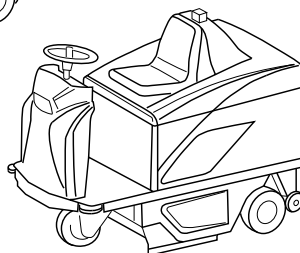
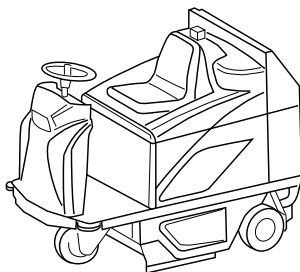


Integrated Professional Cleaning



IPC Gansow

1250 - 1280



MANUALE ISTRUZIONI PER L'USO /
OPERATOR'S MANUAL / MANUEL D'INSTRUCTIONS /
BEDIENUNGSANLEITUNG /
MANUAL DE INSTRUCCIONES / BRUKERHÅNDBOK /
GEBRUIKERSHANDLEIDING / MANUAL DE UTILIZAÇÃO /
INSTRUKTIONSBOK / МАШИНА ДЛЯ МОЙКИ И СУШКИ ПОЛОВ
/ KULLANIM KILAVUZU

Consultare attentamente questo manuale prima di procedere a qualsiasi intervento sulla macchina
Read this manual carefully before carrying out any work on the machine
Lire attentivement ce manuel avant toute intervention sur la machine
Vorliegendes Handbuch vor jedem Eingriff an der Maschine aufmerksam durchlesen
Consulte detenidamente este manual antes de llevar a cabo cualquier trabajo en la máquina
Konsulter denne håndboken nøye før du går i gang med noen som helst type inngrep på maskinen
Raadpleeg deze handleiding aandachtig alvorens met enige werkzaamheid aan de machine te beginnen
Consulte atentamente este manual antes de efectuar cualquier intervención na máquina
Läs noggrant igenom denna handbok innan du utför något som helst ingrepp på maskinen
Внимательно ознакомьтесь с данной инструкцией до проведения любой работы с машиной
Makine ile herhangi bir işlem yapmadan önce bu kılavuzu dikkatle okuyun

ENGLISH

(Translated instructions)

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TECHNICAL CHARACTERISTICS

		BATTERY	DUAL POWER	PETROL	DIESEL
Cleaning width	mm	1100			
Cleaning capacity per hour	m ² /h	3800-5600	3800-5600	3800-5600	3800-5600
Main brush motor power	W	600		-	-
Side brush motor power	W	90		-	-
Drive motor power		450 W		98 Cm ³ /rpm	
Internal combustion engine starting	W	-			
Internal combustion engine power	W	-	4125	4125	
Fuel tank capacity	l	-	3,1	3,1	
Suction motor power	W	260		-	-
Panel filter shaker motor power	W	90			
Pocket filter shaker motor power	W	110			
Alternator	A	-	80	-	-
Maximum forward speed	Km/h	6.2	6.2	6.2	6.2

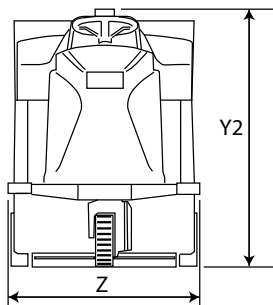
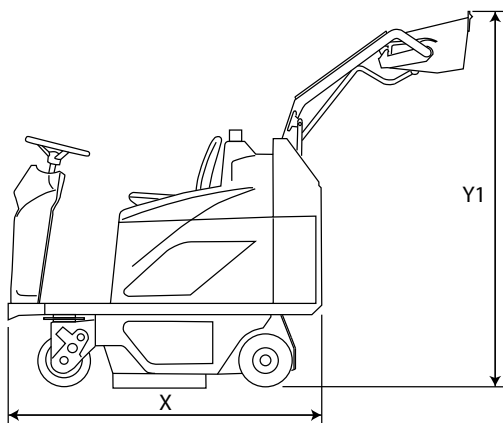
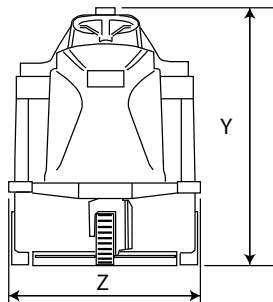
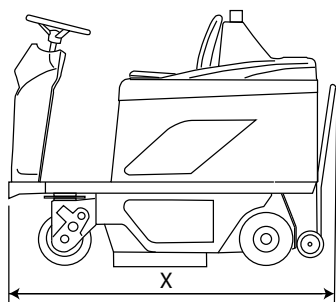
Maximum reverse speed	Km/h	6.2	6.2	4.6	4.6
Maximum negotiable gradient	%	12			
Debris bin capacity (bottom unloading)	l	61			
Debris bin capacity (top unloading)	l	56			
Rear wheel diameter	mm	250			
Front wheel diameter	mm	250			
Main brush diameter	mm	280			
Side brush diameter	mm	400			
Panel filter surface area	sq.m.	4			
Pocket filter surface area	sq.m.	4			
Maximum bin tipping height (top unloading)	mm	1460			
Gross weight 1250	Kg	552		371	
Gross weight 1280	Kg	607		424	
Transported weight 1250	Kg	279		75	
Transported weight 1280	Kg	279		75	

Number of batteries	n°	4	2	1	1
Battery voltage	V	12			
Individual battery capacity	Ah (5h)	180	75	45	
Power system voltage	V	24	24	12	12
Machine dimensions (bottom unloading)	mm	X=1615 Z=905 Y=1210			
Machine dimensions (top unloading)	mm	X=1550 Z=905 Y1=1868 Y2=1210			
Battery compartment dimensions (length, width, height)	mm	500X500	(305x185) x 2	/	/
Packed size (length, width, height)	mm	1740X1100X1410			
Sound pressure	LpA (dB)	70	84	82	88
Measured sound power	Lwa (dB)	82	94	94	99
Guaranteed sound power	Lwa,g (dB)	83	95	95	100
Vibration level (hand)	HAV m/sec ²	2,6	3	2,5	3,3
Measurement uncertainty, k	m/sec ²	1,3	1,5	1,3	1,7
Vibration level (body)	HBV m/sec ²	0,5	1	0,5	0,7
Measurement uncertainty, k	m/sec ²	0,3	0,3	0,3	0,3

Data subject to variation without warning.



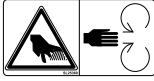










MACHINE DIMENSIONS



X-Y-Z: See "TECHNICAL CHARACTERISTICS" table

SAFETY SYMBOLS

	<p>WARNING! RISK OF CUTTING</p>
	<p>WARNING! RISK OF CRUSHING LIMBS</p>
	<p>WARNING! RISK OF ABRASION</p>
	<p>WARNING! RISK OF ENTANGLEMENT</p>
	<p>WARNING! RISK OF ACID BURNS</p>
	<p>WARNING! RISK OF BURNS</p>
	<p>MAXIMUM SLOPE</p>
	<p>OPERATOR'S MANUAL, OPERATING INSTRUCTIONS</p>
	<p>READ THE OPERATOR'S MANUAL</p>
	<p>DIRECT CURRENT SYMBOL</p>
	<p>INSULATION CLASS, THIS CLASSIFICATION ONLY APPLIES TO MACHINES POWERED BY BATTERIES.</p>

GENERAL INFORMATION

Purpose of this manual

This manual has been written by the Manufacturer and is an integral part of the [machine1](#). It defines the purpose for which the machine has been designed and constructed and contains all the information required by [operators2](#).

In addition to this manual, which contains information for operators, other publications are available providing specific information for [maintenance personnel3](#).

The terms "right" and "left", "clockwise" and "anti-clockwise" refer to the forward movement of the machine.

Constant compliance with the instructions provided in this manual guarantees the safety of the operator and the machine, ensures low running costs and high quality results and extends the working life of the machine. Failure to follow these instructions may lead to injury to the operator or damage to the machine, floor and environment.

Consult the table of contents at the beginning of the manual to find the section you need rapidly. Parts of the text requiring special attention are printed in bold and preceded by the symbols illustrated and described here.

! DANGER!

Indicates the need for attention in order to avoid a series of consequences which could cause death or serious injury to personnel.

! WARNING!

Indicates the need for attention in order to avoid a series of consequences which could cause injury to personnel or damage to the machine or work environment or financial loss.

! IMPORTANT!

Important information.

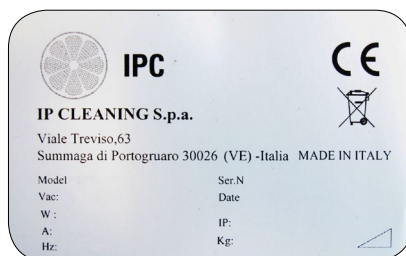
In line with the company's policy of constant product development and updating, the Manufacturer reserves the right to make modifications without prior notice.

Although your machine may differ appreciably from the illustrations in this document, the correctness and validity of the instructions contained in this manual are guaranteed.

Identifying the machine

The nameplate provides the following information:

- ▶ Model
- ▶ Battery voltage
- ▶ Total rated power
- ▶ Rated current draw
- ▶ Serial number
- ▶ Year of manufacture
- ▶ IP Index of Protection
- ▶ Dry weight
- ▶ Maximum negotiable gradient
- ▶ Name of manufacturer



1 The term "machine" replaces the trade name of the machine described in this manual.

2 Persons responsible for operating the machine but not for performing maintenance operations requiring special technical skills.

3 Persons with technical experience, training and a knowledge of applicable legislation and standards, able to perform all necessary operations and to recognise and avoid possible risks in handling, installing, operating and maintaining the machine.

Documentation provided with the machine

- ▶ Operator's manual
- ▶ Certificate of warranty
- ▶ CE certificate of conformity

TECHNICAL INFORMATION

General description

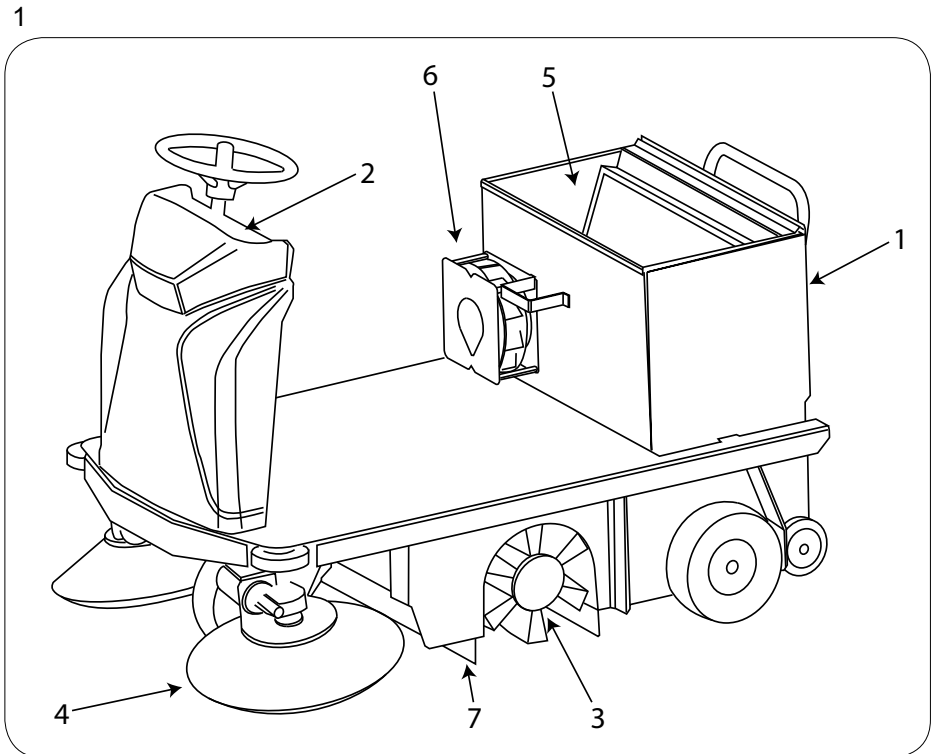
The machine described in this manual is a motorised sweeper designed to sweep floors in civil and industrial premises.

It may be used to clean the residues of industrial processes, dust and dirt in general on all relatively even, flat and hard surfaces such as concrete, asphalt, porcelain stoneware, ceramic tiles, sheet metal, marble, embossed or smooth rubber or plastic mats indoors or outdoors.

Parts of the machine

The machine comprises the main parts described below (fig. 1).

- ▶ Debris bin (1, fig. 1). This collects the debris picked up by the main brush and dust from the filter.
- ▶ Control panel (2, fig. 1).
- ▶ Main brush (3, fig. 1). This is the most important part of the machine, and transfers dust and debris to the bin. Brushes are available in different hardnesses and with different bristles to suit the type of material to be picked up.
- ▶ Side brushes (4, fig. 1). These convey dust and debris towards the main brush. They only clean edges, corners and profiles.
- ▶ Suction filter (5, fig. 1). This filters the air drawn in by the suction fan.
- ▶ Suction fan (6, fig. 1). This enables the machine to sweep without raising dust.
- ▶ Flaps (7, fig. 1). These surround the main brush and maintain the suction created by the fan.



Hazard areas

- ▶ Control panel: risk of injury from short circuits.
- ▶ Main brush: risk of injury by rotating brush.
- ▶ Side brushes: risk of injury by rotating brushes.
- ▶ Front/rear wheels: risk of crushing between the wheels and chassis.
- ▶ Motor/engine/battery compartment: risk of injury from short circuits between battery poles; risk of serious burns if maintenance is performed with the engine off but still hot (Petrol and Dual Power versions).
- ▶ Debris bin: risk of crushing during lifting/lowering and rotation.

Accessories

- ▶ Soft, hard and abrasive brushes.

SAFETY INFORMATION

Safety precautions

! DANGER!

Read this Operator's Manual carefully before start-up and use and before performing any maintenance or other work on the machine.

! WARNING!

Rigorously follow all the instructions in this Operator's Manual (in particular those marked "Danger!" and "Warning!". Also respect the safety labels applied to the machine (see the "[Safety symbols](#)" section.

The Manufacturer declines all liability for injury to persons or damage to property resulting from failure to follow instructions.

The machine must be used exclusively by persons trained in its use and/or who have demonstrated their ability and have been expressly authorised to use it.

The machine must not be used by minors.

The machine must not be used for purposes other than those for which it was expressly designed. Scrupulously respect all safety standards and conditions applicable to the type of building in which the machine is to be operated (e.g.: pharmaceutical companies, hospitals, chemicals, etc.).

Do not use the machine in inadequate lighting, explosive atmospheres, on public roads, to clean dirt that is hazardous to health (dust, gas, etc.) or in unsuitable environments.

The machine is designed to operate in temperatures between +4°C and +40°C. It can be stored in temperatures between +0°C and +50°C when not in use.

The machine is designed to operate at relative humidity levels between 30% and 95%.

Never use the machine to clean up flammable or explosive liquids (e.g. petrol, fuel oil, etc.), acids or solvents (e.g. paint solvents, acetone etc.) even if diluted. Never clean up burning or incandescent objects.

Never use the machine on slopes or ramps of more than 12%. Never drive across even gentle slopes. Always manoeuvre with care and avoid reversing. When transiting steeper ramps or slopes, take the utmost care to prevent tipping and/or uncontrolled acceleration.

Never park the machine on a slope.

Never leave the machine unattended with the motor or engine on. Before leaving it, turn the motor or engine off and make sure it cannot move accidentally.

Always pay attention to other people, especially children, in the place where you are working.

Children must be supervised to make sure they do not play with the machine.

The machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised by a person responsible for their safety and have received instruction in the use of the machine.

Never use the machine to transport people or goods or to tow things.

Do not tow the machine.

Never rest objects of any weight on the machine for any reason.

Never obstruct the ventilation and heat dispersion openings.

Never remove, modify or circumvent safety devices.

Numerous unpleasant experiences have shown that a wide range of personal objects may cause serious accidents. Before beginning work, remove jewellery, watches, ties, etc..

The operator must always use personal protection devices: protective apron or overalls, non-slip waterproof shoes, rubber gloves, protective goggles and ear protectors and mask to protect the respiratory tract.

Keep hands away from moving parts.

Make sure the power sockets used for the battery charger are connected to a suitable earth system and protected by thermal magnetic and earth leakage breakers.

Make sure the electrical characteristics of the machine (voltage, frequency, power) given on the nameplate correspond to those of the mains electricity supply.

It is indispensable to respect the battery manufacturer's instructions and applicable legislation. The



batteries should always be kept clean and dry to avoid surface leakage current. Protect the batteries from impurities such as metal dust.

Never rest tools on the batteries as they could cause short circuits leading to explosions.

When using battery acid, always follow scrupulously the safety instructions given in the "[Batteries: preparation](#)" section.

Battery charger (OPTIONAL): check the power cable regularly for damage. If the power cable is damaged, do not use the charger.

If particularly strong magnetic fields are present, assess their possible effect on the control electronics.

Never wash the machine with water jets.

In the case of malfunction and/or faulty operation, turn the machine off immediately (disconnecting it from the mains power supply or batteries) and do not tamper with it. Contact a service centre authorised by the Manufacturer.

The debris bin raising and release/tipping lever area is a "danger zone". Keep away during the relevant movements.

The motor/battery area is a "danger zone". The machine must be off and the emergency button pressed before access.

All maintenance operations must be performed in an adequately illuminated area and only after disconnecting the machine from the power supply.

All work on the electrical system and all maintenance and repair operations other than those explicitly described in this manual must be performed by specialist and experienced personnel only.

Only use original accessories and spare parts supplied by the Manufacturer to guarantee safe and problem-free operation of the machine. Never use parts removed from other machines or from other kits.

The machine is designed and constructed to provide ten years' service from the date of manufacture shown on the nameplate. After this period, whether the machine has been used or not, it should be disposed of according to current legislation in the country in which it is used.

It should be disconnected from the power supply, emptied of all liquids and cleaned prior to disposal.

The machine is classified as WEEE type special waste and is covered by the requirements of applicable environmental protection regulations (2002/96/EC WEEE).

The machine must be disposed of separately from ordinary waste in compliance with current legislation and standards.

If you decide to stop using the machine, remove the batteries and dispose of them through an authorised recycling centre.

You should also make sure that all parts of the machine that could represent a hazard, particularly to children, are made safe.

Alternatively, return the machine to the Manufacturer for a complete overhaul.



MOVEMENT INSTALLATION

Lifting and transporting the packaged machine

! WARNING!

During all lifting operations, make sure the packaged machine is firmly secured to avoid it tipping up or being accidentally dropped.

Always load/unload lorries in adequately illuminated areas.

The machine is packaged on a wooden pallet by the Manufacturer. It must be loaded on to the transporting vehicle using suitable equipment (see EC Directive 89/392 and subsequent amendments and/or additions). At destination, it must be unloaded using similar means.

A fork lift truck must always be used to lift the packaged body of the machine. Handle with care to avoid knocking or overturning the machine.

Delivery checks

When the carrier delivers the machine, make sure the packaging and machine are both whole and undamaged. If the machine is damaged, make sure the carrier is aware of the damage and before accepting the goods, reserve the right (in writing) to request compensation for the damage.

Unpacking

! WARNING!

When unpacking the machine, the operator must be provided with the necessary personal protection devices (gloves, goggles, etc.) to limit the risk of injury.

Proceed as follows to unpack the machine.

- ▶ Cut and remove the plastic straps using scissors or nippers.
- ▶ Remove the cardboard packaging.
- ▶ Remove the bags from the battery compartment and check their contents: this Operator's Manual, the maintenance manual, declaration of conformity, certificate of warranty; battery bridges with terminals; connector for battery charger.

Depending on the model, remove the metal brackets or cut the plastic straps fixing the machine chassis to the pallet.

Using a sloping ramp, push the machine backwards off the pallet.

Unpack the brushes from their packaging.

Clean the outside of the machine, taking care to respect safety regulations.

Once the machine is clear of the packaging, proceed to install the batteries (see the "[Batteries: installation and connection](#)" section).

The packaging may be kept and reused to protect the machine if it is moved to another site or to a repair workshop.

Otherwise it must be disposed off in compliance with current legislation.

Batteries (Battery version)

Two different types of battery may be installed on these machines:

- ▶ Leak-proof tubular batteries: these require regular checks on electrolyte level. When necessary, top up with distilled water until the plates are covered. Do not over-fill (5 mm max. above the plates).
- ▶ Gel batteries: this type of battery requires no maintenance.

Battery technical characteristics must correspond to those listed in the [Technical characteristics](#) section. The use of higher capacity batteries could seriously jeopardise manoeuvrability and lead to the drive motor overheating. Batteries with a lower capacity and weight will require charging more frequently.

Batteries must be kept charged, dry and clean and the connections must be kept tight.

! IMPORTANT!

Follow the instructions below to configure the machine's software for the type of batteries installed:

see the "[Technical menu](#)" section".

Batteries: preparation

! DANGER!

During battery installation and any type of battery maintenance, the operator must be provided with the necessary personal protection devices (gloves, goggles overalls, etc.) to limit the risk of injury. Keep clear of naked flames, avoid short circuiting the battery poles, avoid sparks and do not smoke.

Batteries are normally supplied filled with acid and ready for use.

If the batteries are dry, proceed as follows before installing them in the machine.

Remove the caps and fill all elements with sulphuric acid solution specific for batteries until the plates are entirely covered (this requires at least a couple of passes for each element).

Leave the batteries stand for 4-5 hours to allow air bubbles to come to the surface and the plates to absorb the electrolyte.

Make sure the level of electrolyte is still above the plates and if necessary top up with sulphuric acid solution.

Close the caps.

Install the batteries in the machine (following the procedure described below).

Charge the batteries before starting up the machine for the first time. Follow the instructions in the "[Battery maintenance and charging](#)" section.

Batteries: installation and connection

! DANGER!

Check that all switches on the control panel are in the "0" (off) position.

Make sure you connect the terminals marked with a "+" to the positive poles of the battery.

Do not check the battery charge by sparking.

Meticulously follow the instructions given below as short circuiting the batteries could cause them to explode.

Place the batteries in the battery compartment, orienting them as shown in the drawings (figs. 2 and 3).

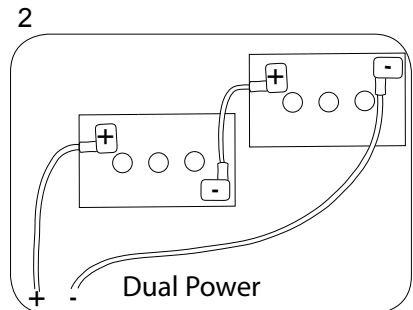
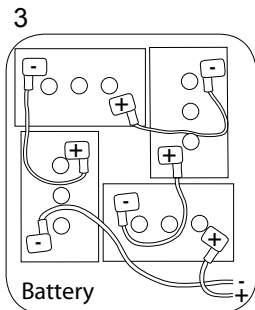
Referring to the cable layout shown in the above diagram, connect the battery cables and bridge terminals to the battery poles. Arrange the cables as shown in the diagram, tighten the terminals on the poles and coat with Vaseline.

Lower the cowling into the working position

When using the machine, follow the instructions below.

! WARNING!

Never allow the batteries to become excessively flat as this could damage them irreparably.



Batteries: removal

! DANGER!

When removing the batteries, the operator must be equipped with suitable personal protection devices (gloves, goggles, overalls, safety shoes, etc.) to reduce the risk of injury. Make sure the switches on the control panel are in the “0” position (off) and the machine is turned off. Keep away from naked flames, do not short circuit the battery poles, do not cause sparks and do not smoke. Proceed as follows.

- ▶ Disconnect the battery cables and bridge terminals from the battery poles.
- ▶ If necessary, remove the devices fixing the battery to the base of the machine.
- ▶ Lift the batteries from the compartment using suitable lifting equipment.

Choosing a battery charger

Make sure the battery charger is compatible with the batteries to be charged.

Tubular lead batteries: an automatic charger is recommended. Consult the battery charger manufacturer and manual to confirm the choice.

Gel batteries: use a charger specific for this type of battery.

Preparing the battery charger

If you wish to use a battery charger not provided with the machine, you must fit it with the connector supplied with the machine.

Proceed as follows to fit the connector.

Remove about 13 mm of protective sheath from the red and black cables of the battery charger.

Insert the wires into the connector contacts and squeeze them forcefully with suitable pliers.

Respect the polarity (red wire + black wire –) when inserting the wires into the connector.

Preparing the engine (Petrol and Dual Power versions)

- ▶ Fill the fuel tank.
- ▶ Check the engine oil level.

Preparing the hydraulic circuit (Petrol and Diesel versions)

- ▶ Check the hydraulic oil level.

Fitting the side brushes

See the “[Replacing/installing the side brushes](#)” section.

! IMPORTANT!

Follow the instructions given below to configure the machine’s control software to use the display language you require.

See the “[Technical menu](#)” section.

Lifting and transporting the machine

! WARNING!

All phases of lifting and moving must be performed in an adequately illuminated environment with the adoption of the safety measures most appropriate to the situation.

The operator must always use personal protection devices.

Proceed as follows to load the machine onto a means of transport.

- ▶ Empty the debris bin.
- ▶ Remove the batteries.
- ▶ Position the machine on a pallet and fix it in place with plastic straps or metal brackets.
- ▶ Lift the pallet (with the machine) using a fork lift truck and load it onto the means of transport.
- ▶ Anchor the machine to the means of transport with cables connected to the pallet and to the machine itself.

PRACTICAL GUIDE FOR THE OPERATOR

! WARNING!

Before starting work, wear overalls, ear protectors, non-slip and waterproof shoes, mask to protect the respiratory tract, gloves and all other personal protection devices necessitated by the work environment.

! WARNING!

Do not leave the machine unattended or parked with the key in the switch and the parking brake off.

! IMPORTANT!

If you are using the machine for the first time, we recommend trying it out on a large obstacle-free surface first to acquire the necessary familiarity.

! WARNING!

Do not use the machine to clean up wire, string, plastic straps, water or other liquids.

! IMPORTANT!

When picking up large but light objects (e.g. paper, leaves, etc.) raise the flaps.

! WARNING!

To avoid damaging the surface of the floor you are cleaning, avoid rotating the brushes with the machine stationary.

! WARNING!

Each 30 minutes of work, press the filter shaker button for 30 seconds to clean the suction filter. During this operation, the suction fan shuts off automatically (Battery and Dual Power versions).

! WARNING!

Avoid passing over puddles of water. If the floor is wet, you can still use the machine, but you must turn off the suction fan since damp/wet dirt reduces the performance of the suction filter.

! WARNING!

For best results, empty the debris bin often and use the filter shaker frequently to keep the filter clean.

! IMPORTANT!

The machine is fitted with a driver detection device. It is only possible to start the machine while seated correctly in the driving seat. The device halts the machine if you get up from the seat.

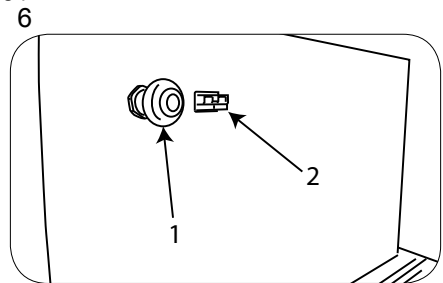
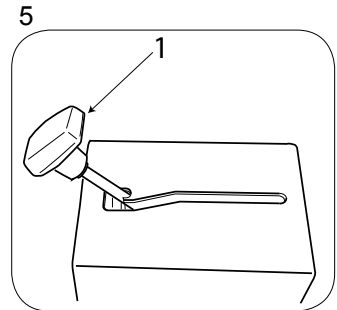
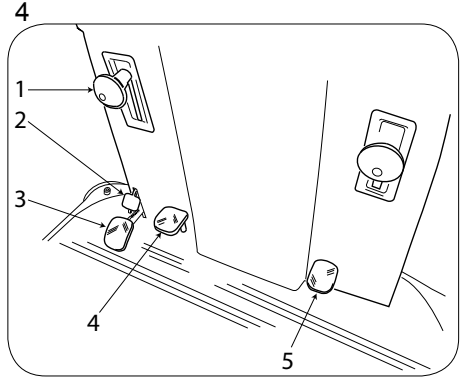
Preparing the machine for work

Proceed as follows before starting work.

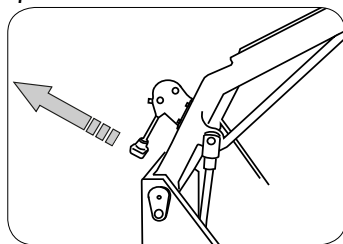
- ▶ Check the battery charge level (and recharge if necessary). On Petrol and Dual Power versions, check whether the fuel tank needs topping up.
- ▶ Make sure the debris bin is empty. If necessary, empty it.

Controls of the Battery and Dual Power versions

- ▶ **Brake lock pedal (2, fig. 4):** Press this pedal along with the service brake pedal to engage the parking brake. To disengage the brake lock and release the parking brake, simply press the service brake pedal.
- ▶ **Service brake pedal (3, fig. 4):** Press this pedal to stop the machine during operation.
- ▶ **Flap lift pedal (4, fig. 4):** Press this pedal to lift the flaps in order to pick up large but light objects. Release the pedal when not needed.
- ▶ **Accelerator pedal (5, fig. 4):** Press this pedal to control the speed of the machine. If the accelerator pedal is released for more than three seconds while the machine is switched on, the "AUTO POWER-OFF" function switches off all machine functions. To start again, simply press the accelerator pedal. You can enable/disable and change the delay for "AUTO POWER-OFF" mode from the "[Technical menu](#)".
- ▶ **Left and right side brush control lever (1, fig. 4):** Push this lever down to lower the side brushes to working position and start rotation. Raise the lever to lift the brushes and stop rotation.
- ▶ **Main brush control lever (1, fig. 5):** Push this lever forwards to lower the main brush to working position and start rotation. Raise the lever again to lift the brushes and stop rotation on completion of work. The suction fan starts automatically when the main brush starts rotating.
- ▶ **Emergency stop button (1, fig. 6):** Press this mushroom head button in the event of imminent danger or need to deactivate all machine functions and disconnect power to the machine. Switch off all the previously active functions (side brushes, main brush) before resetting the emergency stop button.
- ▶ **Battery charger socket (2, fig. 6):** Plug the battery charger into this socket. See the "[Preparing the battery charger](#)" section.

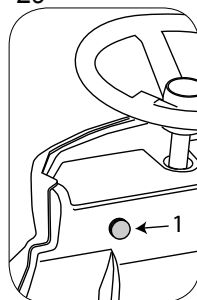


- ▶ **Bin tipping lever (top unloading) (fig. 7):** Pull this lever to rotate the bin and empty its contents. 7
- ▶ **Display (1, fig. 8):** This displays the current battery charge level expressed as a percentage, logos for active functions, an hour counter showing the total hours of use of the machine and any active alarms, see the "[Display alarms](#)." section.
- ▶ **Menu button (2, fig. 8):** On the Battery version, this button is only active in the "[Technical menu](#)". On the Dual Power version, it serves to display the hours of functioning of the engine.

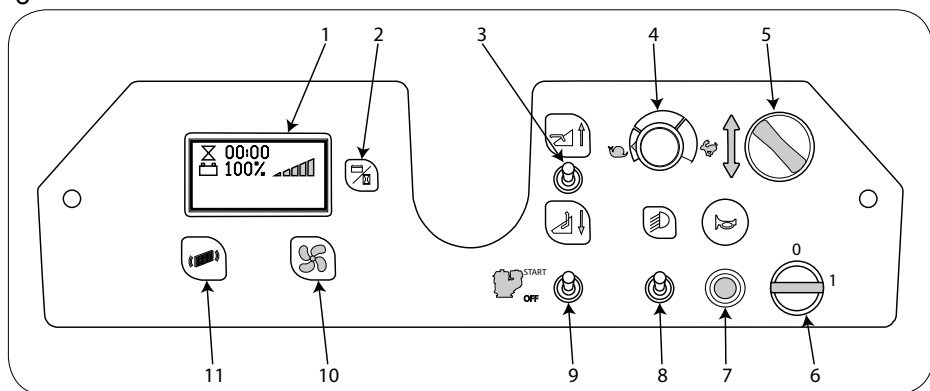


- ▶ **Bin up/down switch (3, fig. 8):** Lifts or lowers the debris bin.
- ▶ **Speed control (4, fig. 8):** Regulates the forward and reverse speed of the machine.
- ▶ **Direction selector (5, fig. 8):** Turn this selector to engage forward or reverse travel.
- ▶ **Main switch (6, fig. 8):** Switches power to all machine functions on/off.
- ▶ **Horn button (7, fig. 8):** Press to sound the horn.
- ▶ **Light switch (8, fig. 8):** Turns the lights (OPTIONAL) on and off.
- ▶ **Engine start switch (9, fig. 8):** Starts and shuts down the engine.
- ▶ **Suction switch (10, fig. 8):** Switches suction on and off.
- ▶ **Filter shaker button (11, fig. 8):** Press and hold this button for 30 seconds to shake and clean the suction filter. As soon as the shaker motor starts, the suction and drive motors are switched off. You can select the "automatic filter shaker" function from the "[Technical menu](#)". When this function is active, the filter shaker is automatically switched on at the end of the set interval.
- ▶ **Bin up/down movement enabling button (1, fig. 29):** Press this button to enable bin movement by the bin up/down switch.

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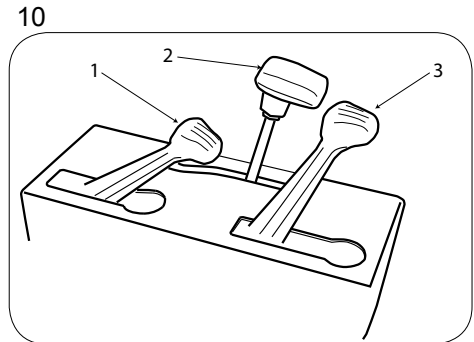
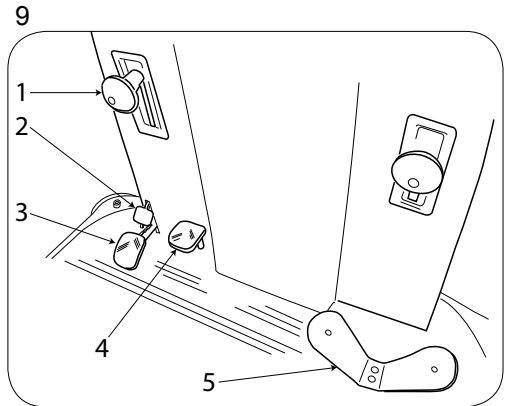


Operating the Battery and Dual Power versions

- ▶ Sit correctly in the seat.
- ▶ Turn the main switch to position "1".
- ▶ Check that the display shows the batteries to be fully charged. Recharge if necessary. See the "[Battery maintenance and charging](#)" section.
- ▶ Select the direction of travel with the direction selector.
- ▶ Release the parking brake.
- ▶ Lower the side brushes.
- ▶ Lower the main brush.
- ▶ Press the accelerator pedal to move off and start work.
- ▶ Press the flap lift pedal only when you need to pick up large but light objects.
- ▶ Cleaning quality depends largely on the cleanliness of the suction filter. Operate the filter shaker at intervals suitable to the environment in which you are using the machine.

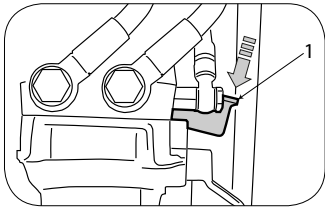
Controls of the Petrol and Diesel versions

- ▶ **Brake lock pedal (2, fig. 9):** Press this pedal along with the service brake pedal to engage the parking brake. To disengage the brake lock and release the parking brake, simply press the service brake pedal.
- ▶ **Service brake pedal (3, fig. 9):** Press this pedal to stop the machine during operation.
- ▶ **Flap lift pedal (4, fig. 9):** Press this pedal to lift the flaps in order to pick up large but light objects. Release the pedal when not needed.
- ▶ **Direction selector pedal (5, fig. 9):** Press this pedal to select the direction and the speed of travel.
- ▶ **Left and right side brush control lever (1, fig. 9):** Push this lever down to lower the side brushes to working position and start rotation. Raise the lever to lift the brushes and stop rotation.
- ▶ **Main brush control lever (2, fig. 10):** Push this lever forwards to lower the main brush to working position and start rotation. Raise the lever again to lift the brushes and stop rotation on completion of work.
- ▶ **Suction control level (1, fig. 10):** Adjust this lever to increase or reduce suction.
- ▶ **Engine drive lever (3, fig. 10):** Enables/disables all functions powered by the engine.

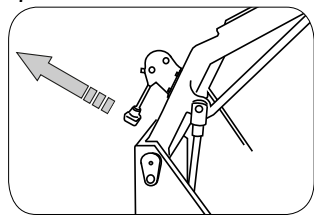


- ▶ **Emergency bypass (1, fig. 11):** Use this lever to move the machine with the engine off. Press in the direction shown to disengage the hydraulic pump.
- ▶ **Bin tipping lever (top unloading) (fig. 7):** Pull this lever to rotate the bin and empty its contents.
- ▶ **Emergency stop button (1, fig. 12):** Press this mushroom head button in the event of imminent danger or need to deactivate all machine functions and disconnect power to the machine.
- ▶ **Choke (1, fig. 13):** Pull to engage the choke for cold starting.
- ▶ **Filter shaker button (2, fig. 13):** Shut off suction with the suction control lever and then press and hold this button for 30 seconds to shake and clean the suction filter.
- ▶ **Bin up/down switch (3, fig. 13):** Lifts or lowers the debris bin.
- ▶ **Horn button (4, fig. 13):** Press to sound the horn.
- ▶ **Main switch (5, fig. 13):** Switches power to all machine functions on/off.
- ▶ **Voltage indicator (6, fig. 13):** Shows correct electric circuit voltage.
- ▶ **Hour counter (7, fig. 13):** Shows machine operating hours.
- ▶ **Engine speed control lever (8, fig. 13):** Move this lever to adjust engine speed.

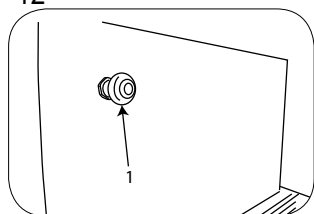
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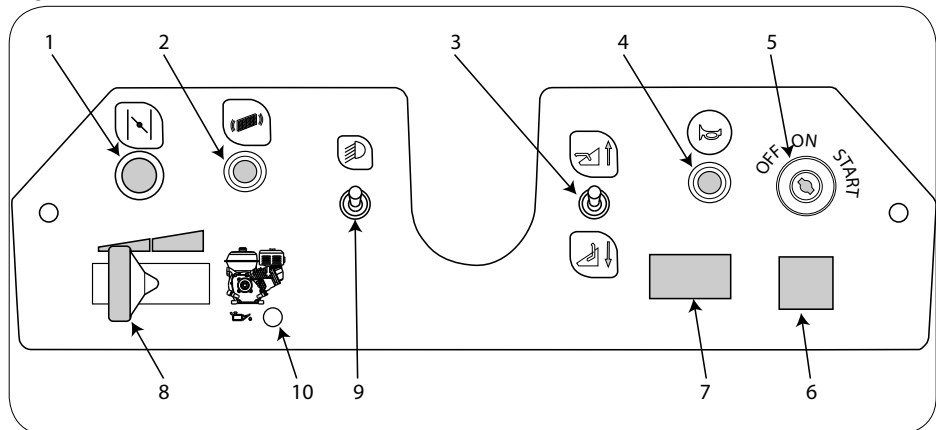
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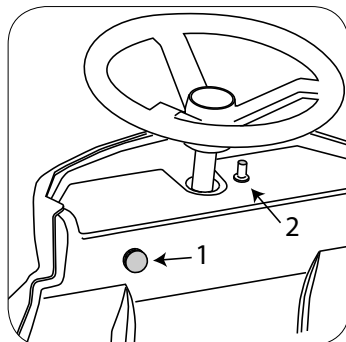


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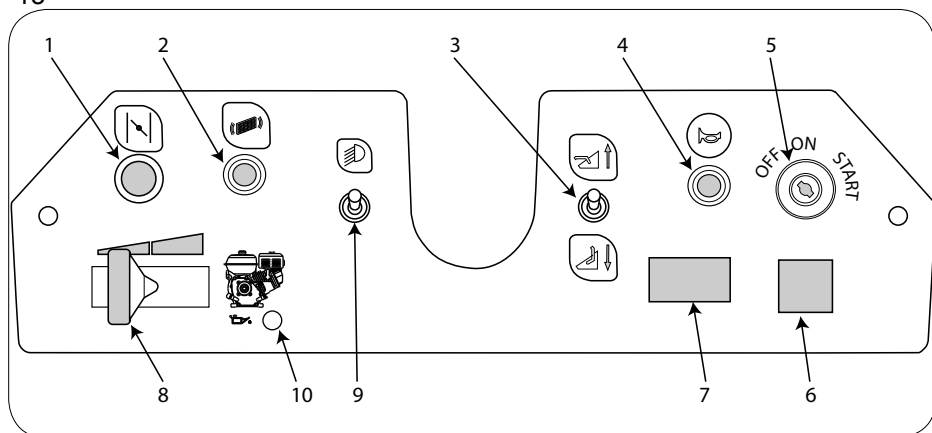


- ▶ **Light switch (Fig. 13-Ref. 9):** used to switch the lights on and off (OPTIONAL)
- ▶ **“Oil alert” light (Fig. 13-Ref.10):** engine oil pressure problem.
- ▶ **Bin up/down movement enabling button (1, fig. 29):** Press this button to enable bin movement by the bin up/down switch.

29



13



Operating the Petrol and Diesel versions

- ▶ Sit correctly in the seat.
- ▶ Release the parking brake.
- ▶ Move the engine speed control lever to START position.
- ▶ Pull out the choke.
- ▶ Move the engine drive lever to position 1-START and hold it there while turning the ignition key to START position.

! WARNING!

Do not engage the starter motor for more than five seconds at a time. If the engine fails to start, release the ignition key and wait ten seconds before trying again.

- ▶ Allow the ignition key to return to ON position as soon as the engine starts and release the engine drive lever.
- ▶ Press on the direction selector pedal to move off. Press the right side to move forwards. Press the left side to move backwards.
- ▶ Lower the side brushes.
- ▶ Lower the main brush.
- ▶ Adjust the suction control lever to obtain the required strength of suction.
- ▶ Press the flap lift pedal only when you need to pick up large but light objects.
- ▶ Cleaning quality depends largely on the cleanliness of the suction filter. Operate the filter shaker at intervals suitable to the environment in which you are using the machine.

Emptying the bottom unloading debris bin

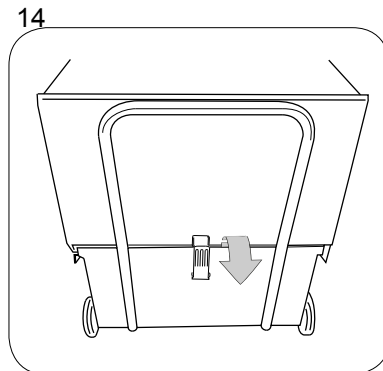
! WARNING!

When emptying the bin, always wear a mask to protect the respiratory tract from the dust which is always present during this operation.

! WARNING!

Before emptying the debris bin, operate the filter shaker for 30 seconds to clean the filter

- ▶ Release the bin lock (fig. 14).
- ▶ Pull out the rear bin by means of its handle.
- ▶ Take the bin (which is fitted with wheels) to the rubbish collection point and empty it.



Emptying the top unloading debris bin

! WARNING!

When emptying the bin, always wear a mask to protect the respiratory tract from the dust which is always present during this operation.

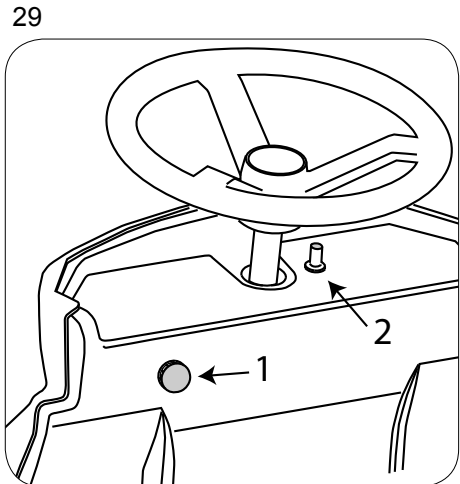
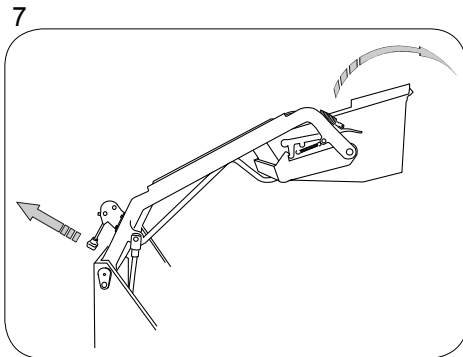
! WARNING!

Before emptying the debris bin, operate the filter shaker for 30 seconds to clean the filter

! IMPORTANT!

When you open the bin, all functions are disabled on Battery and Dual Power versions, and the engine is also switched off on the Dual Power version.

- ▶ Press and hold the bin movement enabling button (1, fig. 29) then operate the bin up/down switch (2, fig. 29) to raise the bin to the required height.
- ▶ Pull the lever (fig. 7) to rotate the bin and empty its contents.
- ▶ Turn the bin back to its horizontal position.
- ▶ Press and hold the bin movement enabling button (1, fig. 29) then operate the bin up/down switch (2, fig. 29) to lower the bin again.



Finishing work

! IMPORTANT!

Shake the filter at the end of every work session.

When you finish work, switch the machine off at the main switch, lift the side brushes and main brush and engage the parking brake.

Moving the machine when not in operation

Proceed as follows to move the machine.

- ▶ Raise the side brushes.
- ▶ Raise the main brush.
- ▶ Select the direction of travel.
- ▶ Press the accelerator pedal.

PERIODS OF INACTIVITY

Proceed as follows to prepare the machine for extended periods of inactivity.

- ▶ Empty the debris bin.
- ▶ Clean the suction filter.
- ▶ Disconnect the machine from the power supply.
- ▶ Completely recharge the batteries and deposit them in the battery store. During long periods of inactivity, you should charge the batteries regularly (at least once every two months) to keep them constantly at maximum charge.

! WARNING!

If you do not charge the batteries regularly, they may be irreparably damaged.

MAINTENANCE INSTRUCTIONS

! DANGER!

Never perform any maintenance operations without first disconnecting the batteries. Maintenance of the electrical circuit and all other operations not expressly required by this manual must be performed by specialised personnel only, in compliance with current safety legislation and as described in the maintenance manual.

Maintenance - General rules

Performing regular maintenance according to the Manufacturer's instructions improves performance and extends the working life of the machine.

When cleaning the machine, observe the following precautions.

- ▶ Avoid using pressure washers. Water could penetrate the electrical compartment or motors leading to damage or short circuits.
- ▶ Do not use steam to avoid the heat warping plastic parts.
- ▶ Do not use solvents or hydrocarbon based products. These can damage the cowling and rubber components.

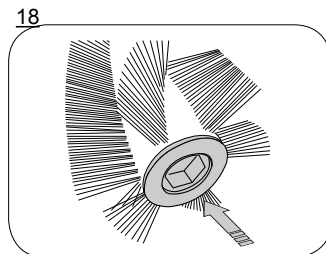
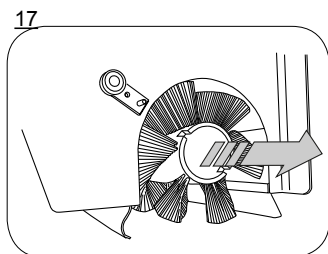
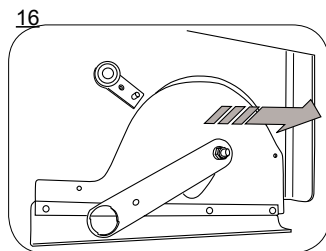
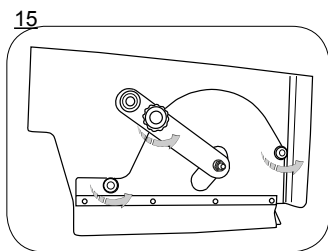
Replacing/installing the main brush

! DANGER!

This operation must be performed with the machine switched off and the key removed.

Proceed as follows to replace the main brush.

- ▶ Unscrew the knob and open the door on the left of the machine.
- ▶ Unscrew the three knobs securing the brush compartment cover (fig. 15).
- ▶ Remove the brush compartment cover (fig. 16).
- ▶ Pull out the brush (fig. 17).
- ▶ Remove the adapter from the core of the old brush and fit it to the new brush, taking care to keep the bristles aligned in the same direction (fig. 18).
- ▶ Fit the adapter with the new brush in the machine, taking care to ensure that the adapter engages the drive hub securely. Fit the cover over the brush compartment and fix it in place with the three knobs removed previously.

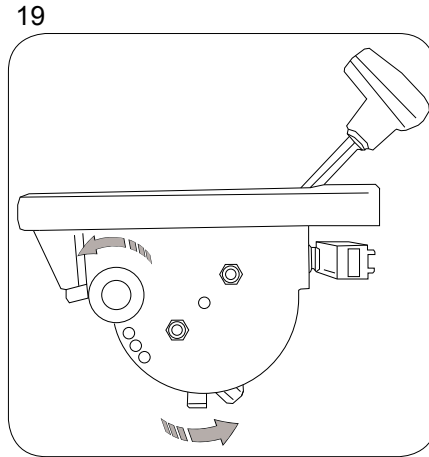


Adjusting the main brush

The main brush makes a major contribution to the efficiency of the whole machine. Correct adjustment ensures better quality cleaning in shorter times.

The machine is delivered correctly adjusted. The main brush therefore only needs further adjustment when it becomes worn. Proceed as follows to adjust the main brush.

- ▶ Unscrew the knob (fig. 19).
- ▶ Turn the adjuster anti-clockwise until the knob fixing hole can be engaged (fig. 19).
- ▶ Screw the knob back in (fig. 19).



Replacing/installing the side brushes

! DANGER!

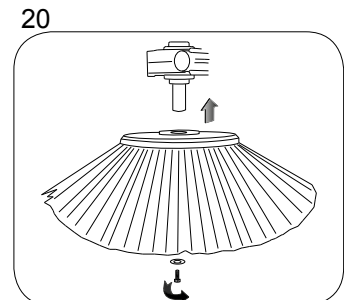
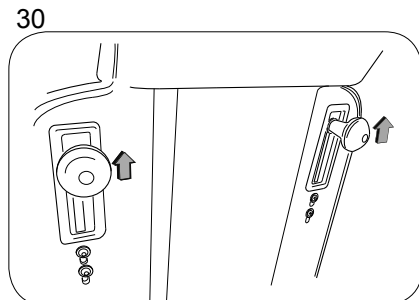
This operation must be performed with the machine switched off and the key removed.

For ease of transport, the side brushes are not installed on the machine when it is delivered.

Proceed as follows to install the side brushes.

- ▶ Raise the side brush holders (fig. 30).
- ▶ Unscrew the screw on the side brush motor shaft (fig. 20).
- ▶ Remove the keyway protector.
- ▶ Position the brush complete with flange over the motor shaft (fig. 20).
- ▶ Fit and tighten the brush locking screw again (fig. 20).

Repeat the above procedure to replace worn side brushes.



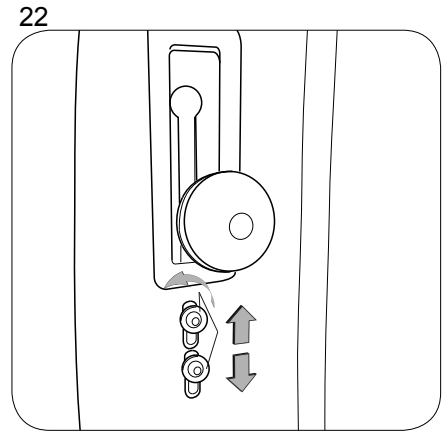
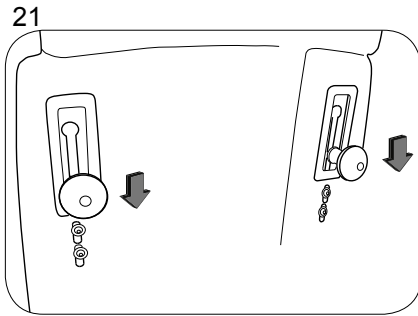
Adjusting the side brushes

! WARNING!

Never operate the machine without the side brushes installed.

The side brushes direct dirt and debris towards the centre of the machine. The most efficient height for this purpose is when the side brushes gently touch the floor. Proceed as follows to increase or reduce the pressure of the side brushes on the floor, if necessary.

- ▶ Lower the side brushes into work position (fig. 21).
- ▶ Loosen the two locking screws under the brush lifting knob (fig. 22).
- ▶ Manually move the brush to the required position.
- ▶ Tighten the locking screws again (fig. 22).
- ▶ Return the brushes to idle position.



Replacing/installing the suction filter

! DANGER!

This operation must be performed with the machine switched off and the key removed.

The suction filter makes a major contribution to the efficiency of the whole machine.

Its correct maintenance keeps the machine at maximum efficiency at all times. If the sweeper begins to raise dust as it sweeps, check the condition of the suction filter.

The suction filter can be cleaned in two ways.

Semiautomatic filter cleaning:

- ▶ This method provides a quick and easy way to keep the suction filter clean and ready for work. Press and hold the filter shaker button for a number of seconds, then repeat four or five times. On Petrol and Diesel versions, shut off suction with the suction control lever before pressing the filter shaker button.

Manual cleaning of the panel filter:

! DANGER!

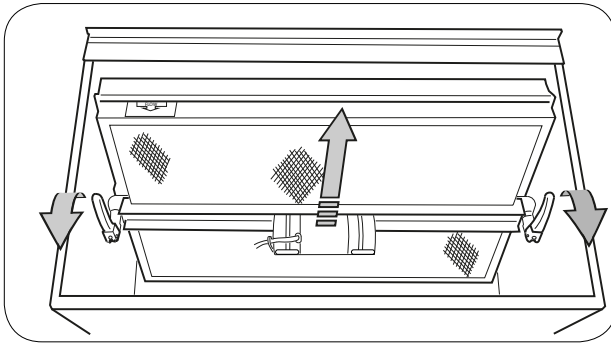
This operation must be performed with the machine switched off and the key removed. If the action of the filter shaker proves insufficient, proceed as follows to clean the filter manually.

- ▶ Remove the filter compartment cover.
- ▶ Lift the two levers and remove the filter shaker bracket complete with the filter shaker motor, carefully disconnecting the power cable from the filter shaker (fig. 23).
- ▶ Remove the suction filter (fig. 23).
- ▶ Blow the filter clean with compressed air (maximum pressure 6 bar).

! IMPORTANT!

The filter is marked to show the correct direction for fitting.

23



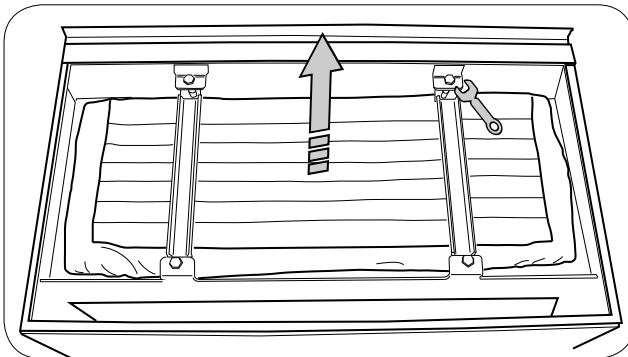
Manual cleaning of the pocket filter:

! DANGER!

This operation must be performed with the machine switched off and the key removed. If the action of the filter shaker proves insufficient, proceed as follows to clean the filter manually.

- ▶ Remove the filter compartment cover.
- ▶ Unscrew the four screws securing the two filter holder brackets (fig. 24).
- ▶ Remove the two brackets (fig. 24).
- ▶ Remove the filter, carefully disconnecting the power cable from the filter shaker (fig. 24).
- ▶ Blow the filter clean with compressed air (maximum pressure 6 bar).

24



Fuses: replacing

! DANGER!

This operation must be performed with the machine switched off and the key removed.

! WARNING!

Never use a fuse with a higher amperage than specified.

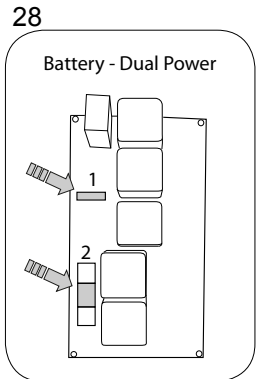
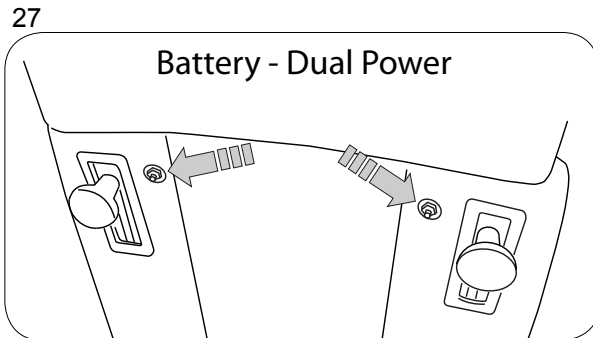
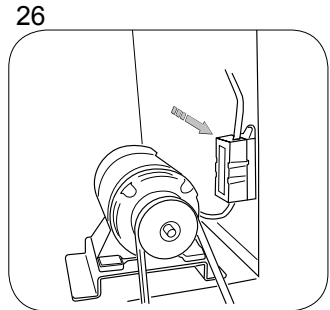
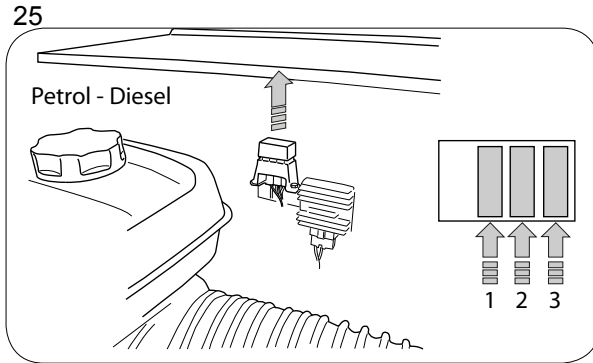
If a fuse continues to blow, the fault in the wiring, boards (if present) or motors must be identified and repaired. Have the machine checked by qualified personnel.

Regulator fuse (1, fig. 25), filter shaker and flashing beacon fuse (2, fig. 25), hour counter and horn fuse (3, fig. 25), Petrol and Diesel versions.

(fig. 26) Main fuse .

Manual reset cutouts for side brush motors (fig. 27), Battery and Dual Power versions.

Filter shaker and suction fan fuse (1, fig. 28), central brush motor fuse (2, fig. 28), Battery and Dual Power versions.



Battery maintenance and charging

! DANGER!

Do not check the batteries by sparking.

The batteries give off flammable fumes. Put out all fires and hot embers before checking or topping up the batteries.

Perform the operations described below in a ventilated area.

To avoid permanent damage to the batteries, do not run them down completely.

Charging procedure

Connect the battery charger connector to the battery wiring connector.

! WARNING!

In the case of gel batteries, use a charger specific for gel batteries only.

! WARNING!

Charge the batteries as instructed in the battery charger manual.

Disconnect the connectors at the end of charging.

Changing the engine oil

! WARNING!

On Dual power machines, change the engine oil when the “CHANGE ENGINE OIL” warning appears on the display. On Petrol and Diesel machines, change the engine oil at the intervals specified in the operation and maintenance manual provided by the engine manufacturer on the basis of the hour counter on the machine’s dashboard. Always change engine oil with the machine switched off and the engine cold.

Check that all machine functions are disabled, then lift the top cowling. Check that the engine is not hot enough to cause burns then proceed as follows.

- ▶ Find the engine oil drain pipe and pass it through the hole in the engine compartment bottom plate.
- ▶ Remove the oil level dipstick to facilitate drainage of the old oil.
- ▶ Position a suitable container under the drain pipe and unscrew the plug to let the old oil out.
- ▶ When the old oil has all drained out, fit the plug back in the drain pipe and arrange the pipe back inside the engine compartment, making sure that it does not interfere with any moving parts.
- ▶ Add new oil through the dipstick hole in the quantity specified in the engine’s own manual.
- ▶ Once the right quantity of new oil has been added, fit the oil level dipstick and check that the level is correct.
- ▶ Close the top cowling.

Periodic checks

CHECK	ON DELIVERY	EVERY 10 HOURS	EVERY 50 HOURS	EVERY 100 HOURS
CHECK THE BATTERY ELECTROLYTE	X	X		
CHECK THE HYDRAULIC OIL	X	X		
CHECK THE CONDITION OF THE BELTS				X
ADJUST THE BRAKE				X
CHECK THE TIGHTNESS OF NUTS BOLTS			X	
CHECK THE CONDITION OF THE BRUSHES			X	
CHECK THE TIGHTNESS OF THE SEALS		X		
CHECK THE FUNCTIONING OF DEVICES	X			X
GREASE THE STEERING CHAIN				X

TROUBLESHOOTING

B= Battery
 DP= Dual Power
 P= Petrol
 D= Diesel

PROBLEM	CAUSE	REMEDY
The machine raises dust.	Filter clogged. (B,DP,P,D)	Shake the filter with the filter shaker and, if necessary, remove and clean it thoroughly.
	Filter damaged. (B,DP,P,D)	Replace the filter.
	Filter incorrectly fitted. (B,DP,P,D)	Fit the filter correctly in its housing.
The machine leaves dirt on the ground.	The main brush is not adjusted correctly or is worn. (B,DP,P,D)	Adjust or replace the main brush as necessary.
	The main brush has collected string or wire. (B,DP,P,D)	Remove the string and wire picked up.
	The flaps are damaged. (B,DP,P,D)	Replace the flaps.
	Debris bin full. (B,DP,P,D)	Empty the debris bin.
The main brush does not rotate.	Belt broken. (B,DP,P,D)	Replace.
	Fuse burned out. (B,DP)	Replace.
	Microswitch faulty. (B,DP)	Replace.
	Cable disconnected. (B,DP)	Check.
	Gearmotor faulty. (B,DP)	Replace.
The side brushes do not rotate.	Belt broken. (P,D)	Replace.
	Cutout tripped. (B,DP)	Reset.
	Microswitch faulty. (B,DP)	Replace.
	Cable disconnected. (B,DP)	Check.
The suction motor does not work.	Fuse burned out. (B,DP)	Replace.
	Switch faulty. (B,DP)	Replace.
	Cable disconnected. (B,DP)	Check.
	Motor faulty. (B,DP)	Replace.
The filter shaker motor does not work.	Fuse burned out. (B,DP,P,D)	Replace.
	Switch faulty. (B,DP,P,D)	Replace.
	Cable disconnected. (B,DP,P,D)	Check.
	Motor faulty. (B,DP,P,D)	Replace.

The machine won't start.	Battery terminals disconnected. (B,DP,P,D)	Check.
	Batteries discharged. (B,DP,P,D)	Recharge.
	Emergency stop button pressed. (B,DP,P,D)	Reset.
	No fuel. (DP,P,D)	Top up.
	No engine oil. (DP,P,D)	Top up.
	Driver detection device faulty. (B,DP,P,D)	Replace.
	Operator not correctly seated.	Sit correctly in the seat.
	Clutch not engaged. (P,D)	Engage.
	Main fuse burned out. (B,DP)	Replace.
	Power control board fuse burned out. (B,DP)	Replace.
The batteries do not hold their charge.	Electrolyte low. (B,DP,P,D)	Top up.
	Battery terminal loose. (B,DP,P,D)	Tighten.

DISPLAY ALARMS

BRUSH MOTOR CUTOUT TRIPPED	The brush motor has overheated.
BRAKE	The parking brake is engaged or the drive motor has overheated.
STAND-BY	The driver detection microswitch is not detecting an operator.
RELEASE ACCELERATOR	Incorrect starting sequence. Release the accelerator pedal when starting.
EEPROM 1 FAULT	Replace the display board.
DRIVE CONTROL BOARD CUTOUT TRIPPED	The drive control board has overheated.
ACCELERATOR FAULT	There is a problem with the accelerator cable.
MAX. SPEED POTENTIOMETER FAULT	There is a fault in the maximum speed potentiometer cabling.
UNDERVOLTAGE FAULT	Check the batteries.
OVERVOLTAGE FAULT	Check the batteries.
RELAY FAULT	Replace the drive control board.
HPD	Check the accelerator pedal. Switch the machine off and back on with the accelerator released.
MOSFET FAULT	Replace the drive control board.
EEPROM 2 FAULT	Replace the drive control board.

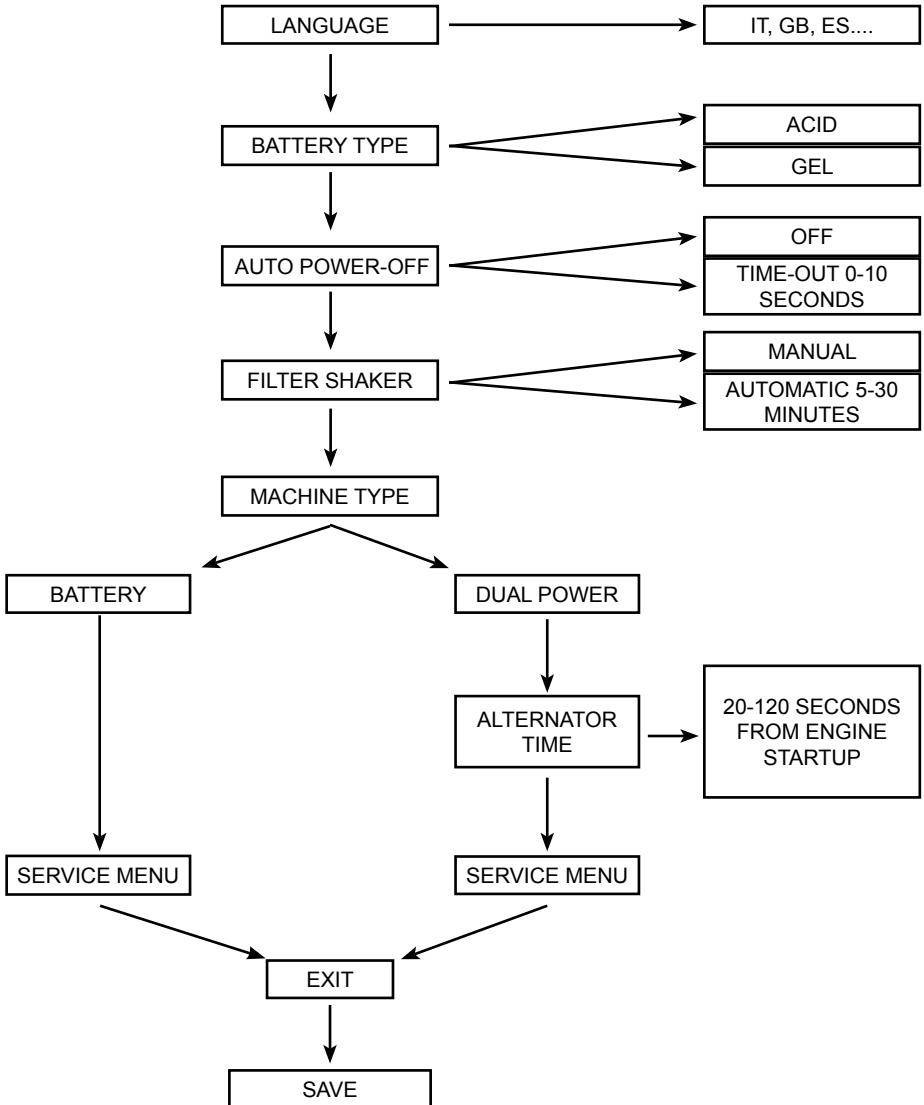
SERVICE	Call a service centre to arrange servicing.
BATTERY DISCHARGED	Battery discharged.
START ENGINE	Dual Power version only: start the engine to continue work.
BATTERY CHARGED	Dual Power version only: batteries charged.
ALTERNATOR CUTOUT TRIPPED	Dual Power version only: the alternator has overheated.
CHANGE ENGINE OIL	Dual Power version only: change the engine oil.
COWLING OPEN	
SWITCH OFF MOTOR/ ENGINE	

TECHNICAL MENU

To access the technical menu, turn the main switch on then press and hold the menu and suction buttons for three seconds.

Press the "SUCTION" button to scroll up through items or increment the selected parameter value. Press the "FILTER SHAKER" button to scroll down through items or decrement the selected parameter value.

Press the "MENU" button to select the parameter to change. The selected parameter appears in negative.



Integrated Professional Cleaning



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