

Belmont

Use and Care Guide

Over the Patient Units and Swing Mount Units



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General Information

Definition of Symbols

The following symbols and terms may be used throughout this manual.

 **WARNING:** Failure to carefully follow the described procedure may result in damage to the equipment or the operator.

 **CAUTION:** Failure to carefully follow the described procedure may result in damage to the equipment.

General Safety Information

 **WARNING:** Failure to disinfect equipment between patients could expose user/patient to cross contamination and bio-burden/bio-contamination.

 **WARNING:** Power cords and their associated parts cannot be substituted without increase risk of shock or fire. Use authorized replacement parts only. Power cords must be installed by qualified personnel. Ensure all service loops, strain reliefs and cord guards are in place and that line, neutral and ground wires are secured.

 **WARNING:** To avoid risk of electrical shock, this equipment must be connected only to supply mains with protective earth (ground).

 **WARNING:** Failure to install and tighten all mounting hardware and parts could result in injury or damage.

Product Disposal

Contact your local authorized dealer for proper disposal of the device to ensure compliance with your local environmental regulations.

Product Identification

This product can be identified by its label. Labels are affixed to the underside of the delivery head and inside of the unit PMU sections. This label states the unit model and serial number.



 **WARNING:** This product must be disinfected before use.

 **WARNING:** Failure to return handpieces to their proper locations could result in alternate or additional handpieces operating without notice.

 **WARNING:** Proper personal protective equipment (PPE) including, but not limited to, gloves and eye protection must be used when cleaning debris trap.

 **CAUTION:** Only authorized service technicians should attempt to service this equipment.

 **CAUTION:** Use a licensed electrician for all wiring.

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Operation

Delivery System Control Head

All of the operating controls are located on the underside of the control head where they are sheltered from most airborne contaminants.

Master On/Off: Located on the left side of the control head towards the front, this toggle switch activates the air and water shut-off valves, which control the air and water supplies to the unit.



CAUTION: When not in use, **ALWAYS** turn the Master On/Off switch to the Off position. The master switch is an important safety device that must be utilized in order to prevent accidental flooding.

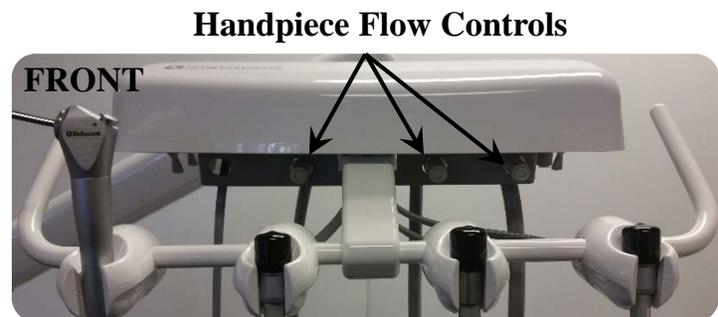
Flush: Located on the left side of the control head to the rear of the Master On/Off, this momentary toggle is used to purge the coolant water from the handpiece tubing. Hold the handpiece tubing over a suitable container, then activate and hold the toggle for at least 30 seconds to flush out the handpieces.

Air Brake: Located on the left and right side of the control head towards the front, these momentary toggles activate and release the pneumatic brake in the flex arm.

Air Coolant Flow Control: Located on the right side of the control head, this master control valve adjusts the amount of air coolant flow to all of the handpieces. Rotate counterclockwise to increase flow, clockwise to decrease flow.

Handpiece Flow Controls: Located at the front of the control head, these individual control valves adjust the amount of water coolant supplied to its corresponding handpiece. Rotating the control valve counterclockwise increases water coolant, rotating the control valve clockwise decreases water coolant.

Handpiece Holders: Handpiece selection is automatic. The handpiece auto-holders contain actuator valves that activate each handpiece when lifted from its holder, without the need for manual selection.



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Operation (Continued)

Post Mounted Utilities (PMU)

Air Q/D: This air output provides 80psi output to run accessories for the user. Accepts a 3/8in. male quick-disconnect fitting.

Water Q/D: This water output provides 40psi output to run accessories for the user. Accepts a 1/4in. male quick-disconnect fitting.

Flow Control: This needle valve adjusts the water output from the Water Q/D. Rotate counterclockwise to increase output and rotate clockwise to decrease output.

City/Bottle Selector: This routing valve controls the water system input. With the toggle up in the “City” position, water enters the dental unit from the office plumbing. With the toggle down in the “Bottle” position, water enters the dental unit from the self-contained water system.



Wet/Dry Foot Control

Delivery systems are equipped with wet-dry, variable speed, disc type foot controls. Foot pressure on any part of the foot control disc controls the flow of air to the active handpiece.

Water Coolant On/Off: This toggle interrupts the flow of water coolant to the handpieces when performing a procedure that requires dry cutting.



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Operation (Continued)

Self-Contained Water System

The self-contained water system allows you to isolate your practice from the municipal water supply. The self-contained water system uses a pressurized bottle to supply water to the dental unit, giving you full control of the source and quality of the water. A selector valve allows you to select either the city water supply or a bottled water supply of your own choice.

Using Bottled Water

1. Ensure that the dental unit Master On/Off switch is turned OFF. Fill the water bottle to just below the neck, then install to the manifold. Turn the dental unit Master On/Off switch to the ON position and check for leakage at the bottle. If air or water leakage is observed, turn the dental unit Master On/Off switch OFF to release all pressure before tightening the bottle to stop leakage.
2. Select either city water or bottled water supply source, as desired, using the City/Bottle Selector on the dental unit.

Using Bottled Water

1. Turn the dental unit Master On/Off switch to the OFF position and allow several seconds for air pressure to be released from the bottle. **Never attempt to unscrew the bottle while it is pressurized!**
2. After relieving pressure, remove the empty bottle and install a full bottle.
3. Turn the dental unit Master On/Off to the ON position and check for leakage at the bottle as previously described.



CAUTION: Only use water bottles supplied by the manufacturer. Do not use soft drink bottles which are thin walled and may rupture when under pressure.



WARNING: Do not attempt to adjust the water bottle pressure. Bottle pressure is factory pre-set 40psi. Pressurizing the water bottle over 40psi may cause the bottle to rupture.



City/Bottle Selector



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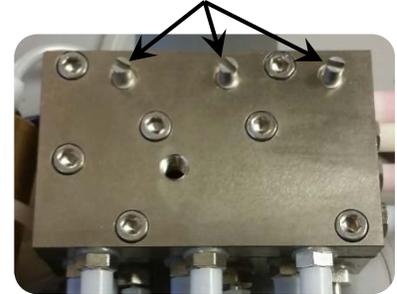
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Dental Unit Adjustments

Drive Air

1. Remove the screw securing the Control Head Cover to the chassis. Lift the head cover and locate the Automatic Handpiece Block and the Drive Air Pressure Gauge.
2. Install a burr in the handpiece that is to be adjusted. The drive air adjustment screws on the handpiece block correspond with the handpiece positions on the holder bar.
3. Run the handpiece. With the foot control plate fully depressed, turn the corresponding adjustment screw with a small slotted screwdriver. Clockwise to decrease pressure, counterclockwise to increase pressure.

Drive Air Adjustment Screws



Drive Air Pressure Gauge



CAUTION: Refer to the handpiece manufacturers' instructions for recommended drive air pressure. Exceeding the manufacturers' recommendations may damage the handpiece.

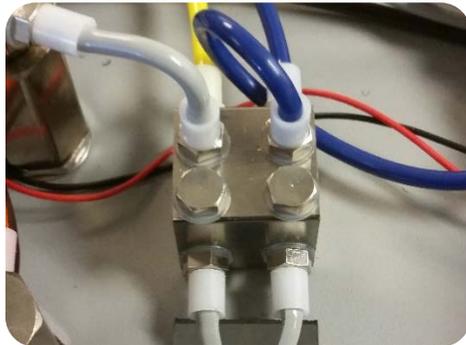


CAUTION: Avoid operating the handpieces for extended periods longer than is required to check gauge pressure. Extended operation without load can damage the handpiece. Do not operate the handpiece without a burr in the chuck.

Doctor's Syringe

Adjusting screws allow you to control the flow of air and water from the syringe to prevent splashing and to achieve a desirable mist pattern. The adjusting screws are located under the unit head directly below the syringe control block.

Syringe Control Block



Adjusting Screws



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Dental Unit Adjustments (Continued)

Doctor's Syringe Continued

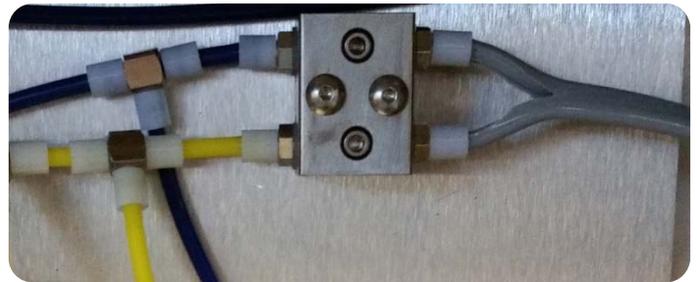
1. Use a 3/32-inch hex key or the ball driver provided with the unit to make the syringe flow adjustment. Identify which adjusting screw is for air and which is for water by the color of the tubing connected to the block. Blue is water, Yellow is air.
2. Adjust the water first, with the syringe button fully depressed. Turn the screw clockwise to decrease flow or counterclockwise to increase flow.
3. After adjusting the water to the desired flow, press both buttons simultaneously and adjust the air flow to achieve a mist pattern that suits your needs.

Assistant's Syringe

The Assistant's Syringe Block is located on the back wall inside of the PMU, adjusting screws allow you to control the flow of air and water from the syringe to prevent splashing and to achieve a desirable mist pattern.

1. Use a 3/32-inch hex key or the ball driver provided with the unit to make the syringe flow adjustment. Identify which adjusting screw is for air and which is for water by the color of the tubing connected to the block. Blue is water, Yellow is air.
2. Adjust the water first, with the syringe button fully depressed. Turn the screw clockwise to decrease flow or counterclockwise to increase flow.
3. After adjusting the water to the desired flow, press both buttons simultaneously and adjust the air flow to achieve a mist pattern that suits your needs.

Assistant Syringe Block



Utility Center

Located in the J-Box, the Utility Center comes factory preset at 40psi for Water pressure and 80psi for Air pressure. All regulator adjustments should be made with the Master On/Off in the ON position.

1. **To Increase Air and/or Water Pressure:** To increase pressure, pull out on the adjustment cap then rotate clockwise to the desired pressure. Push in on the adjustment cap to lock in the adjustment.
2. **To Decrease Air and/or Water Pressure:** To decrease pressure, pull out on the adjustment cap then rotate counterclockwise to the desired pressure. Push in on the adjustment cap to lock in the adjustment.



(Umbilical and Foot Control Not Shown for Clarity)

NOTE: When decreasing pressure, pressure must be relieved from the system. This may be achieved pressing the syringe buttons to attain an accurate measurement from the gauges.



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Dental Unit Adjustments (Continued)

Flex Arm Spring Tension

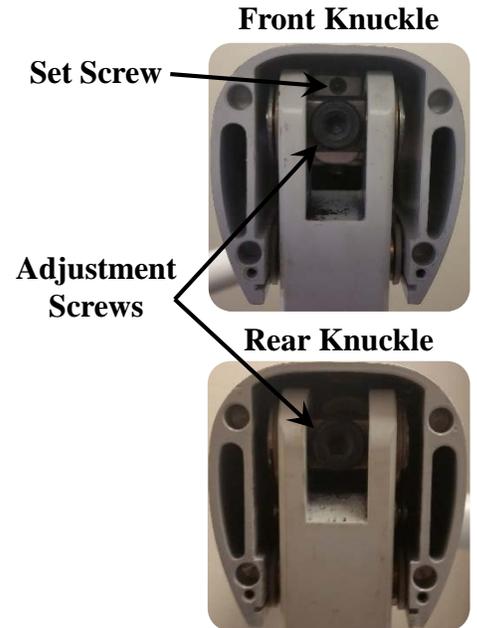
The Flex Arm is preset at the factory, however it may be necessary to re-adjust tension to the user's needs. After adjusting the spring tension, the delivery system head must be leveled.

To Increase Flex Arm Spring Tension:

1. Remove the Front and Rear Knuckle Covers from the flex arm.
2. Loosen the set screw in the knuckle block, located above and behind the front knuckle adjustment screw, with a 3/32in. hex key.
3. Increase the spring tension by rotating the adjustment screw in the rear knuckle clockwise with a 3/16in. hex key. Re-tighten the knuckle block set screw. Replace the knuckle covers.

To Decrease Flex Arm Spring Tension:

1. Remove the Front and Rear Knuckle Covers from the flex arm.
2. Loosen the set screw in the stop block, located above and behind the front knuckle, with a 3/32in. hex key.
3. Decrease the spring tension by rotating the adjustment screw in the front knuckle clockwise with a 3/16in. hex key. Retighten the stop block set screw. Replace the knuckle covers.



WARNING: Do not attempt to decrease spring tension by rotating the adjustment screw in the rear knuckle counterclockwise. This might thread the screw out of the control rod causing the delivery system to drop suddenly, damaging the equipment and the operator.

Delivery System Leveling

Leveling of the delivery system will be necessary when the dental unit is first installed and any time that the flex arm spring tension has been adjusted. Before leveling the delivery system, ensure that the swing arm assembly or the pmu post is level. For leveling of the swing arm assembly or the pmu post, refer to the installation instructions.

1. Remove the Front Knuckle Cover from the flex arm.
2. Loosen the set screw in the stop block located above and behind the front knuckle.
3. Using a small torpedo level, angle the flex arm until level.
4. Place the torpedo level on the unit head inline with the short rigid arm and the front knuckle.
5. Increase or decrease the unit head angle by turning the adjustment screw in the front knuckle clockwise or counterclockwise.
6. When the unit head is level, retighten the set screw in the stop block to secure the adjustment. Replace the knuckle cover.



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Dental Unit Adjustments (Continued)

Delivery System Rotational Tension

Rotational tension is preset at the factory, however it may be necessary to increase or decrease tension to suit the user's needs.

1. Remove the rear cover from the short rigid arm.
2. Using a 3/32in. hex key, increase or decrease swivel tension by turning the set screw clockwise or counter-clockwise.
3. When desired tension is achieved, replace the rear cover.



Flex Arm Rotational Tension

The rotational tension of the flex arm may be increased or decreased by tightening or loosening the set screw, with a 3/32in. hex key, located below the joint where the rear knuckle of the flex arm joins the rigid arm.

Swing Mount

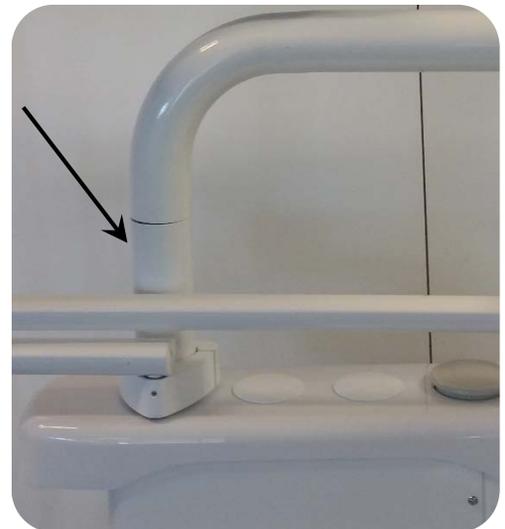


PMU w/OTP



Rigid Arm Rotational Tension

The rotational tension of the rigid arm may be increased or decreased by tightening or loosening the set screw, with a 3/32in. hex key, located below the joint where the rigid arm joins the PMU post.



 **WARNING:** Swing Arm axle bolts are factory set to 50 ft.lbs. of torque. Do not attempt to adjust these bolts as damage to the equipment and/or user may result.

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Dental Unit Adjustments

Handpiece Holder Adjustments

The handpiece holders come pre-spaced and leveled from the factory, but may be re-positioned for the user's needs.

1. With a 1/8 in. hex key, loosen the two set screws located on the bottom of the holder.
2. Re-position the holder in the desired location.
3. Re-tighten the two set screws with the 1/8 in. hex key to secure the holder in position.



Telescoping Arm Tension

The telescoping arm swings horizontally at the clamp and at the link arm. This tension may be increased or decreased by tightening or loosening the (2) set screws at the locations on the left side in the image below that are indicated by arrows with a 3/32 in. hex key.

The four position instrument holder rotates horizontally. This tension may be increased or decreased by tightening or loosening the set screw indicated by the arrow on the right side in the image below with a 5/32 in. hex key.





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Cleaning, Disinfecting and Sterilization

Equipment can be cleaned with a solution of mild detergent and warm water. A variety of surface disinfectants are available for use in dental treatment rooms. Some of these can cause discoloration of plastic, painted, plated or anodized surfaces with repeated use. This can be minimized by careful adherence to the disinfectant manufacturer's instructions and by frequent washing with mild detergent and water.



CAUTION: Do not use powdered cleansers, scouring pads or abrasive scrubbers on any of the painted, plastic or metal surfaces of this dental unit. To remove dried-on material, use a soft-bristled brush and a solution of mild detergent.

Barrier Technique

Wherever possible disposable barriers should be used and changed between patients. The barrier technique will ensure maximum long term durability of the surfaces and finishes of the equipment.

Disinfection and Sterilization

Infection Control in the dental office continues to be a high priority for our customers and end users. OSHA, the ADA and the CDC are also involved in this complex issue. The Manufacturer will not attempt to specify the required intervals for disinfection nor can it recommend the overall best surface disinfectant. Please refer to the Infection Control Recommendations published by the American Dental Association for further information.

Disinfection

The use of chemical disinfecting agents is not necessary if the instrument is going to be sterilized. While their use may be easy and quick, it is important to know the effectiveness of any chemical disinfectant against the various agents of infection that may be encountered.

Your dental supply dealer will have current information from all disinfectant manufacturers regarding their product's effectiveness. Always follow the product manufacturer's recommendations for use.



CAUTION: Most chemical disinfectants can be expected to cause some degree of discoloration. This can be minimized by frequent cleaning with mild detergent and water, and in the case of Iodophors, regular use of Iodophor Neutralizers.



Use and Care Guide

Cleaning, Disinfecting and Sterilization (Continued)

Chemical Disinfection

Regardless of the chemical disinfectant used, it is imperative that the equipment be thoroughly washed with mild soap and warm water at least once per day. This wash down will minimize the harmful effects of chemical disinfectant residues being allowed to accumulate on the equipment. When using chemical disinfectants, always pay strict attention to the manufacturer's disinfectant directions. When using concentrated disinfectants, measure the concentrate carefully and mix according to package directions. Disinfectant solutions that are relatively harmless to surfaces at their recommended strengths can be corrosive at higher than recommended dilution ratios.



CAUTION: These disinfectants will harm the surface finishes of dental equipment and are not recommended. Strong Phenols/Phenol Alcohol combinations, Sodium Hypochlorite/Household Bleach, Sodium Bromide, Strong Alcohol, Household Cleaners (Dental Equipment Only), Citric Acids, **Iodophors, Ammonium Chloride and Accelerated Hydrogen (0.5%).

****Iodophor-based disinfectants will cause yellow staining on many surfaces.**

Sterilization

There are several methods of sterilization that may be used. It is important to remember, however, that regardless of the method you choose, temperatures should never exceed 275° Fahrenheit (135° Celsius).

Any of the following sterilization methods may be safely used on your autoclavable instruments:

- Steam Autoclave
- Ethylene Oxide Gas
- Chemical Vapor Process

Do not allow the instruments to come into contact with the walls of the sterilizer. Avoid placing the instruments in close proximity to the sterilizer heating element.

Dry heat sterilization is not recommended because of the difficulty in maintaining the precise temperature control necessary to prevent damage to the instruments.



CAUTION: When using the chemical vapor process, it is essential to rinse out all cleaning agents with clear water. The internal surfaces and passages must be thoroughly purged of residual cleaning agents by flushing with water then isopropyl alcohol. This will prevent the formation of a crystalline residue resulting from reactions between the chemical vapor solutions and cleaning agents.



Use and Care Guide

Maintenance

Cleaning of External Surfaces

The external surfaces can be cleaned with a solution of mild detergent and warm water. A variety of surface disinfectants are available for use in dental treatment rooms. Some of these can cause discoloration of plastic, painted, plated or anodized surfaces with repeated use. This can be minimized by careful adherence to the disinfectant manufacturer's instructions and by frequent washing with mild detergent and water.



CAUTION: Do not use powdered cleansers, scouring pads or abrasive scrubbers on any of the painted, plastic or metal surfaces of this dental unit. To remove dried-on material, use a soft-bristled brush and a solution of mild detergent.

Assistant's Vacuum Instruments – After Each Patient

Draw clear water through each valve, while opening and closing it several times. Leave the valve open for several seconds to allow all of the water to clear the hoses. The HVE and Saliva Ejector tips should always be replaced with sterile ones before each patient.

Assistant's Vacuum Instruments – End of Each Day

We recommend that you draw a vacuum system sanitizing solution through each valve, while opening and closing it. *EcoVac* is an effective vacuum system cleaner that is non-toxic and environmentally safe.

Handpiece Flush – Daily Maintenance

The dental unit is equipped with a handpiece flush system that allows you to periodically flush fresh water through the handpiece tubing. The need for this is caused by the low flow of water through the tubing during normal use, which can lead to stagnation and the potential growth of "biofilm" contamination.

It is recommend that you flush the tubing at the beginning and end of each day. This may be done with or without the handpieces installed, but having the handpieces on the tubing will restrict flow, so a longer flush time will be required.

All of the tubing are flushed simultaneously. Hold them together and direct them into a basin, sink or cuspidor to catch the water. Flip and hold the flush toggle.

Allow adequate time for fresh water to make its way through the entire system and displace all standing water. The American Dental Association and the Centers for Disease Control can provide additional recommendations regarding this procedure, including information on frequency and duration of flushing and the use of antibacterial solutions in the self-contained water system.



WARNING: In order to mitigate the risk of cross-contamination between patients, disinfection and sterilization of handpieces must occur after each dental procedure. Refer to the handpiece manufacturer's instructions and recommendations for sterilization or disinfection procedure.



Use and Care Guide

Maintenance (Continued)

Dental Unit – Weekly Maintenance

A weekly cleaning procedure should be performed at least once a week, preferably at the start of the week before treating patients. If the unit is to be stored for any length of time, perform a weekly maintenance routine immediately before and after storage.

1. Purge the unit with air.
2. Flush the system with disinfectant solution:
 - a. Turn the unit Master switch to the off position. Empty the water bottle, replacing the water with cleaning solution.
 - b. Hold the handpiece tubing and syringe over the cuspidor or other suitable container. Turn the unit on, wait a few moments, then operate the flush toggle, syringe and foot control until a continuous stream of cleaning solution is running through the system.
3. Allow the disinfectant to remain in the unit for 10 to 20 minutes, then flush the system again until all the cleaning solution is used up.
4. Purge the unit with air:
 - a. Hold the handpiece tubing and syringe over a container. Turn the Master Switch to the On position, wait a few moments, then operate the flush toggle, syringe and foot control until all cleaning solution is purged from the system.
 - b. Turn the unit Master Switch to the Off position. (If the unit will be stored, stop here.)
5. Fill with clean water:
 - a. With the unit Master Switch turned to the Off position, remove the empty disinfectant bottle. Replace with clean bottle and clean water.
 - b. Hold the handpiece tubing over a suitable container. Turn the unit on, wait a few moments, then operate the flush toggle until a continuous stream of water is flowing through the system. Replace handpieces and do the same with the syringe. The unit is now ready for use.

Handpiece Oil Collector:

Replace the 2in. x 2in. Gauze pads with clean pads in the handpiece oil collector at least every 90 days, or more often if handpieces are oiled frequently.

Solids Collector:

Turn off the vacuum pump. Remove the solids collector cap and lift out and dispose of the screen. If you find an excessive amount of material in the screen, more frequent cleaning is necessary.



Use and Care Guide

Maintenance (Continued)

Self-Contained Water System

The self-contained water system is designed to optimize the quality of water being delivered to the handpieces and syringes. The self-contained water system has three functions:

1. The system may be filled with filtered or sterile water for patient use.
2. The system may be filled with disinfectant for flushing the syringe and handpiece tubing.
3. The unit can be purged with air to inhibit the growth of biofilm.

In order to maintain a truly asepsis water system, daily and weekly cleaning procedures must be performed in a consistent, regular manner. Failure to do so could result in contaminated water lines and a lower water quality than what is acceptable for patient use. Follow a daily and weekly maintenance routine for proper cleaning of the tubing with the clean water system.



CAUTION: Disinfect new water bottle prior to use.

Disinfecting the bottle:

Fill bottle with the 100 ml disinfectant solution, shake vigorously and let it settle for 10 minutes. Shake again, then rinse twice with water.

It is recommended that 100 ml of disinfectant solution is mixed for each weekly bottle disinfecting procedure. Always use a fresh mixture every week.

The Disinfectant Solution: 9 parts (90 ml) Tap water
1 part (10 ml) 5.25% Sodium hypochlorite (household bleach)