



ROS17 Orbital Floor Machine Parts and Instruction Manual

Minuteman International, Inc.
A Member of the Hako Group

988791 Rev A 08/22

PREFACE

Thank you for your purchase of the new industry standard for floor machines. Minuteman International takes great pride in offering the most dependable, reliable and best value in industrial floor machines, power sweepers and scrubbers. We set the standard.

Our Customer Service Department would like to hear from you. If you see any errors, omissions or something that needs clarification in this Parts Catalog please let us know. We are working hard towards continually improving our processes to bring you the best you deserve. Please copy the form below, fill out and comment on how you found our catalog.

Thank you!

The Minuteman International Team

Name: _____

Title: _____

Company Name: _____

Address: _____

Country: _____

Type of equipment or model number: _____

Comments: _____

Please return to:

Customer Service Manager
Minuteman International, Inc.
14N845 U.S. Route 20
Pingree Grove, Illinois 60140 USA

Phone: (800) 323-9420

Email: tech@minutemanintl.com

Technical Specifications

Model **ROS17**

TECHNICAL DATA	U/M	ROS 17
Working width	mm - inch	430-16,9
Number of orbit	orb./min.	1400
Brush head motor rated power	W	1100
Brush head motor nominal voltage	V	115
Brush head motor frequency	Hz	60
Maximum gradient with full load	%	2
Solution tank capacity (optional)	l - gal	15 - 3,96
Rear wheels (diameter / width)	mm - inch	200/50 7,8/1,96
Appliance length	mm - inch	565 - 22,25
height of the appliance to the brush head carter	mm - inch	325 - 12,8
Height of the appliance to the shaft	mm - inch	1160 - 45,7
Appliance width	mm - inch	450 - 17,7
Appliance service weight (without solution tank)	kg - Lb	41 - 90,4
Hand vibration level	m/s ²	1,9

For Safety When Servicing or Maintaining Machine

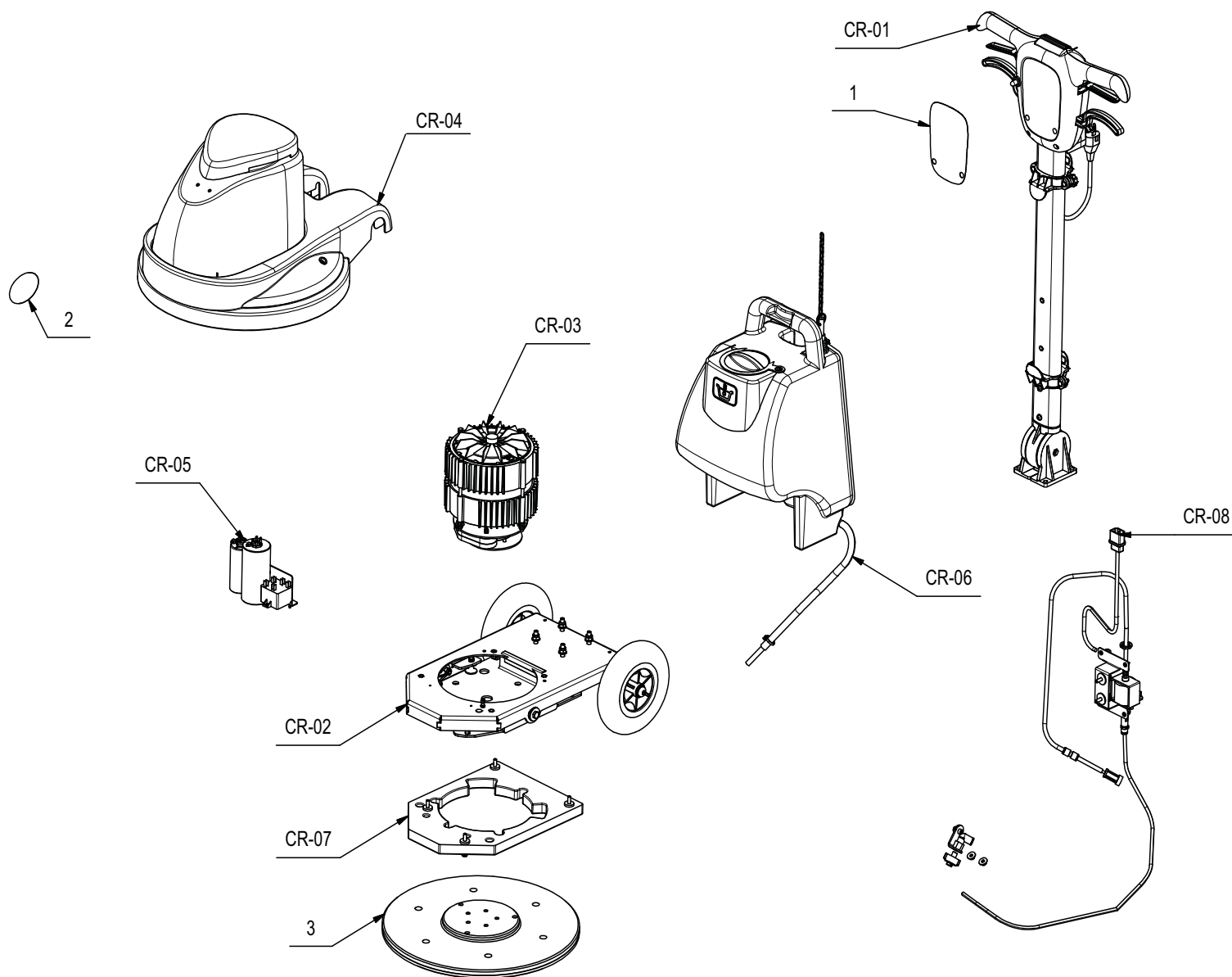
- Stop on level surface.
- Disconnect the power to the machine by pulling the red Battery Connector located under the recovery tank near the batteries.
- Avoid moving parts. Do not wear loose jackets, shirts, or sleeves when working on machine.
- Avoid contact with battery acid. Battery acid can cause 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.
- Do not clean machine with a pressure washer.
- Authorized personnel must perform repairs and maintenance. Use Minuteman supplied replacement parts.

Table of Contents

Technical Specifications	3
Parts Breakdown.....	6
Overview	6
Handle Assembly.....	8
Base Group	12
Motor Group	14
Engine Cover.....	16
Electric Components Assembly.....	18
Tank Group	20
Weight Group	22
Spray Group	24
Symbols Used in Manual.....	26
Identification and Technical Data	27
General Safety	28
Symbols Used on the Appliance	33
Getting to Know the Appliance.....	33
Handling the Packed Appliance.....	33
How to Unpack the Appliance	33
How to Transport the Appliance	34
Main Components of the Appliance.....	34
Main Components of the Handlebar.....	34
Main Components of the Column.....	34
Preparation of the Appliance	35
Inserting the Brush	35
Inserting the Solution Tank	35
Inserting the Detergent Solution.....	36
Work	37
At the End of the Work	38
Maintenance	39

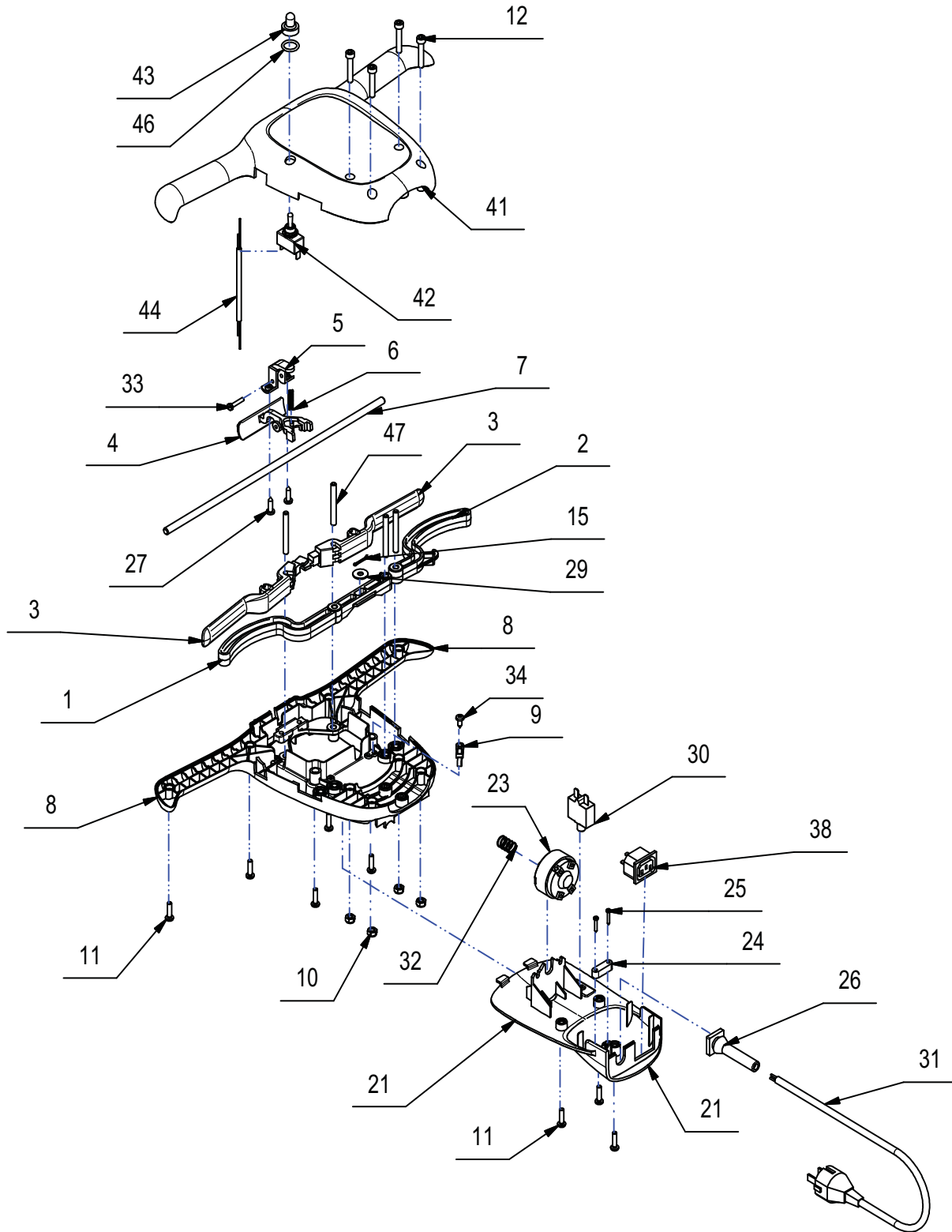
Recommended Maintenance Operations.....	39
Control and Cleaning of the Brush	39
Control and Cleaning of the Brush	40
Checking and Cleaning the Solution Tank.....	41
Checking and Cleaning the Detergent Solution Draught Filter.....	42
Checking and Cleaning the Detergent Solution Spray Nozzle	42
Disposal	43
Troubleshooting	43

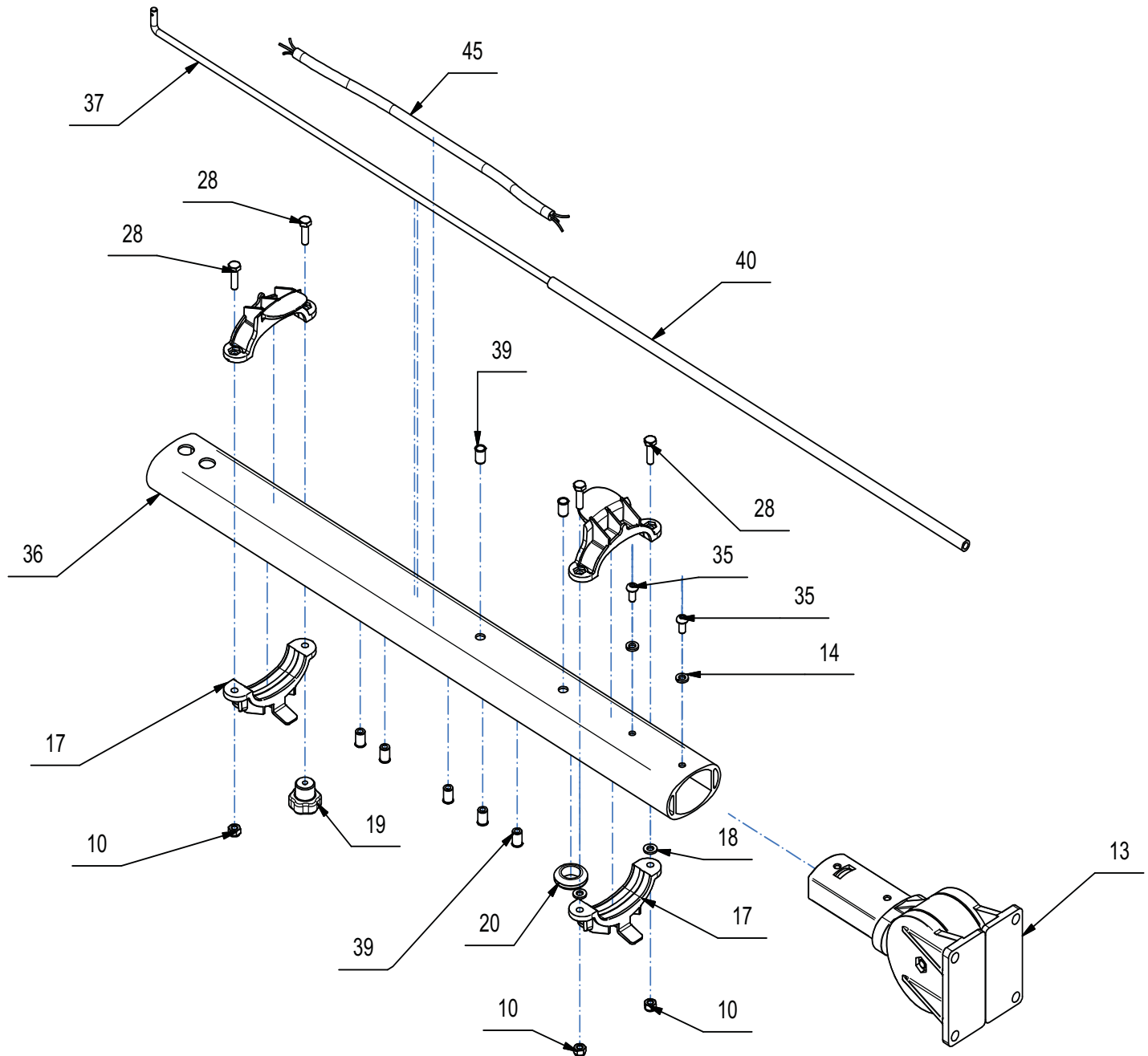
Parts Breakdown Overview



BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-448283	1	LABEL
2	ROS-448284	1	LABEL
3	ROS-445005	1	PAD HOLDER
CR-01	ROS-227170	1	"HANDLEBAR CONTROL GROUP"
CR-02	ROS-226507	1	BASE GROUP
CR-03	ROS-225410	1	MOTOR GROUP
CR-04	ROS-227983	1	"ENGINE COVER TP43 SPRAY ROS17"
CR-05	ROS-224831	1	ELECTRIC COMPONENTS
CR-06	ROS-226954	1	TANK
CR-07	ROS-226539	1	GROUP MASS
CR-08	ROS-227697	1	SPRAY ASSEMBLY

Handle Assembly

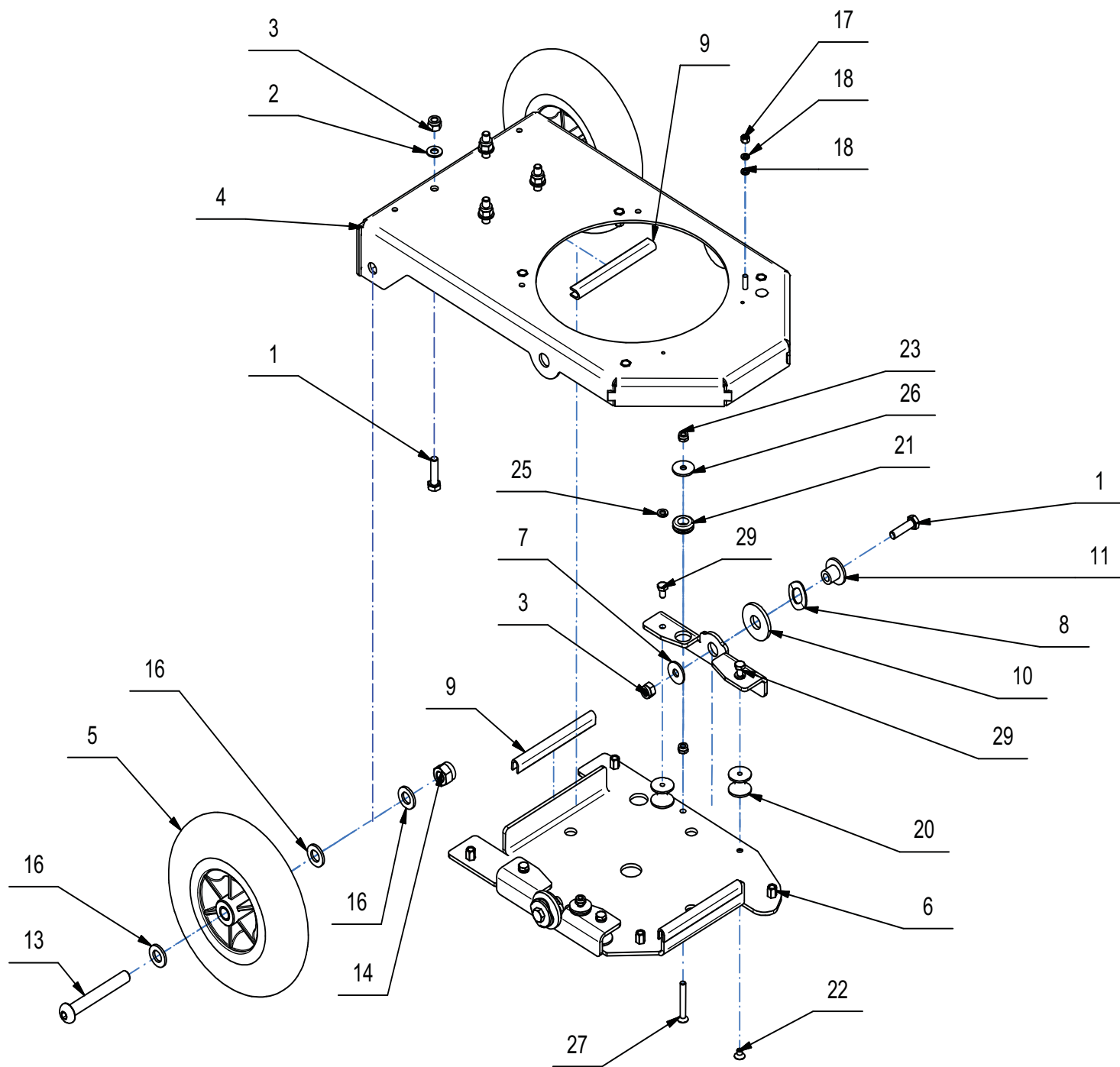




Handle Assembly BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-416493	1	LEVER
2	ROS-416504	1	LEVER
3	ROS-439036	2	LEVER
4	ROS-401122	1	LEVER
5	ROS-416501	1	SUPPORT
6	ROS-416723	1	SPRING
7	ROS-439037	1	REINFORCEMENT
8	ROS-439034	1	HANDLE BAR BODY
9	ROS-416828	1	CLAMP
10	ROS-409082	7	LOCK NUT
11	ROS-408506	9	SCREW
12	ROS-408799	4	SCREW
13	ROS-227841	1	JOINT
14	ROS-409164	2	LOCK WASHER
15	ROS-409382	1	SPLIT PIN
17	ROS-437831	2	TANK SUPPORT
18	ROS-409156	2	WASHER
19	ROS-410230	1	KNOB
20	ROS-416820	1	FAIRLEAD
21	ROS-439035	1	REAR DOOR
22	ROS-416817	1	PROTECTION CAP
23	ROS-416811	1	SWITCH
24	ROS-409765	1	CABLE GRIP
25	ROS-418269	2	SELF-TAPPING SCREW 2,9x19 TC T.C. ZNT
26	ROS-417828	1	FAIRLEAD
27	ROS-416787	2	SCREW
28	ROS-407666	4	SCREW
29	ROS-409160	1	WASHER
30	ROS-416808	1	CONTACT BREAKER
31	ROS-440567	1	CABLE

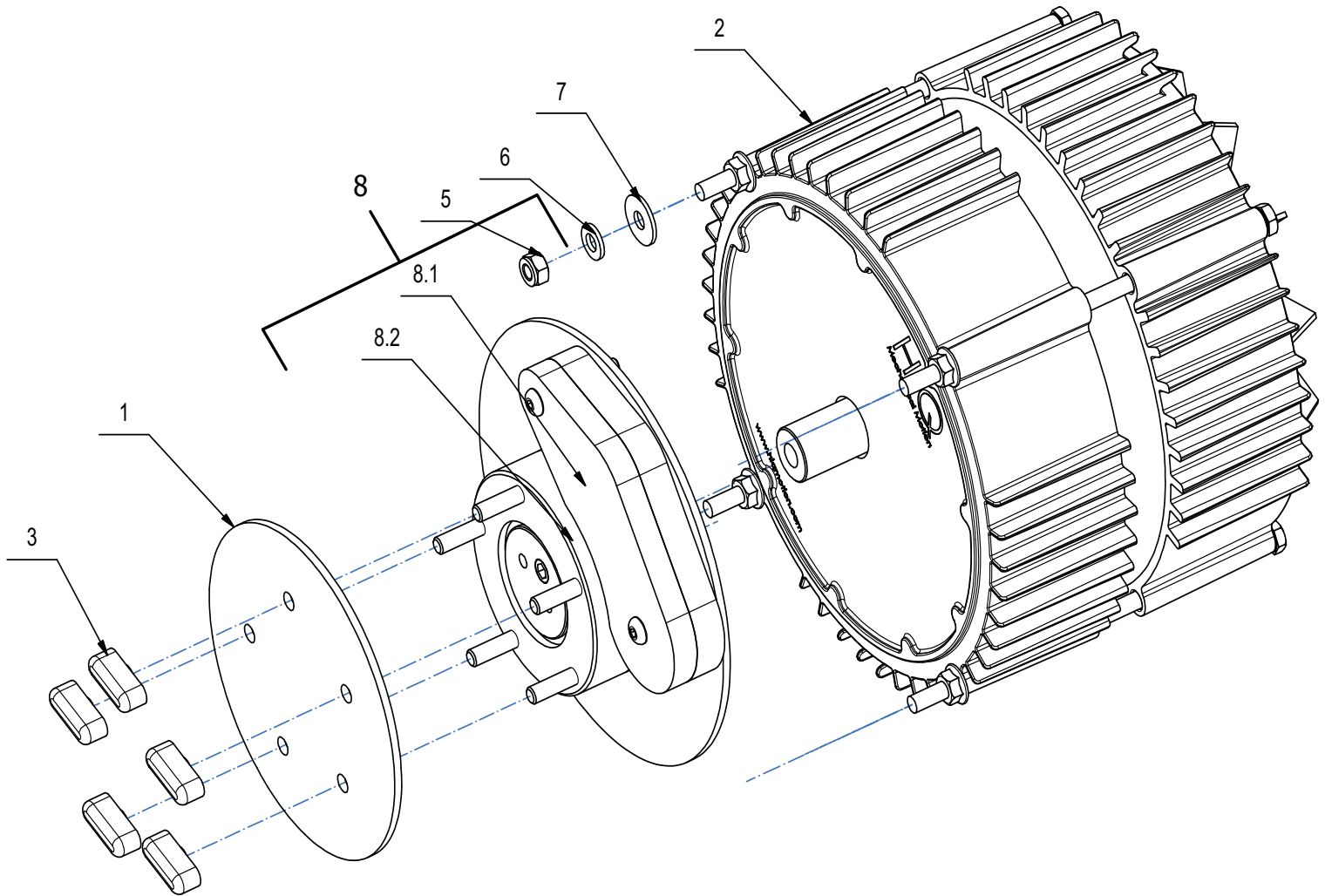
BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
32	ROS-440824	1	SPRING
33	ROS-408634	1	SCREW
34	ROS-416789	1	SCREW
35	ROS-416777	2	SCREW
36	ROS-225126	1	PIPE
37	ROS-442314	1	ROD
38	ROS-439950	1	SOCKET
39	ROS-410545	7	INSERT
40	ROS-411366	1	HOSE
41	ROS-226709	1	COVER
42	ROS-445553	1	SWITCH
43	ROS-445554	1	PROTECTION CAP
44	ROS-445555	1	CABLE
45	ROS-441024	1	CABLE
46	ROS-446102	1	O-RING
47	ROS-204524	4	SPRING PIN



Base Group BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-408677	6	SCREW
2	ROS-409177	4	WASHER
3	ROS-409088	6	LOCK NUT
4	ROS-445273	1	BRUSH BASE
5	ROS-441490	2	WHEEL
6	ROS-445281	1	MOTOR SUPPORT
7	ROS-418000	2	WASHER
8	ROS-442006	2	WASHER
9	ROS-226544	3	GASKET
10	ROS-417298	2	SPACER
11	ROS-445322	2	BUSHING
13	ROS-442865	2	SCREW
14	ROS-409093	2	NUT
15	ROS-416649	1	DECAL
16	ROS-417979	6	WASHER
17	ROS-409036	1	NUT
18	ROS-409154	2	WASHER
19	ROS-445903	2	SUPPORT
20	ROS-445902	4	ANTI VIBRATION
21	ROS-417831	2	THREAD
22	ROS-445904	4	SCREW
23	ROS-415901	4	NUT
25	ROS-416783	4	LOCK WASHER
26	ROS-446066	2	WASHER
27	ROS-408977	2	SCREW
28	ROS-415927	1	WASHER
29	ROS-407658	4	SCREW

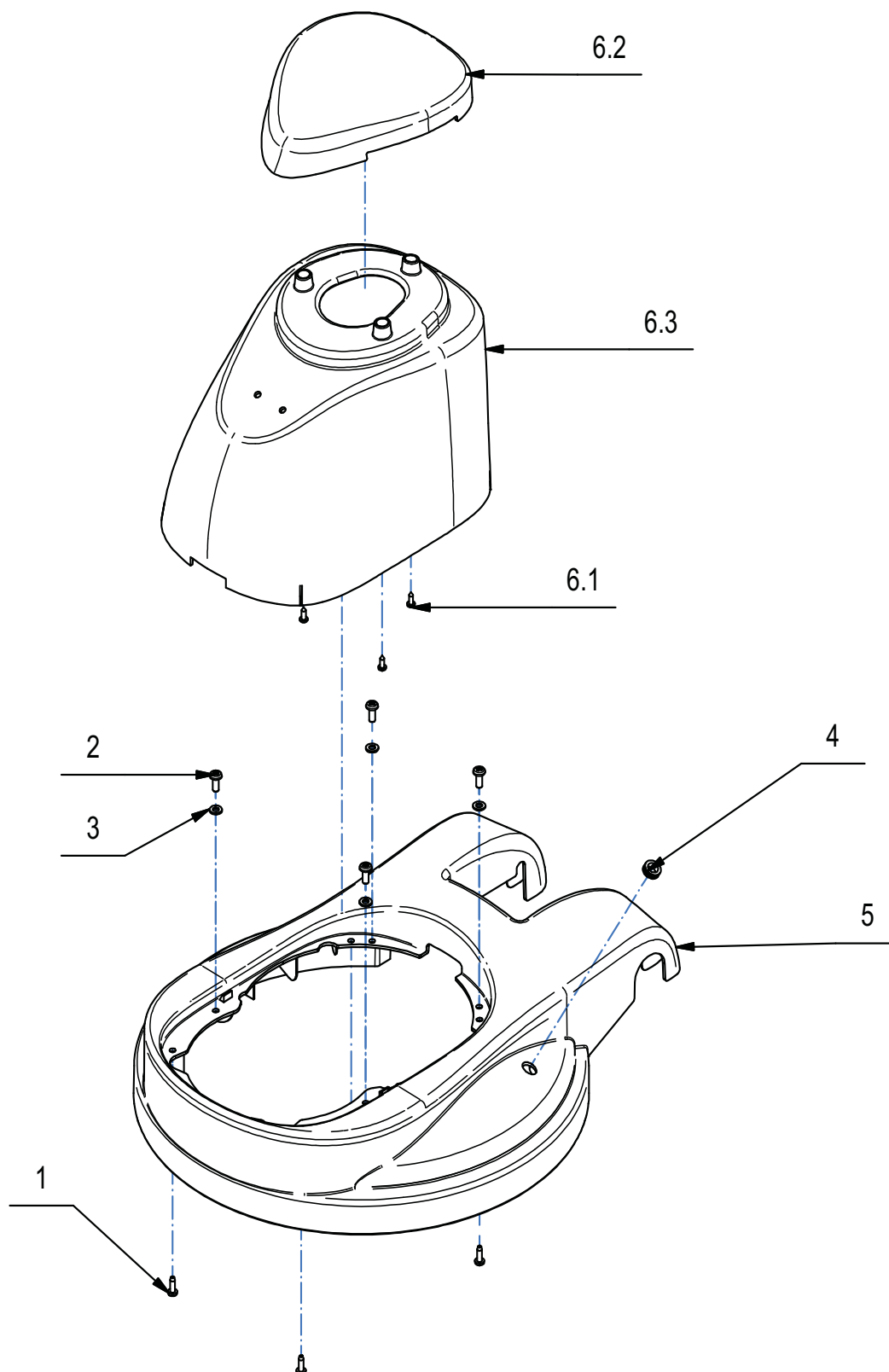
Motor Group



Motor Group BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-441776	1	FLANGE
2	ROS-224829	1	MOTOR
3	ROS-441514	5	WING NUT
5	ROS-409082	4	LOCK NUT
6	ROS-409156	4	WASHER
7	ROS-409160	4	WASHER
8	ROS-442899	1	ORBITAL MECHANISM
8.1	ROS-415927	1	WASHER
8.2	ROS-441611	1	DOWEL

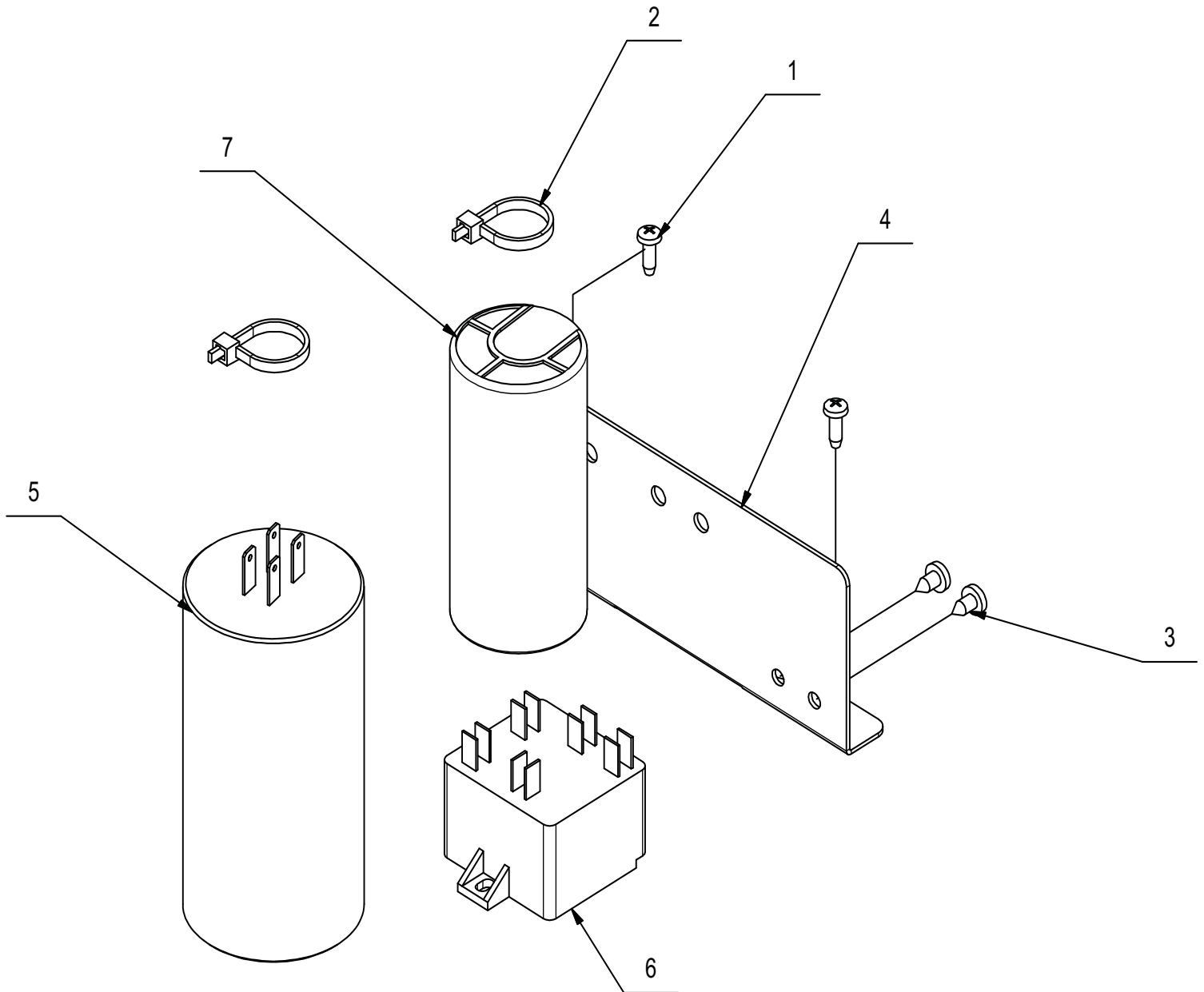
Engine Cover



Engine Cover BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-418277	6	SELF-TAPPING SCREW
2	ROS-408860	4	SCREW
3	ROS-409156	4	WASHER
4	ROS-416056	1	FAIRLEAD
5	ROS-226542	1	COVER
6	ROS-227982	1	ENGINE COVER TP43 ROS17 FOR SPRAY COMP
6.1	ROS-416786	3	SCREW
6.2	ROS-445243	1	PROTECTION CAP
6.3	ROS-227981	1	ENGINE COVER TP43 P. PMS209 SPRAY

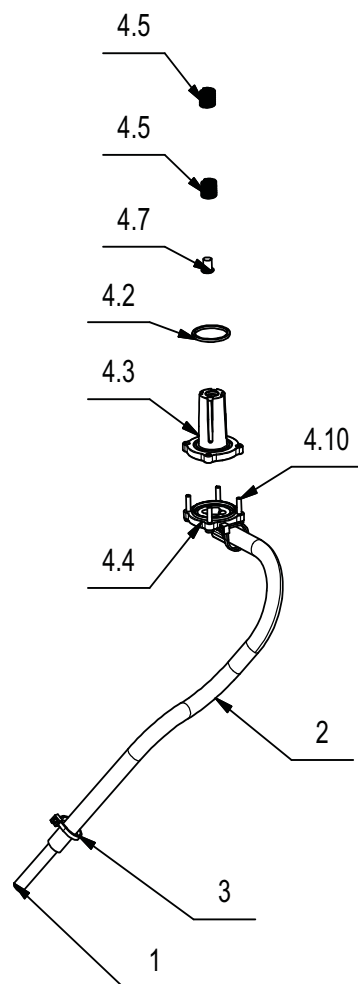
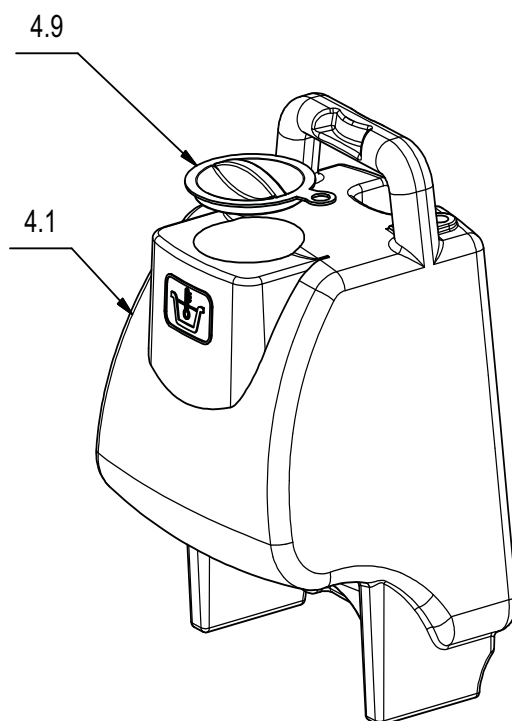
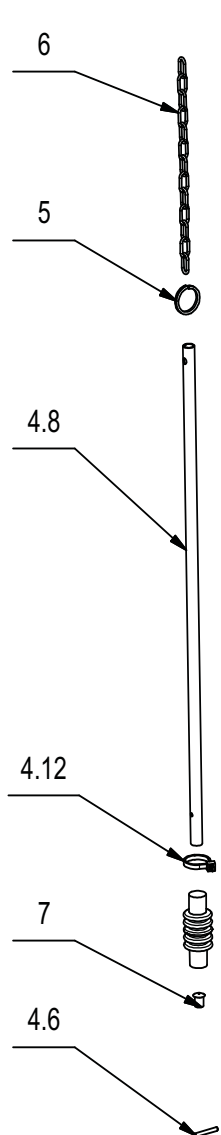
Electric Components Assembly



Electric Components Assembly BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-408877	2	SCREW
2	ROS-410275	2	CLAMP
3	ROS-416788	2	SCREW
4	ROS-442197	1	SUPPORT
5	ROS-436775	1	CONDENSER
6	ROS-445598	1	RELAY
7	ROS-443822	1	START CONDENSER

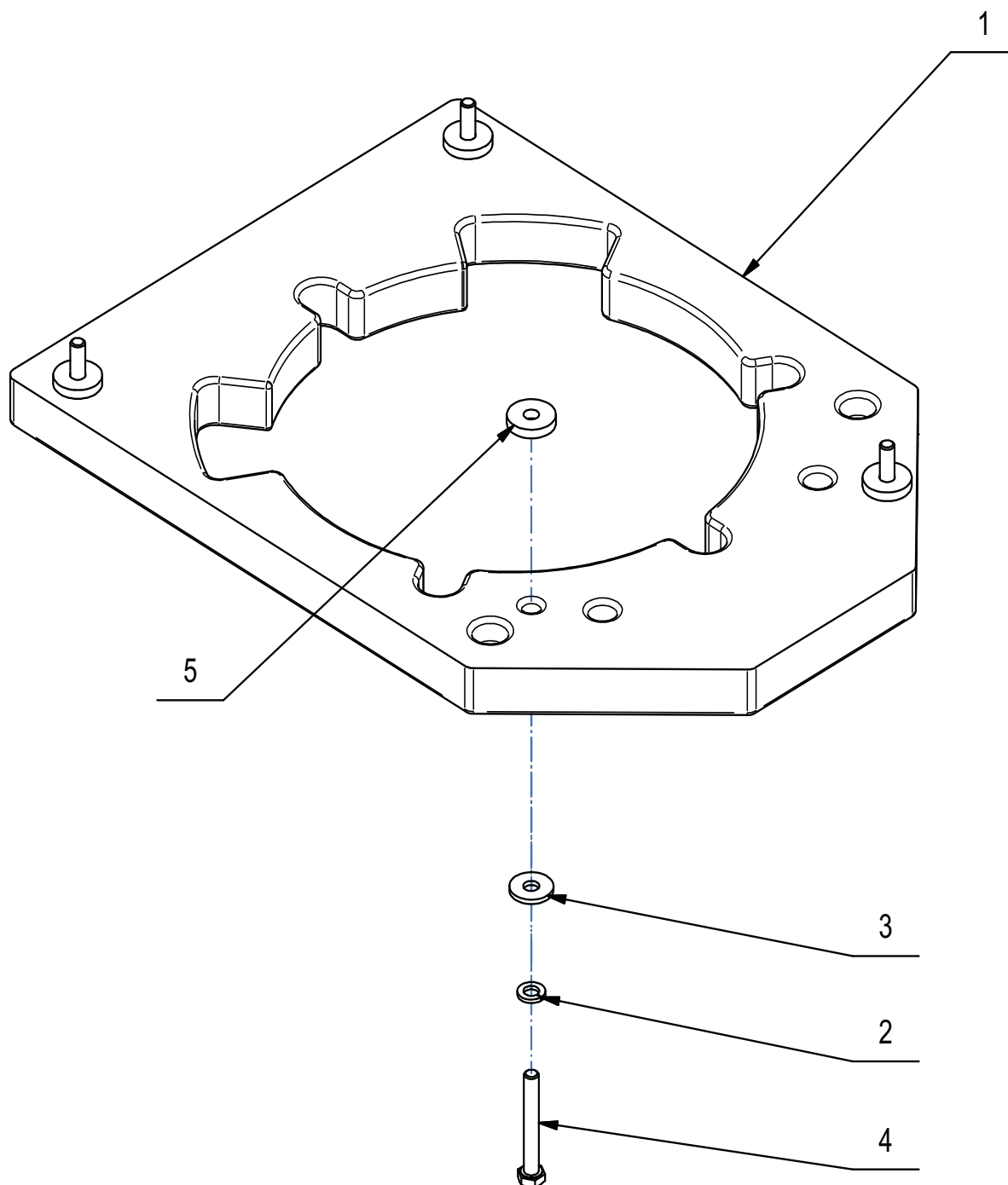
Tank Group



Tank Group BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-416844	1	PIPE
2	ROS-411366	1	PIPE
3	ROS-416829	2	CLAMP
4	ROS-226954	1	PRE ASSEMBLY TANK
4.1	ROS-437838	1	TANK
4.2	ROS-408612	1	GASKET
4.3	ROS-401129	1	GUIDE
4.4	ROS-401130	1	COCK
4.5	ROS-408109	2	SPRING
4.6	ROS-409365	1	SPRING PIN
4.7	ROS-409849	1	PLUG
4.8	ROS-416505	1	ROD
4.9	ROS-437839	1	CAP
4.10	ROS-438419	4	SCREW
4.11	ROS-400200	1	BELLOWS
4.12	ROS-416829	1	CLAMP
5	ROS-416832	1	RING
6	ROS-225115	1	CHAIN
7	ROS-416822	1	CAP

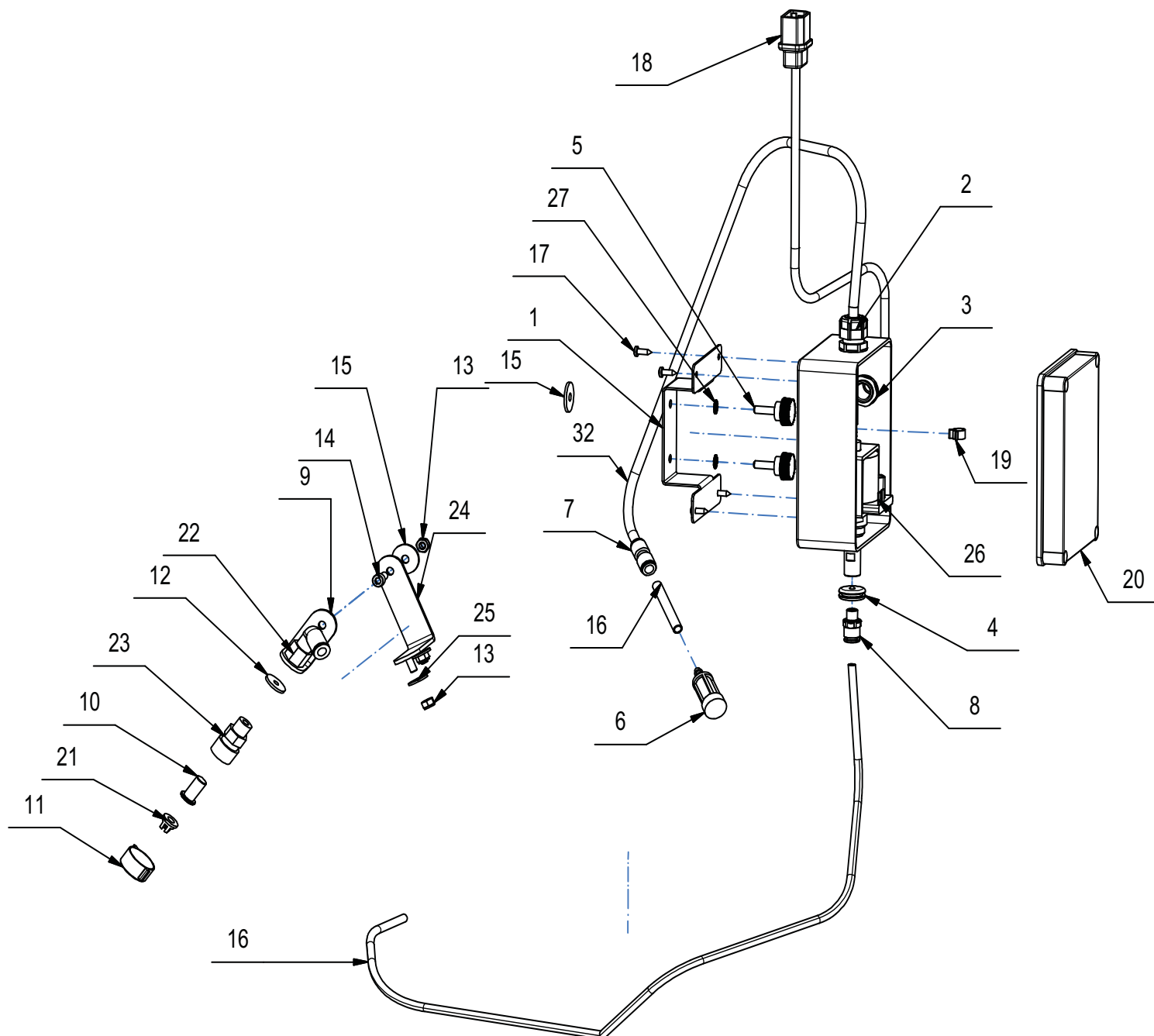
Weight Group



Weight Group BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-440559	1	BALLAST
2	ROS-416783	4	LOCK WASHER
3	ROS-409161	4	WASHER
4	ROS-408655	4	SCREW
5	ROS-446076	4	SPACER

Spray Group



Spray Group BOM

BILL OF MATERIAL			
ITEM	PART NO.	QTY	DESCRIPTION
1	ROS-442263	1	SUPPORT
2	ROS-423190	2	FAIR-LEAD
3	ROS-423191	2	NUT
4	ROS-417831	1	THREAD
5	ROS-443760	2	KNOB
6	ROS-417438	1	FILTER
7	ROS-440790	1	STRAIGHT JUNCTION
8	ROS-422506	1	RILSAN
9	ROS-442267	1	SUPPORT
10	ROS-417450	1	FILTER
11	ROS-417521	1	RING NUT
12	ROS-417990	1	WASHER
13	ROS-409082	3	LOCK NUT
14	ROS-408808	1	SCREW
15	ROS-417996	3	WASHER
16	ROS-418210	1	PIPE
17	ROS-416786	4	SCREW
18	ROS-225113	1	CONNECTOR
19	ROS-416894	1	RING
20	ROS-225145	1	BOX
21	ROS-418250	1	NOZZLE
22	ROS-442775	1	ELBOW
23	ROS-226710	1	FILTER HOLDER
24	ROS-446222	1	SUPPORT
25	ROS-409160	2	WASHER
26	ROS-445599	1	PUMP
27	ROS-417991	2	WASHER
32	ROS-418210	1	HOSE

Symbols Used in Manual

The descriptions contained in this document are not binding. The company therefore reserves the right to make any modifications at any time to elements, details, or accessory supply, as considered necessary for reasons of improvement or manufacturing/commercial requirements. The reproduction, even partial, of the text and drawings contained in this document is prohibited by law.

The company reserves the right to make any technical and/or supply modifications. The images are shown as a reference only, and are not binding as to the actual design and/or equipment.

SYMBOLS USED IN THE MANUAL



Open book symbol with an "i":
Indicates the need to consult the instruction manual.



Open book symbol:
Tells the operator to read the manual before using the appliance.



Covered place symbol:
the operations preceded by this symbol must always be carried out in a dry, covered area.



Warning symbol:
Carefully read the sections marked with this symbol and observe the indications, for the safety of the operator and the appliance.



Protective gloves symbol:
Always wear protective gloves, to avoid the risk of serious injury to your hands.



Warning symbol that the carriage is moving:
Indicates that the packed product should be handled with suitable lifting means that comply with the legal requirements.



Explosion risk symbol:
indicates that the battery may explode in certain conditions, if not handled in accordance with the directives indicated in the manufacturer's manual.

PURPOSE AND CONTENT OF THE MANUAL

The aim of this manual is to provide customers with all the information needed to use the appliance in the safest, most appropriate and most autonomous way. It includes information concerning technical aspects, safety, operation, appliance downtime, maintenance, spare parts and scrapping. Operators and qualified technicians must read the instructions in this manual carefully before carrying out any operation on the appliance. If in doubt about the correct interpretation of instructions, contact your nearest Customer Service Centre to obtain the necessary clarifications.

TARGET GROUP

This manual is aimed at operators and qualified technicians responsible for appliance maintenance. Operators must not perform operations that should be carried out by qualified technicians. cannot be held liable for damages resulting from failure to comply with this prohibition.

STORING THE USE AND MAINTENANCE MANUAL

The Use and Maintenance Manual must be stored in its special pouch close to the appliance, protected from liquids and anything else that could compromise its legibility.

ON DELIVERY OF THE APPLIANCE

When the machine is delivered to the customer, an immediate check must be performed to ensure all the material mentioned in the shipping documents has been received, in addition to verifying that the equipment has not been damaged during transportation. If this is the case, the carrier must ascertain the extent of the damage at once, informing our customer service office. It is only by prompt action of this type that the missing material can be obtained, and compensation for damage successfully claimed.

INTRODUCTORY COMMENT

Any type of equipment can only work properly and effectively if used correctly and kept in full working order by performing the maintenance operations described in the attached documentation. You should therefore read this instruction manual carefully, consulting it again if difficulties should arise while using the machine. If necessary, remember that our assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

Identification and Technical Data

TECHNICAL DESCRIPTION

This appliance has been built for the professional cleaning of indoor hard vinyl floors, to be carried out by following the instructions. **The appliance must only be used for this purpose.**

INTENDED USE

This appliance was designed and built to be used by a qualified operator to clean smooth, compact flooring in the commercial, residential and industrial sectors, in proven safety conditions.

The appliance is only suitable for use in indoor - or at least covered - areas.



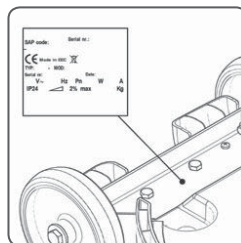
ATTENTION: The appliance is not suitable for use in the rain, or under jets of water.

SAFETY

Operator cooperation is paramount for accident prevention. No accident prevention programme can be effective without the full co-operation of the operator who is directly responsible for machine operation. The majority of occupational accidents that happen both in the workplace or whilst moving are caused by failure to respect the most basic safety rules. An attentive, careful operator is most effective guarantee against accidents and is fundamental in order to implement any prevention programme.

SERIAL NUMBER PLATE

The serial number plate is located on the lower part of the machine chassis, and indicates the general characteristics of the appliance, in particular the appliance's serial number. The serial number is a very important piece of information and should always be provided together with any request for assistance or when purchasing spare parts.



TECHNICAL DATA	U/M	ROS 17
Working width	mm - inch	430-16,9
Number of orbit	orb./min.	1400
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Brush head motor nominal voltage	V	115
Brush head motor frequency	Hz	60
Maximum gradient with full load	%	2
Solution tank capacity (optional)	l - gal	15 - 3,96
Rear wheels (diameter / width)	mm - inch	200/50 7,8/1,96
Appliance length	mm - inch	565 - 22,25
height of the appliance to the brush head carter	mm - inch	325 - 12,8
Height of the appliance to the shaft	mm - inch	1160 - 45,7
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Appliance service weight (without solution tank)	kg - Lb	41 - 90,4
Hand vibration level	m/s ²	1,9

General Safety

SAFETY WARNINGS



Before using the single disc machine for the first time, read and comply with these safety warnings. Keep these safety warnings for consultation in the future or to hand them over to successive owners.

- Before commissioning, read the machine's user manual.
- The warning plates on the machine provide important instructions for its safe use.
- Always comply with both the directions on the instructions, as well as current safety standards.
- Keep the packing film out of the reach of children. Risk of asphyxiation!

DANGER LEVELS



DANGER: Indicates an imminent danger that could cause serious injury or death.



WARNING: Indicates a probable dangerous situation that could cause serious injury or death.



CAUTION: Indicates a probable dangerous situation that could cause minor injuries.



ATTENTION: Indicates a probable dangerous situation that could damage objects.

CONNECTION TO THE ELECTRICITY GRID



DANGER:

- To reduce the risk of fire, electric shocks or injury, please read and comply with all the safety instructions and warning indications carefully. This machine has been designed to be safe when it is used for cleaning in the manner specified. If damage to electrical or mechanical components is found, the machine must be repaired at the relative authorised service centre or else at the manufacturer before use, in order to prevent further damage to the machine or physical injury to the user.
- Before connecting the machine to the electricity socket, make sure the electrical information on the plate corresponds to that of the mains supply. **The machine must only be powered with alternating current and with a voltage equal to that shown on the serial number plate.**
- The power supply cable outlet must have an earth connection in compliance

with the regulatory standards.

- The cable for connecting to the mains that is supplied with the machine should be used for the above-mentioned appliance and not for other appliances.
- Before using, check for any damage on the connection cable and on the power plug. If the cable is damaged, immediately contact a technician for restoring normal functioning.
- Connect the appliance only to an electrical connection installed by an electrical installer in conformity with IEC 60364-1.
- Never touch the power plug with wet hands.
- Make sure that the cable to the mains or the extension cable have not been damaged by having been walked on, crushed, pulled or the like. Protect the cable from heat and from contact with oils or sharp edges.
- Regularly check that the cable connecting to the mains is not damaged, for example with signs of ageing or cracks. If damage is found, the cable should be replaced before using the appliance again.
- Protection against splashes of water and the mechanical strength need to be ensured also after any replacement of the joints of the power cable or the extension cable.
- Do not clean the appliance with a hose or a jet of high pressure water (risk of short-circuit or other electrical faults).

**ATTENTION:**

- The procedure causes short-term reduction in voltage.
- In unfavourable grid conditions the other appliances could be damaged.
- This damage could occur if the grid impedance is less than 0.15Ω.

USO - EMPLOYMENT**DANGER:**

- Never use with a damaged cable or plug. When removing from an electrical socket, pull the plug and not the cable. Do not handle the plug or the machine with wet hands. Deactivate all the controls before connecting or disconnecting from the electrical socket.
- Do not pull or transport the machine by the cable, do not use the cable as a handle, do not close a door on the cable, and do not pull the cable around sharp edges or corners. Do not pass the machine over the cable. Keep the cable away from hot surfaces.
- Be careful when cleaning on stairs.
- The machine must not be used or stored outdoors in damp conditions or directly exposed to rain.
- The storage temperature must be between -25°C and +55°C.

- Conditions of use: ambient temperature between 0°C and 40°C with a relative humidity between 30 and 95%. The machine has been developed only for dry cleaning and it should not be used or kept outdoors in moist conditions.
- Before using, make sure the machine and the work equipment and in particular the extension cable are in a good condition. If there is any damage, immediately pull out the power plug from the mains socket, the machine should not be used.
- When the machine is being used in hazardous locations (for example filling stations) the relative safety regulations must be followed. It is forbidden to use the machine in areas with a risk of explosion.
- Certain substances can form explosive vapours and mixtures together with intake air.



WARNING:

- Keep hair, loose clothing, fingers and all body parts away from openings and from moving parts.
- Do not approach the machine with clothes that could get entangled: AVOID the use of scarves, shawls, wraps and loose clothing.
- **Use of the machine is permitted for children over 8 years of age and people with reduced physical, sensorial and mental capacities or people with no experience or understanding, as long as they are supervised or have received instructions regarding the safe use of the appliance and understand the related risks.**
- Children must be supervised to make sure they do not play with the appliance.
- Children should not do any cleaning or maintenance that is the responsibility of the user without supervision.
- This machine should only be used in enclosed areas.
- Never leave the machine unattended when it is connected to the mains. Pull out the power plug from the mains socket when not in use and before any maintenance.
- In low temperatures, the machine should not be used out in the open.
- Do not use the machine on surfaces with a slope greater than the one indicated on the serial number plate.
- Always make sure that the work surfaces, floors and ramps, are able to withstand the weight of the machine.
- The machine is not suitable for cleaning rough or uneven floors. Do not use the machine on slopes.
- In the event of danger, quickly remove the power cable plug from the mains socket.

**CAUTION:**

- Avoid working over pieces of rope, wire, cables: these can be caught in the brush and create friction.
- The machine is designed to clean carpets or fabric flooring, if used with the specific accessories.
- Polishing operations should only be carried out in areas where the passage of unauthorised persons is prohibited. Signal the presence of work areas with suitable signs.
- Attention: do not let the power cable come into contact with the rotating brush.
- The machine does not cause harmful vibrations.
- Do not place any liquid containers on the machine.
- In the event of a fire, use a powder extinguisher. Do not use water.
- Avoid the brush or the pad holder works with the machine at standstill, so as not to damage the floor.
- The machine must be kept only in enclosed areas.
- Always use the machine in compliance with its intended use, taking into consideration local conditions and looking out for the presence of others when working, especially children.
- Never leave the appliance unattended until it has been switched off and the plug has been taken out of the mains socket.
- To prevent unauthorised use of the machine, the power supply should be cut off, switch off the machine and pull out the power cable from the socket.
- If the machine is left unattended, it must be protected from any accidental movements.

MAINTENANCE**DANGER:**

- Before cleaning and carrying out maintenance on the machine and before replacing any components, switch off the machine and pull out the power plug from the mains socket.
- Repairs should only be carried out by authorised service centres or by personnel who are experts in this field and who are familiar with all the current safety norms.
- Observe the safety check as per local provisions for commercial appliances.
- Always wear suitable protective gloves when working with the machine.



CAUTION:

- If the machine does not work properly, check this is not caused by failure to carry out routine maintenance. Otherwise, ask for intervention of the authorised technical assistance centre.
- If you need to replace any components, request the ORIGINAL spare parts from an Authorised Retailer or dealer.
- Restore all electrical connections after any maintenance interventions.
- Have the machine checked by an authorised technical assistance centre every year.
- When disposing of consumable materials, observe the laws and regulations in force. When your machine has reached the end of its long working life, dispose of the materials it contains in an appropriate manner, and bearing in mind that the machine itself was constructed using fully recyclable materials.
- If the power supply cable gets damaged, the machine must be stopped if it is operating. Disconnect the plug from the power supply, and have the cable replaced immediately by an authorised service centre.
- Only use the discs supplied with the machine, or those specified in the Instruction Manual. The use of other discs could compromise safety levels.

ACCESSORIES AND SPARE PARTS



CAUTION:

Only use accessories and spare parts that have been authorised by the manufacturer. Original accessories and spare parts ensure the appliance can be used safely and without any fault.

EXTENSION CABLES



CAUTION:

CABLE LENGTH	CABLE SECTION	
	<16A	<25A
Up to 20m	1.5mm ²	2.5mm ²
From 20m to 50m	2.5mm ²	4.0mm ²

Only use the materials expressly recommended by the manufacturer as cable extensions (contact an authorised retailer) or else high quality models. When using an extension, respect its minimum cross-section.

Symbols Used on the Appliance



Appliance's earth symbol:
Indicates the earth connection point of the appliance's electric system.



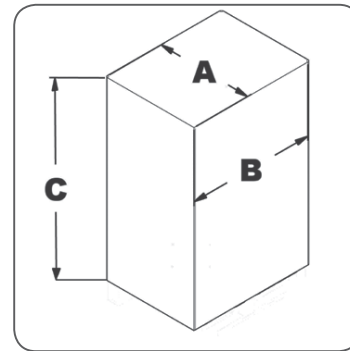
Maximum gradient symbol:
Indicates the maximum gradient.

Getting to Know the Appliance

Handling the Packed Appliance

Since the packaging elements (plastic bags, staples, etc.) are a potential source of danger, they should not be left within the reach of children, disabled persons, etc.
The overall weight of the appliance with packaging is 45 kg 99,2Lb (weight of empty machine plus packaging).
The dimensions of the package are as follows:

	U/M	ROS 17
A	mm - inch	490 - 19,3
B	mm - inch	610 - 24
C	mm - inch	1190 - 46,85



How to Unpack the Appliance

The appliance is contained in specific packaging; to remove the appliance from the packaging proceed as follows:

1. Place the lower part of the outer packaging in contact with the floor.



ATTENTION: Indicates that the packed product should be handled with suitable lifting devices that comply with the legal requirements



ATTENTION: Use the pictograms printed on the box as reference.

2. Remove the holding straps.
3. Open the outer packaging.



ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

4. Remove the optional accessories contained in the packing.
5. Remove the appliance from the box.



ATTENTION: During this operation, check there are no people or objects near the appliance.



ATTENTION: To remove the appliance from the box do not use the control handlebar since it could be damaged.



ATTENTION: it is recommended that all the packaging components be kept for any future transportation of the appliance.

How to Transport the Appliance

To safely transport the appliance, proceed as follows:

1. Do what is required to make sure the appliance is in a safe condition (see "APPLIANCE SAFETY").
2. Using a chute, bring the appliance up onto the pallet, pushing it backwards.
3. Lay the brush head on top of the pallet.
4. Using the straps, fix the appliance to the pallet.

5. Now the appliance can be transported safely.



ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

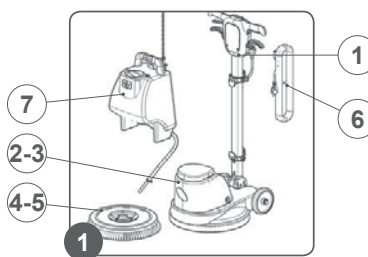


ATTENTION: When transporting the appliance on vehicles, secure it according to the directives in force so that it cannot slide or tip over.

Main Components of the Appliance

The basic components of the appliance are as follows:

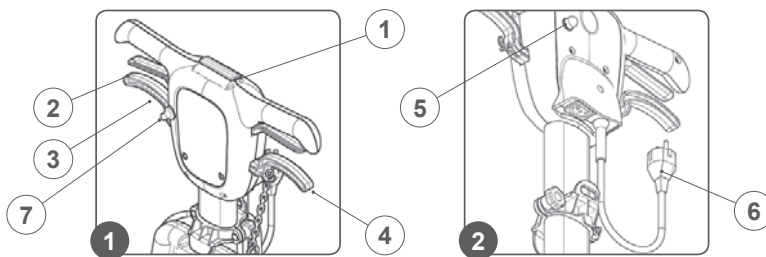
1. Control handlebar.
2. Brush head.
3. Brush head carter.
4. Brush. (ACCESSORY)
5. Pad holder.
6. Power cable (ACCESSORY)
7. Solution tank kit.



Main Components of the Handlebar

The handlebar components are identified as follows:

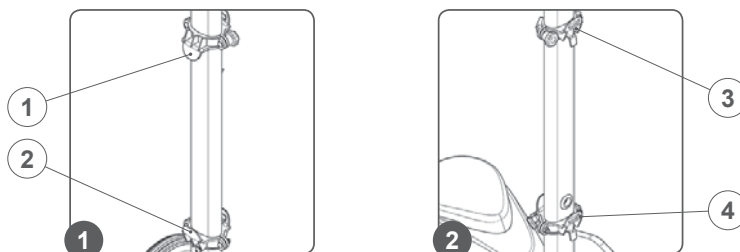
1. dead man's lever.
2. Control lever main switch (positioned under the grip of the handlebar).
3. Handlebar tilt adjustment lever.
4. Detergent distribution valve control lever.
5. Brush head motor thermal circuit breaker.
6. Power cable.
7. Spray kit control switch



Main Components of the Column

The handlebar components are identified as follows:

1. Upper support solution tank kit.
2. Lower support solution tank kit.
3. Attachment for power cable
4. Lower cable tidy.



Preparation of the Appliance Inserting the Brush

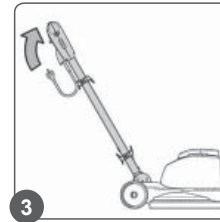
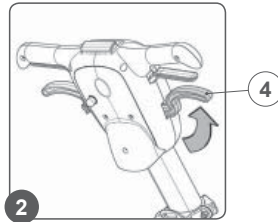
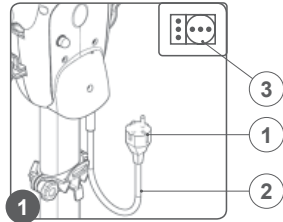
To insert the brush/pad holder into the brush head body of the appliance, proceed as follows:

1. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.

 **ATTENTION:** You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

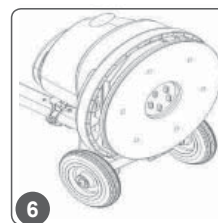
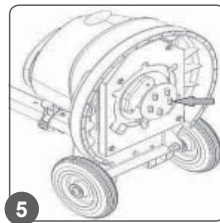
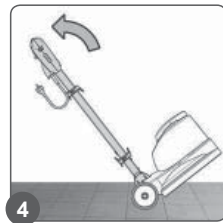
 **ATTENTION:** To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

2. Check that the handlebar is in the vertical position, if not, press the uncoupling lever (4) (Fig.2) and turn the handlebar to the vertical position (Fig.3). When the handlebar is vertical, release the uncoupling lever (4).



3. Tip the appliance back (Fig.4), block one of the rear wheels and shift the control column backwards.
4. Unscrew and remove the fixing lugs and centering plate (Fig.5).

5. Turn the brush anti-clockwise to secure it to the hub (Fig.6). Insert the drive disc, be careful to center the fastening pins on the machine with the drive holes. Then insert the centering plate and then screw down the 5 fixing keys securely.

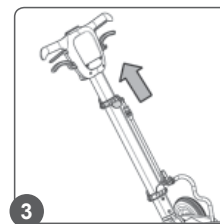
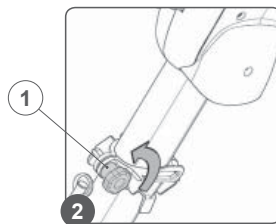


Inserting the Solution Tank

To insert the solution tank onto the handlebars, proceed as follows:

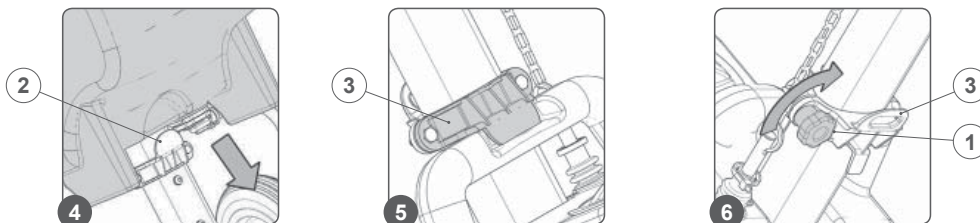
1. Secure the handlebar in a position at about 45° with respect to the ground (Fig.1).

2. Unscrewing the closing knob (1) (Fig.2) position the upper brackets beyond half of the column (Fig.3) (if it has not already been positioned).

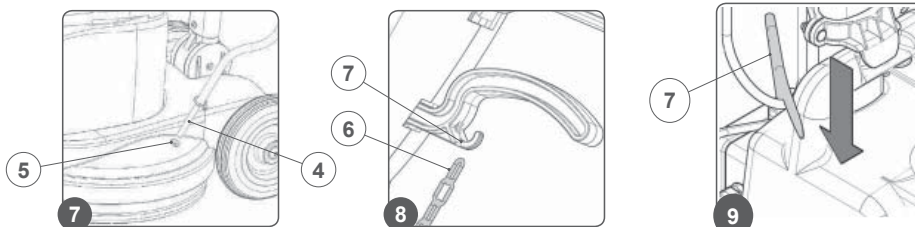


3. Put the solution tank on the column, so that the bottom of the tank is anchored to the fixed bracket (2) on the column itself (Fig.4).
4. Holding the tank with one hand, move the mobile bracket (3) down until the solution tank is locked to the column (Fig.5).

5. Lock the position of the mobile bracket (3) by tightening the closing knob (1) (Fig.6).
6. Insert the water distribution pipe (4) in the hole on the brush head (5) (Fig.7).

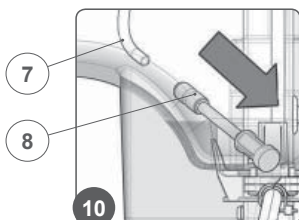


7. Insert the solution tank tap tie chain (6) in the coupling in the tap control handle (7) (Fig.8).



8. Insert the cleaning solution tube (7) into the hole in the solution tank (Fig.9).

9. Connect the cleaning solution tube (7) with the quick-release filter attachment and push it to the bottom of the tank. (Figure 10).



Inserting the Detergent Solution

Fill the solution tank only when the column is in vertical position, by proceeding as follows:

1. Remove the solution tank cap (1) (Fig.1).
2. Fill with clean water, at a temperature no higher than 50°C.
3. Add the liquid detergent to the tank in the concentration and manner indicated on the detergent manufacturer's label. The formation of excess foam could damage the internal components of the appliance, so only use the minimum amount of detergent needed.

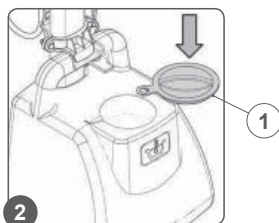
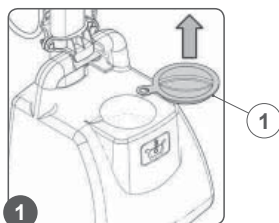
4. Insert the solution tank cap (1) (Fig.2).



ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



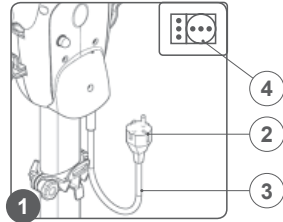
ATTENTION: We recommend that you vacuum at intervals the dirt-loaded foam with a vacuum cleaner for liquids.



Work

Before beginning to work, it is necessary to:

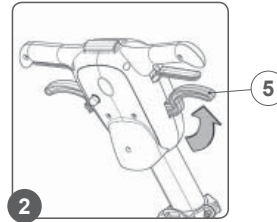
1. Before using, the appliance must be in order and safe to use with the work equipment, especially the power cable and the extension cable. If everything is not in order, the appliance must not be used.
2. Insert the plug (2) of the power supply cable (3) in the mains supply socket (4) (Fig.2).



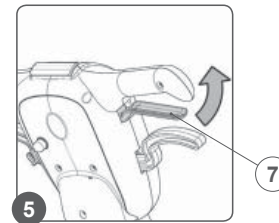
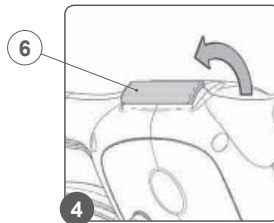
3. Release the control handlebar from the vertical position. Press the control column stop lever (5) in the direction indicated by the arrow (Fig.3) and turn the control column towards yourself (Fig.4).



ATTENTION: During this operation, do not rest your foot on the appliance.



4. Turn the control column towards you until you find the best position, this position should be comfortable when using the appliance.
5. Once the ideal position has been found, release the control column stop lever (5) to lock the handlebar.
6. Turn the dead man's handle towards you (6) (Fig.4).
7. Press the control levers main switch (7), located under the grips



11. Immediately afterwards, push the appliance in the same way but in the opposite direction, so that about one quarter of the working width overlaps the previous one.
You can work by moving the car back and forth.
12. We recommend that you vacuum up the dirt-loaded foam at intervals with the aid of a vacuum cleaner for liquids.



ATTENTION: Do not insist too much on the same area so as to avoid damaging the floor; also in function of the type of brush or abrasive floor pad chosen.



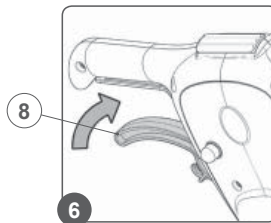
ATTENTION: If you need to work in tight spaces you can turn the control column to the vertical position.



ATTENTION: Work in slow movements to the right and left, possibly moving back so that the operator always stands on an area of the floor yet to be cleaned up.



ATTENTION: Keep the power supply cable behind the operator, taking care not to operate the appliance in its vicinity in order not to damage it.



1. If you intend to use the spray system, operate the lever of pump control switch (8) on the control handlebar.

ATTENTION: Pushing the lever (8) forwards starts the pump in intermittent mode (Fig.7).

ATTENTION: Pushing the lever (8) backward starts the pump in continuous mode.

2. Push the machine with the brush rotating from left to right or vice versa.
3. Immediately afterwards, push the machine in the same way but in the opposite direction, so that about one quarter of the working width overlaps the previous one.
4. We recommend that you vacuum up the dirt-loaded foam at intervals with the aid of a vacuum cleaner for liquids (optional solution tank kit).

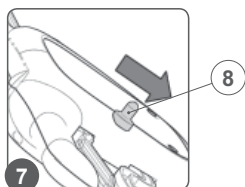
ATTENTION: The first time an operator uses the machine, he/she should become familiar with the movements to be imparted to the shaft in order to be confident enough with the directionality of movement of the machine, and should therefore not operate the machine near people or obstacles.

ATTENTION: Work in slow movements to the right and left, possibly moving back so that the operator always stands on an area of the floor yet to be cleaned up.

ATTENTION: Keep the power supply cable behind the operator, taking care not to operate the machine in its vicinity in order not to damage it.

ATTENTION: Do not insist too much on the same area so as to avoid damaging the floor, also in function of the type of brush or abrasive floor pad chosen.

ATTENTION: If you need to work in tight spaces you can turn the control column to the vertical position.

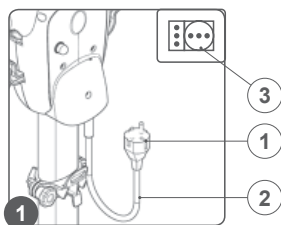


At the End of the Work

At the end of the work, and before carrying out any type of maintenance, perform the following operations:

1. Disconnect the plug (1) of the power supply cable (2) in the mains supply socket (3) (Fig.1).

ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

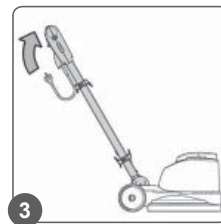
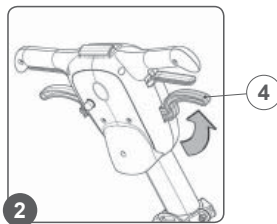


ATTENTION: During this operation, do not rest your foot on the appliance.

3. Tip the appliance back and take it to the maintenance area and carry out all the procedures listed in the section "RECOMMENDED PERIODIC MAINTENANCE" indicated in the column "AT THE END OF THE WORK".

ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

2. Turn the handlebar to the vertical position, press the uncoupling lever (4) (Fig.2) and turn the handlebar to the vertical position (Fig.3). When the handlebar is vertical, release the uncoupling lever (4).



4. Once the maintenance work is finished take the appliance to the designated machine storage place.

ATTENTION: Park the appliance in an enclosed place, on a flat surface; near the appliance there must be no objects that could either damage it, or be damaged through contact with it.

Maintenance

Recommended Maintenance Operations

TYPE OF MAINTENANCE	AT THE END OF THE WORK	WEEKLY	BEFORE A LONG PERIOD OF NON-USE	TRANSPORT
Checking and cleaning the pad holder	X		X	X
Checking and cleaning the solution tank		X	X	X
Checking and cleaning the detergent solution draught filter system		X	X	
Checking and cleaning the detergent solution spray nozzle		X	X	

Control and Cleaning of the Brush

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush motor life. To clean the pad holder, proceed as follows:

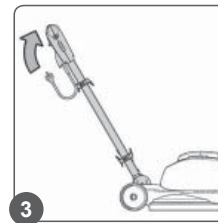
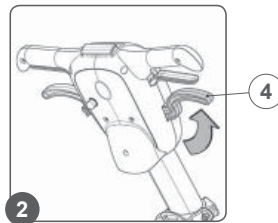
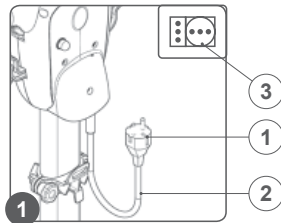
1. Take the appliance to the dedicated dirty water drainage area.

⚠ ATTENTION: The place this operation is carried out should comply with current environmental protection regulations.

2. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.

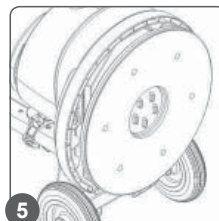
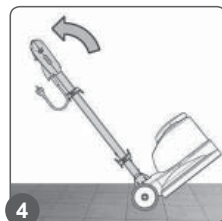
⚠ ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

⚠ ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.



3. Check that the handlebar is in the vertical position, if not, press the uncoupling lever (4) (Fig.2) and turn the handlebar to the vertical position (Fig.3). When the handlebar is vertical, release the uncoupling lever (4).
4. Tip the appliance back (Fig.4), block one of the rear wheels and shift the control column backwards.
5. Loosen the fixing keys, then remove the centering plate. Now you can remove the brush / pad holder (Fig.5).

6. Remove the brush from the appliance (Fig.6).
7. Clean the brush/pad holder under running water and remove any impurities present in the bristles of the brush or on the surface of the Check the bristles. If they are excessively worn, replace the brush (the bristles should protrude by at least 10mm).
8. Repeat the operations in reverse order to reassemble all the parts.



Control and Cleaning of the Brush

Carefully cleaning the solution tank ensures the floor is cleaned properly. Proceed as follows to clean the solution tank:

1. Take the device to the dedicated maintenance area.



ATTENTION: the place designated for this operation must comply with current environmental protection regulations.

2. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.

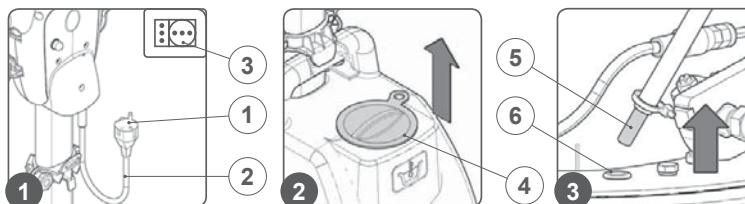


ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.



ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

3. Make sure the solution tank is empty, otherwise empty it completely.
4. Remove the solution tank cap (4) (Fig.2).
5. Remove the water distribution pipe (5) in the hole on the brush head (6) (Fig.3).

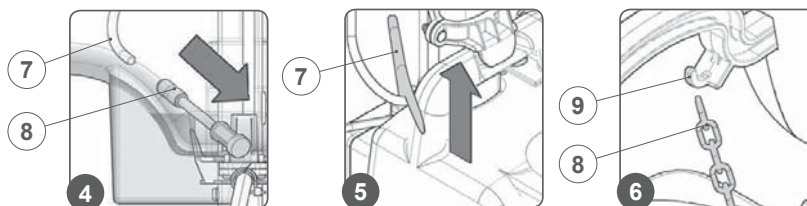


1. Disconnect the detergent solution pipe (7) from the quick coupling (8) (Fig.4).



ATTENTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

2. Remove the detergent solution pipe (7) from the hole in the solution tank (Fig.5).
3. Remove the solution tank tap tie-rod chain (8) in the coupling in the tap control handle (9) (Fig.6).
4. Turning the closing knob (10) (Fig.7) shift the top brackets beyond the stops in the tank.

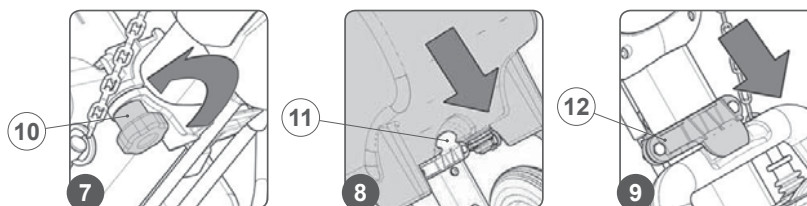


5. Remove the solution tank kit from the appliance, to lift it use the handle on the tank.
6. Rinse the inside with a jet of water, if necessary use a spatula to remove the sludge that has accumulated at the bottom of the tank.



ATTENTION: Be careful not to lose the detergent solution draught filter.

7. Put the solution tank on the column, so that the bottom of the tank is anchored to the fixed bracket (11) on the column itself (Fig.8).
8. Holding the tank with one hand, move the mobile bracket (12) down until the solution tank is locked to the column (Fig.9).



1. Lock the position of the mobile bracket (12) by tightening the closing knob (10) (Fig.10).
2. Insert the water distribution pipe (5) in the hole on the brush head (6) (Fig.11).
3. Insert the solution tank tap tie chain (8) in the coupling in the tap control handle (9) (Fig.12).

Checking and Cleaning the Solution Tank

Carefully cleaning the solution tank ensures the floor is cleaned properly. Proceed as follows to clean the solution tank:

1. Take the device to the dedicated maintenance area.

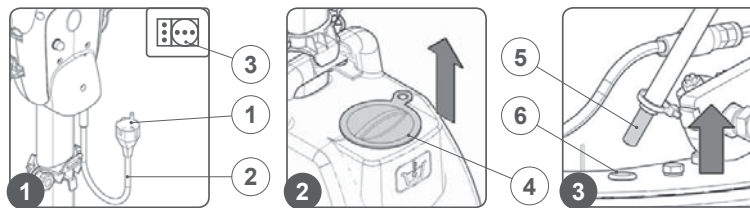
⚠ ATTENTION: the place designated for this operation must comply with current environmental protection regulations.

2. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.

⚠ ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

⚠ ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

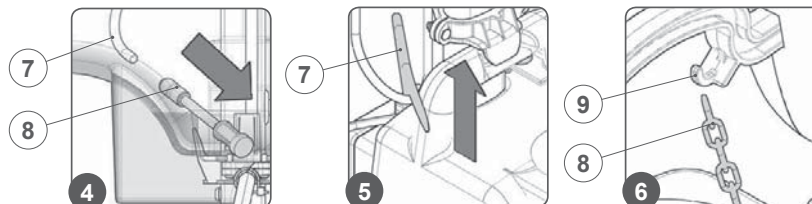
3. Make sure the solution tank is empty, otherwise empty it completely.
4. Remove the solution tank cap (4) (Fig.2).
5. Remove the water distribution pipe (5) in the hole on the brush head (6) (Fig.3).



1. Disconnect the detergent solution pipe (7) from the quick coupling (8) (Fig.4).

⚠ ATTENTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

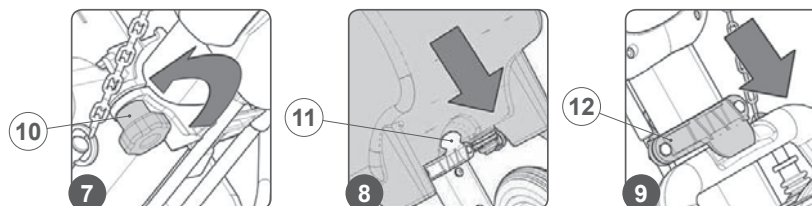
2. Remove the detergent solution pipe (7) from the hole in the solution tank (Fig.5).
3. Remove the solution tank tap tie-rod chain (8) in the coupling in the tap control handle (9) (Fig.6).
4. Turning the closing knob (10) (Fig.7) shift the top brackets beyond the stops in the tank.



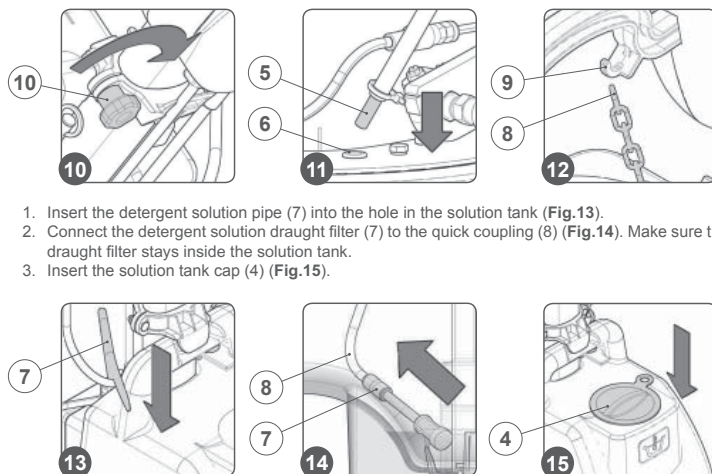
5. Remove the solution tank kit from the appliance, to lift it use the handle on the tank.
6. Rinse the inside with a jet of water, if necessary use a spatula to remove the sludge that has accumulated at the bottom of the tank.

⚠ ATTENTION: Be careful not to lose the detergent solution draught filter.

7. Put the solution tank on the column, so that the bottom of the tank is anchored to the fixed bracket (11) on the column itself (Fig.8).
8. Holding the tank with one hand, move the mobile bracket (12) down until the solution tank is locked to the column (Fig.9).



1. Lock the position of the mobile bracket (12) by tightening the closing knob (10) (Fig.10).
2. Insert the water distribution pipe (5) in the hole on the brush head (6) (Fig.11).
3. Insert the solution tank tap tie chain (8) in the coupling in the tap control handle (9) (Fig.12).



1. Insert the detergent solution pipe (7) into the hole in the solution tank (Fig.13).
2. Connect the detergent solution draught filter (7) to the quick coupling (8) (Fig.14). Make sure that the draught filter stays inside the solution tank.
3. Insert the solution tank cap (4) (Fig.15).

Checking and Cleaning the Detergent Solution Draught Filter

Proceed as follows to clean the detergent solution draught filter:

1. Take the device to the dedicated maintenance area.



ATTENTION: the place designated for this operation must comply with current environmental protection regulations.

2. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.



ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.



ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

3. Make sure the solution tank is empty, otherwise empty it completely.
4. Remove the solution tank cap (4) (Fig.2).
5. Disconnect the detergent solution pipe (5) from the quick coupling (6) (Fig.3).



ATTENTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

6. Clean the filter under running water, if necessary remove any impurities.
7. Repeat the operations in reverse order to reassemble all the parts.



Checking and Cleaning the Detergent Solution Spray Nozzle

To clean the detergent solution spray nozzle proceed as follows:

1. Take the device to the dedicated maintenance area.



ATTENTION: the place designated for this operation must comply with current environmental protection regulations.

2. Check that the plug (1) on the power cable (2) has been taken out of the socket (3) of the mains supply (Fig.1), and if not, disconnect it.



ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.



ATTENTION: To prevent damaging the power cable, disconnect the plug from the mains socket by directly pulling the plug and not the cable.

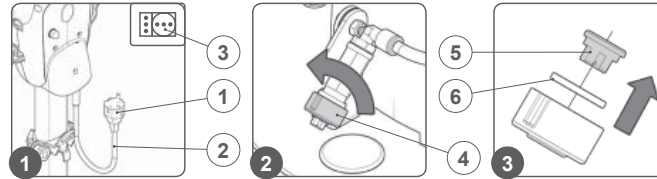
3. Make sure the solution tank is empty, otherwise empty it completely.

4. Remove the ring nut fixing the nozzle (4) (Fig.2).
5. Remove the spray nozzle (5), being careful not to lose the washer (6) (Fig.3).



ATTENTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

6. Clean the nozzle under a jet of running water, if necessary remove any impurities.
7. Repeat the operations in reverse order to reassemble all the parts.

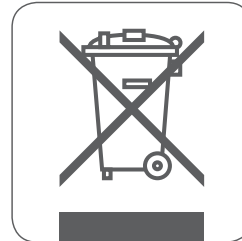


Disposal

To dispose of the appliance, take it to a demolition centre or an authorised collection centre.
Before scrapping the appliance, it is necessary to remove and separate out the following materials, then send them to the appropriate collection centres in accordance with applicable environmental hygiene regulations:

- Pad holders or brushes
- Electric and electronic parts*
- Plastic parts
- Metallic parts

(*) In particular, contact your distributor when scrapping electric and electronic parts.



Troubleshooting

This chapter lists the most common problems linked with the use of the appliance. If you are unable to resolve the problems with the information given here, please contact your nearest assistance centre.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE APPLIANCE DOES NOT SWITCH ON	The power cable extension is not connected to the mains socket.	Check that the plug on the extension cable has been inserted into the mains supply socket.
	The power cable extension is not connected to the appliance's power cable.	Check that the plug on the cable of the appliance has been inserted into the socket on the extension cable.
	The electrical specifications of the appliance should correspond to the electrical specifications of the power supply network.	Make sure that the electrical specifications of the appliance correspond to the electrical specifications of the power supply network, check the technical information on the serial number plate.
	Extension cable damaged.	Check the extension cable is not damaged, and if it is, replace it.
	Overheating of the brush head motor.	Make sure that the thermal breaker on the back of the handlebar has not tripped. If it has, wait a few minutes until it has cooled down, then press the specific circuit breaker button to reactivate the power supply and motor operation
INSUFFICIENT DETERGENT SOLUTION ON THE PAD HOLDER	The amount of detergent in the solution tank is insufficient for the work that needs doing.	Make sure that the amount of detergent solution in the solution tank is sufficient for the work to be carried out, and if necessary fill the solution tank.

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