OMS

VIRTUOSUS ELEGANCE
VIRTUOSUS CLASSIC

Istruzioni d'uso
Instruction handbook
Betriebsanleitung
Manuel d'instructions
Instrucciones para el uso

CE 0051
Direttiva 93/42 CEE

ENGLISH (TRANSLATION OF ORIGINAL INSTRUCTIONS)

WARNING
Before using the equipment read this O.M.S. instruction manual as well as any instructions provided for the supplied accessories fully and carefully.

O.M.S. reserves the right to modify its products without notice.

Unless otherwise indicated, the information given in this manual refers to both models VIRTUOSUS ELEGANCE and VIRTUOSUS CLASSIC, for reasons of simplification also referred to solely as "VIRTUOSUS".

1 GENERAL INFORMATION

Virtuosus offers a wide range of possible arrangements in the five instrument seats.
The special motion ensures minimum vertical extension of the instrument return arms, complete self-balancing when fully extracted and maximum freedom for the supply pipes in all directions.
The upper part of the water unit is built in 100% painted resin, the basin is ceramic and with no gaps or joints to ensure easier cleaning and better hygiene. The basin washing and cup filling cannulas can be easily removed for autoclave sterilisation.
All of the most exposed structures in terms of cross contamination (tray handles and instrument supports) are easily removed as standard, and produced in technopolymers that can be sterilised in the autoclave.
The high-speed suction pipes and connections are easily removed for disinfection. The filter is also easily and hygienically removable.

1.1 SAFETY REGULATIONS

- Warning: To prevent the risk of electric shock, this equipment must be connected only to an earthed power supply that is compliant with the regulations in force in your country.
- Before powering the equipment following installation, repair or any other technical work, check that the earth cables are connected to the screw marked with the earth symbol, and connect them if they are not.
- The device must be installed in environments with electrical systems that are compliant with the regulations in force in your country.
- Installation of the equipment must be carried out by an authorised OMS technician; the choice of conduits is to be made by the system design engineer and they must be laid by a qualified technician according to the regulations in force in your country.
- Do not allow the unit to be used by non-professional operators or by anyone who has not read this instruction manual.
- Always make sure that the unit is in good working condition.
- Do not use the unit if any parts are faulty or worn. In this case, ask for the intervention of an authorised O.M.S. technician.
- Make sure that faulty or worn parts are replaced only by original spare parts guaranteed by O.M.S.
- Do not place any objects under the water unit as they could cause irreparable damage, or cause the chair to tip up when moved.
- The equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or with nitrous oxide.
- Do not use the equipment when there is liquid on the floor.
- Tips and dental drills for micromotors and turbines are not supplied by OMS; we advise using parts that are compliant with the ISO 10993-1 standard and cleaning and sterilising them in accordance with the methods defined by the manufacturer.
- Warning: do not modify this equipment without the manufacturer's permission.
- All maintenance operations must be carried out after the equipment has been switched off and with no patient present.
- Warning: on some parts, identified with the symbol shown in figure 1 "WARNING, LIVE PARTS", voltage is present even after switching off at the main switch; if you need to work on these parts, before doing so, you must disconnect the power supply from the system that supplies power to the equipment.
- Warning: the main switch (A in figure 2) isolates the equipment from the mains electricity supply, so make sure this switch is off before carrying out any operation inside the equipment.
- To ensure that the movements of the dental chair are blocked, during particular operations that require this, it is necessary to activate the specific function (see paragraph 4.2.10 BLOCKING THE CHAIR MOVEMENTS).
- For the connection of an aspirator, the instructions given in this manual and in the wiring diagram must be complied with; the aspirator must be CE marked according to directive 93/42/EEC "Medical Devices" and to international safety regulations IEC EN 60601-1 (Medical electrical equipment - General requirements for safety), IEC EN 60601-1-2 (Medical electrical equipment - Collateral Standard: Electromagnetic Compatibility).

1.1.1 DEFINITION OF USAGE
Dental unit used for treating dental diseases.

1.1.2 ELECTROMAGNETIC POTENTIAL
The unit has been designed and manufactured in compliance with the regulation IEC EN 60601-1-2 (electro medical equipment, collateral standard: Electromagnetic compatibility) and has a level of immunity and emissions that do not create hazardous interference with other equipment complying with the same standard. They may on the other hand cause interference with electrical appliances with levels of emissions or immunity that do not comply with standard IEC EN 60601-1-2; in this case such equipment must not be used at the same time as the O.M.S. chairs.; if the equipment becomes deadlocked because of such interference, it may be sufficient to switch it off and then on again.

1.1.3 DISPOSAL OF THE DEVICE AT THE END OF ITS WORKING LIFE
European directives 2002/96/EC and 2003/108/EC on Waste Electrical and Electronic Equipment (WEEE).

The crossed out wheeled bin symbol (see figure 3) shown on the equipment or on the packaging indicates that, at the end of its useful life, the product must be collected separately from other waste. Therefore, at the end of its useful life, the user must send the equipment to suitable separate electronic and electro-technical waste collection facilities, or take it back to the dealer when buying new equipment of an equivalent type, on a one-for-one basis.

Suitable separate collection, for subsequent recycling, treatment and environmentally compatible disposal of the discarded equipment, contributes to preventing possible negative effects on the environment and on health and favours reuse and/or recycling of the materials the equipment is made of.

FURTHER INFORMATION FOR ITALY
Pursuant to art. 13 of Legislative Decree no. 151 of 25 July 2005, "Implementation of Directives 2002/95/EC, 2002/96/EC and 2003/108/EC, regarding reduction of the use of hazardous substances in electrical and electronic equipment, as well as waste disposal".
In the case of professional users (companies or organisations), in conformity with the above-mentioned regulations, separate collection of this equipment at the end of its life is organised and managed:

a) directly by the user, if the user decides to discard the equipment without replacing it with new equivalent equipment used for the same functions;
b) by the manufacturer, understood as the subject that first introduced and marketed in Italy the new equipment that has replaced the previous equipment, or sells it in Italy with its own brand, if, at the same time as deciding to discard the equipment at the end of its life, the user buys a product of an equivalent type used for the same functions. In this last case, the user can ask the manufacturer to take back the old equipment within 15 consecutive days of delivery of the aforesaid new equipment.

Illegal disposal of the product by the user will incur the imposition of penalties as referred to in the current law regulations.

1.2 PERMITTED ENVIRONMENTAL CONDITIONS

1.2.1 PERMITTED ENVIRONMENTAL CONDITIONS FOR TRANSPORTATION AND STORAGE
The packaged equipment may be subjected to the following environmental conditions for no more than 15 weeks
Temperature from -40 to +70°C
Relative humidity from 10 to 100% (non-condensing)

Atmospheric pressure from 500 to 1060 hPa

1.2.2 PERMITTED ENVIRONMENTAL OPERATING CONDITIONS
Temperature from +10 to +40°C
Relative humidity from 30 to 75%
Atmospheric pressure from 800 to 1060 hPa
Nominal operating altitude ≤ 2000m

1.3 WARRANTY

O.M.S. guarantees its products for a maximum of three years from the date of installation. To this end it is important to complete the guarantee form attached to the documentation provided with our equipment at the time of installation.
It is recommended to read the guarantee conditions foreseen by O.M.S. carefully in order not to meet with any misunderstandings or useless time wasting by all parties concerned.

Send the completed guarantee form within 10 days to the following address:
O.M.S. S.p.A. - Via Dante 20/A - 35030 CASELLE DI SELVAZZANO (PADUA) – ITALIA
Please remember to keep the top copy.

N.B.: all products not manufactured by O.M.S. (e.g. handpieces, turbines, cuspidor, etc.) shall be covered by the warranty issued by the relative manufacturer; also for these parts the guarantee form must be completed and returned.

2 TECHNICAL DESCRIPTION

Model	VIRTUOSUS ELEGANCE or VIRTUOSUS CLASSIC
Manufactured by	O.M.S. S.p.A. Officine Meccaniche Specializzate Via Dante 20/A - 35030 Caselle di Selvazzano Padua Italia
Class	I
Applied parts Type	B
Protection rating of the equipment	IPX0
Protection rating of the foot control unit	IPX1

POWER SUPPLY	
Nominal voltage	230 Vac +/-10%
Nominal current	1.5 A
Nominal power	300 W
Nominal frequency	50 Hz
Max. internal voltage	35 Vdc, 25 Vac
Network connection	with conductors that respect the local applicable standards

WATER AND COMPRESSED AIR SUPPLY	
Compressed air supply	from 450 kPa to 650 kPa (from 4.5 to 6.5 bar) (Consumption of aspirated air approx. 40 litres/minute)
Water supply	from 200 kPa to 400 kPa (from 2 to 4 bar) (Consumption of water approx. 2 litres/minute) max. temperature 30 °C

OPERATING TIMES		
Syringe 6F (hot water)	intermittent	5' on / 10' off
Curing lamp	intermittent	20" on / 3' off
Tooth scaler (with water)	intermittent	3' on / 5' off
Micromotor	intermittent	3' on / 3' off
Operating lamp	continuous	
Syringe 3F (cold water)	continuous	

EDI OPERATING LAMP (with cooling fan)	
Supply voltage:	17 Vac
Halogen bulb:	17 Vac, 95 W
Colour temperature:	5000 °K
Focal distance:	700 mm
Operating field (at 700 mm):	60x180 mm
Max. light intensity (at 700 mm):	25000 Lux.

VARIOUS

Dental unit weight	approx. 65 Kg
Lamp weight	approx. 5 Kg
Size (without lamp)	approx. 1.08x0.84x1.05 m (LxHxD)
Length of foot control unit cable	2.5 m
Minimum recommended space for installation of the equipment	approx. 3.20x3.00x3.00 m (LxHxD)

IMPORTANT

O.M.S. equipment is designed and built in respect of the EC "Medical devices" Directive and the IEC EN 60601-1 international safety regulations (electro medical equipment – general safety requirements), IEC EN 60601-1-2 (electro medical equipment – collateral regulation: Electromagnetic compatibility) and ISO 7494-1 (Dental units - General requirements and test methods).

O.M.S. declines all responsibility concerning the safety and reliability of the equipment if installation, additions, recalibration, modifications or repairs are not carried out by authorised O.M.S. technicians using instructions and components supplied exclusively by O.M.S. and if the electrical system of the premises in question does not comply with the IEC regulations and/or the device is not used in compliance with the operating instructions.

The Virtuosus dental unit must only be fitted to a dental chair complying with the standards IEC EN 60601-1, IEC EN 60601-1-2 and ISO 6875 (Dental patient chair). Before making any connections, contact the O.M.S. technical assistance network to check that the chair is compatible with the dental unit.

Drills and tips for micromotors and turbines are not supplied by OMS; the exclusive use of parts that comply with the standard ISO 10993-1 is recommended.

2.1 IDENTIFICATION DATA

A plate can be found on the water unit support that gives general information on the equipment (see figure 4).

A. Dental unit model
B. Serial number
C. Medical equipment directive 93/42/EEC
D. Nominal power
E. Nominal current
F. Warning, consult the attached documentation
G. Applied part Type B
H. Nominal frequency
I. Nominal voltage

3 TECHNICAL INSTRUCTIONS FOR INSTALLATION

3.1 PACKAGING

The unit is shipped in a crate (weighing approx. 100 Kg), containing:

Water unit, instrument unit, foot control unit, accessory box, operating instructions, wiring diagrams TEC 2/4; assistant tray arm*, lamp*, lamp arm*, cuspidor*.

(*) Packed only if specifically ordered.

The outside of the crate is marked with the crate number, order number, order confirmation number, dental unit type.

Any loose packaging will be marked in the same way.

N.B.: the packaging of any ordered O.M.S. stool is separate.

3.2 ASSEMBLY

1. Fix the water unit to the chair using the screws supplied.
2. Remove the packaging from the water unit and instrument tray only once they have been fixed to the chair in order to avoid any accidental damage.
3. Having removed the screw underneath the water unit, open the guard and insert the instrument arm, using a gentle rotating action, and insert the relative clutch. Connect the wires from the instrument arm to the M2 terminal and to the CN2 connector on the water unit electronic card.

4. When connecting the lamp to the dental unit, the lamp rod is fixed into position using two pre-fixed dowels. Connect the lamp power cables to the M4 terminal on the water unit electronic card.
5. Check that the earth cables are connected to the screw marked with the earth symbol, and connect them if they are not.
6. For connection of the suction pump (see wiring diagram), use the same methods described in the following point for the power supply cables (fixing of the cables and traction).
7. Fix any accessories to the instrument tray and assistant tray.
8. Remove the casing of the earthing box, by taking off the knob of the tap (C in figure 2) and loosening the screw located near the tap, to make the connections for the water and the air (see paragraph 3.3 CONNECTIONS), the suction unit and the drain.
9. Make the electrical connections in the earthing box by connecting the wires from the water unit to the M2 terminal (general power card) and to the CN2 connector on the transformer electronic card. , and finally make the connection to the mains electricity (main terminal); the power supply cables of the main terminal board must be secured with nylon cable ties to the specially drilled insulating base and placed under the terminal. In particular, it must be ensured that, in the event of failure of the fixing devices (cable ties), the protective earth conductor will not be pulled on while the mains conductors are still connected to the terminal
10. Install the foot control unit by connecting the cable to the CN1 connector on the transformer electronic card and connect the cable to the earth wire on the screw marked with the earth symbol.

Refer to the supplied wiring diagram for all electrical connections.

3.3 CONNECTIONS

First of all make sure that the air and compressed air flows from the relative supplies are correct. O.M.S. declines all responsibility for any damage or breakdown caused by the non-respect of the following warning:

Water supply:
Water with low to medium salt content (fit a water softener if required), connected to a pipe diameter 6x8 mm (see para. 2 TECHNICAL DESCRIPTION for permitted pressure).
Compressed air supply:
Compressed air, preferably dehumidified and with no oil suspensions, connected to a pipe diameter 4x6 mm (see para. 2 TECHNICAL DESCRIPTION for permitted pressure).

It is advisable to make a temporary connection directly between the water delivery pipe and the drain and to make the water circulate for a few minutes before installing the dental unit, in order to eliminate any impurities that may be present in the pipes.

3.4 TESTING AND PUTTING INTO OPERATION

1. Check the correct position and planarity of the water unit- instrument unit: if the instrument unit is not in the correct position, adjust it by moving the screw inside the front part of the arm (see fig. 7).
2. Check that the water flows correctly into the cup and basin.
3. Check that the pressure and general flow adjusters and that every single instrument is correctly calibrated. Despite calibration at O.M.S. prior to delivery, these may require further calibration before use

IMPORTANT WARNING
When testing, assure that the dental unit / chair is mechanically stable, once all the mobile elements and accessories (tray, lamp, water unit, etc.) have been loaded and placed in the most awkward position.
N.B.: We advise closing the main water tap whenever the surgery is left unoccupied, in order to prevent flooding in the event of accidental breakage of the system.

WARNING: before carrying out any operation inside the equipment, always make sure the main switch is off.

4 CONTROLS – ADJUSTMENTS – WARNINGS

When the unit is switched on the display shows the "reset chair" message, and will not respond to any chair repositioning control until the reset has been done (see chair operating instructions).

4.1 SAFETY SYSTEMS

The dental unit is fitted with safety devices that reduce the risk of crushing or collision with objects below when moving downwards. In particular an electromechanical safety device is fitted on the suction cannula support arm, and another safety device cuts in when the basin is rotated outside of the water unit (in the opposite direction from the chair); when one of these devices has cut in, the dental unit will not move downwards.

Both when first switched on and during normal use, the chair cannot be moved if one or more of the safety sensors has cut in; if a command is impeded by an active safety device, an acoustic warning signal is given off (three short beeps) and the display shows which of the safety devices is/are active.

During any automatic chair movements, the chair will stop instantly if any button on the dental unit pushbutton panel, or any lever on the foot control unit, is pressed.

4.2 INSTRUMENT TRAY

The Virtuosus instrument tray (see figure 6) can hold five instruments (including a syringe) and is basically composed of three sectors.
The first sector includes the instrument unit controls and any optional parts. Inside there is a general card for operating the dental unit and all the instrument electrical connections.
The second sector includes the instrument solenoid valve unit, clearly showing all the adjustment devices. The functions of each device are described in the relative instrument chapters. Any adjustments that are not fitted with a knob must be carried out by authorised O.M.S. technicians.
The third sector is the part of the tray that holds the instruments.

4.2.1 RIGHT PUSHBUTTON PANEL

The controls (see figure 5) are fully housed under a sealed membrane to guarantee greater operating safety, to eliminate gaps and ensure 100% surface disinfectability.
The button functions are:

A. chair back upwards movement
B. chair pantographic arm upwards movement
C. chair reset
D. chair back downwards movement
E. chair pantographic arm downwards movement
F. Chair rinse /Last Position
G. Programming and recall of instrument programme 1 and chair memory 1 (optional on Virtuosus Classic)
H. Programming and recall of instrument programme 2 and chair memory 2 (optional on Virtuosus Classic)
I. Programming and recall of instrument programme 3 and chair memory 3 (optional on Virtuosus Classic)
L. Fixed / progressive speed or power control
M. Fibre optic lighting preselection
N. spray preselection
O. Fill cup with cold water (programmable filling time)
P. Fill cup with hot water (programmable filling time)
Q. Basin rinsing (programmable rinsing time)
R. Operating lamp ON/OFF
S. Increase rpm, power etc. button (chair movement disabling)
T. Decrease rpm, power etc. button
U. Display.

4.2.2 LEFT PUSHBUTTON PANEL

The buttons on the left pushbutton panel have the same functions as the corresponding buttons on the right pushbutton panel (although there is no display); the left pushbutton panel is standard on the Virtuosus Elegance model and optional on the Virtuosus Classic model.
If the brushless micromotor MX (optional) is present, the left pushbutton panel is replaced by the pushbutton panel for the micromotor controls.

4.2.3 TURBINE UNIT

The turbine is operated by lifting the instrument from its seat, moving it into the operating field and then operating the foot control (see paragraph 4.3.1 TURBINE OPERATION).

When the instrument is lifted from the tray, all the other moving instruments and the chair movements are blocked.

On request, the turbine may be either progressive (optional) with a variable rotation speed depending on the position of the lever on the foot control unit (the display will indicate whether the turbine is normal or progressive).
When the turbine is progressive, the button (L) is used to operate it in normal mode (fixed) or progressive:
- with the button off (and corresponding LED off), the turbine works in progressive mode;
- with the button on (and corresponding LED on), the turbine works in normal (fixed) mode.

The spray is always preselected. To regulate the spray water, turn the valve corresponding to the instrument under the turbine unit. Turn the valve anticlockwise to gradually reduce the water flow to the spray until it is completely closed off, and vice versa turn it clockwise to obtain maximum flow. Do not interfere with the other regulating devices next to the spray valve.

If the instrument is fitted with a fibre optic lighting system, use the button (M) on the tray pushbutton panel to switch it on (when on, this function affects all the instruments).

The recommended air pressure (measured when the turbine is running) is calibrated during testing at O.M.S. The calibration needs to be rechecked during installation of the dental unit with the use of a manometer, respecting the pressure values indicated by the turbine manufacturer. This operation must be carried out by an authorised O.M.S. technician.

4.2.4 ELECTRIC MICROMOTOR UNIT
The micromotor is operated by lifting the instrument from its seat, moving it into the operating field and then operating the foot control (see paragraph 4.3.2 MICROMOTOR OPERATION).

When the instrument is lifted from the tray all other moving instruments and the chair movements are blocked.

The micromotor works at variable speed, from around 900 rpm to a maximum of 40,000 r.p.m.; as an option it is possible to reduce the minimum micromotor speed to 50 r.p.m. using a special electronic system (optional).

With the instrument removed from its seat, the micromotor rotation speed is adjusted by the operator by setting the r.p.m. using buttons (S) and (T); the set speed is shown on the display (U) on the instrument tray.

The button (L) is used to operate the micromotor at a fixed speed on the set value or with progressive speed (the display (U) indicates whether the speed is fixed or progressive):
- with the button off (and corresponding LED off), the micromotor speed is progressive and goes from a minimum speed to the set rpm depending on the position of the lever on the foot control unit;
- with the button on (and corresponding LED on), the micromotor speed is fixed and runs at the set rpm shown on the display (U) whatever the position of the lever on the foot control unit.

Normally the micromotor rotates in a clockwise direction. To invert the direction, move the lever on the foot control unit to the left and then release it. An acoustic warning signal (beep) will indicate that this function is active; the function is also shown on the display (U) (by an arrow that changes direction).
If the lever on the foot control unit is moved to the left again, the original condition will be restored and the acoustic warning signal (beep) will stop.

The spray is preselected by entering the command (N). See paragraph 4.3.2 MICROMOTOR OPERATION.
The spray water is adjusted by turning the valve under the micromotor unit anticlockwise to gradually reduce the flow of water to the spray or vice versa by turning clockwise. Do not interfere with the other regulation devices located next to the spray valve.

If the instrument is fitted with a fibre optic lighting system, use the button (M) on the tray pushbutton panel to switch it on (when on, this function affects all the instruments).

Programming the micromotor memories (standard on Virtuosus elegance and optional on Virtuosus Classic).
With the instrument removed from its seat the buttons (G), (H) and (I) are used to programme three working programmes.
Select the required memory and set the required speed using the buttons (S) and (T), if required it is possible to activate the spray using button (N) and the fixed or progressive speed with button (L).
By pressing the previously selected button for a few seconds (until a beep is heard) we can set the selected functions.
To exclude the programming press the activated memory button.

4.2.5 TOOTH SCALER UNIT
When the instrument is removed from its seat the work setting is shown on the display (U) and can be modified by pressing the buttons:
- (G) for the Scaler function
- (H) for the Perio function
- (I) for the Endo function

the LED on indicates which function is activated.

The tooth scaler works by lifting the instrument from its seat, moving it into the operating field and then pressing the lever on the foot control unit (see paragraph 4.3.3 TOOTH SCALER OPERATION).

By lifting the instrument from the tray all other moving instruments and chair movements are blocked.

The operating power can be adjusted by the operator from between 10% and 100% of the maximum power by pressing the buttons (S) and (T) when the instrument is extracted; the set value is shown on the instrument tray display.

The button (L) is used to operate the tooth scaler at fixed power on the set value or progressive power (the display will indicate whether the power is fixed or progressive):
- with the button off (and corresponding LED off), the tooth scaler power is progressive, and varies between the minimum power and the set percentage, depending on the position of the foot control unit lever;
- with the button on (and corresponding LED on), the tooth scaler power is fixed to the percentage shown on the display whatever the position of the foot control unit lever.

The spray water is adjusted by turning the valve located under the tooth scaler unit anticlockwise to reduce the flow of water to the spray and, vice versa by turning the valve clockwise.

If the instrument is fitted with a fibre optic lighting system, use the button (M) on the tray pushbutton panel to switch it on (when on, this function affects all the instruments).

For the SATELEC SP NEWTRON tooth scaler, power adjustment is carried out according to the tip present on the handpiece, in accordance with the following table (only for SATELEC SP NEWTRON):

Tip colour	green			yellow		light blue			orange	
Tip power	1	2	3	4	5	6	7	8	9	10
Power set on the dentist's chair	10 %	40 %	90 %	20 %	60 %	10 %	20 %	40 %	60 %	90 %
Mode set on the dentist's chair	PERIO			ENDO		SCALER				

4.2.6 BRUSHLESS MICROMOTOR MX MODULE
For operation of the micromotor MX, refer to the specific operating instructions provided by O.M.S. with the micromotor.
For further details, see the attached manufacturer's operating instructions.

4.2.7 COMPOSITE RESIN LAMP UNIT
The composite resin lamp is operated by lifting the instrument from its seat, moving it into the operating field and then pressing the button on the handpiece.
For further details see the attached syringe manufacturer's operating instructions.

4.2.8 SYRINGE UNIT
The syringe can function at any time, simply by pressing one of the two air or water levers (left lever water, right lever air). By pressing both buttons at the same time the syringe will deliver a water spray.
The whole external syringe structure can be removed and sterilised in the autoclave at 130°C.
For further details see the attached syringe manufacturer's operating instructions.

4.2.9 CHAIR CONTROLS
By pressing button (S) (fig. 5) for about three seconds until a short beep is heard, the chair is disabled (the chair status is indicated on the display (U)) and it is not possible to use any controls until the button (S) is pressed once again.

Memory confirmation buttons are also found on the foot control unit (see paragraph 4.3.4 CHAIR CONTROLS ON FOOT CONTROL UNIT) and on the assistant tray (standard on Virtuosus Elegance, optional on Virtuosus Classic) (see paragraph 4.4.1 ASSISTANT PUSHBUTTON PANEL). This control is used to place the chair in the position corresponding to the memory active at that time (LED on) on the pushbutton panel on the instrument tray.

See chair operating instructions for the description of the rinsing and last position functions, resetting and programmed positions.

4.2.10 BLOCKING THE CHAIR MOVEMENTS
Some particular operations may require the movements of the dental chair to be blocked to prevent accidental activation of the chair by operators or due to other events. To ensure that the movements of the dental chair are blocked, operate the lever switch located under the instrument tray (when the chair is blocked, the words "Chair safety" appear on the display). To reset the situation and allow chair movements again, move the lever back to its original position.

4.2.11 ADJUSTING THE TIME AND DATE
By pressing the button (T) (fig. 5) for three seconds a flashing cursor appears on the display (U). Press the button (T) several times and the cursor will move in sequence to hours, minutes, day, month and year. Use button (S) to modify the selected number and press button (T) for 3 seconds again to memorise the setting and exit the programming mode.

4.3 FOOT CONTROL UNIT CONTROLS
The dental unit foot control unit (see figure 8) was designed to allow the control of all possible instrument functions with a simple movement of lever (A).

N.B.: when an instrument is extracted, it is automatically connected with the foot control unit, excluding all others in the event of another instrument being extracted (for example by the assistant).

4.3.1 TURBINE OPERATION
Having extracted the instrument from its seat (operation shown on the display):
- press lever (A) on the foot control unit in neutral to activate the chip-blower control;
- move lever (A) to the right to obtain the dynamic movement of the turbine; if we lightly press lever (A) at the same time spray will be sent to the turbine.

4.3.2 MICROMOTOR OPERATION
Having extracted the instrument from its seat (operation shown on the display):
- press lever (A) on the foot control unit in neutral to activate the chip-blower control;
- move lever (A) to the right to obtain the dynamic progressive-increasing movement of the micromotor; preselect the spray on the instrument tray using the control (N); then the spray will be delivered using light

pressure on the foot control unit lever (A) when the instrument is working (standard configuration). On request, during installation the technician can modify this connection to deliver the spray without having to press the lever.
To invert the rotation of the micromotor move lever (A) to the left. The operation will be shown on the display (U) and an intermittent beep will be heard throughout the function; to exclude the function move the lever (A) to the left again.

4.3.3 TOOTH SCALER OPERATION
Having extracted the instrument from its seat (operation shown on the display, move lever (A) to the right to make the tooth scaler work in progressive mode.
Spray is delivered by pressing the foot control unit lever (A) lightly when the instrument is running (standard configuration). On request, during installation the technician can modify this connection to deliver the spray without having to press the lever.

4.3.4 CHAIR CONTROLS ON THE FOOT CONTROL UNIT
With all the instruments in their seats on the tray, the foot control unit lever (A) (fig. 8) is used to control the chair movements.
- move the lever to the left to make the pantographic arm move downwards;
- move the lever to the right to make the pantographic arm move upwards;

With the lever in neutral, press it downwards for a moment to control the chair back movements:
- move the lever to the left to make the chair back move upwards;
- move the lever to the right to make the chair back move downwards;
- 5 seconds after being released (having moved the chair back), the lever can be used again to control the pantographic arm movements.

The foot control unit is fitted with two side levers on Virtuosus Elegance (optional on Virtuosus Classic) (see figure 8, details B and C) that have other functions:
- by moving lever (B) upwards or downwards the active programmed position is recalled (the active memory is the one with the LED on, see pushbutton panel in fig. 5 buttons G, H and I);
- by moving lever (C) upwards the reset control is activated, and moved downwards the rinsing/last position control is activated..

4.4 CANNULA SUPPORT
The cannula support is supplied mounted on a pantographic arm, with rotating pantographic movement.

A tray with four seats is mounted on both versions, two for suction pipes (11 and 16 mm diameter) and two more that are usually empty, destined to hold any accessories, such as the assistant syringe, composite resin lamp or camera.

4.4.1 ASSISTANT PUSHBUTTON PANEL
The pushbutton panel has standard controls and chair controls for the assistant (see figure 9):
A. Recalls the active chair position memory (optional on Virtuosus Classic)
B. Moves the chair back upwards (optional on Virtuosus Classic)
C. Moves the chair back downwards (optional on Virtuosus Classic)
D. Moves the pantographic arm upwards (optional on Virtuosus Classic)
E. Moves the pantographic arm downwards (optional on Virtuosus Classic)
F. Recalls the chair reset position
G. Recalls the rinsing position and last position of the chair
H. Enables/disables the delivery of water to the basin
I. Fills the cup with hot water (optional)
L. Fills the cup with cold water

4.5 WATER UNIT
The water unit houses all the electrical, water and compresses air control systems in the dental unit as well as any suction devices (liquid-air). The panel can be opened by pulling lightly outwards (see figure 10) only after turning off the main switch and removing the screw placed under the carter.

4.5.1 AIR PRESSURE ADJUSTER
The air pressure adjuster is used to maintain a constant air pressure in the tray instruments.
The adjuster is calibrated at the time of testing at the O.M.S. factory, and may be modified only for technical reasons. This operation should be carried out only by an authorised technician.
The adjuster collects any condensate in the compressed air; to drain this, see paragraph 6.2 DRAINING THE CONDENSATE.

4.5.2 WATER PRESSURE ADJUSTER
The water pressure adjuster is used to maintain a constant water pressure in the tray instruments.
The adjuster is calibrated at the time of testing at the O.M.S. factory, and may be modified only for technical reasons. This operation should be carried out only by an authorised technician.
The adjuster is fitted with a filter that must be controlled periodically and replaced when required, as described in paragraph 8.3 WATER FILTERS.

4.5.3 ADJUSTING THE WATER SUPPLY TO THE CUP AND BASIN
Inside the water unit there is a unit with four solenoid valves (see figure 11) mounted on a coupling containing the water filter. There is a valve on each solenoid valve to control the water flow. This can be adjusted using a screwdriver, turning clockwise to reduce the water flow and anticlockwise to increase it:
A. Not used;
B. For adjusting the cold water to the cup;
C. For adjusting the water to the basin;
D. For adjusting the hot water to the cup (optional).
In addition to the water flow, it is also possible to vary the delivery time of the water to the cup and the basin washing time.
To set the cup filling time (or basin rinsing time) hold down the corresponding button for three seconds (until a beep is heard); release the button when the cup has reached the required level (or when the required rinsing time is over) and the time is then memorised.

4.5.4 WATER UNIT CARD
The water unit card is used for the electrical connections of the instrument tray, the suction circuit and scialytic lamp (optional). The replacement of any components or modifications to the electrical system must be carried out exclusively by authorised O.M.S. technicians.

4.6 FLOOR BOX
This box houses the connections of the dental unit with the power supply, water supply, drains, compressed air system and the piping from the surgical aspiration unit motor, if mounted.
Outside the floor box the following can be found:
- the main water valve, which controls the supply of water to the whole dental unit;
- the main switch (on the side of the floor box guard), which controls the electrical power supply to the dental unit.

WARNING: before carrying out any operations inside the floor box, make sure that the main switch is off.

N.B.: Turn off the main water valve when leaving the surgery in order to prevent flooding caused by accidental breakage or leaks.

4.7 SCIALYTIC LAMP
The use of the lamp is limited to two functions:
- on/off;
- light intensity adjustment.

The button (R) (see figure 5) is used to switch the lamp on directly from the instrument tray.
O.M.S. dental units are pre-set for mounting FARO EDI lamps (with cooling fan).

5 HIGH SPEED SUCTION
The dental unit can be connected to a high-speed air-ring, liquid-ring or damp-ring suction system. The water unit is therefore supplied with a special cannula arm (see paragraph 4.4 CANNULA SUPPORT). Some suction elements (such as the separator tank) may be housed insider the water unit.

The suction system is mainly composed of the following parts (see figure 12):
A. conveyor (located under the assistant tray);
B. filter;
C. conveyor cap;
D. 2 suction pipes of 1.5 m length approx, diameters 11 mm and 16 mm;
E. suction terminals diameter 11 mm and 16 mm.

If the dental unit is connected to a centralised suction system, inside the water unit it is possible to install a shutter solenoid valve to select the work position.
The dental unit suction system may also be connected to amalgam separating systems, which can also be housed inside the water unit.

6 ORDINARY MAINTENANCE

Here below are described some ordinary maintenance operations that are strongly recommended according to the frequency and methods described, to guarantee the maximum efficiency of your equipment over time.

It should also be remembered that, for hygiene and cleaning purposes, without risking any damage, O.M.S. recommends the use of products that contain:
- Quaternary ammonia
- Phenolic compounds
- Iodophors

That do not contain:
- Alcohol
- Hypochlorite

O.M.S. recommends the products listed below, which have already been factory-tested:
- OROCID MULTISEPT
- OROLIN ASEPTIK
- ZETA 4
- GREEN & CLEAN SK

For cleaning, O.M.S. can also supply its own tried and tested product, on request.

O.M.S. declines all responsibility for any problems caused by the use of substances other than those recommended.

6.1 EXTERNAL CLEANING AND MINOR PAINT REPAIRS

For hygiene purposes (and to avoid the prolonged exposure of the surfaces to staining by corrosive substances), clean the equipment frequently. It is recommended not to use denaturated alcohol nor soda-based detergents or organic solvents, as these could ruin the paintwork and upholstery.
In the event of small paint scratches, the paint can be touched up with the pot of paint supplied for this purpose in the accessory box. Shake the bottle before use, and to mix the paint well, moving the brush up and down in the pot. "Spot" the damaged area with small drops of paint.

6.2 DRAINING THE CONDENSATE

The unit is fitted with an air pressure reducer with a filter device and a condensate drainage valve.
Any condensate that forms in the transparent cup can be expelled by pressing the needle valve on the bottom of the cup upwards, as shown in figure 14.

N.B.: check for condensate once a week.

6.3 CLEANING THE BASIN

The ceramic basin surface assures quick and easy cleaning, to be carried out daily also using domestic cleaning products providing they are not abrasive. The water delivery cannulas to the cup and basin can be easily removed (see figure 13), for cleaning and autoclave sterilisation if required.

7 HIGH SPEED SUCTION SYSTEM MAINTENANCE

To assure the efficiency of your high-speed suction system, follow these simple use and maintenance instructions carefully. The performance of your suction system may be drastically reduced if you do not do so.

7.1 CLEANING AFTER EACH USE

After each use, it is recommended to run the suction pipe through with clean water in order to rinse the pipes. The operating tips must be scrupulously cleaned and sterilised: brush the cannulas inside and out using special brushes (included in the suction accessory kit) using appropriate detergent.
The suction terminals supplied by O.M.S., can be sterilised in an autoclave at a temperature of 130° C.

7.2 DAILY CLEANING AND DISINFECTION

In order to stop the suctioned deposits from clogging the suction filter and relative suction pipes, at the end of every working day the following washing cycle must be carried out. Special products are required for this operation, recommended by the suction pump manufacturers, diluted in warm water in the percentages indicated on the bottles.

1. Siphon the quantity of solution indicated on the bottle into the two suction cannulas, taking care to immerse only the tip of the cannula.
2. Run the suction pump for 3-4 minutes, then stop it and let the liquid drain out, then repeat the operation with the remaining amount of solution; in this way we will have cleaned, disinfected and deodorised the suction system and its relative piping.
3. Unscrew the conveyor cap and clean the filter inside the conveyor (located under the assistant tray), and replace the filter when it starts to become permanently clogged. Periodically grease the conveyor mouth and cap with Vaseline as disinfectants can stiffen these parts and make it more difficult to remove the cap.

Do not mix different qualities of detergents together.
Never immerse the suction pipes without the cannula fitted to them.

7.3 PERIODICAL CLEANING

Every 90 working days (and specifically in function to several days' rest) the whole suction system needs to be checked over, to guarantee perfect operation; this control should be carried out by an authorised technician.

7.4 ANTIFOAM AGENTS

If any substances that create foam are used (including oxygenated water, etc), the system may temporarily be stopped. In the event of such an error, "antifoam agent" tablets should be used. These tablets (a sample of which is supplied with the suction accessories), must be placed in the conveyor filter and generally last a few days.

7.5 CANNULA MAINTENANCE AND REPLACEMENT OF EXTERNAL PIPES

The suction cannulas are easily disassembled (see figure 15) for easy disinfection and cold sterilisation.
Every 15 days the cannula closure tabs should be sprayed with silicone spray: with the tab closed, spray the inside of the terminal, with the tab open spray the outside, and then open and close each terminal several times.
For functional and hygiene purposes, it is advisable to replace the external pipes and suction terminals at least once a year.

8 EXTRAORDINARY MAINTENANCE

Here below is a description of some of the extraordinary maintenance operations. With the exception of the clutch adjustment, accessible from the outside of the dental unit, and the replacement of fuses, we recommend that all interventions be carried out by authorised O.M.S. technicians.

8.1 REPLACING THE FUSES

The dental unit power transformer is located inside the floor box, under the electronic card (see figure 16) on which the protection fuses of the various equipment functions are located. The replacement of a fuse in the event of a breakage must be carried out by an authorised O.M.S. technician.
As an example only, here below the values of the main fuses in the dental unit are given:
figure 2
A. Main 6.3AT, 230Vac
figure 16
A. Dental unit (transformer) 3.15 AT, 230 Vac

B. Not used 5 AT, 230 Vac
C. Suction 5 AT, 230 Vac
D. Micromotor, tooth scaler, progressive turbine 5 AT, 24 Vac
E. Card relay and solenoid valve coils, optic fibred 2 AF, 21 Vac
F. Electronic card and bus power 3.15 AT, 22 Vac
G. Operating lamp 6.3 AT, 16 Vac
H. Water unit, separator, boiler solenoid valves 6.3 AT, 24 Vac
I. Syringes 6.3 AT, 24 Vac
L. Broken fuse warning LED
M. 12V voltage warning LED (dental unit and bus microcontroller power).

8.2 ADJUSTING THE MOVING ARM SPRING

The force of the instrument tray support is adjusted by an adjustable spring (see figure 4); this is used to perfectly compensate the tray weight, which may vary as new instruments are added or depending on the tray use (heavy or light loads). The arm must be adjusted by an authorised O.M.S. technician.

8.3 WATER FILTERS

8.3.1 CLEANING THE WATER UNIT WATER FILTER

Small impurities in the water supply may be caught in the water filter inside the water unit (see figure 17), clogging it and reducing the available water flow: in this case the filter located inside the chrome coupling at the base of the four-way solenoid valve in the water unit must be cleaned. This operation must be carried out by a specialised technician during periodical servicing of the equipment.

8.3.2 CLEANING THE INSTRUMENT WATER FILTERS

To stop impurities in the water supply compromising the correct operation of the instruments, the water passes through a pad made of filtering material located near the main water pressure adjuster (see figure 18).
Every 12-24 months, during periodical servicing, make sure that the technician checks the condition of the filter and replaces it with another sintered bronze pad if required.

8.4 ADJUSTING THE CLUTCHES

All rotating and swing movements have an adjustable clutch used to assure the required level of smooth motion:
- instrument tray fixed arm motion adjustment clutch (see figure 19);
- swinging arm (instrument tray motion) adjustment clutch (see figure 20);
- assistant tray arm motion adjustment clutch (see figure 21).

ACCIDENT REPORT FORM

Dir. 93/42/EEC Att. II (D.G. 2/1 Rev. 0)

CUSTOMER NAME_____
ADDRESS _____
UNIT SERIAL NUMBER_____
DESCRIPTION OF THE ACCIDENT _____
_____
_____
DAMAGE CAUSED TO PATIENT'S OR USER'S HEALTH _____
_____
_____
Date _____
Signature_____

SPACE RESERVED FOR THE COMPANY (QUALITY ASSURANCE)
POSSIBLE CAUSE OF THE ACCIDENT:

- ❑ Malfunction
- ❑ Deterioration of characteristics and/or performance
- ❑ Missing information in the operating instructions

Other _____
GRAVITY OF DAMAGE _____
_____
OPERATIVE DECISIONS PROPOSED_____
_____
Date _____
Signature_____

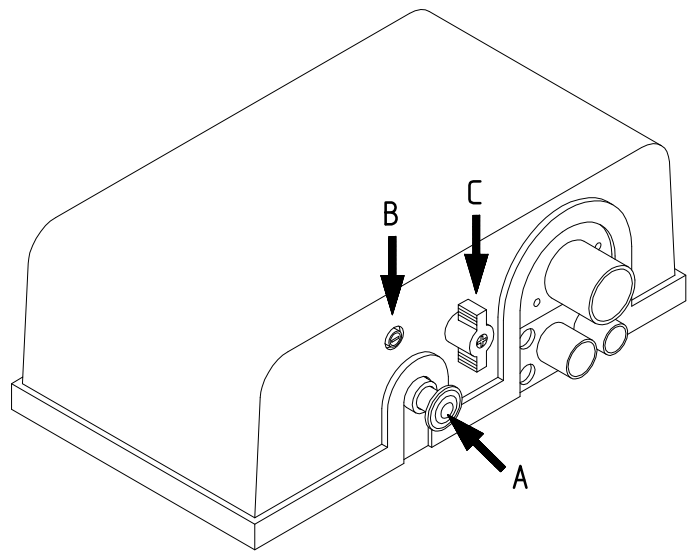
SPACE RESERVED FOR THE COMPANY (GENERAL MANAGEMENT)
OPERATIVE DECISIONS _____
_____
_____
_____
_____
CORRECTIVE ACTIONS _____
_____
_____
_____
_____
Date _____
Signature_____

In the event of accident, send this form to O.M.S. S.p.A. as soon as possible.

01

ATTENZIONE
PARTI SOTTO TENSIONE

02



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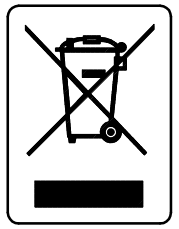

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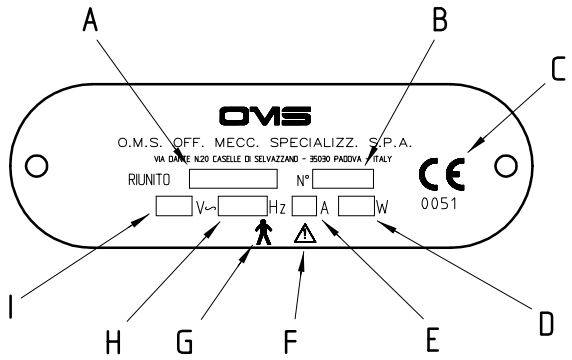

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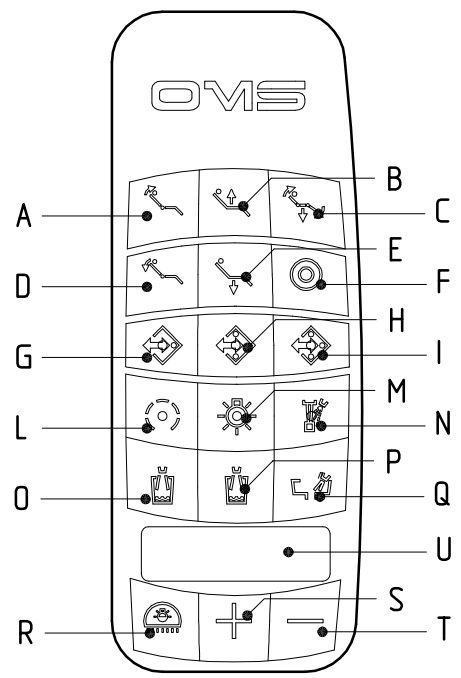

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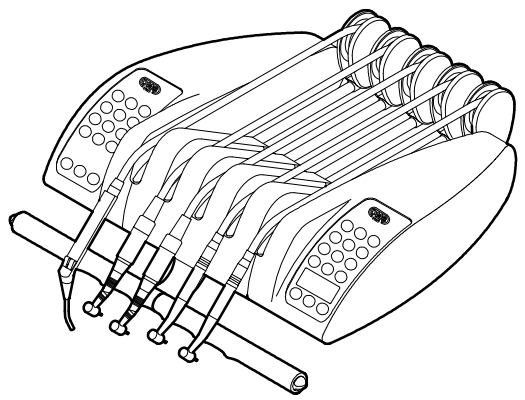

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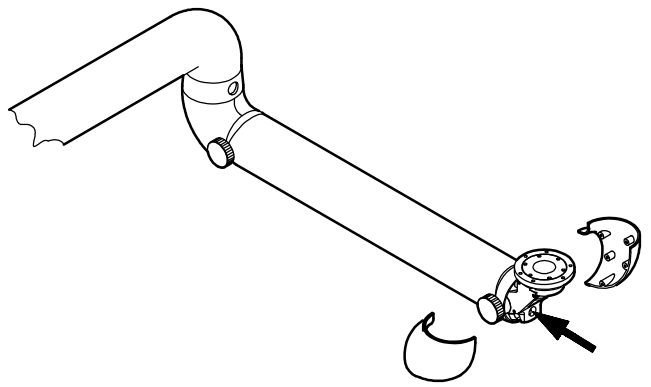

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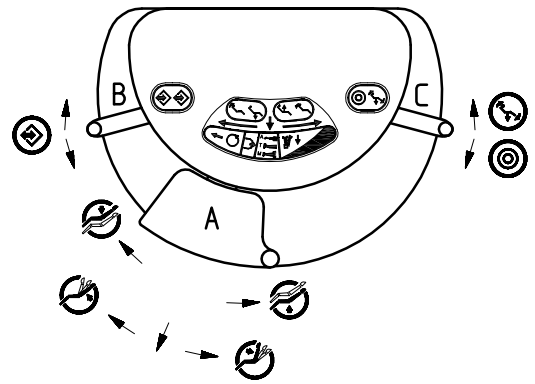

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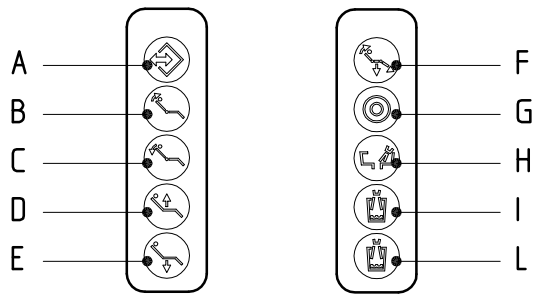

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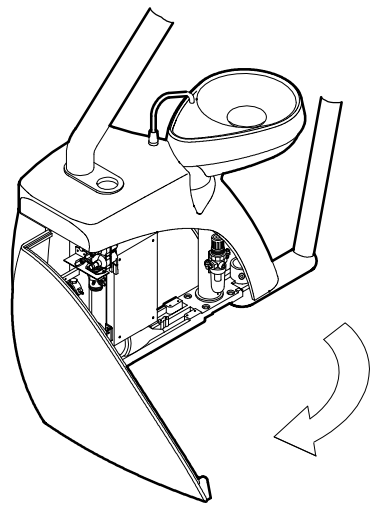

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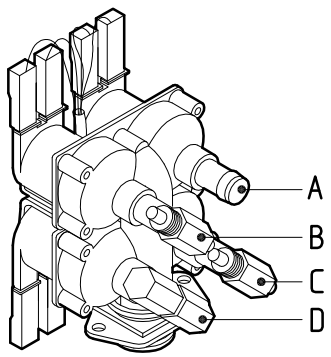

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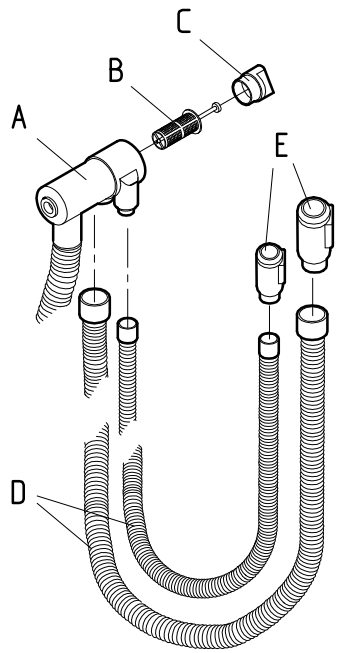

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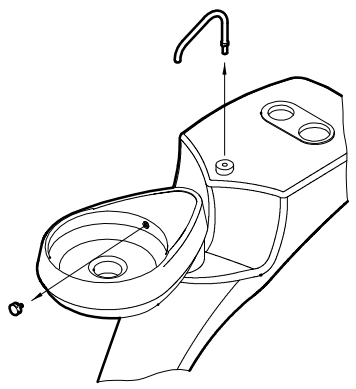

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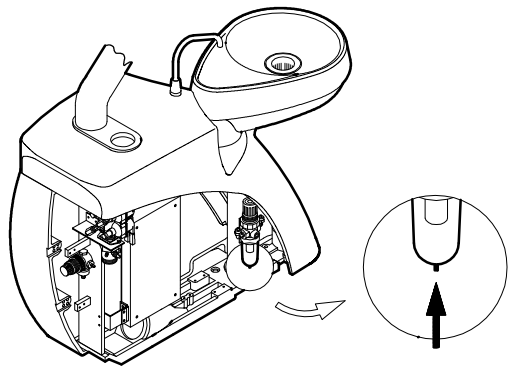

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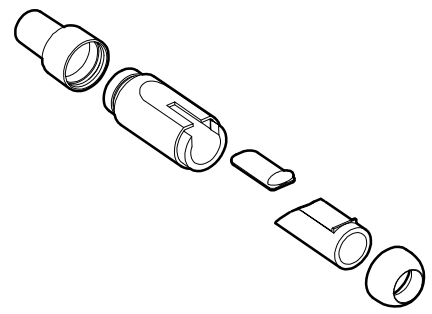

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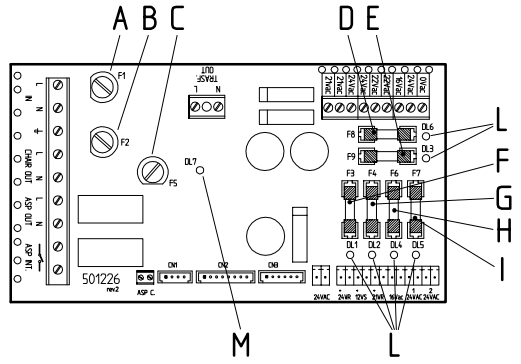

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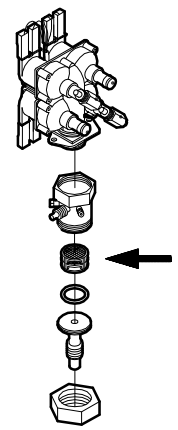

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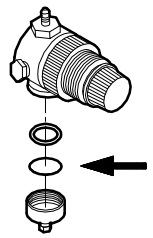

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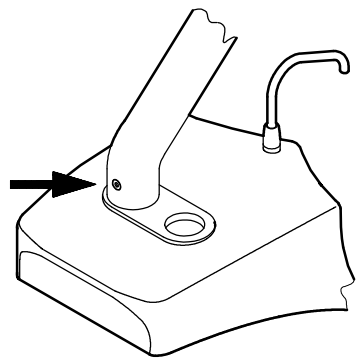

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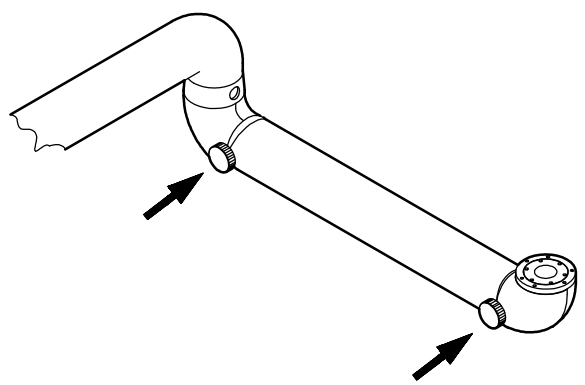

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