

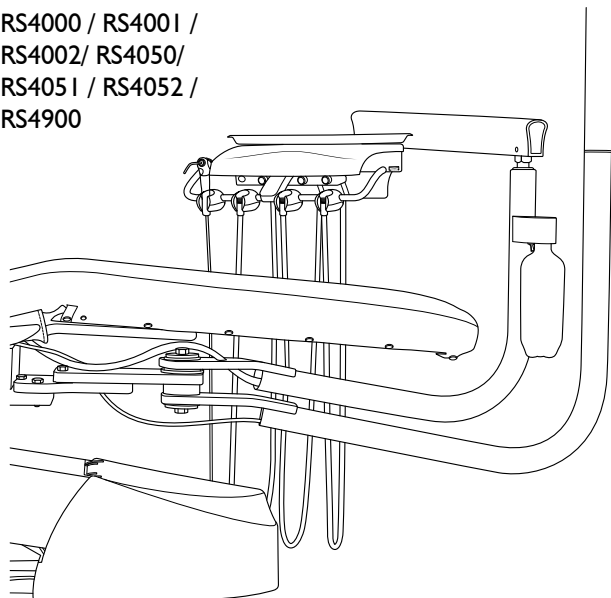
# SWING MOUNT, OVER THE PATIENT, PMU AND PMU W/OVER THE PATIENT, SIDE DELIVERY

Instructions for Use



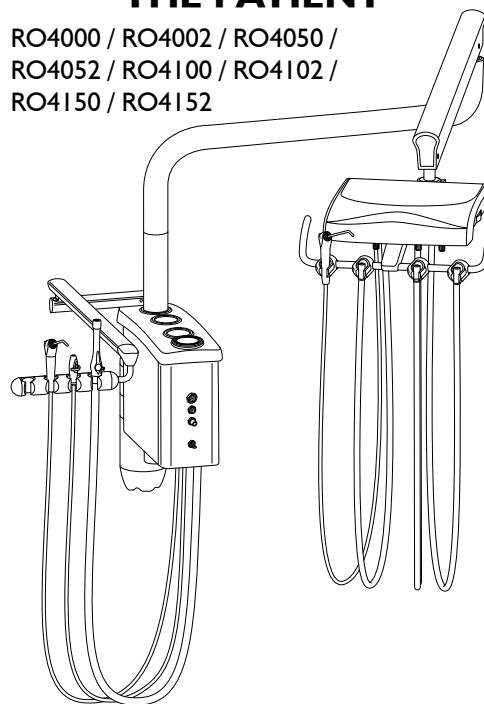
## SWING MOUNT

RS4000 / RS4001 /  
RS4002 / RS4050 /  
RS4051 / RS4052 /  
RS4900



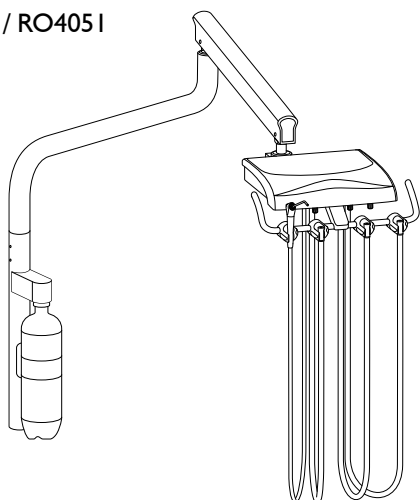
## PMU AND PMU W/OVER THE PATIENT

RO4000 / RO4002 / RO4050 /  
RO4052 / RO4100 / RO4102 /  
RO4150 / RO4152



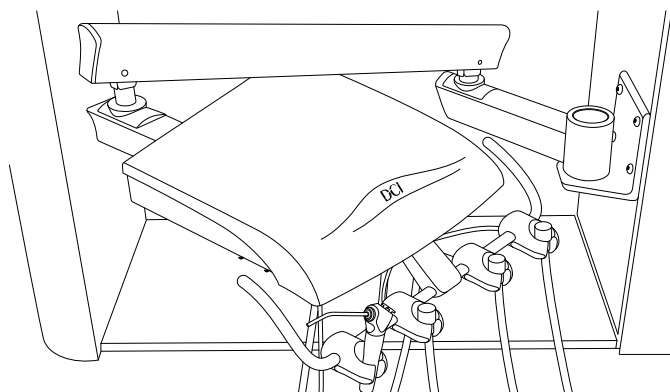
## OVER THE PATIENT

RO4001 / RO4051



## SIDE DELIVERY

RW4000 / RW4050



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## GENERAL INFORMATION

### INTENDED APPLICATION AND USE

The dental delivery system is a device intended to support the instruments used by the dental practitioner, delivering those instruments to an accessible position during a dental procedure. This device may control and be the means of delivering compressed air, water, vacuum and low voltage electricity to a variety of instruments commonly used in dental practice.

### 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 injury or loss of life.



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

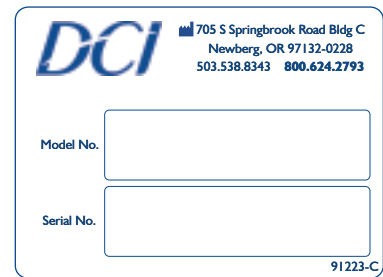
### PRODUCT DISPOSAL

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 product label. This label states the dental delivery system model and serial number.

Note the **SAMPLE** label shown below.



### APPLICABLE MODEL

RO4, RS4, RW4

## 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.



**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.

## OPERATION

### DENTAL DELIVERY SYSTEM CONTROL HEAD - ALL MODELS

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 activates the air and water shutoff valves, which control the air and water supplies to the dental delivery system.

**NOTE:** For Models DO4002 and DO4052 the Master On/Off is located at the J-Box.



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

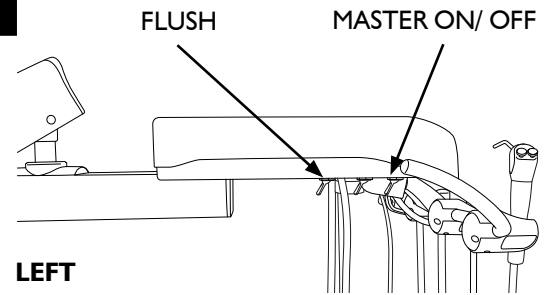
**Flush:** Located on the left side of the control head to the rear of the Master On/Off, this momentary toggle is used to purge the coolant water from the handpiece tubing. Hold the handpiece tubing over a suitable container, then activate and hold the toggle for at least 30 seconds to flush out the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

**Air Brake:** Located on the right side of the control head towards the front, this momentary toggle activates and releases the pneumatic brake in the flex arm.

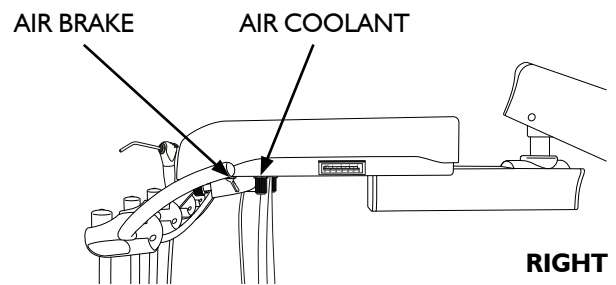
**Air Coolant Flow Control:** Located on the right side of the control head, this master control valve adjusts the amount of air coolant flow to all of the handpieces. Rotate counterclockwise to increase flow, clockwise to decrease flow.

**Handpiece Flow Controls:** Located at the front of the control head, these 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.

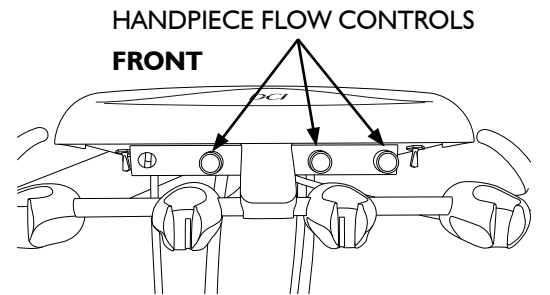
**Handpiece Holders:** Handpiece selection is automatic. The handpiece auto-holders contain actuator valves that allows for the operation of each handpiece that is lifted from its holder, without the need for manual selection.



LEFT



RIGHT



FRONT

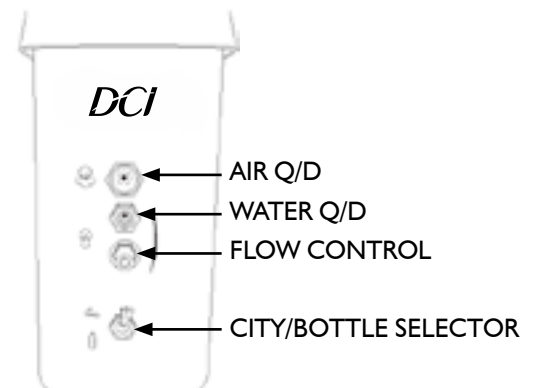
### POST MOUNTED UTILITIES - PMU AND PMU W/OVER THE PATIENT MODELS

**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 delivery system from the office plumbing. With the toggle down in the "Bottle" position, water enters the dental delivery system from the self-contained water system.



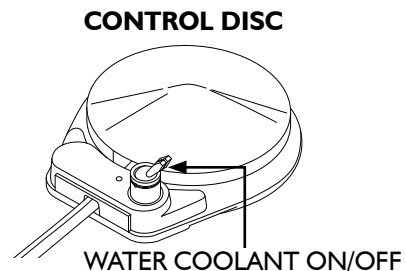
## OPERATION

### WET/DRY FOOT CONTROL - SWING MOUNT, PMU W/OVER THE PATIENT, SIDE DELIVERY AND OVER THE PATIENT MODELS

Dental 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.

**NOTE:** Models DO4002 and DO4052 do not include a foot control.

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

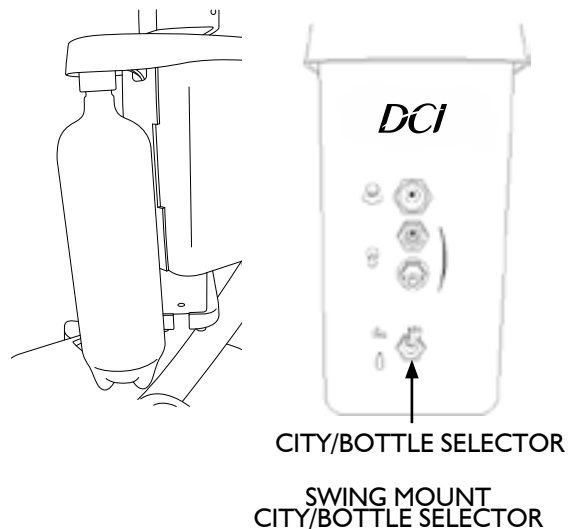


### SELF-CONTAINED WATER SYSTEM - SWING MOUNT, PMU AND PMU W/OVER THE PATIENT MODELS

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 delivery system, 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 delivery system is turned OFF. Fill the water bottle then install to the manifold (refer to Installation Instructions).
2. Turn the dental delivery system ON and check for leakage at the bottle. If air or water leakage is observed, turn the dental delivery system OFF to release all pressure before tightening the bottle to stop leakage.
3. Select either city water or bottled water, as desired, using the City/Bottle Selector on the dental delivery system.



#### USING BOTTLED WATER

1. Turn the dental delivery system OFF 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 releasing pressure, remove the empty bottle and install a full bottle.
3. Turn the dental delivery system ON 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.



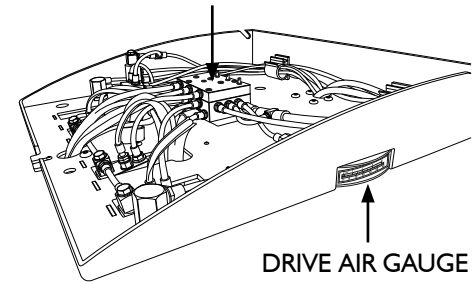
**WARNING:** Do not attempt to adjust the water bottle pressure. Bottle pressure is factory pre-set 40psi. Pressurizing the water bottle over 40psi may cause the bottle to rupture.

## ADJUSTMENTS

### DRIVE AIR - SWING MOUNT, OVER THE PATIENT, SIDE DELIVERY AND PMU W/OVER THE PATIENT MODELS

1. Remove the head cover from the dental delivery system head. Locate the Automatic Handpiece Block and the Drive Air 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.

AUTOMATIC HANDPIECE BLOCK

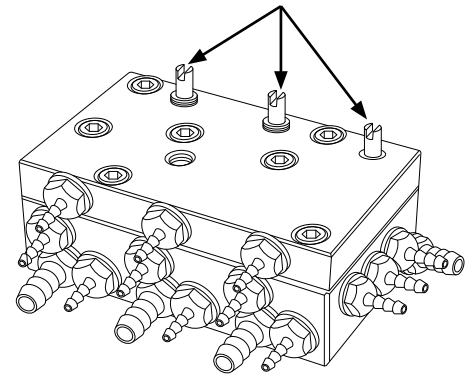


**CAUTION:** Refer to the handpiece manufacturers' instructions for recommended driver air pressure. Exceeding the manufacturers' recommendations may damage the handpiece.



**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.

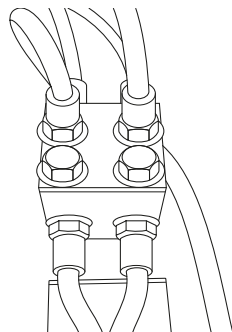
DRIVE AIR ADJUSTMENT SCREWS



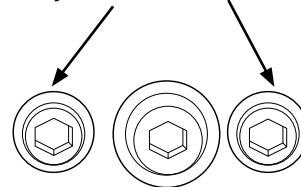
### DOCTOR'S SYRINGE - SWING MOUNT, OVER THE PATIENT, SIDE DELIVERY AND PMU W/OVER THE PATIENT MODELS

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 adjustment screws are located under the dental delivery system head directly below the syringe control block.

SYRINGE CONTROL BLOCK



ADJUSTMENT SCREWS



## ADJUSTMENTS

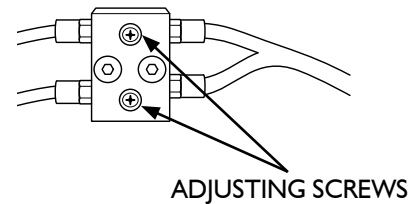
1. Use a 3/32-inch hex key or the ball driver provided with the dental delivery system to make the syringe flow adjustment. Identify which adjusting screw is for air and which is for water by the color of the tubing connected to the block. Red is water, gray is air.
2. Adjust the water first, with the 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 - PMU AND PMU W/OVER THE PATIENT MODELS

Located on the back wall, just above the serial label in 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. The adjusting screws are located under the dental delivery system head directly below the syringe control block.

1. Use a 3/32-inch hex key or the ball driver provided with the dental delivery system 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. Red is water, gray 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

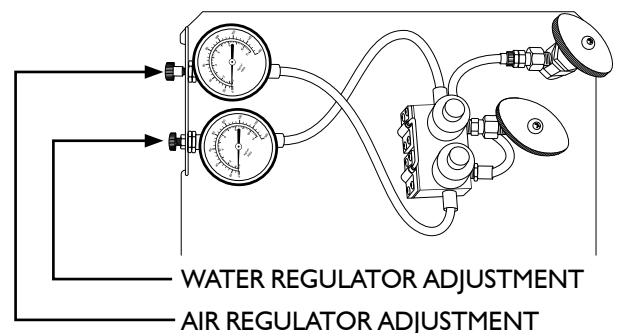


### UTILITY CENTER - ALL MODELS

Located in the J-Box, the Utility Center comes factory preset at 80psi for Air pressure and 40psi for Water pressure.

1. Air Regulator: Turn the Master On/Off to the "On" position. To increase pressure, turn the regulator adjustment screw clockwise. To decrease pressure, turn the regulator adjustment screw counterclockwise and depress the syringe air button to relieve excess pressure in the system.
2. Water Regulator: Turn the Master On/Off to the "On" position. To increase pressure, turn the regulator adjustment screw clockwise. To decrease pressure, turn the regulator adjustment screw counterclockwise and depress the syringe water button to relieve excess pressure in the system.

#### UTILITY CENTER (DENTAL DELIVERY SYSTEM UMBILICAL NOT SHOWN FOR CLARITY)



### FLEX ARM TENSION - SWING MOUNT, OVER THE PATIENT, SIDE DELIVERY AND PMU W/OVER THE PATIENT MODELS

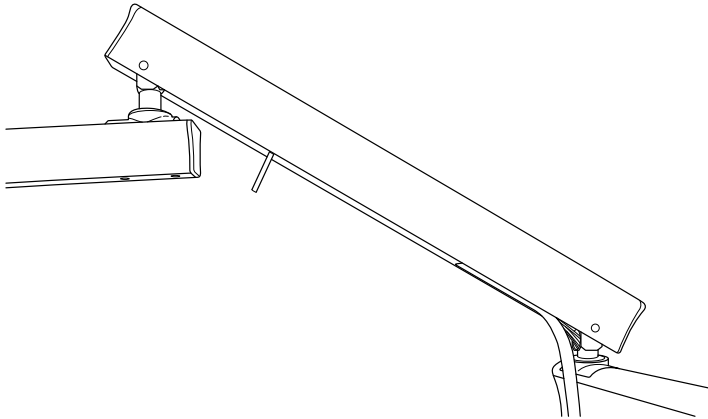
The Flex Arm is preset at the factory, however it may be necessary to re-adjust tension to the user's needs.

1. Raise the chair and flex arm as high as possible for ease of access.

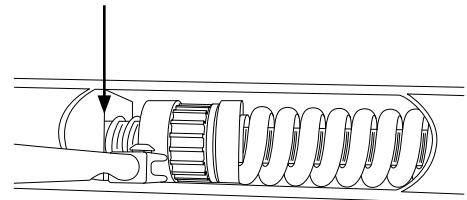
## ADJUSTMENTS

- Slide the “belly strip” out from under the arm exposing the umbilical and the tension adjustment handle.
- Use the handle to turn the star nut by sliding it into the nut and turning, then slide out and reposition for each turn. Turning the star nut clockwise increases tension in the arm thus making the arm able to hold more load.

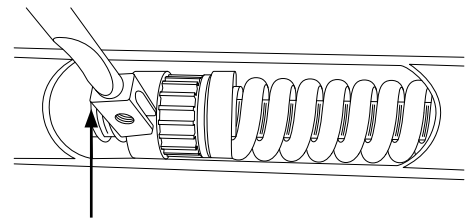
### REMOVE BELLY STRIP FROM FLEX ARM TO ACCESS ADJUSTMENT HANDLE



### CLOCKWISE TO INCREASE TENSION

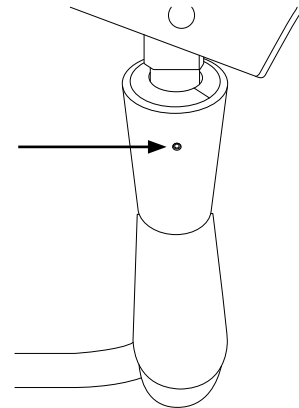


### COUNTERCLOCKWISE TO DECREASE TENSION



## FLEX ARM DRAG - SWING MOUNT

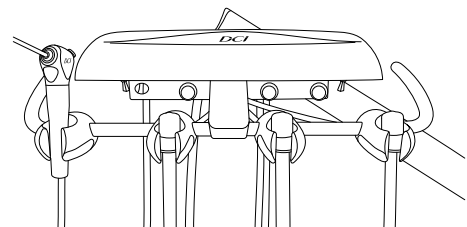
The rotational drag of the flex arm may be increased or decreased by tightening or loosening the set screw located above the self-contained water system with a 3/32 in. hex key.



## HOLDER ADJUSTMENTS - SWING MOUNT, OVER THE PATIENT, SIDE DELIVERY AND PMU W/OVER THE PATIENT MODELS

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

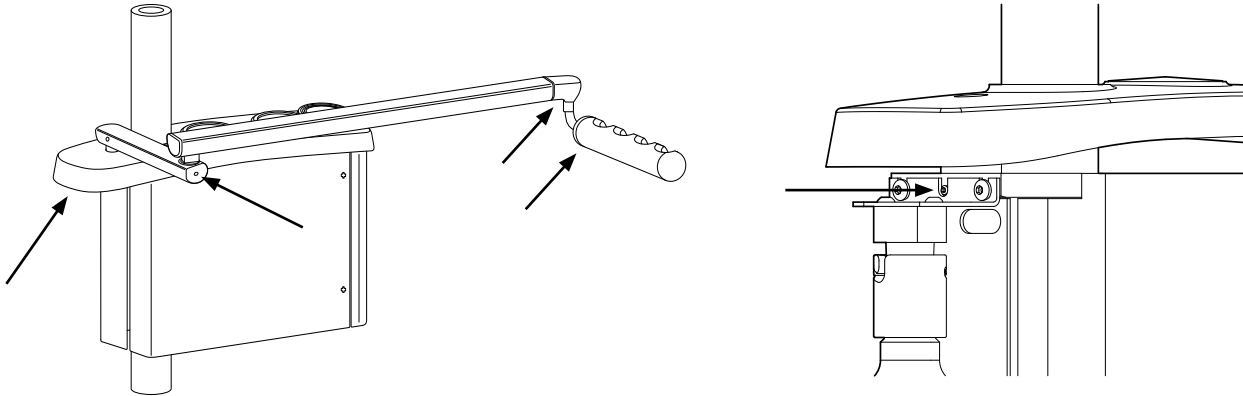
- With a 1/8 in. hex key, loosen the two set screws located on the bottom of the holder.
- Re-position the holder in the desired location.
- Re-tighten the two set screws with the 1/8 in. hex key to secure the holder in position.



## TELESCOPING ARM TENSION - PMU AND PMU W/OVER THE PATIENT MODELS

The telescoping arm swings horizontally at the PMU, located under the top cover above the water system manifold and at the link arm. This tension may be increased or decreased by tightening or loosening the set screws with a 3/32 in. hex key.

The four position instrument holder swings horizontally and rotates on its axis. This tension may be increased or decreased by tightening or loosening the set screws with a 5/32 in. hex key.



## CLEANING, DISINFECTING AND STERILIZATION

Cleaning 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 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 soap 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 delivery system. 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.



## CLEANING, DISINFECTING AND STERILIZATION



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

### 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.

## 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 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 soap and water.

## MAINTENANCE



**CAUTION:** Do not use powdered cleansers, scouring pads or abrasive scrubbers on any of the painted, plastic or metal surfaces of this dental delivery system. 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 delivery system is equipped with a handpiece flush system that allows you to periodically flush fresh water through the handpiece tubings. The need for this is caused by the low flow of water through the tubings during normal use, which can lead to stagnation and the potential growth of "biofilm" contamination.

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

All of the tubings 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.

### DENTAL DELIVERY SYSTEM - 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 dental delivery system is to be stored for any length of time, perform a weekly maintenance routine immediately before and after storage.

1. Purge the dental delivery system with air.
2. Flush the system with disinfectant solution:
  - Turn the dental delivery system off. Empty the water bottle, replacing the water with cleaning solution.
  - Hold the handpiece tubings and syringe over the cuspidor or other suitable container. Turn the dental delivery system on, wait a few moments, then operate the flush toggle, syringe and foot control until a continuous stream of solution is running through the system.

## MAINTENANCE

3. Allow the disinfectant to remain in the dental delivery system for 10 to 20 minutes, then flush the system again until all the solution is used up.
4. Purge the dental delivery system with air:
  - Hold the handpiece tubings and syringe over a container. Turn the dental delivery system on, wait a few moments, then operate the flush toggle, syringe and foot control until all solution is purged from the system.
  - Turn the dental delivery system off. (If the dental delivery system will be stored, stop here.)
5. Fill with clean water:
  - With the dental delivery system turned off, remove the empty disinfectant bottle. Replace with clean bottle and water.
  - Hold the handpiece tubings over a suitable container. Turn the dental delivery system 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 dental delivery system is now ready for use.

### Handpiece Oil Collector:

Replace the 2 x 2 gauzes with clean gauzes in the handpiece oil collector 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 the screen. If you find an excessive amount of material in the screen, more frequent cleaning is necessary.

## 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 tubings.
3. The dental delivery system can be purged with air to inhibit the growth of biofilm.

In order to maintain a truly aseptic 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 tubings 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.

100 ml of disinfectant solution for each application per week recommended. 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)

