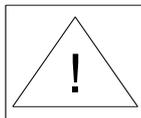
WARNING

When using the transfer speed (position II) the operating controls are completely disabled.



WARNING

After stopping, before leaving the vehicle, pull the steering column switch unit lever in neutral position "N" AND ONLY WHEN THE VEHICLE IS FULLY STOPPED INSERT THE PARKING BRAKE BY USING THE SUITABLE BUTTON (button no. 16 chap. 3.3)



WARNING

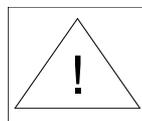
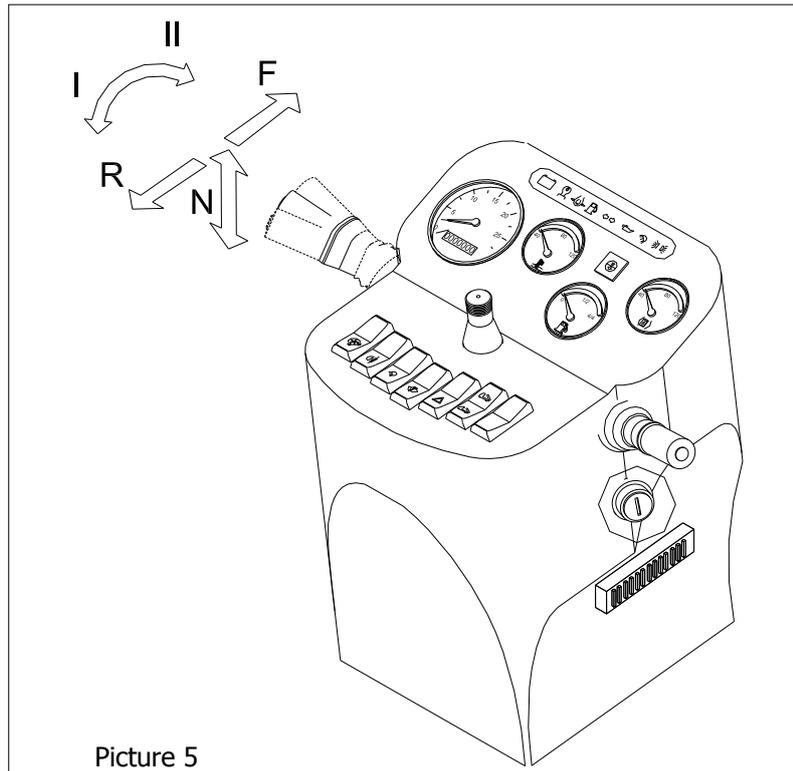
The choice of the driving speeds (transfer and working) must never be carried out when the machine is moving.

4.3. GUIDE TO THE WORKING SPEED

Once on the work area, select the speed level:

Working speed position **I**

To move forward, press the relevant control pedal "A"[See Picture 5]

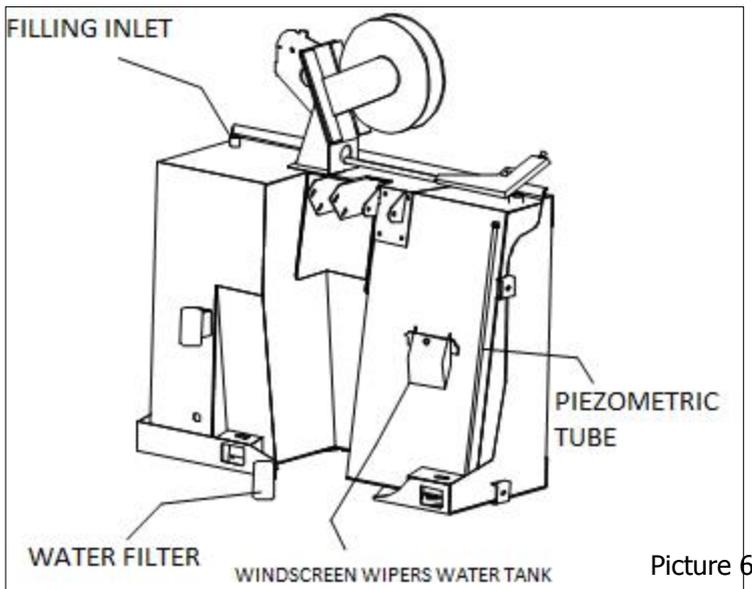


WARNING

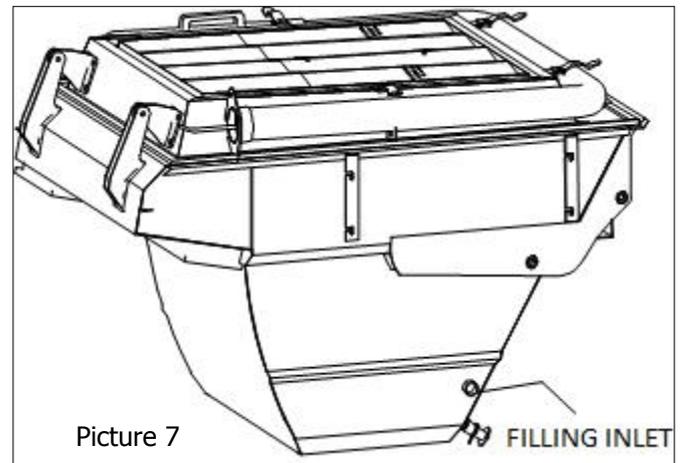
Only drive with the doors closed. Never leave the vehicle while running.

4.4. FILLING THE WATER TANK

- Fill with fresh water the tank behind the driver's cab through the filling inlet (capacity of about 250 l) [See Picture 6].
- Fill the recovery water reservoir, on the left side of the container (capacity about 100 l) [See Picture 7].

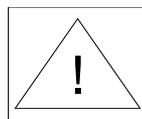


Picture 6



Picture 7

4.5. EXTERNAL PREPARATIONS

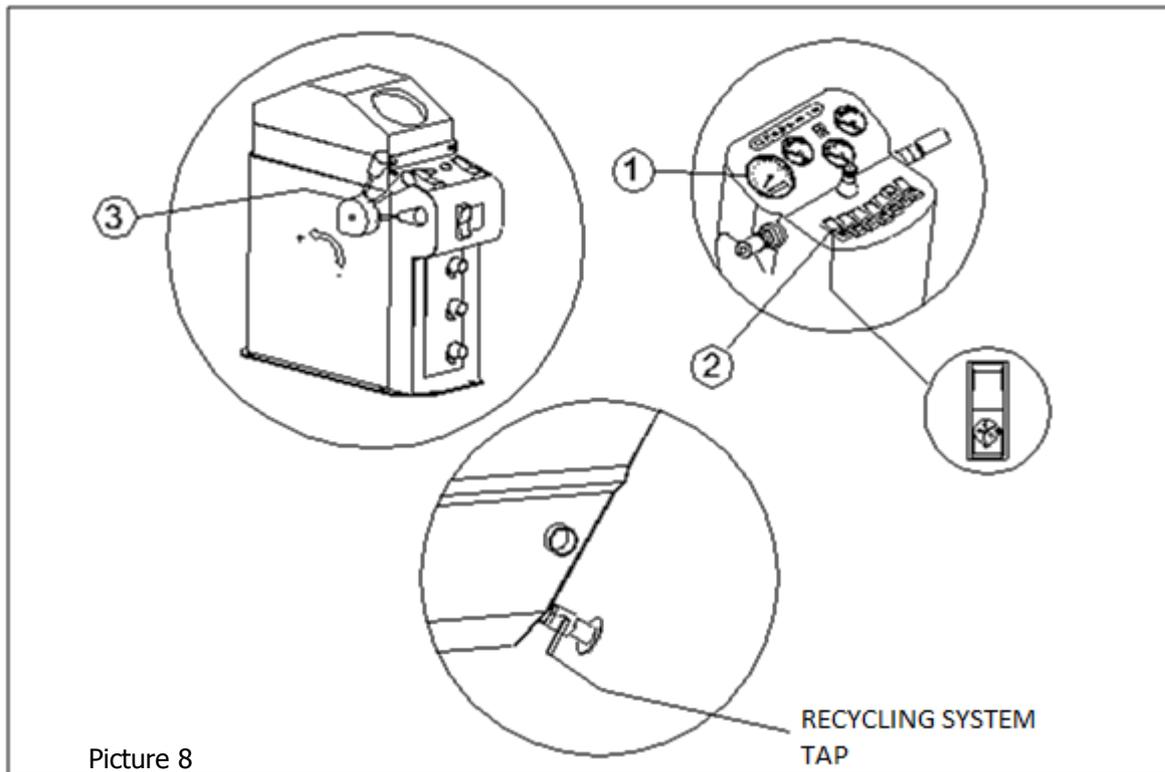


WARNING

Handle the brushes and related coupling devices only when the engine is off

Immobilize the vehicle for the basic settings and choose the working speed **I** and shift the steering column switch unit lever to the neutral position **N**.

4.6. ADJUSTING TURBINE AND RECYCLING



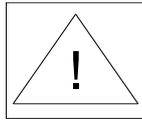
Climb in the cab, turn on the fan suction button **POS 2** [See Picture 8] and bring the revolutions of the turbine at 1500 rev/min via the lever located at the left of the driver **POS 3** [See Picture 8].

Get out of the car and open the recycling tap at the bottom left of the container.

NOTE: The electrical operation of the recycling cycle is available, as optional, through a button in the cab.

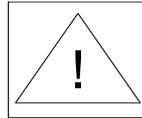
During the working phase it is possible to increase the rev/min of the turbine through the mechanical adjustment lever **POS 3** [See Picture 8].

The manufacturer recommends working with a number of revolutions ranging from 1800 per min to a maximum of 2000 per min. For particularly heavy waste, and for a reduced period of time (5 min), a maximum value of 2200 rev/min can be reached. A mechanical locking device facilitates adjustment of the engine speed for working mode.



WARNING

Do not exceed the maximum rotation speed threshold of the turbine set by the manufacturer.



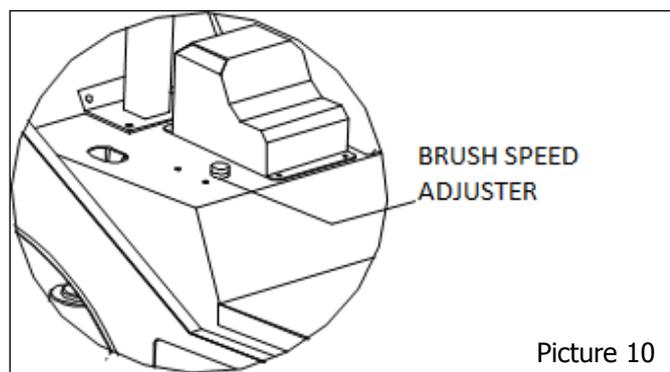
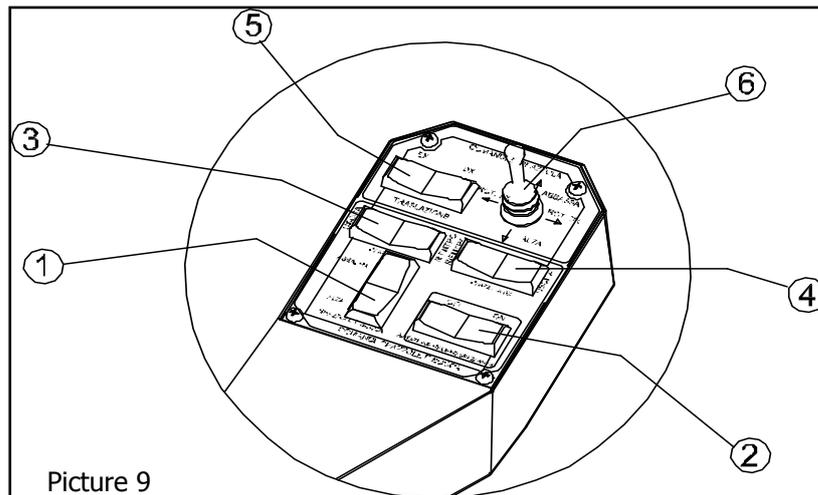
WARNING

Before operating the brushes check the surrounding area.

4.7. SWEEPING UNIT AND SUCTION MOUTH

The sweeping unit consists of two brushes placed at the front wheels and, upon request, of a third brush at the back of the cabin.

Brushes operation

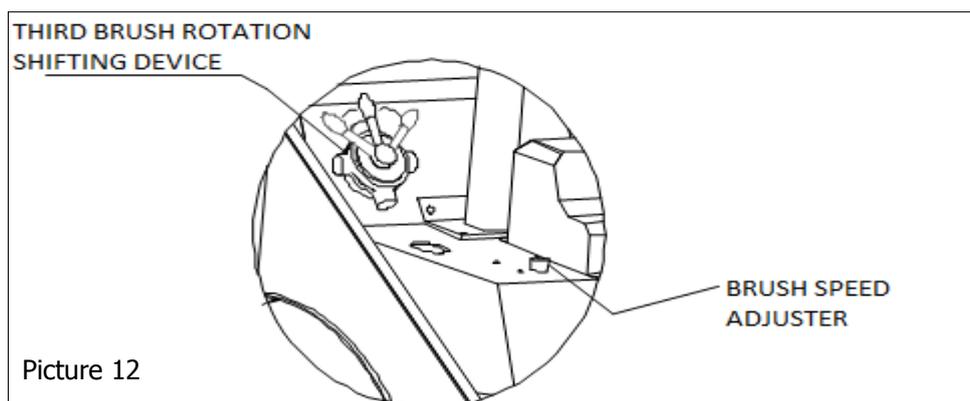
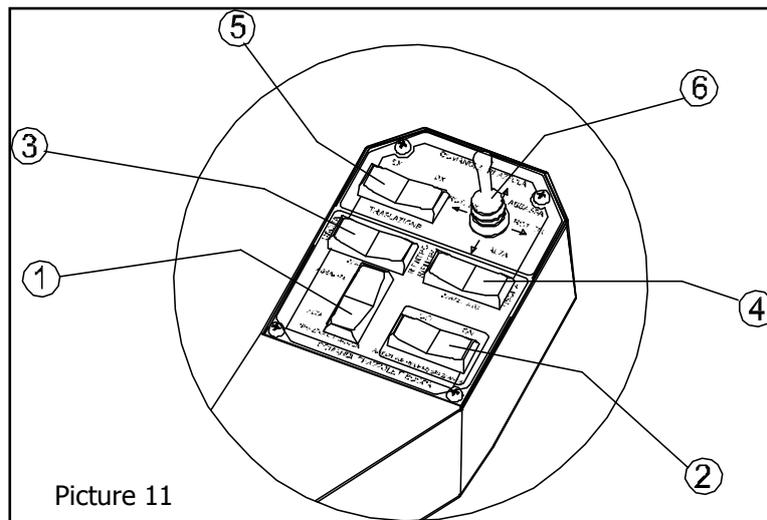


- Lower the brushes button **POS 1** [See Picture 9]
- Activate the brush rotation button **POS 2** [See Picture 9]. Adjust the speed of rotation of the brushes through the green speed adjuster placed on the floor inside the cab. [See Picture 10]

PLEASE NOTE: Always start working with a low rotation speed of the brushes

- The extension and retraction of the left brush is made through the button **POS 3** [See Picture 9].
- The extension and retraction of the right brush is made through the button **POS 4** [See Picture 10].

Third brush operation



The third brush is controlled by a 4-position joystick **POS 6** [See Picture 11].

Adjust the speed of rotation of the brushes through the green speed adjuster placed on the floor inside the cab. [See Picture 12]

PLEASE NOTE: Always start working with a low rotation speed of the brushes

The movements are:

- *Raise brush*
- *Lower brush*

- *Rotation to the right of the third brush*

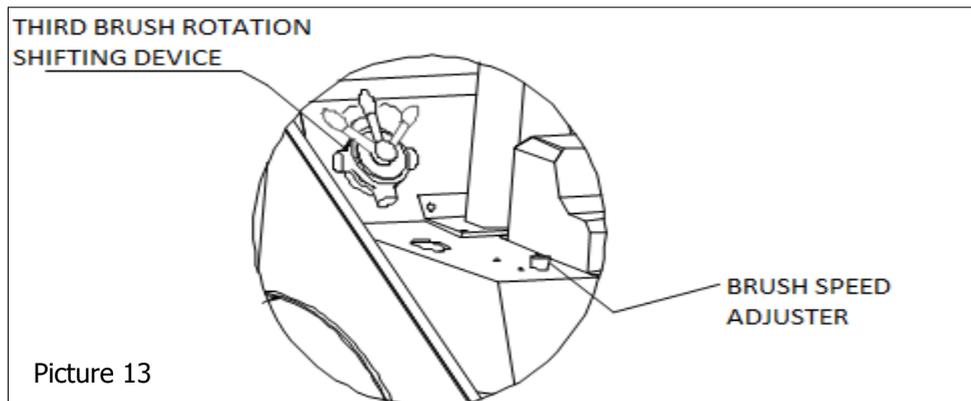
- *Rotate to the left of the third brush*

The third brush is provided of a right/left shifting button operated by the button **POS 5** [See Picture 11]

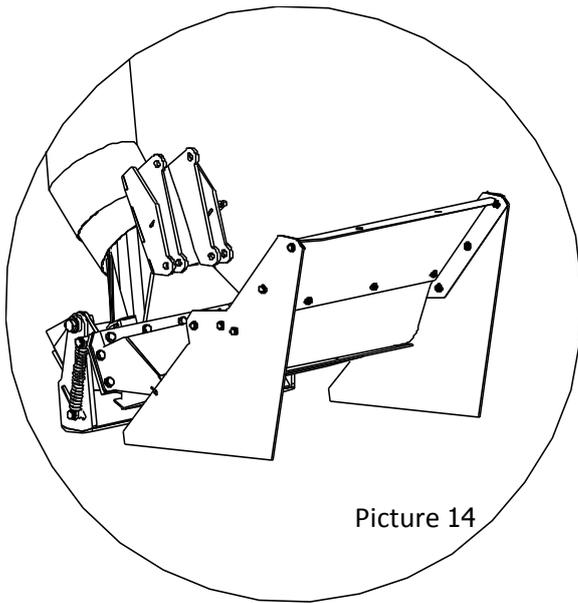
In the cabin there is a spacing device [See Picture 13] which adjusts the direction of rotation of the brush for work at the two sides of the vehicle:

-Placing the lever to the left the brush rotates counter-clockwise. (Working area to the right)

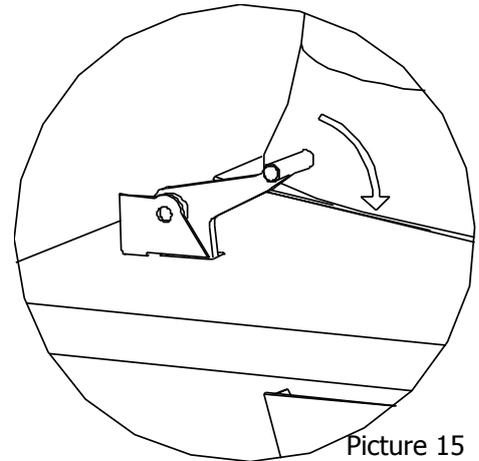
-Placing the lever to the right the brush rotates clockwise. (Working area to the left)



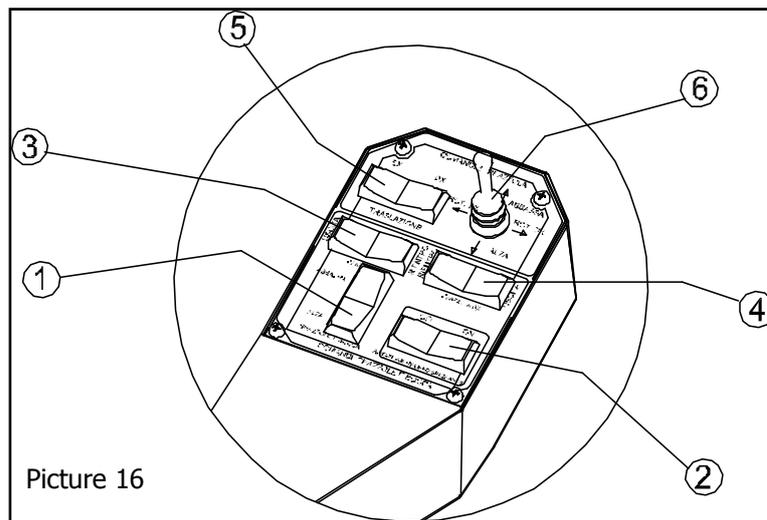
4.8. SUCTION MOUTH



Picture 14



Picture 15



Picture 16

The suction mouth is located at the front of the machine close to the front brushes. [See Picture 14]

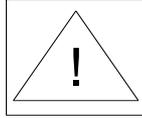
Operation

Its movement occurs simultaneously with the brushes by pressing the up-down button **POS 1**. [See Picture 16]

In the presence of large objects to be sucked it is possible to lift the flap (so to increase the input of the loading mouth) via a pedal in the cab at the bottom left. Release the pedal to lower the flap. [See Picture 15]

When reversing the suction mouth is lifted automatically.

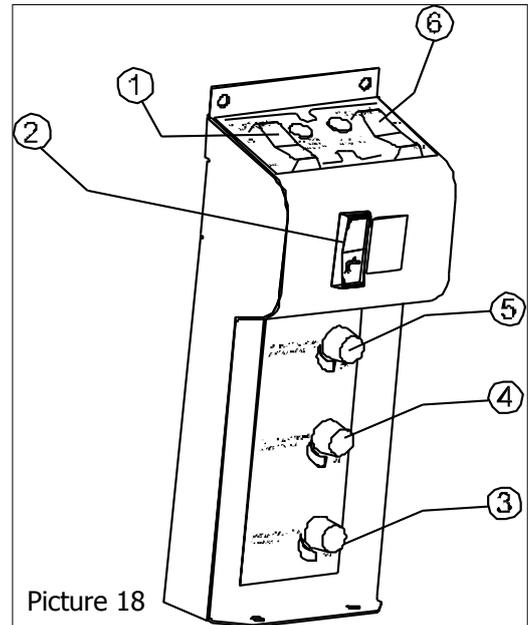
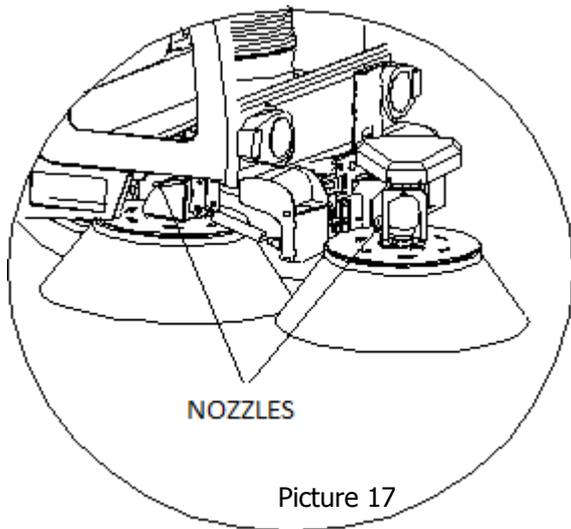
PLEASE NOTE: In principle, in the presence of obstacles, lift the suction mouth, although it can overcome without problems those up to 5 cm in height.



WARNING

If the suction mouth is obstructed stop all sweeping functions, the engine and block the vehicle. Proceed removing the waste remaining in the suction mouth and in the mouth-container duct.

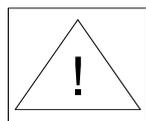
4.9. WATER SYSTEM



On the brush and suction mouth are nozzles for spraying water allowing dust removal. [See Picture 17].

Operation

Operate the water pump by pressing the button **POS 1** [See Picture 18], open the taps **POS 3, 4, 5** [See Picture 18] to adjust the water flow.



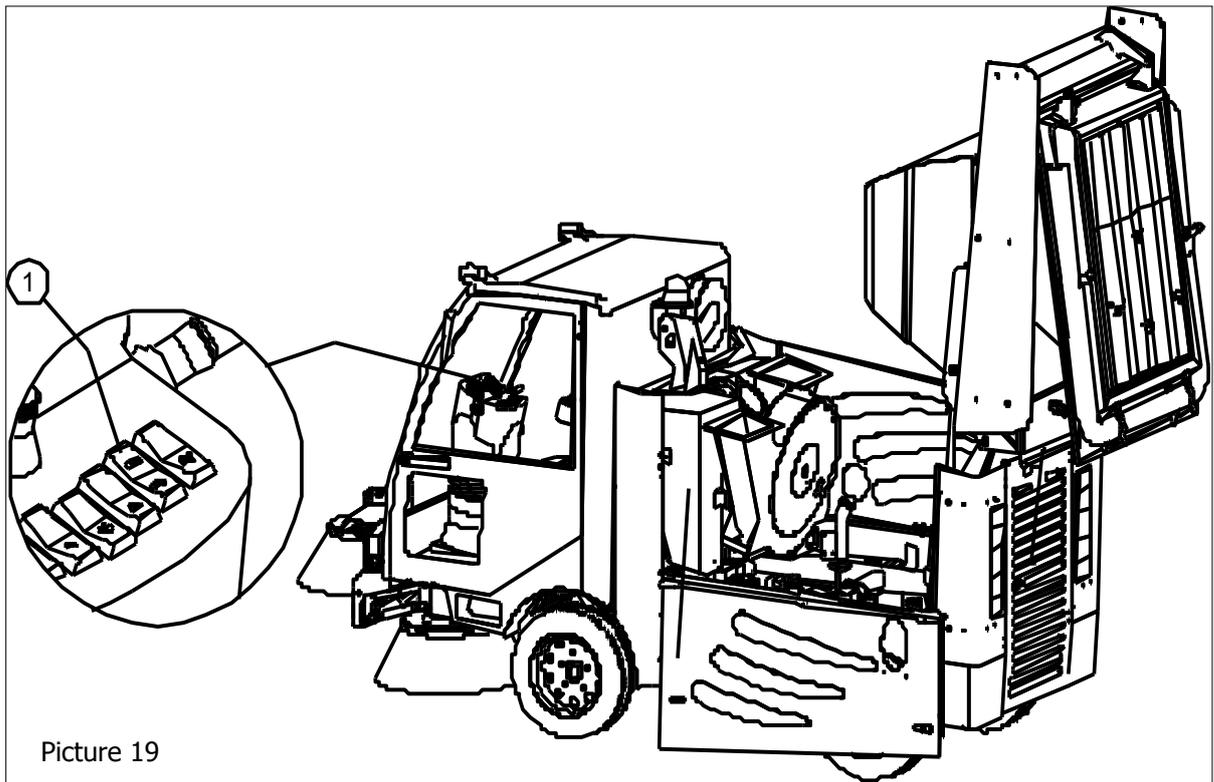
WARNING

When the water tank is empty on the dashboard the relevant warning light turns on



pos. 21 Table 3.3. Immediately turn off the water pump to prevent it from suffering faults.

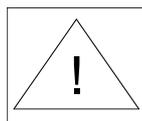
4.10. CONTAINER UNLOADING



Picture 19

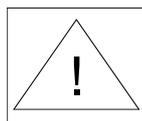
When the water tank is empty it is advisable to empty the container.

To unload the container there is a button in the cab **POS 1** [See Picture 19] that allows raising and lowering the container.



WARNING

The stability of the vehicle at the time of the unloading is granted only on level and flat ground, compact and with the vehicle straight.

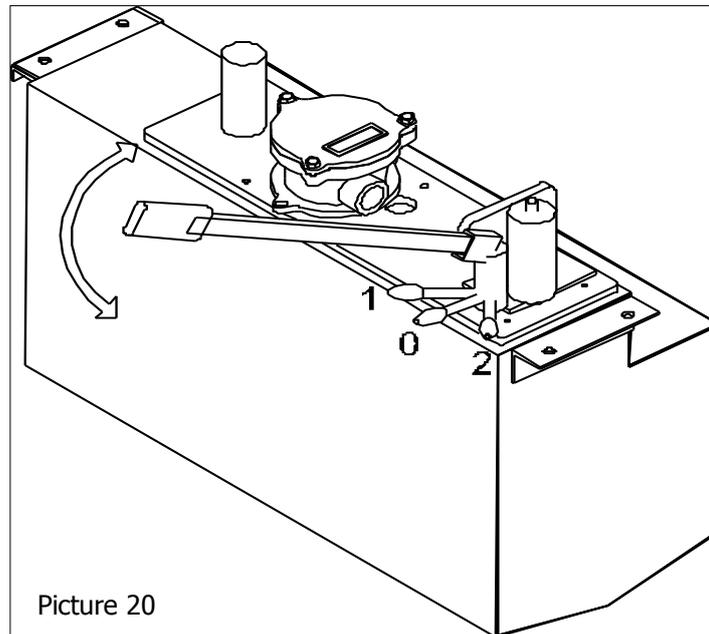


WARNING

In the case where the container is not automatically unloaded, it is possible to solve this problem by using a hand-operated recovery pump.

Hand-operated recovery pump

- Get out of the cab and open the casing at the left.
- On the oil tank is positioned a hand pump, at its base is a spacing device. During normal operation the lever of the spacing device is in **POS 0** [See Picture 20]
- To raise the container insert a lever in the pump's housing, move the lever of the spacing device in **POS 1** (Towards the cab) and pump until total lift. [See Picture 20]
- To lower the container move the lever of the spacing device in **POS 2** and pump until total lowering. [See Picture 20]
- At the end of the operations always return the lever of the spacing device to **POS 0**. [See Picture 20]
- Close the casing



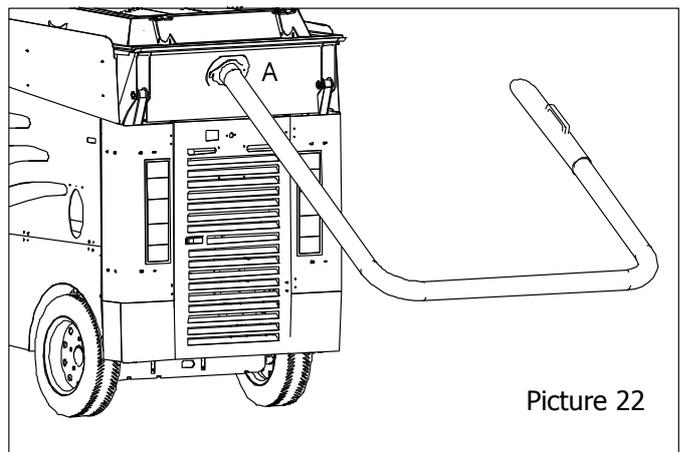
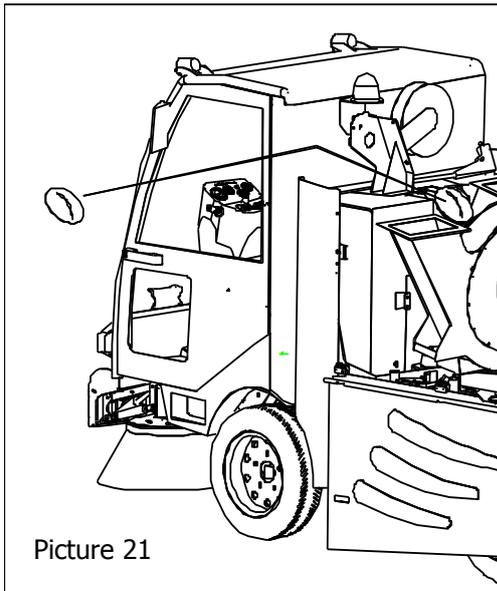
Picture 20

4.11. LEAF VACUUM HOSE

The leaf vacuum hose is placed on the lid of the container.

Operation

- Make sure that the machine is in neutral position **N** and braked (parking brake).
- Lift the container so as to insert the tap supplied on the air intake duct [See Picture 21]
- Lower the container
- Get out of the cab
- Take the leaf vacuum hose and connect it to the outlet **A** located at the rear of the container and make sure it is properly fastened. [See Picture 22]
- Get in the car and adjust the suction force through the lever adjusting the number of revolutions of the suction fan, from 1500 rev/min to 1800 rev/min max (engine tachometer pos.1 chap.3.3)
- Once the collection service with the vacuum hose is finished, turn off the suction fan, release the vacuum hose from the outlet **A**, put it on the lid of the container, raise the container, remove the cap and lower the container.

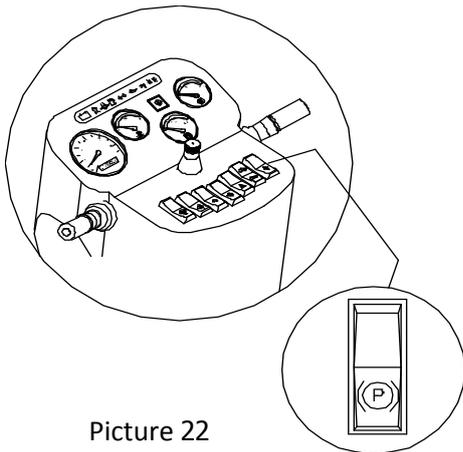


4.12. HIGH PRESSURE WASHER

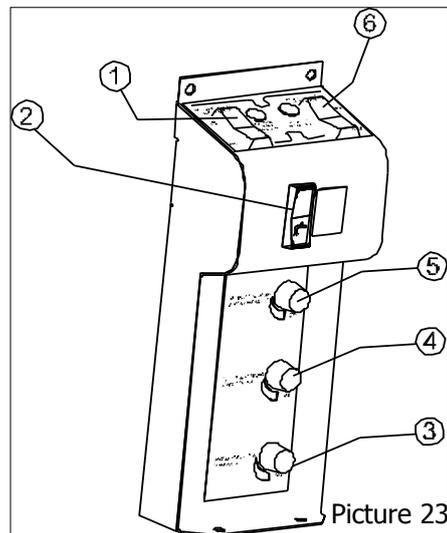
The winder and the water nozzle are placed on top of the water tank.

Operation

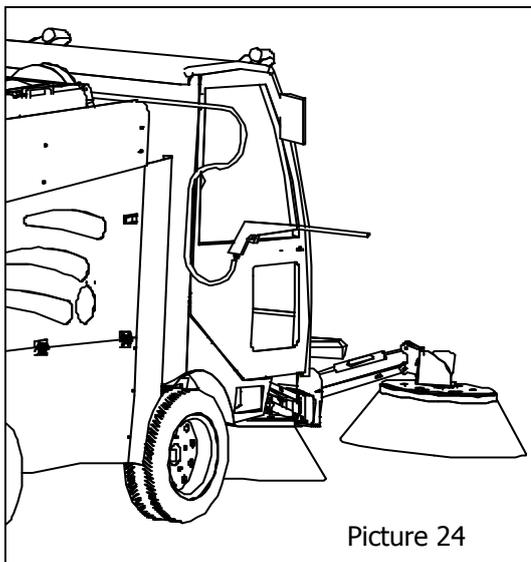
- Make sure that the machine is in neutral position **N**.
- On the left column, press the button **POS 2** [See Picture 23]
- On the steering column press the parking brake button [See Picture 22].
- Get out of the cab, pull the hose of the high-pressure washer and perform cleaning. [See Picture 24]
- After work, remember to always disable the button **POS 2** [See Picture 23].



Picture 22



Picture 23



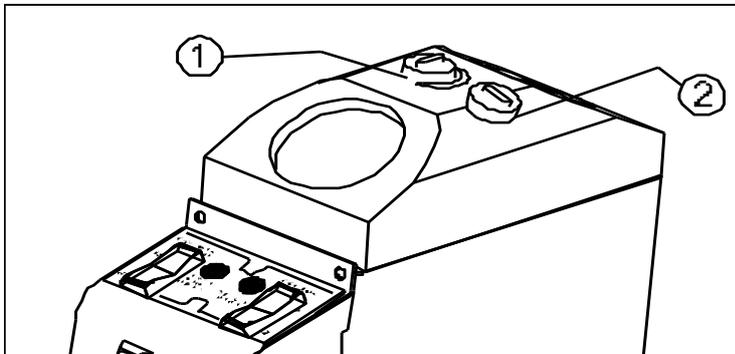
Picture 24

4.13. HEATING SYSTEM AND AIR CONDITIONER

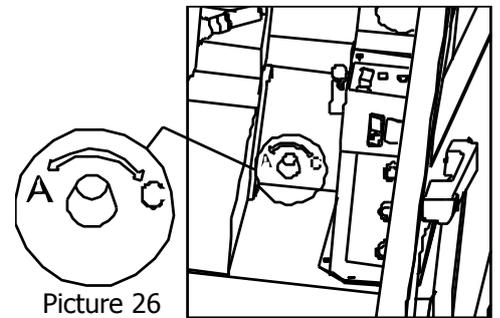
Operation

-To enable the heating open (turning counter-clockwise) the adjuster at the left side of the cabin floor, between the seat and the heating column, when it is in position **A** [See Picture 26]. Activate the ventilation through the adjuster **POS 2**. [See Picture 25].

- To switch the air conditioner on bring the adjuster to position **C** [See Picture 26]. Activate the ventilation with the adjuster **POS 2**. Adjust the temperature with the controller **POS1**. [See Picture 25]



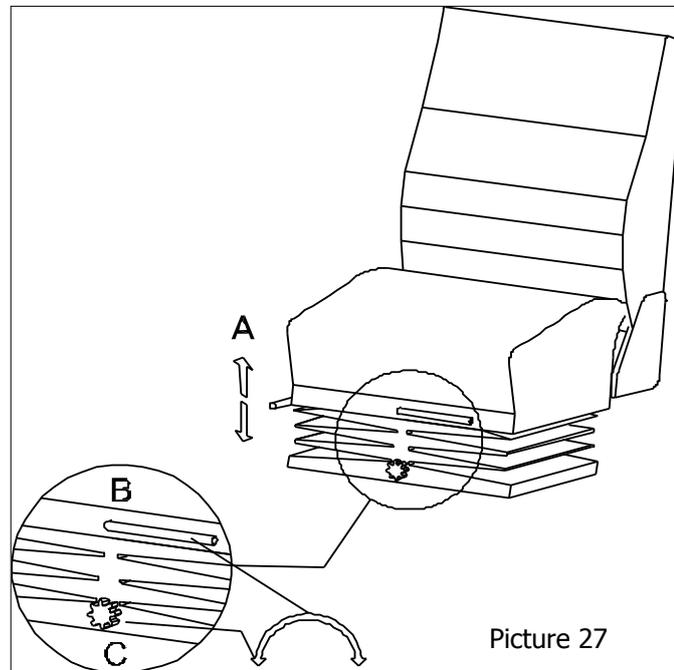
Picture 25



Picture 26

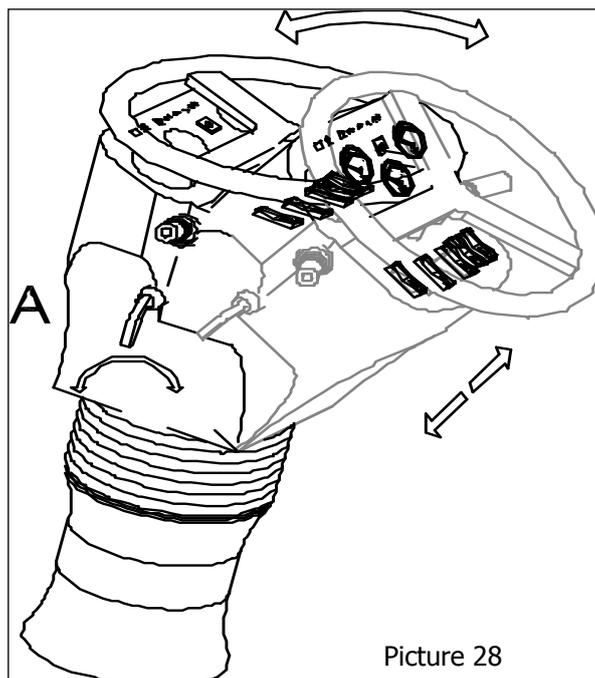
4.14. SEAT ADJUSTING

The seat is adjustable longitudinally through the lever **A**, in height through the knob **C** and the suspension can be adjusted based on the weight of the operator through the lever **B**. [See Picture 27]



4.15. STEERING ADJUSTING with articulated column

The steering column is adjustable in height and frontally through the lever **A**. [See Picture 28].

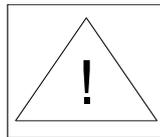


5. MAINTENANCE

5.1. DAILY CLEANING

At the end of work drain the recovery water, completely raising the container. Clean with a jet of water both the container and the grating placed in the lid of the container.

Lower the side casings and proceed cleaning the turbine and the radiator (with water or compressed air). Also wash the suction channel and carefully rinse the recovery water hoses.



WARNING

Never clean the interior of the cab with high-pressure water or with acidic products as they may damage the electrical components.

Use a vacuum cleaner or a brush and for delicate parts a soft cloth.

Check:

- The levels of engine coolants (Tank at the right back of the vehicle)
- Engine oil level (with the suitable dipstick)
- Hydraulic oil level (by the indicator level placed at the right of the tank)
- Fuel level (indicator in cab)
- Brake fluid level (tank in the front of the cab, behind the steering column)
- Wipers water level. (Bag tank at the right side, close to the fan)
- Brushes and mouth services water level (little hose at the right of the tank)

PLEASE NOTE: Observe the level limits as per control indicators

5.2 PERIODIC CLEANING

Every 50 operating hours or at least every 2 weeks check:

- Tire pressure
- Distance of the suction mouth from the ground, 10mm minimum to 20mm maximum
- Function of the water jets on the brushes, in the suction mouth and in the air intake duct
- Water recovery system function
- Water filter cleaning
- Brake fluid level
- Cooling water
- Hydraulic oil
- Engine oil
- Battery acid

Every 200 working hours

- Change engine oil. In any case the engine oil should always be changed every six months.
- Filter change:
 - Engine oil filter
 - Fuel Filter
- Filter checks
- Tightening of all wheel nuts
- Visually inspection of the hydraulic hoses

Every 400 working hours

- Check the wear status of brakes

- **Every 800 working or at least once a year**
- Clean the fuel tank
- Dehumidify the air conditioning refrigerant
- Check the battery charge
- Check the brake system
- Check for loose screws

Every 1000 working hours

- Replace V-belts

At least every two years replace:

- Hydraulic oil filter
- Hydraulic oil tank cap
- Fuel tank cap
- Air intake pipe
- Brake fluid
- Hydraulic oil

Check

- The brake ducts
- Suspension and shock absorbers

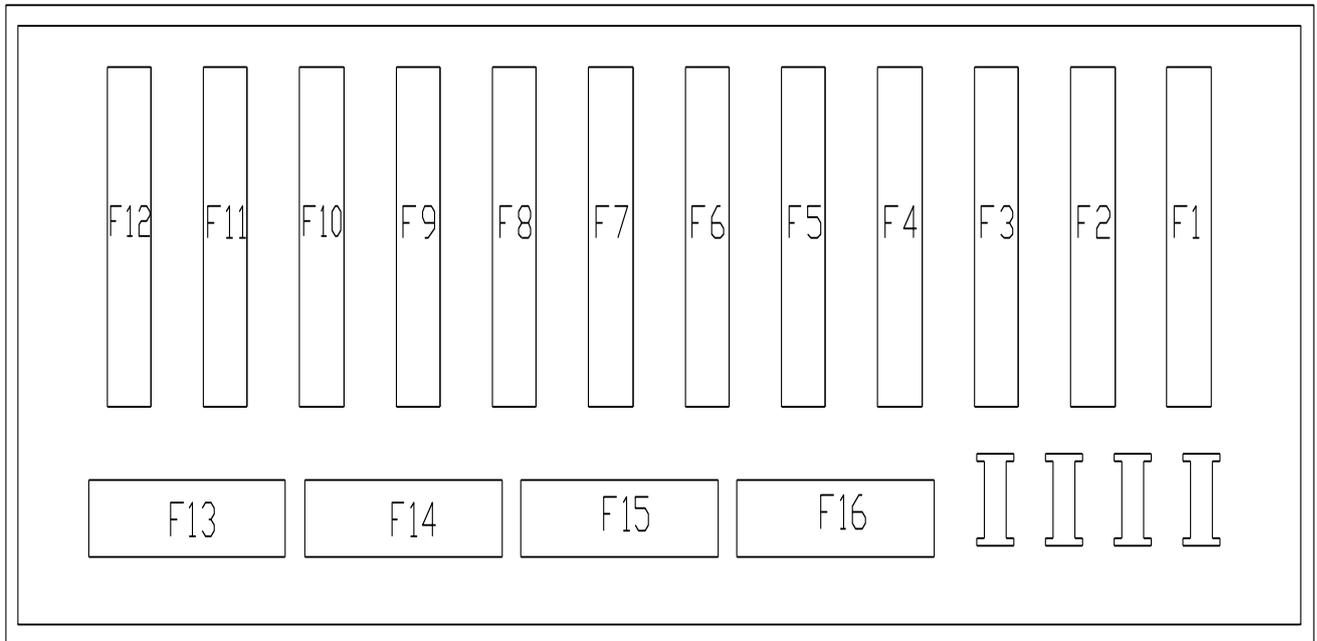
FLUIDS AND REFUELLING SHEET

Description	Litres quantity	Product
Fuel tank	50	Diesel
Engine crankcase		Lubricant for Diesel engines type AGIP SINT 5W40 or Esso ULTRA 10W40 or similar.
Brake fluid tank	0.150	Brake fluid DOT 4
Circuit services hydraulic oil tank	60	Recommended oil LI 46
Engine cooling system	6	Water with antifreeze liquid corresponding to the international specifications SAE J 1034
Stainless steel water tank	250	Clean water

6. TROUBLESHOOTING

6.1. **ELECTRICAL FUSES**

The diagram shows the fuses in the cabin on the steering column [See Picture 29]



Picture 29

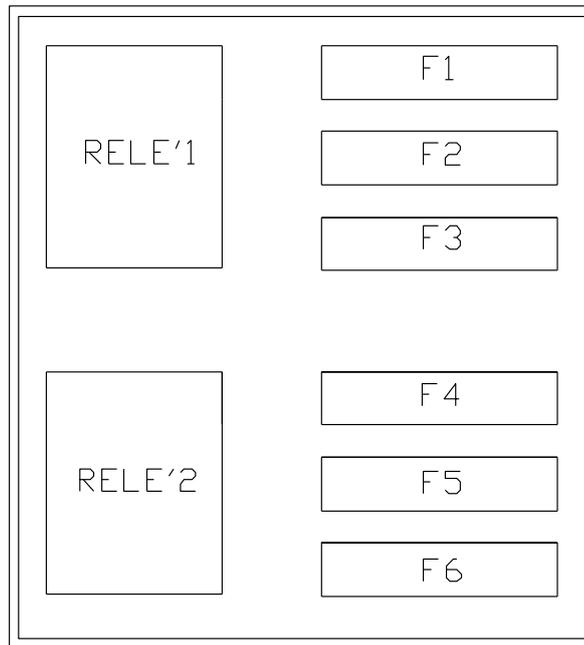
NAME	FUNCTION
F1 (7.5 A)	$1a \left\{ \begin{array}{l} +15 \text{ spie} \\ +15 \text{ arresto motore} \end{array} \right.$ $1b \left\{ \begin{array}{l} +15 \text{ strumento} \\ +15 \text{ spie} \\ +15 \text{ strumento} \\ +15 \text{ strumento} \end{array} \right.$ $1c \{ +15 \text{ chiave}$ $1d \{ +15 \text{ chiave}$
F2 (10 A)	$2a \left\{ \begin{array}{l} +15 \text{ avanzamento} \\ +15 \text{ avanzamento} \\ +15 \text{ cambio marcia} \end{array} \right.$ $2b \{ +15 \text{ centralina devio}$ $2c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$

F3 (15 A)	$3a \left\{ \begin{array}{l} +15 \text{ interruttore turbina} \\ +15 \text{ interruttore freno stazionamento} \end{array} \right.$ $3b \left\{ \begin{array}{l} +15 \text{ tergi} \\ +15 \text{ tergi} \end{array} \right.$ $3c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F4 (15 A)	$4a \left\{ +15 \text{ bocca d'aspirazione} \right.$ $4b \left\{ +15 \text{ consenso spazzole} \right.$ $4c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F5 (10 A)	$5a \left\{ \begin{array}{l} +15 \text{ plafoniera} \\ +15 \text{ autoradio} \end{array} \right.$ $5c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F6 (10 A)	$6a \left\{ \begin{array}{l} +15 \text{ fari lavoro} \\ +15 \text{ fari lavoro} \\ +15 \text{ fari lavoro} \end{array} \right.$ $6c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F7 (15 A)	$7a \left\{ +15 \text{ presa di corrente} \right.$ $7c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F8 (20 A)	$8a \left\{ \begin{array}{l} +15 \text{ cassone} \\ +15 \text{ cassone} \end{array} \right.$ $8c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F9 (15 A)	$9a \left\{ \text{pompa acqua} \right.$ $9c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$
F10 (10 A)	$10a \left\{ \begin{array}{l} +15 \text{ luci stop} \\ +15 \text{ luci stop} \end{array} \right.$ $10b \left\{ \begin{array}{l} \text{alimentazione luci} \\ +15 \text{ emergenza} \end{array} \right.$ $10c \left\{ \begin{array}{l} +15 \text{ chiave} \\ +15 \text{ chiave} \end{array} \right.$

F11 (15 A)	<p>11a { <i>lampada rotante</i> <i>lampada rotante</i></p> <p>11c { <i>+15 chiave</i> <i>+15 chiave</i></p>
F12 (10 A)	<p>12a { <i>+30 autoradio</i> <i>+30 emergenza</i></p> <p>12c { <i>+30 luci</i></p>
F13 (5 A)	<p>13a { <i>+30 luci anabbaglianti</i></p> <p>13c { <i>+30 luci</i></p>
F14 (5 A)	<p>14a { <i>+30 luci abbaglianti</i></p> <p>14c { <i>+30 luci</i></p>
F15 (20 A)	<p>15a { <i>illuminazione</i> <i>luce di posizione SX</i> <i>luce posizione SX</i> <i>illuminazione</i></p> <p>15b { <i>spia luci posizione</i> <i>luce di posizione</i></p> <p>15c { <i>57/58 luci</i></p>
F16 (10 A)	<p>16a { <i>illuminazione accendisigari</i> <i>luce posizione DX</i> <i>luce di posizione DX</i></p> <p>16b { <i>illuminazione</i> <i>illuminazione</i> <i>illuminazione</i></p> <p>16c { <i>57/58 luci</i></p> <p>16c { <i>57/58 luci</i></p>

6.2. ELECTRICAL FUSES

The diagram shows the fuses that are included in the box next to the battery [See Picture 30]

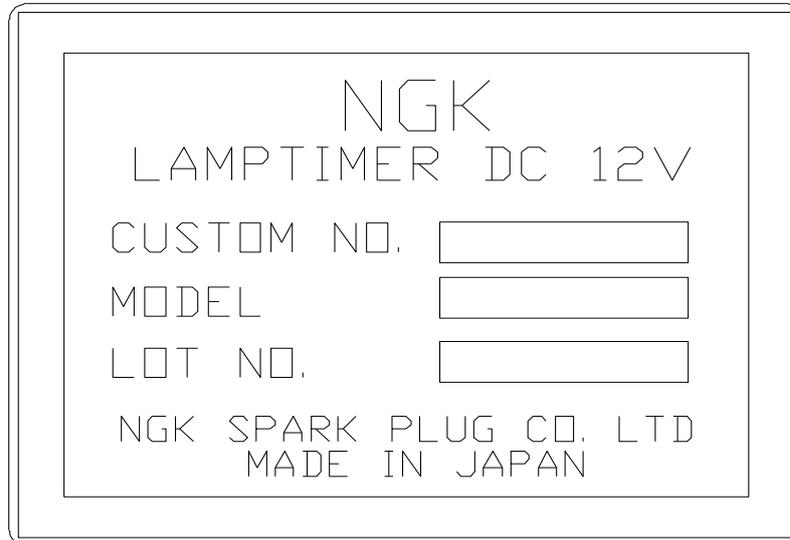


Picture 30

NAME	FUNCTION
RELAY 1	Start relay
RELAY 2	Glow plugs relay
F1 (40 A)	Start-up
F2 (60 A)	Glow plugs
F3 (40 A)	+30 Cab
F4 (50 A)	+30 System
F5 (40 A)	+30 Lights
F6 (60 A)	B + Alternator

6.3. ENGINE IGNITION RELAY

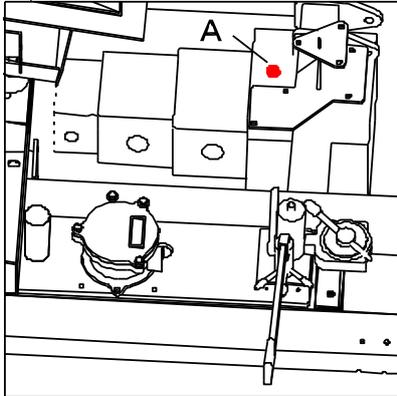
On the right side of the battery holder is engine ignition relay supplied by the manufacturer (Kubota). [See Picture 31]



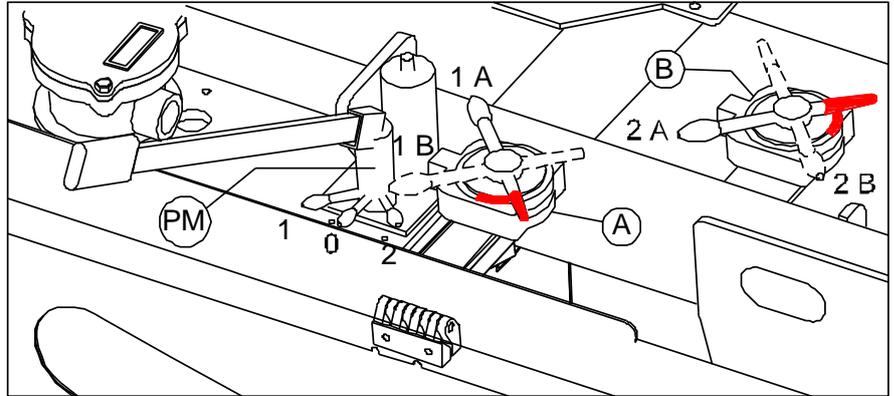
Picture 31

6.4. TOWING VEHICLE

In case of failure, it is possible to move the vehicle for a short distance through the following procedure.



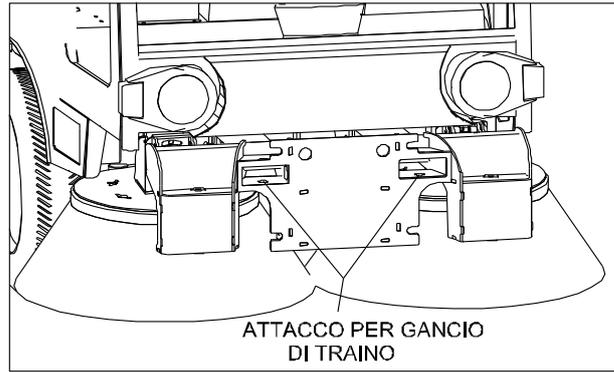
Picture 32



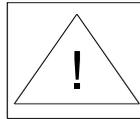
Picture 33

- Get out of the cab
- Open the left casing Loosen the by-pass bolt (A) on the body of hydrostatic pump and marked by red colour using a mm. 14 wrench (See Picture 32), Usually the levers of the 3-way spacing devices are respectively arranged in the position **1A** and **2A** (the positions can be further recognized when the red coloured parts of the lever and of the spacing device fit). [See Picture 33]
- To release the brake in emergency, bring the levers of spacing devices respectively to positions **1B** and **2B**. [See Picture 33]
- Position the leer of the hand pump (**PM**) from **POS 0** to **POS 2** and pump 3-4 times. [See Picture 33]
- Move the vehicle for a short distance in a location that will not obstruct circulation and reset all the devices in the working condition.

The vehicle can be towed or loaded on a rescue vehicle via the towing hook located at its front. [See Picture 34]



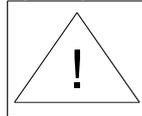
Picture 34



WARNING

At the end of the operation always remember to turn the levers of 3-way spacing devices in positions **1A** and **2A** .

Tighten the by pass bolt on the hydrostatic pump with the 14mm wrench (See Picture 32).



WARNING

At the end of the operation always remember to turn the lever at the base of the hand pump to position **POS 0**.

CONFORMITY DECLARATION

Conformity declaration is consigned with the support and the manual of operating and maintenance instructions.

**DICHIARAZIONE CE DI CONFORMITA'-DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE-EG-KONFORMITÄT SERKLÄRUNG-
DECLARACION DE CONFORMIDAD**

(ai sensi dell'allegato II 1.A della Direttiva Macchine 2006/42/CE)

La ING.O.FIORENTINI SPA

con sede in Via Piancaldoli 1896 Firenzuola, 50033, (FI)

DICHIARA/DECLARES/DECLARE/ERKLÄRT/ DECLARA

in qualità di costruttore sotto la propria responsabilità che la macchina

As manufacturer under its own responsibility that the machine

En tant que fabricant sous sa propre responsabilité que la machine

Als Hersteller, erkläre, in alleiniger Verantwortung, dass das Produkt

Como fabricante, bajo su responsabilidad que la máquina



Modello/model/modèle/Typ/modelo

Matricola/serial number/numero de série/

Fabriknummer/ Número matricula

Anno di costruzione /

Year of production/ Année de production/

Baujahr/ Año de producción

a cui la presente dichiarazione si riferisce è conforme alle prescrizioni
which this declaration refers to, is in conformity with the requirements
à laquelle se réfère cette déclaration, est en conformité avec les prescriptions
Auf das sich diese Erklärung bezieht, mit der normativen übereinstimmt.
que esta declaración se refiere, está en conformidad con los requisitos

della direttiva macchine 2006/42/CE/ Directive 2006/42/CE / de la Directive 2006/42/CE / der EG-Richtlinie 2006/42/EG über
Maschinen / De la directiva máquinas 2006/42/CE

della direttiva compatibilità elettromagnetica 2014/30/EU/ the Electromagnetic Compatibility Directive 2014/30 / EU / de la Directive
Compatibilité Electromagnétique 2014/30 /EU / elektromagnetische Verträglichkeit (EMV) 2014/30/EU / la directiva de
compatibilidad electromagnetica 2014/30/EU

della direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE) 2012/19/UE/ Directive on Waste of Electrical and
Electronic Equipment (WEEE) 2012/19 / EU / de la directive relative aux déchets d'équipements électriques et électroniques (DEEE)
2012/19 / UE / Elektrische und elektronische Geräte Abfälle (DEEE)2012/19/UE Directiva sobre residuos de aparatos eléctricos y
electrónicos (RAEE) 2012/19/UE/
(ISCRIZIONE AL REGISTRO PRODUTTORI A.E.E.: N° IT12010000007391)

In particolare alle disposizioni normative
In particular, the regulatory rules
En particulier, les dispositions réglementaires
Gemäß den Bestimmungen der Richtlinie
En particular, las normas reguladoras

**EN ISO 12100, EN ISO 13857, EN ISO 13850, EN 60204-1, EN 349,
EN 953, EN ISO 4413, EN 60335, EN 60335-1, EN 60335-2-69, EN 60335-2-72, EN 55014-1, EN 55014-2,
EN 62233, EN 61000-6-2, EN 61000-6-4**

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Il Legale Rappresentante/president/gérant/ representante
Angelica Maria Cerutti

Piancaldoli

Luogo e data

Firma

Cerutti Angelica Maria

