

Powr-Flite®

OPERATOR'S MANUAL & PARTS LIST

Predator Automatic Scrubber 20 Model PAS20DX



**WARNING: OPERATOR MUST READ AND UNDERSTAND THIS MANUAL
COMPLETELY BEFORE OPERATING THIS EQUIPMENT.**

Save These Instructions

IMPORTANT SAFETY INSTRUCTIONS

All operators must read, understand and practice the following safety instructions. They will be repeated occasionally throughout this manual, and additional cautions may be added for specific cases.

- **CAUTION:** Operators must read and understand this manual completely before operating this equipment.
- **CAUTION:** Make sure key switch is in the “OFF” position before installing pad.
- **CAUTION:** Loose objects on the floor can become dangerous projectiles if struck by the high-speed pad. Remove them before operating this machine.
- **CAUTION:** Keep hands and feet away from revolving pad.
- **CAUTION:** Keep machine moving to prevent damage to finish or floor.
- **CAUTION:** Make sure key switch is turned “OFF” and battery connector is unplugged from machine before performing any maintenance procedures.
- **CAUTION:** Maintenance and repairs must be performed by authorized personnel.
- **CAUTION:** Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.
- **CAUTION:** Do not operate this equipment in bare feet or with open-toed shoes or sandals.
- **CAUTION:** Charging batteries generate explosive gases. ***NO SMOKING OR OPEN FLAMES OR SPARKS.*** Make sure the charger has turned off before disconnecting it from the batteries. Charge batteries in a well-ventilated area with the tanks in the raised and locked position.
- **CAUTION::** Store or park this machine on a level surface only. Remove key from switch if machine is left unattended.
- **CAUTION::** Do not operate machine or charger in areas where flammable liquids or gases are present. Do not use or pick up flammable chemicals or liquids with this machine.
- **CAUTION:** Make sure all caution, warning and instructional decals are in place and legible. Replace damaged or missing labels.
- **CAUTION:** These machines are designed for level floor operations only. ***DO NOT OPERATE*** on ramps or inclines unless adequate personnel are available for assistance.
- **CAUTION:** Do not expose electrical components to water or other liquids. To clean machine wipe down with a damp cloth.

WARNING:

DO NOT OPERATE MACHINE OR CHARGER IN AREAS WHERE FLAMMABLE LIQUIDS OR GASES ARE PRESENT.

DO NOT USE OR PICK UP FLAMMABLE CHEMICALS OR LIQUIDS WITH THIS MACHINE.

POWR-FLITE PREDATOR AUTOMATIC SCRUBBER 20

This manual refers to a battery powered automatic floor scrubber. Designed to be simple, easy to operate and safe, with maneuverability and automatic variable electronic drive. Routine maintenance has been simplified and reduced to the minimum to keep equipment on the job.

The floor cleaner is intended for cleaning and washing level floors in closed spaces using appropriate detergents. This manual serves to guarantee the correct use of the machine thus supporting the service that we offer the customer. You are advised to adhere strictly to the instructions contained in this manual since the manufacturer does not accept responsibility for any damage caused to persons or to property, or to the machine itself if it is not used in the way described here or if the safety and maintenance instructions are not followed. The instructions set out in this manual do not substitute the safety measures and technical specifications to be applied directly to the product for installation and operation, nor the safety regulations in force in the country where it is used or the rules of common sense.

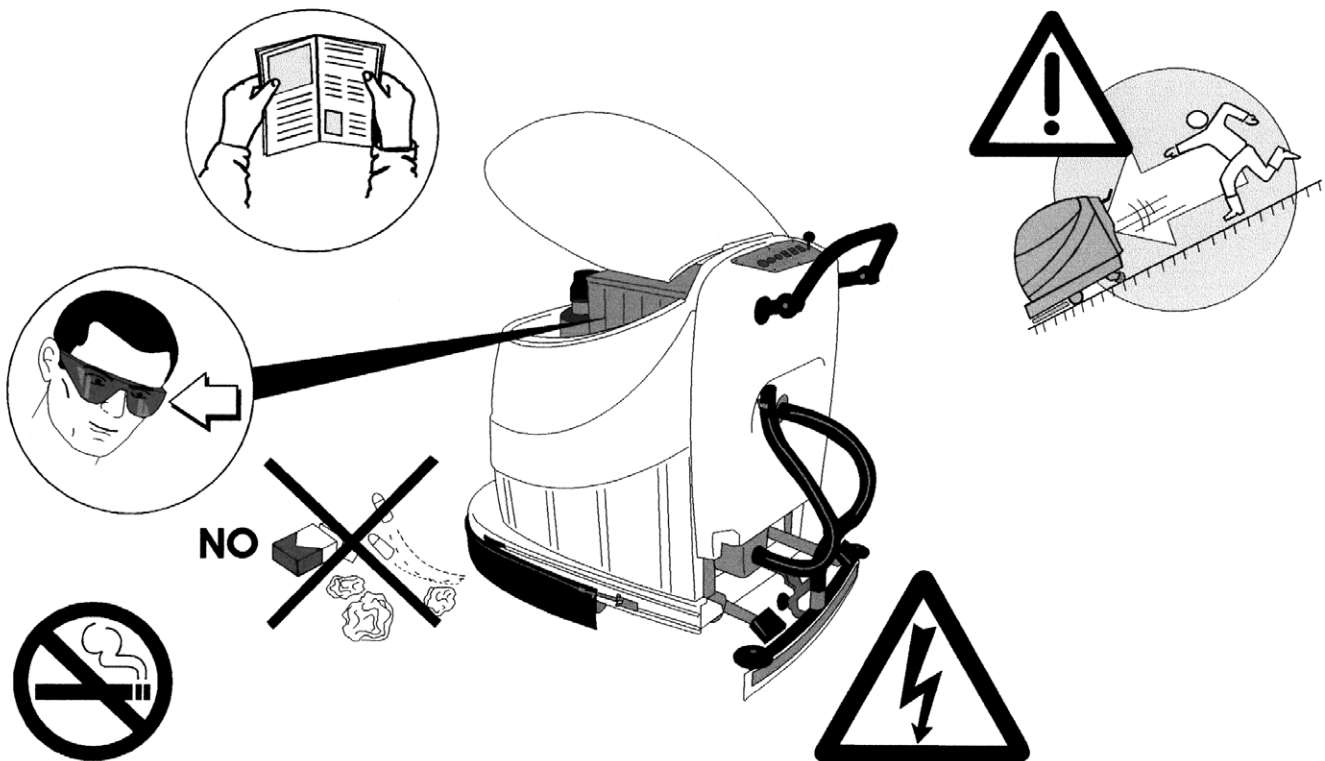
The installation or maintenance personnel must report any defects or deterioration, which might compromise the safety of the machine.

The personnel responsible for operating the machine must have specific professional training or must have experience of using machines of this type.

In order to prevent damage to people or to property, we advise the customer to instruct adequately the operators on any risks related to the use of this machine. The operator must always make use of the protective measures prescribed by the laws of the country in which the machine is used as well as additional protection provided by the employer (safety shoes, overalls, safety glasses, etc.).

The responsibilities of the personnel authorized to use the machine are at the discretion of the customer.

Maintenance personnel must have the specific characteristics (maintenance technician) necessary for correctly interpreting diagrams and instructions.



Powr-Flite declines all responsibility for damage of any kind resulting from imprudent use by expert or inexperienced personnel who have not operated the machine in accordance with this manual. The installation must be carried out in accordance with the laws in force in the country where it is installed; Powr-Flite is not responsible for equipment upstream of the cleaner.

The customer must use exclusively original spare parts and fit them in the intended way. Responsibility deriving from other commercially available components rests with the customer. Do not leave any objects of any kind on the floor as they may be thrown at high speed by the brushes. Keep feet and hands clear of the moving brushes.

Ensure that the main power key switch is in the OFF position and that the batteries are disconnected before carrying out any maintenance and/or filling the tanks with detergent and/or changing the brushes.

Maintenance procedures must be carried out by authorized personnel.

Do not carry out any un-safe or temporary repairs or use non-original spare parts.

Regularly check the wear and deterioration of the materials and, if necessary, call out your regular supplier. When working near the batteries use protective glasses and clothing. Remove any metal object.

Do not rest metal tools or equipment of any type on the batteries.

Recharging the batteries produces explosive gas.

**DO NOT SMOKE,
LIGHT FLAMES OR
MAKE SPARKS.**

Ensure that the charger is switched off before disconnecting it from the batteries. Recharge the batteries in a well ventilated area and with the cover fixed in the open position.

Do not draw current from the batteries with make-shift connectors, clips or contacts.

Park the cleaner on a flat and level floor.

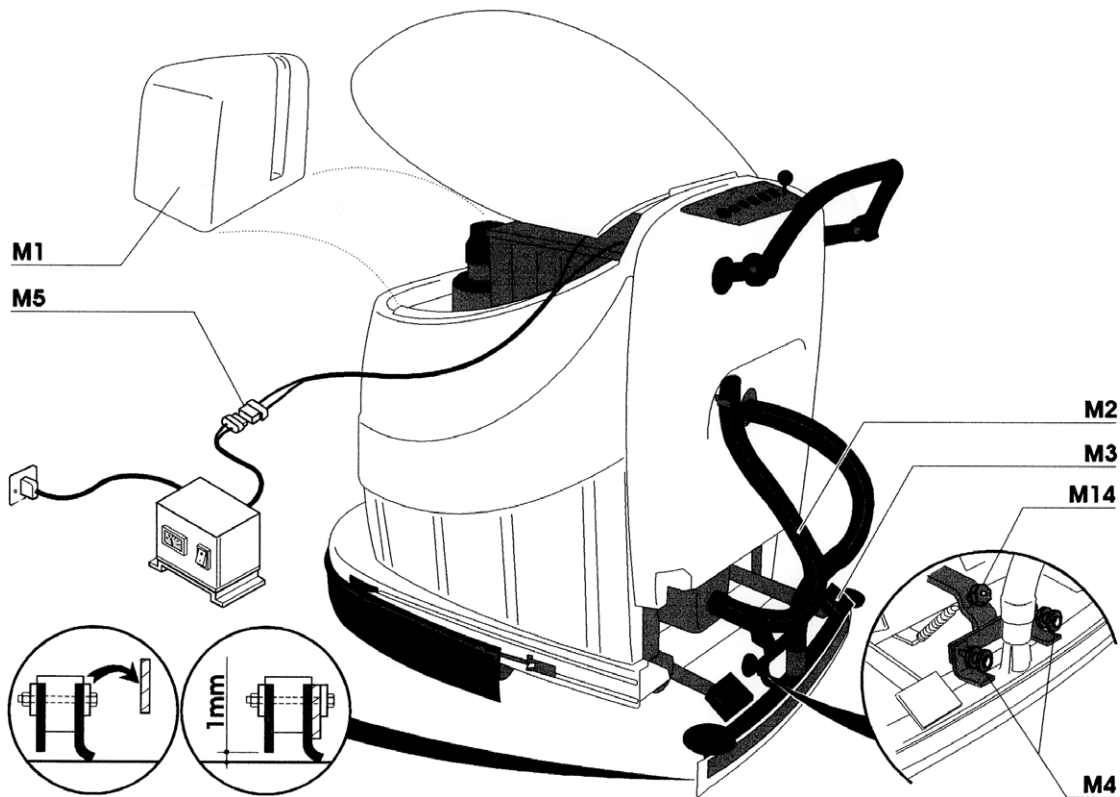


Diagram 1

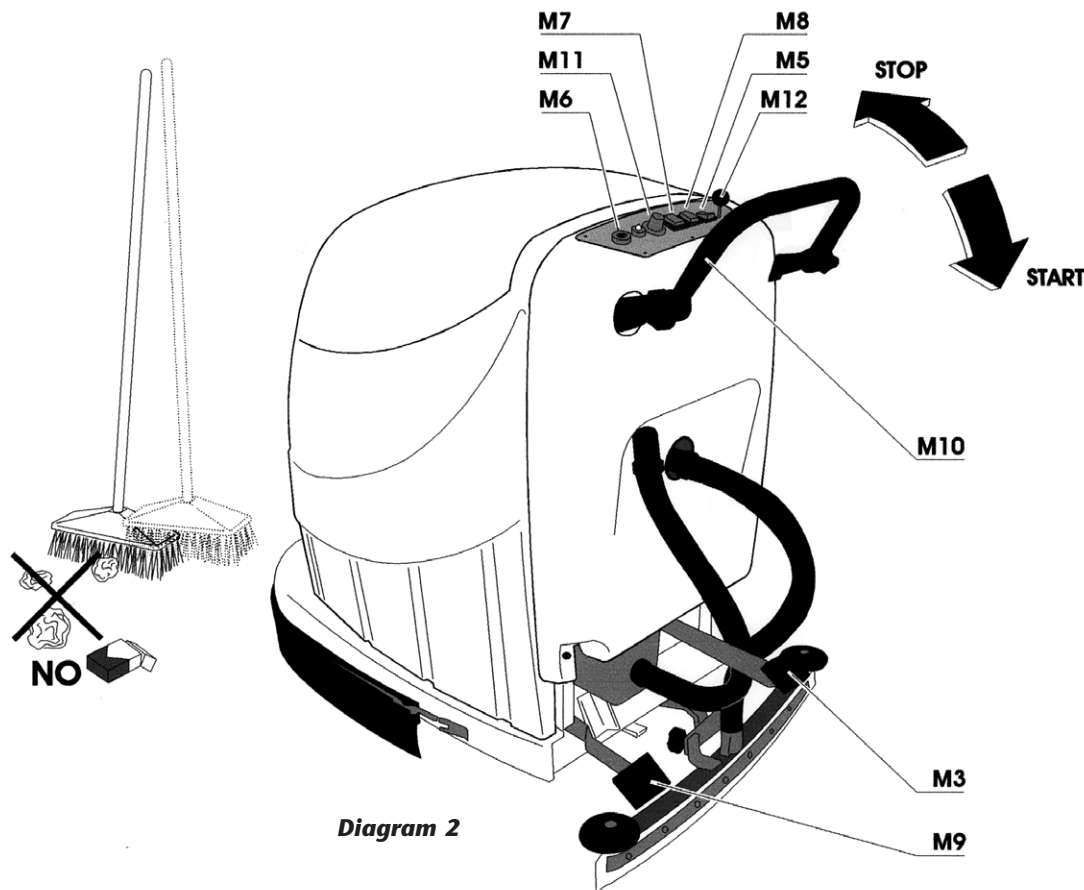


Diagram 2

If the cleaner is left unattended remove the key from the main power switch.

Do not leave the cleaner unattended particularly if children are present. Do not use or install the cleaner in places where flammable gases or liquids are present. Do not use flammable liquids or chemicals with this cleaner. Ensure that the instruction manual and warnings are always to hand and are legible. Replace any torn or missing pages.

This machine must only be used on flat and level surfaces.

DO NOT USE IT ON INCLINED SURFACES without the assistance of the appropriate personnel.

Do not operate the machine in bare feet, with sandals or any kind of open footwear.

Do not wet electrical components with water or any other liquid. Dry the machine with a cloth.

Powr-Flite is not responsible for the disposal or production of products necessary for its operation; e.g. batteries, detergents, etc.; the customer himself must, therefore, arrange for the disposal of sub-stances harmful to the environment in accordance with the laws of the country in which it is used.

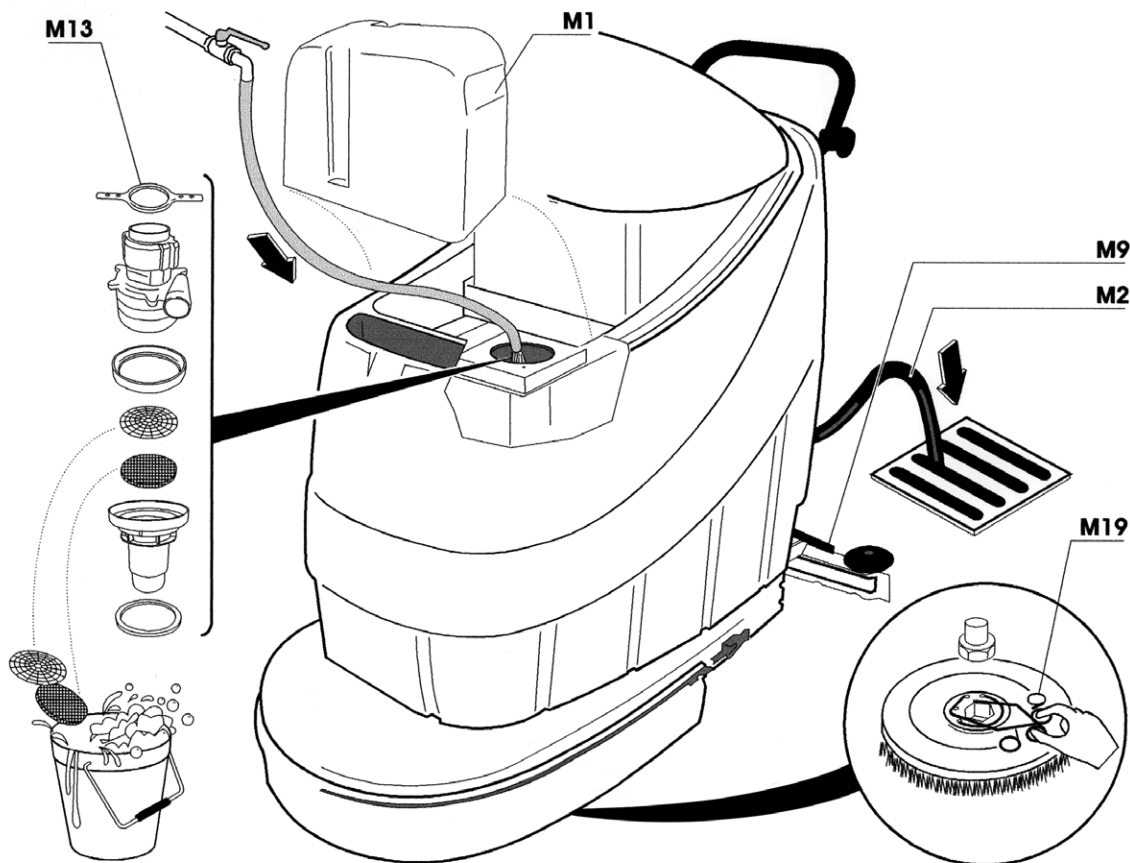
The same precautions should be taken when the machine is scrapped.

The machine generates a sound pressure level (noise) in an industrial environment (warehouse/ shop floor) which is less than 80 dBA and is therefore absolutely harmless for the operator. However, in other surroundings, this level may be exceeded in which case the customer must provide appropriate protection (ear defenders) as well as notices to promote their use and periodic hearing examinations.

The operator must not wear clothing with wide sleeves, laces or belts; he must not approach the machine with bare or wet feet; he must not pull out the plug by pulling the cable; must not smoke if the environment or products used do not allow it.

For lifting and transporting use only specialized personnel (slingers, crane operators, etc..) with proper lifting gear which is suitable for the weight of the various components.

- Transport (especially by road) must be carried out with in the correct way and with the adequate means so as to protect the components (especially the electronic ones) from violent shocks, humidity, vibration, etc.; the machines are supplied with wheels and therefore need to be securely anchored before beginning transportation.



We remind you that packing material (wood, nails, paper, cellophane, metal staples, adhesive tape, straps, ropes, etc.) may cause cuts or wounds and should be handled with care. These must be removed with appropriate tools and should not be left in the care of irresponsible people (e.g. Children); the same applies to the un-packing tools (scissors, hammers, pliers, knives, etc.).

On specific request, Powr-Flite will pack the machines appropriately but this does not eliminate the above safety notes.

During movement, suspended loads made up of machine components or parts represent a collision risk, it is the responsibility of the customer to highlight this danger.

WARNING: before attempting to adjust or prepare the machine or to fill the tanks, make sure that the power supply is disconnected.

Solution Tank: The detergent tank is positioned underneath the upper cover at the front of the machine with the filter hole **M1** easily accessible for easy refilling. Before filling the tank with correctly diluted detergent, empty the waste collection tank as described in the following paragraph; obviously this step is not required for the first time of filling. The capacity of the solution tank is 17 gal. only use the quantities and dilution recommended by the detergent supplier and use only non-foaming detergents. If foam is created, use a defoaming chemical in recovery tank.

Recovery Tank: The waste tank should be emptied (preferably after each use) so as not to let the dirt settle; to do this, remove the cap covering the drain tube **M2** which is held in place by a retaining spring, and put in a position so that it drains. Always abide by the environmental regulations of the country where the machine is used.

Squeegee Blade: The floor squeegee serves to finish the drying operation and it is very important to ensure it is in the correct position: lower the squeegee to its working position using the foot pedal **M3**; level the squeegee using the knobs **M4** so that the black rubber strip is approximately 1 mm above the floor.

The remaining rubber strips must wipe the floor with a certain amount of pressure; after the first few hours of operation the rubber squeegees adapt themselves to the inclinations and the drying action improves. The pressure of the squeegees on the floor is regulated by pressing the knob.

When cleaning shiny or smooth floors and when there are holes (joints between tiles) it is advisable not to use the rear (lowest) rubber squeegee.

Installing and recharging the batteries: The batteries are supplied separately and are located in the appropriate compartment underneath the cover; apply a coating of grease (e.g. Vaseline) to the terminals; connect the batteries as shown in diagram 1; make sure the terminals are securely tightened. The battery charger should be set up in the area where it is planned to leave the machine for recharging. Use the cable supplied to

connect to the mains supply, make sure that the supply voltage is the same as indicated on the battery charger itself. To charge the batteries connect the connector **M5**, which comes directly from the battery compartment, to the battery charger connector. The charger will automatically regulate the charging current and will turn itself off when the batteries are recharged.

WARNING: The battery acid may give off harmful fumes. When working near the batteries use protective glasses and clothes.

DO NOT PLACE ANY METAL TOOLS OF ANY KIND ON THE BATTERIES. Recharging the batteries generates explosive gas. Do not smoke, light flames or make sparks. Make sure the charger is switched off before disconnecting. Recharge the batteries in a well-ventilated area and keep the cover open.

WARNING: objects lying on the floor can be thrown at high speed by the brushes, endangering people and/or property.

The area to be cleaned: In order to increase the effectiveness of the detergent, the area to be cleaned should first be swept (manually or by machine) to remove loose dirt, which may quickly clog up the suction circuit.

Powering up and operation:

- Turn off the battery charger and disconnect it from the machine. Connect battery cable to machine.
- Turn the key switch, **M6**, to position 1 and press buttons **M7** and **M8**;
- Lower the brush by pressing pedal **M9**;
- Lower the floor wiper by pressing pedal **M3**;
- Regulate the flow of detergent to a minimum using knob **M12**;
- Press lever **M10**, the machine will go forward, keep press the button **M5**, the machine will go back-ward. Releasing **M10** to stop the machine
- Regulate the forward speed with potentiometer **M11**;
- Finally, use lever **M12** to regulate the dosage of detergent according to the amount of dirt and the speed of the machine.

Particularly dirty floors: Certain floors or environments require particular attention or even a second pass with the cleaner.

In this case you should make one pass with the wiper raised and the brush in the working position; in this way the detergent remains on the floor for longer and will dissolve the tougher dirt. The second pass should be made with the brush and wiper lowered and at a slower speed.

WARNING

this machine is designed to work in closed industrial environments on level floors or on inclines no steeper than 2%. Do not use flammable chemicals and/or explosives with this machine.

Squeegee assembly: Inspect and clean the floor squeegee weekly and make sure to restore it to its working condition. If

the drying action is not perfect after cleaning the wiper assembly, remove and replace any worn rubber blades.

Brush: The brush must be kept in working order; to remove a worn brush proceed as follows (follow the procedure in reverse to reassemble):

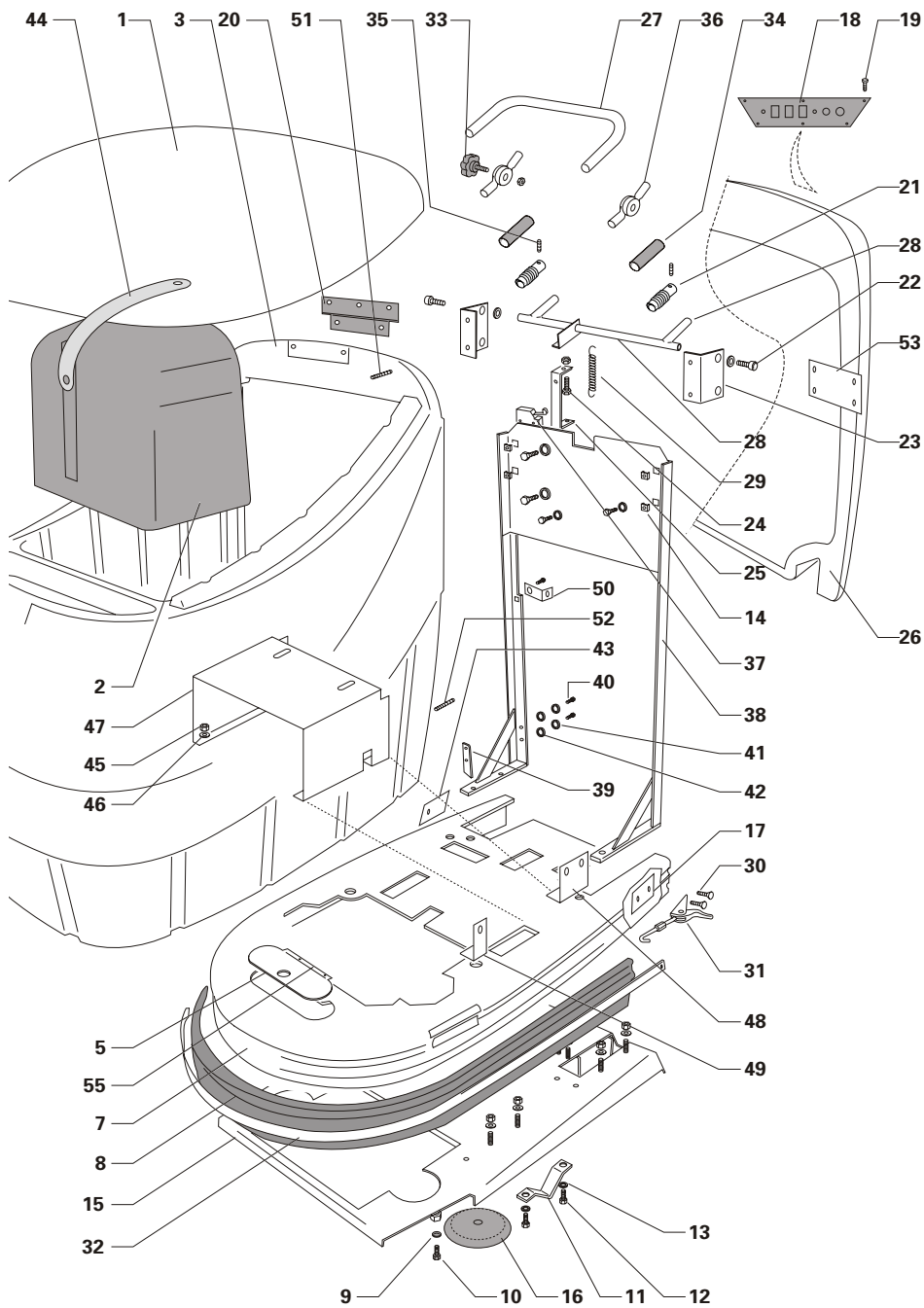
- Turn off the machine (key switch in OFF position) and lift the brush with the pedal provided (**M9**);
- Release the catch **M15** and remove the rubber spray guard;
- Turn the brush to be removed by hand until the coils of spring **M19** are accessible;
- By closing together the coils of spring **M19** with your fingers (as if you were closing a pair of scissors) the brush will free itself;

Recovery Tank: clean the tank every week as follows: lift the cover;

remove the cover of the suction motor **M1**; remove the motor stop ring **M13** and remove the suction motor from its seat; carefully clean the filter, net and sponge, and remove the dirt which has accumulated in the tank.

Batteries: Check the electrolyte level and top up with distilled water if drops below the level of the battery elements. Keep the batteries clean and dry with anti-static cloths. Recharging must be carried out with the cell plugs removed and the cover of the machine opened so as to allow the gases generated to escape.

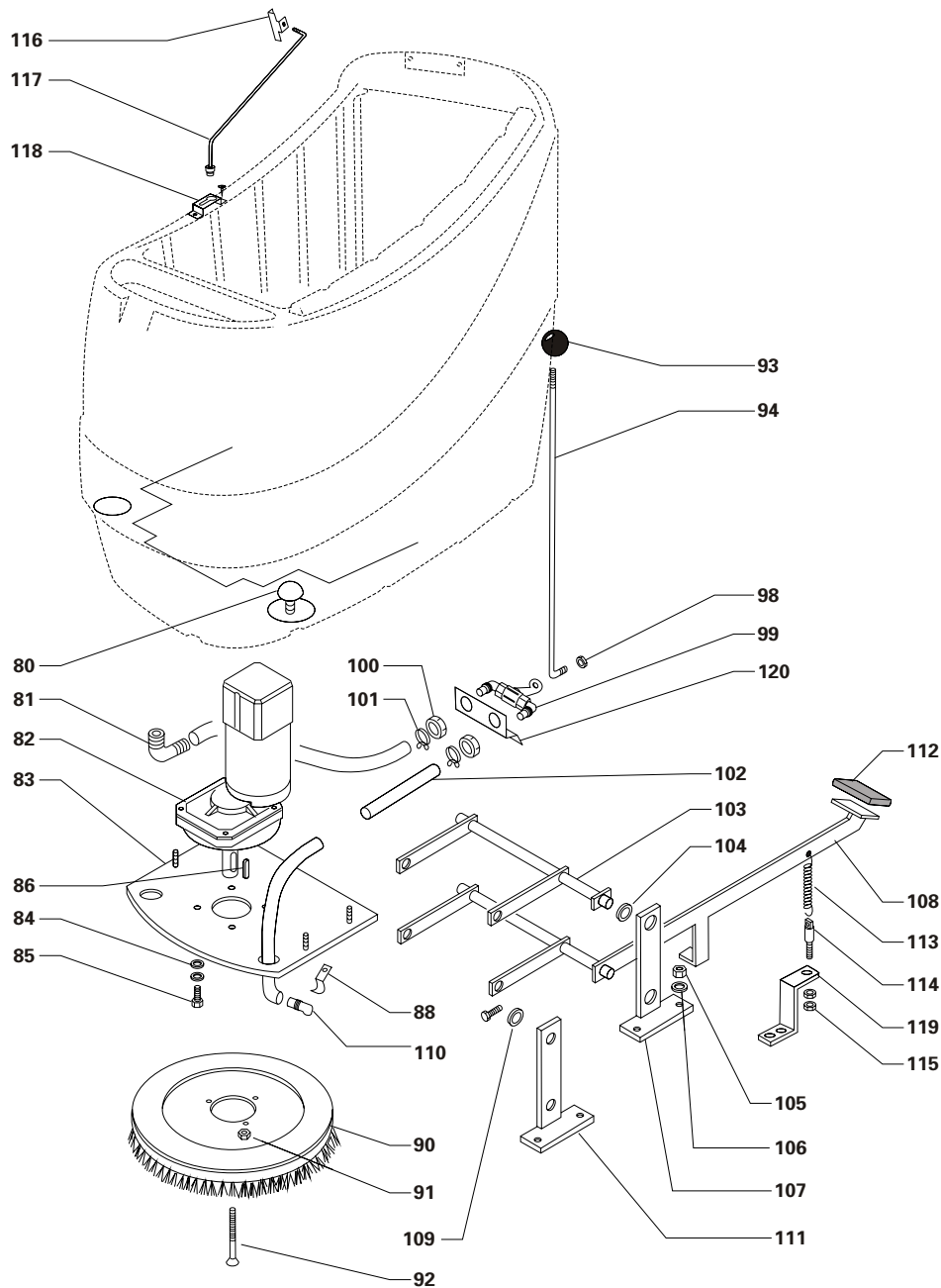
In confined spaces these gases can be explosive, so recharging should be done in a well ventilated area.

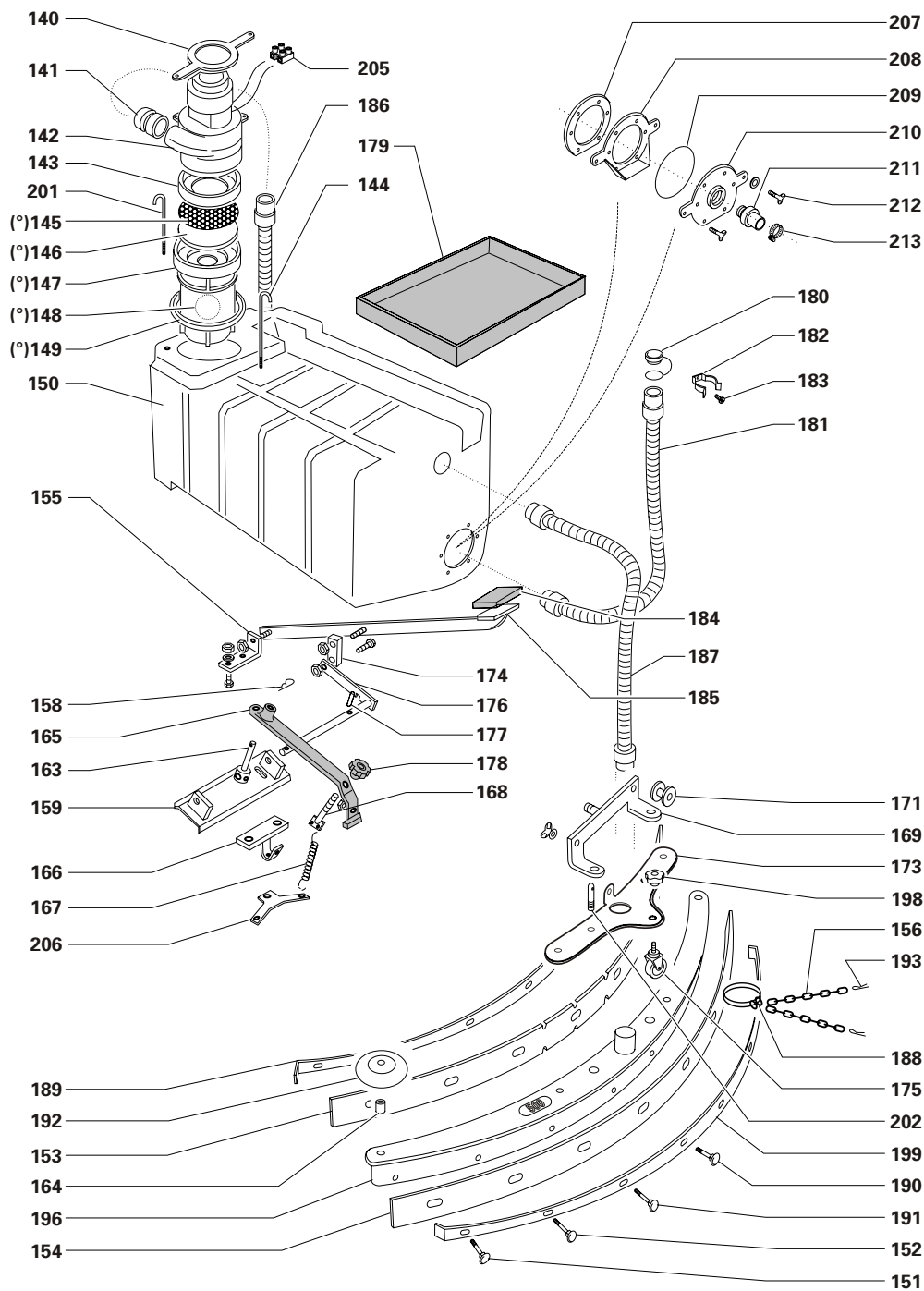


REF#	PART#	DESCRIPTION
1	PAS462	COVER
2	510.002	SUCTION MOTOR COVER
3	510.003	CHEST
7	510.007	CHEST
8	PAS921	SPLASH GUARD
9	PAS157	WASHER
10	PAS223	SCREW
11	510.011	YOKE
12	PAS167	SCREW
13	PAS188	WASHER
14	PAS466	CAGE NUT
15	510.300	FRAME
16	PAS1	BUFFER WHEEL
17	PAS274	PLATE
18	PAS493	CONTROL PANEL
19	PAS153	SCREW
20	510.020	HINGE
21	PAS335	BELLOWS
22	PAS167	SCREW
23	501.033	SQUARE
24	501.027	SCREW
25	501.028.1	SUPPORT
26	510.026.1	PANEL
27	430.373.3	HANDLE
28	PAS209	LEVER
29	PAS329	SPRING
30	PAS926	SCREW
31	PAS122	HOOK
32	PAS919	STOP STRIP
33	PAS337	KNOB
34	PAS338	HANDLE
35	PAS148	DOWEL
36	PAS339	ARTICULATION
37	PAS56	MICRO
38	510.038	PANEL
39	PAS259	PLATE
40	430.107	SCREW
41	ER320	WASHER
42	PAS208	WASHER
43	510.043	PLATE
44	PAS484	COVER RUBBER
45	PAS176	NUT
46	PAS188	WASHER
47	510.047	SUPPORT
48	510.048	PLATE
49	510.049	PLATE
50	510.050	PLATE
51	510.051	PIN
52	510.052	PIN
53	PAS504	COVER

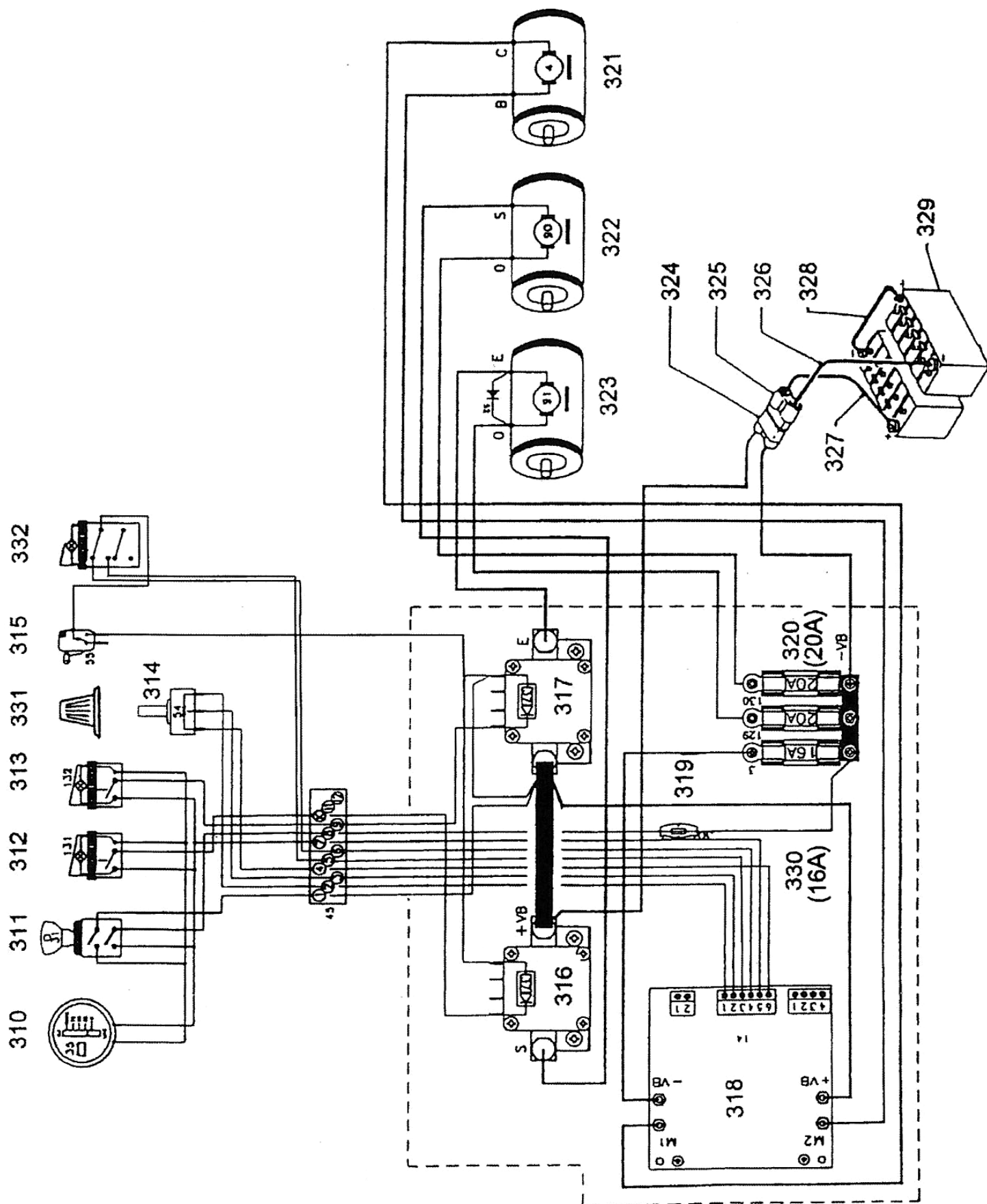
*CALL FOR AVAILABILITY

REF#	PART#	DESCRIPTION
80	PAS3	FILTER
81	PAS296	HOSE FITTING
82	PAS4	REDUCER MOTOR
83	510.083	PLATE
84	ER320	WASHER
85	PAS162	SCREW
86	PAS101	TANG
87	PAS5	COUPLING
88	PAS2039	PIPE SUPPORT </td
89	PAS6	FLANGE DX
90	PAS8	POLY BRUSH
90	PAS132	STRATA GRIT BRUSH
90	PAS95	SCRUB GRIT II
90	PAS109	PAD DRIVER
90	PAS135	POWR-SCUFF
92	PAS111	SCREW
93	PAS11	KNOB
94	510.094	ROD
95	PAS2035	SOLENOID VALVE
98	PAS304	NUT
99	PAS12	WATER TAP
100	PAS262	NUT
101	PX42	HOSE COLLARS
102	PAS288	PIPE
103	PAS204	LEVER
104	500.155	NYLON WASHER
105	PAS176	NUT
106	PAS188	WASHER
107	430.119	SUPPORT
108	PAS317	LEVER
109	500.155	NYLON WASHER
110	PAS2038	HOSE FITTING
111	PAS249	SUPPORT
112	PAS14	PEDAL COVER
113	PAS230	SPRING
114	PAS63	PIN
115	PAS176	NUT
116	PAS261	PLATE
117	PAS347	ROD
118	PAS344	PLATE
119	510.119	SUPPORT
120	510.301	SUPPORT





REF#	PART#	DESCRIPTION
(°)	PAS17	COMPLETE FLOAT LEVEL
140	PAS15	LOCK RING MOTOR
141	PAS330	SLEEVE
142	1995BS	VACUUM MOTOR
143	PAS102	SEAL
144	PAS457A	TIE ROD
145	PAS458A	NET
146	PAS107	SPONGE
147	500.068	SUPPORT
148	500.094	FLOAT
149	PAS103	SEAL
150	510.150.1	TANK
151	505.604	SCREW
152	505.604	SCREW
153	PAS457A	AFTERMARKET REPLACEMENT BLADE, FRONT
	PAS2003 (OEM)	ORIGINAL EQUIPMENT BLADE, FRONT
154	PAS458A	AFTERMARKET REPLACEMENT BLADE, REAR
	PAS2004 (OEM)	ORIGINAL EQUIPMENT BLADE, REAR
156	PAS2074	CHAIN
158	PAS266	SPLIT PIN
159	510.159	YOKE
163	PAS19	PIN
164	PAS2067	SPACER
165	PAS184	LEVER
166	PAS403	SQUARE
167	PAS235	SPRING
168	510.168	TIE ROD
169	PAS404	SUPPORT
170	505.126	COMPLETE SQUEEGEE
171	PAS34	REGULATOR
172	00-0600-0703	NUT
173	505.132	SUPPORT
174	PAS265	CROSS MEMBER
175	701.251	WHEEL
176	PAS459	LEVER
177	PAS280	ELASTIC PIN
178	PAS35	KNOB
179	510.179	VAT
180	PAS36	PLUG
181	PAS37	PIPE
182	PAS2069	PIPE STRAPP
183	PAS507	SCREW
184	PAS14	PEDAL COVER
185	PAS440	PEDAL
186	PAS37	PIPE
187	PAS2013	PIPE
188	PAS2075	HOSE COLLORS
189	PAS2066	FRONT STRIP
190	505.608	SCREW
191	505.607	SCREW
192	PAS1	BUFFER WHEEL
193	PAS959	SPLIT PIN
194	PAS937	NUT
196	PAS2068	SQUEEGEE BODY
198	701.292	KNOB
199	PAS2079	BACK STRIP
200	PAS197	SCREW
201	410.105.1	TIE ROD
202	PAS2077	PIN
203	PAS297	SCREW
205	510.205	CLAMP
206	510.206	SUPPORT
207	PAS70	SEAL
208	PAS71	FIXED FLANGE
209	PAS72	SEAL
210	PAS73	FLANGE
211	PAS393	HOSE FITTING
212	PAS936	SCREW
213	PAS2072	HOSE COLLOR



REF#	PART#	DESCRIPTION
310	PAS52N	BATTERY PILOT LIGHT
311	PAS53NS	KEY SWITCH
312	PAS54	BRUSH SWITCH
313	PAS54	SUCTION SWITCH
314	PAS55	POTENTIOMETER
315	PAS56	MICRO SWITCH
316	PAS57	BRUSH REMOTE CONTROL
317	PAS57	SUCTION REMOTE CONTROL
318	PAS117	FUSE
319	PAS119	FUSE
320	PAS118	FUSE
321	510.237	MOTOR
322	PAS4	REDUCER MOTOR
323	1924	SUCTION MOTOR
324	PAS59R	CONNECTION
325	PAS59R	CONNECTION
328	PAS141	BRIDGE
330	PAS294	ELECTRONIC CARD
331	PAS88	KNOB
332	PAS295	REVERSE RUNNING PUSH BUTTON
333	PAS353	FUSE SOCKET

TROUBLESHOOTING

TROUBLES	POSSIBLE REASON	REMEDIES
The machine doesn't move	The battery is low	Charge the battery Check every element of it only if you own the right instrument
	The connector of the traction motor is disconnected or oxidized	Check the connector
	Defective handle microswitch (walk behind machine)	Check the microswitch and change it
	Motor carbons oxidized or consumed	Clean or change the motor carbons
	Traction electronic card is fault	After contacting the technician change the card
The brushes plate doesn't move on the floor	The machine doesn't move	Check the traction card
The brushes run and stop repeatedly	Discharged batteries	Check the batteries Check every element of it only if you own the right instrument
The brushes don't rotate	Motor carbons oxidized or consumed	Clean or change the motor carbons
	The fuse is burned	Change the fuse
	The brush power switch is oxidized or burned	Clean the power switch and/or change it
The vacuum motor doesn't work	The motor power switch is oxidized or burned	Clean the power switch and/or change it
	The fuse is burned	Change the fuse
The scrubber doesn't recover all the water	Recover tank full	Discharge the tank
	The squeegee is lifted from the floor	Lower the squeegee to the ground
	The squeegee hose is not free inside	Check and free the hose from everything is inside
	The vacuum motor filter is dirty	Clean the filter
	Squeegee blades consumed or the squeegee itself has to be adjusted	Change the rubbers and adjust properly the squeegee
The squeegee doesn't move to the floor (Automatic movement machines)	Check the vacuum motor switch on the control panel	Change the switch
The clean water doesn't drop	The clean water filter dirty	Clean the filter (inside the clean water tank)

Powr-Flite[®]

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