

USE AND MAINTENANCE MANUAL



CM1500 S
CM1500 V

ED. 10-2010

EN

ORIGINAL INSTRUCTIONS
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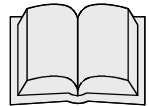
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Symbols used in the manual



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



Open book symbol
Used to tell the operator to read the manual before using the machine



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



Warning symbol
Indicates danger of gas exhalation and leakage of corrosive liquids



Warning symbol
Indicates that the packed product should be handled with suitable lifting means that comply with the legal requirements



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On consignment of the machine

When the machine is consigned to the customer, an immediate check must be performed to ensure all the material mentioned in the shipping documents has been received, and also to check the machine has not suffered damage 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

CM1500 S and CM1500 V machines are built for the professional cleaning of hard and vinyl floors for indoor surfaces, to be carried out by following the instructions. Any use of the machine for other purposes is dangerous and therefore prohibited. The machine is suitable for collective use, for example in hotels, schools, hospitals, factories, shops, offices and condominiums.

The machine must be used only for this purpose.

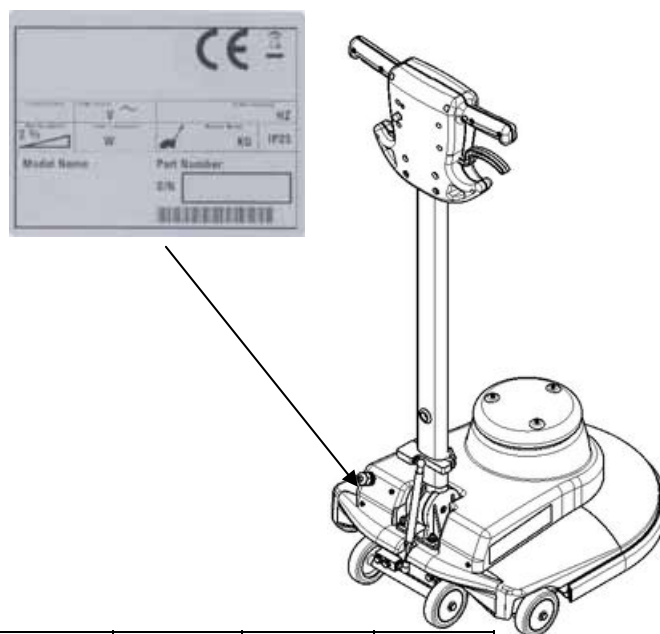
Even the best machines will only work well if used correctly and kept in good working order. This brochure offers you all the information

necessary to use in a regular, safe and suitable manner the models of the "COMAC Single-Brush" machines, and it must always be made available to the user. We therefore suggest you read this instruction booklet carefully and read it again whenever difficulties arise while using the machine. If necessary, remember that our customer assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

Intended use

The scrubbing machine is designed exclusively for the professional cleaning of surfaces and floors in industrial, commercial and public environments. The machine is only suitable for use in closed - or at least covered - locations. The machine is not suitable for use in the rain, or under water jets. It is FORBIDDEN to use the machine for picking up dangerous dusts or inflammable liquids in places with a potentially explosive atmosphere. In addition, it is not suitable as a means of transport for people or objects.

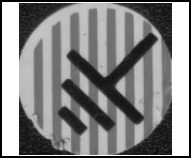
Serial number plate



| TECHNICAL DESCRIPTION | UM | CM1500 S | CM1500 V |
|--|------------------|----------|----------|
| Working width | mm | 510 | 510 |
| Disc brushes | ∅ mm | - | - |
| Brush rotations | rpm | 1500 | 1500 |
| Brush motor power | W | 1100 | 1100 |
| Brush motor voltage | V | 230 | 230 |
| Brush motor frequency | Hz | 50 | 50 |
| Maximum gradient with full load | % | 2 | 2 |
| Solution tank capacity (optional) | l | - | - |
| Rear wheel diameter | mm | 100 | 100 |
| Machine length | mm | 610 | 610 |
| Machine height at motor | mm | 300 | 300 |
| Machine height at shaft | mm | 1260 | 1260 |
| Machine width | mm | 545 | 545 |
| Machine service weight (without solution tank) | kg | 43 | 43 |
| Length of power supply cable | m | 15 | 15 |
| Noise level (in compliance with IEC 704/1) | dB (A) | - | - |
| Hand vibration level | m/s ² | - | - |
| Body vibration level | m/s ² | - | - |



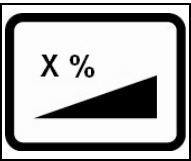
SYMBOLS USED ON THE MACHINE



Indicates the earth connection point of the electric system of the machine



Voltage symbol
Warning high voltage 230 Volt



Indicates the maximum gradient



GENERAL SAFETY REGULATIONS

The regulations below must be carefully followed in order to avoid harm to the operator and damage to the machine.

- Read the labels on the machine carefully. Do not cover them for any reason and replace them immediately if they become damaged.
- **CAREFULLY** read the instructions before starting the machine or performing maintenance.
- The machine must be used exclusively by authorised, trained personnel.
- Do not use the machine for purposes other than the intended use.
- Always make sure that the work surfaces, floors and ramps, are able to withstand the weight of the machine.
- During the working of the machine, pay attention to other people and especially to children.
- The machine is not suitable for cleaning carpets or textile floors.
- The socket for the machine power cable must have a prescribed earth connection.
- Avoid damaging the machine power cable by crushing or bending it, or by applying stress.
- Attention: do not let the power cable come into contact with the rotating brush.
- Do not place any liquid containers on the machine.
- The storage temperature must be between -25°C and +55°C; do not store outdoors in damp conditions.
- Conditions of use: room temperature between 0°C and 40°C with relative humidity between 30 and 95%.
- Only use the machine in closed areas and do not expose it directly to rain.
- 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
- Do not use the machine in an explosive atmosphere.
- Avoid working with the brushes when the machine is standing still, so as not to damage the floor.
- In the event of a fire, use a powder extinguisher. Do not use water.
- Do not knock against shelving or scaffolding, where there is a danger of falling objects. The operator must always be equipped with the appropriate safety device (gloves, shoes, helmet, glasses, etc.)
- If the machine does not work properly, check this is not caused by failure to carry out routine maintenance. Otherwise, request the intervention of the **COMAC** technical assistance centre.
- If you need to replace any components, request the **ORIGINAL** spare parts from a **COMAC** dealer and/or Authorised Retailer.
- For all maintenance interventions, switch off the machine and disconnect the power cable from the socket.
- Do not remove any protection devices which require the use of tools in order to be removed.
- Do not wash the machine with direct water jets or with pressurised water, nor with corrosive substances.
- Have the machine checked by a **COMAC** technical assistance centre every year.
- Do not put your hands into the machine during operation.
- Do not remove the covers and/or guards when the machine is running.
- Do not operate the machine without any protections.
- Do not approach the machine with clothes that can get entangled, **AVOID** the use of scarves, shawls, wraps and loose clothing.
- Avoid working over pieces of rope, wire, cables: these can be caught in the brush and create friction.
- If damage to the power supply cable occurs, the machine must be stopped, if it is operating, the plug immediately removed from the power supply and the cable replaced by a **COMAC** service centre.
- Before using the machine, check that all the hatches and covers are positioned as shown in this Use and Maintenance Manual.
- When disposing of consumption materials, observe the laws and regulations in force.
- When your **COMAC** machine has reached the end of its long working life, dispose of the materials it contains (especially oils and electronic components) in an appropriate manner, while taking into account that the machine itself was constructed by using 100% recyclable materials.
- The machine is not suitable for use by children or people with reduced physical, mental and sensorial capacities, or people lacking experience and knowledge, unless supervised and instructed in the use of the machine by a person responsible for their safety.
- Children must be supervised to ensure they do not play with the device.



MACHINE PREPARATION

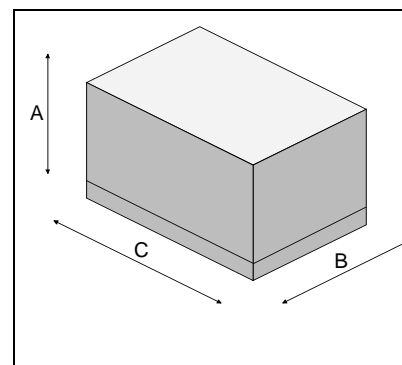
1. HANDLING THE PACKAGED MACHINE

The machine is contained in specific packaging with a pallet for the handling with fork trucks. The packages CANNOT be placed on top of each other.

The total mass of the packed machine is 38 kg

The package dimensions are as follows:

| |
|-------------|
| CM1500 S-V |
| A : 1230 mm |
| B: 580 mm |
| C: 690 mm |



2. HOW TO UNPACK THE MACHINE

1. The machine is fixed inside the box by means of reinforcements; remove them and set them aside for future transport.
2. Remove the outer packaging.
3. Use a chute to get the machine down from the pallet, pulling it backwards.
4. Keep the pallet for any future transport needs.



WARNING: if the product is delivered in cardboard containers, handle the packed product with suitable lifting means that comply with the legal requirements.

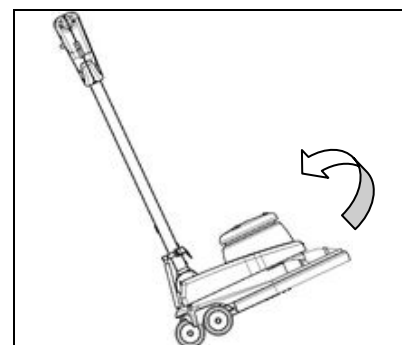
3. HOW TO MOVE THE MACHINE

1. Check that the solution tank is empty (optional)
2. Remove the pad holder from the base (see corresponding chapter "DISASSEMBLING THE BRUSH")
3. Position the single brush on the pallet by means of a chute
4. Insert the cardboard box and the previously kept supports

4. HANDLING AND TRANSPORTATION OF THE MACHINE

To handle the machine safely, proceed as follows:

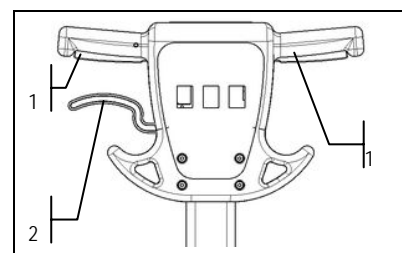
1. Check that the solution tank (optional) is empty
2. Rotate the handlebars to the rest position (see chapter HANDLEBAR ADJUSTMENT) and fix them in this position
3. Tilt the machine, by putting a foot into the rear of the base body, so only the rear wheels touch the ground and the machine can move freely.



5. HANDLEBAR COMPONENTS

The handlebar components are identified as follows:

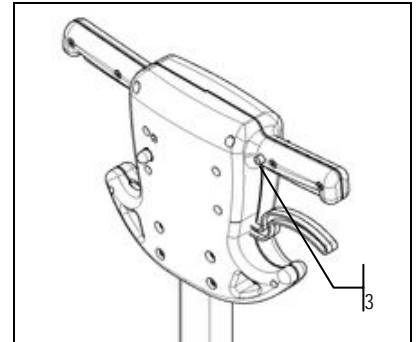
1. Main switch control lever
2. Handlebar tilt adjustment lever





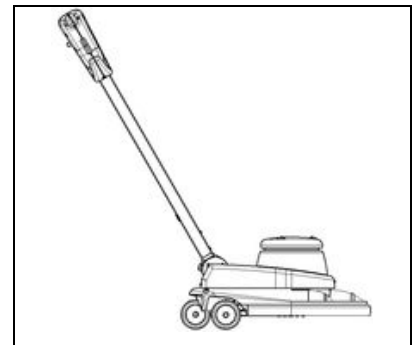
MACHINE PREPARATION

3. Man present push-button



6. HANDLEBAR ADJUSTMENT – WORK POSITION

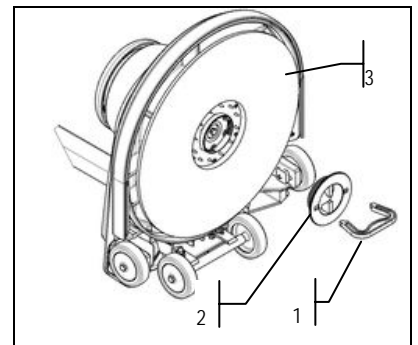
Before you start working with the machine, you will need to find the correct work position. To do this, press the tilt adjustment lever, release it until your arms are slightly bent and as low as possible, while keeping the back straight and the legs slightly apart. When working the operator is behind the machine.



7. PAD ASSEMBLY

To insert the brush:

1. Make sure the power supply cable is unplugged from the mains socket
2. Make sure that the handlebar is in rest position (vertical compared with the machine)
3. Tilt the machine until bringing the handlebars down to the ground, by putting a foot into the rear of the base body
4. Use the supplied handle (1) to loosen the male center lock (2) by turning it counter clockwise.
5. Place the pad onto the pad holder (3).
6. Keep the pad in position with one hand, screw the male center lock and then lock it using the handle.

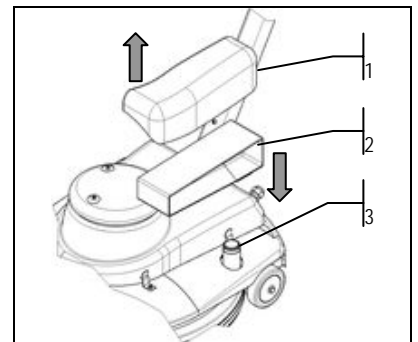


WARNING: you are advised to always wear protective gloves, to avoid the risk of serious injury to your hands

8. SUCTION BAG ASSEMBLY (VERSIONS V)

To insert the suction bag:

1. Make sure the power supply cable is unplugged from the mains socket
2. Make sure that the handlebar is in rest position (vertical compared with the machine)
3. Lift the bag cover (1) up
4. Insert the collection bag (2) into the suction coupling (3) having care not to damage the cardboard support of the bag.
5. Refit the cover making sure that the bag is completely inside without being squashed by the cover's rims





WORK

9. PREPARING TO WORK

1. Make sure the power supply cable is not damaged
2. Plug the power supply cable of the machine into the mains socket
3. Bring the handlebar into work position by acting on the release lever

10. MANOEUVRABILITY OF THE MACHINE

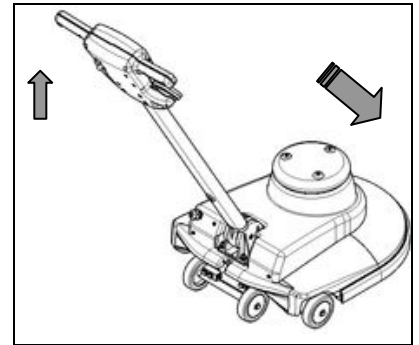
The first time an operator uses the machine, he/she should become familiar with the movements to be imparted to the shaft in order to be confident enough with the directionality of movement of the machine, and should therefore not operate the machine near people or obstacles.

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.

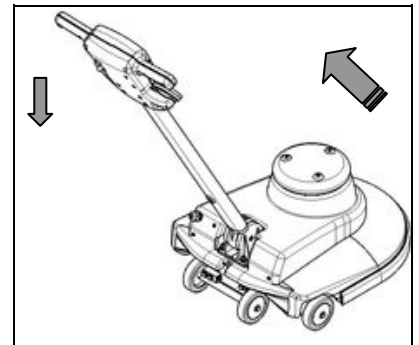
Keep the power supply cable behind the operator, taking care not to operate the machine in its vicinity in order not to damage it.

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.

In operation, the machine moves to the right by slightly lifting the handlebars.

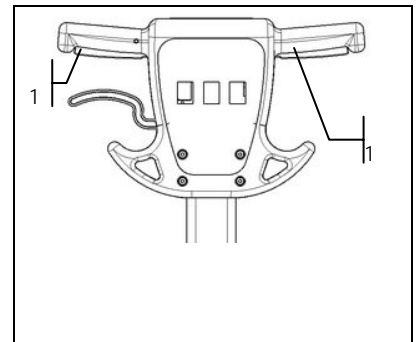


In operation, the machine moves to the left by slightly lowering the handlebars.



11. WORK

1. At this point, by pressing the man present push-button and activating the main switch control lever (1), the machine can operate at full efficiency
2. Drive the machine with the disc rotating from left to right or in reverse
3. Immediately afterwards, drive the machine in a similar way but in reverse, so that about one quarter of the working width overlaps the previous one

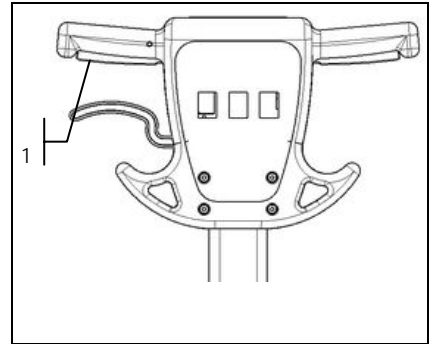




AT THE END OF THE WORK

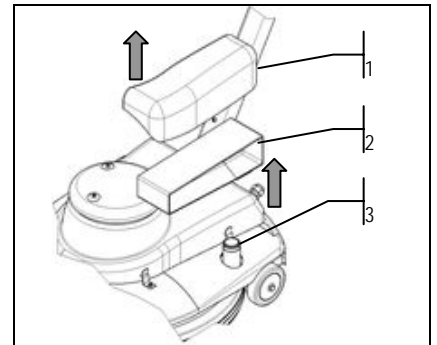
At the end of the work, and before carrying out any type of maintenance, perform the following operations:

1. Disconnect the plug from the mains socket
2. Wrap it onto the rear brackets
3. Operate the handlebar adjustment lever (1) and set the column at rest
4. Move the machine indoors, in an area where it cannot cause any damage to people or surrounding property, but where it can also be protected against the accidental fall of objects. In addition, do not park the machine in open places or on sloping floors
5. Remove the pad (for brush removal refer to the section 'PAD REMOVAL' below)



WARNING: you are advised to always wear protective gloves, to avoid the risk of serious injury to your hands

6. Lift the bag cover (1) up
7. Take the collection bag (2) out of the suction coupling (3) having care not to damage the cardboard support of the bag and to prevent dirt inside of the bag from coming out.
8. Refit the new collection bag and the cover making sure that the bag is completely inside without being squashed by the cover's rims





DAILY MAINTENANCE

PERFORM ALL MAINTENANCE OPERATIONS IN SEQUENCE

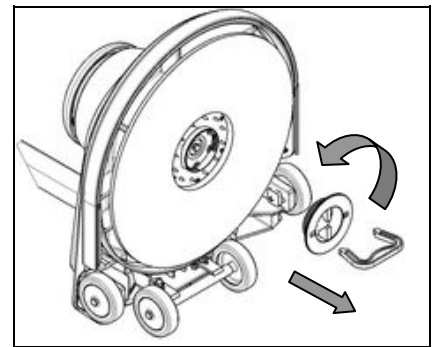
12. DISASSEMBLING THE BRUSHES-PAD HOLDER

7. Make sure the power supply cable is unplugged from the mains socket
8. Check that the handlebars are in the rest position
9. Tilt the machine until bringing the handlebars down to the ground, by putting a foot into the rear of the base body



WARNING: This operation must be carried out using gloves to protect against contact with dangerous solutions.

10. Use the supplied handle to loosen the male center lock by turning it counter clockwise
11. Remove the pad from the pad holder
12. Screw the male center lock by turning it counter clockwise and lock it with the handle





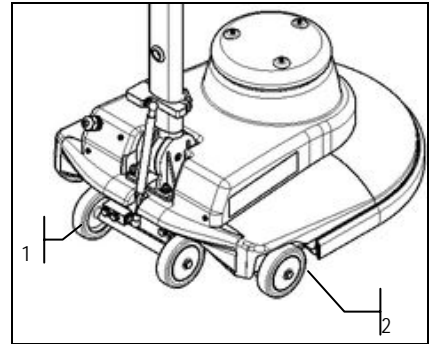
PERIODIC MAINTENANCE

13. REAR - SIDE WHEEL ADJUSTMENT

Check the rear (1) and side (2) wheels adjustment to ensure the machine works perfectly.



WARNING: Have the rear and side wheels adjusted by a COMAC qualified technician to avoid irreparable damages to the machine.

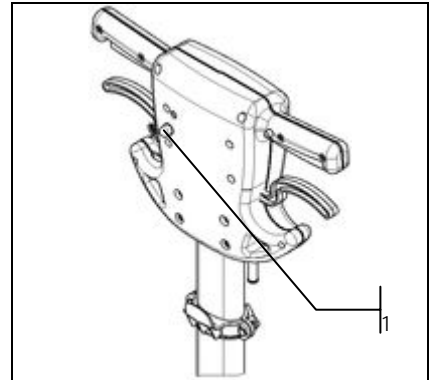




TROUBLESHOOTING

14. THERMAL CUT-OUT

The machine is equipped with the following electrical protection systems, thermal cut-out (1), located off the handlebars, to protect the motor. In the event of malfunctioning, check a thermal cut-out has not intervened. If the motor overheats, its thermal cut-out intervenes to block the electricity supply. Wait a few minutes until it has cooled down, then press the specific trip unit button to reactivate the power supply and motor operation.

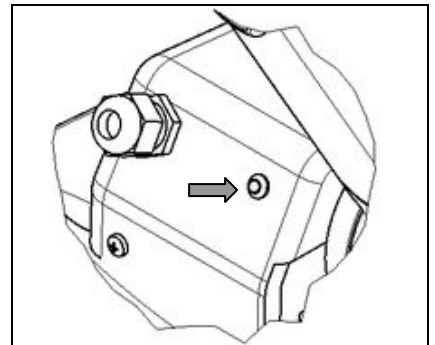


15. THE MACHINE VIBRATES OR OSCILLATES

In case the machine vibrates or oscillates during its operation, or has been sitting in rest position for too long, with the pad still inserted, replace it as soon as possible.

16. MOTOR BRUSH WEAR INDICATOR

The machine is provided with a red warning light which indicates the base motor brushes are worn out. When it is on contact a COMAC technician as soon as possible to replace the brushes.





DISPOSAL

To dispose of the machine, take it to a demolition centre or an authorised collection centre.

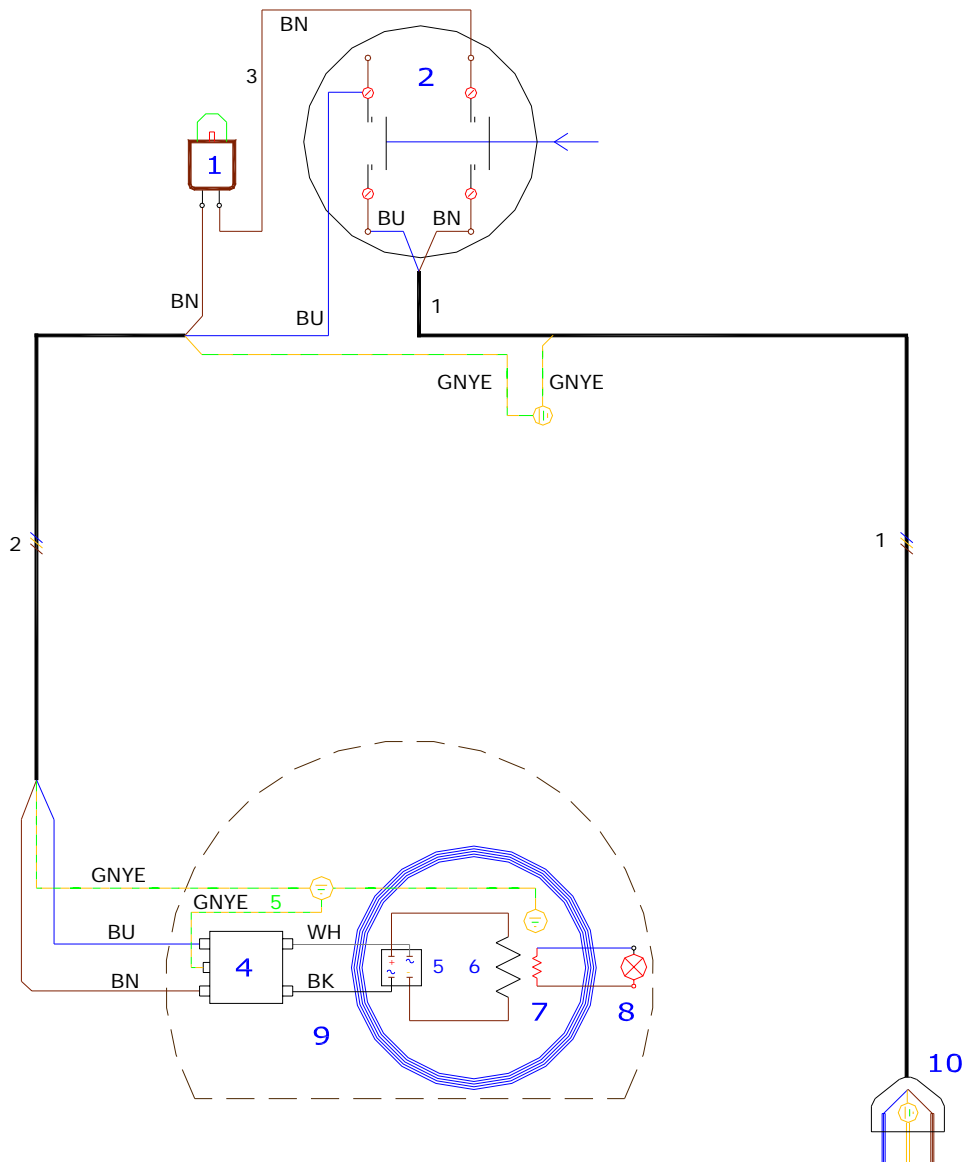
Before scrapping the machine, it is necessary to remove and separate the following materials and then send them to the appropriate collection centres, in accordance with the currently effective environmental hygiene regulations:

- brushes
- filter
- electric and electronic parts*
- plastic parts (tanks and handlebars)
- metal parts (levers and frame)

(*) In particular and in order to scrap the electric and electronic parts, contact your area distributor.



CM1500 S-V ELECTRICAL SYSTEM DIAGRAM



| POS | COMPONENT NAMES |
|-----|----------------------|
| 1 | Cut-out 10A |
| 2 | Operating switch 16A |
| 4 | Network filter |
| 5 | Rectifier |
| 6 | Motor winding |
| 7 | Thermal probe |
| 8 | Thermal alarm Led |
| 9 | 230V, 50Hz motor |
| 10 | Plug 16A |

| POS | CABLE NAMES |
|-----|--|
| 1 | Cable 3x1.5x15 metres + shuko plug -1- |
| 2 | Cable 3x1.5x1600 -2- |
| 3 | Brown cable 1.5x150 -3- |
| 5 | Yellow/green cable 1.5x140 -5- |
| | |
| | |
| | |
| | |
| | |

| ABBR | CABLE |
|------|--------------|
| BK | Black |
| BU | Blue |
| BN | Brown |
| RD | Red |
| WH | White |
| GY | Grey |
| GNYE | Yellow-green |
| GN | Green |
| YE | Yellow |



EC DECLARATION OF COMPLIANCE

The undersigned company:
COMAC S.p.A.
Via Maestri del Lavoro n.13
37059 Santa Maria di Zevio (VR)
declares under its sole responsibility that the

SINGLE BRUSH MACHINES mod. UHS1500 S – UHS1500 V

comply with the requirements of the following Directives:

- 2006/42/EC: Machinery Directive
- 2006/95/EC: Low Voltage Directive
- 2004/108/EC: Electromagnetic Compatibility Directive

They also comply with the following standards:

- EN 60335-1: Household and similar electrical appliances - Safety. Part 1: Generic norms
- EN 60335-2-67: Household and similar electrical appliances. Part 2: Specific norms for automatic machines for floor treatment for commercial and industrial use
- EN 12100-1: Machine safety - Fundamental concepts, fundamental principles of design - Part 1: Basic terminology and methodology
- EN 12100-2: Machine safety - Fundamental concepts, fundamental principles of design - Part 2: Technical principles
- EN 55014-1: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 1: Emission - Regulations for product family.
- EN 55014-2: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 2: Immunity - Regulations for product family.
- EN 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits – Limits for harmonic current emissions (Equipment with input current ≤ 16 A per phase).
- EN 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits – Restriction of voltage variations and flicker in low voltage power supply systems for devices with a rated current ≤ 16 A.
- EN 62233: Household and similar electrical appliances - Electromagnetic fields Methods for evaluation and measurement

The person authorised to compile the technical file:

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Santa maria di Zevio, 25/10/2010

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