

# System 6000

Operation and Maintenance Instructions  
Model 6545 Left-Right Duo Cart

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DCI

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INTERNATIONAL

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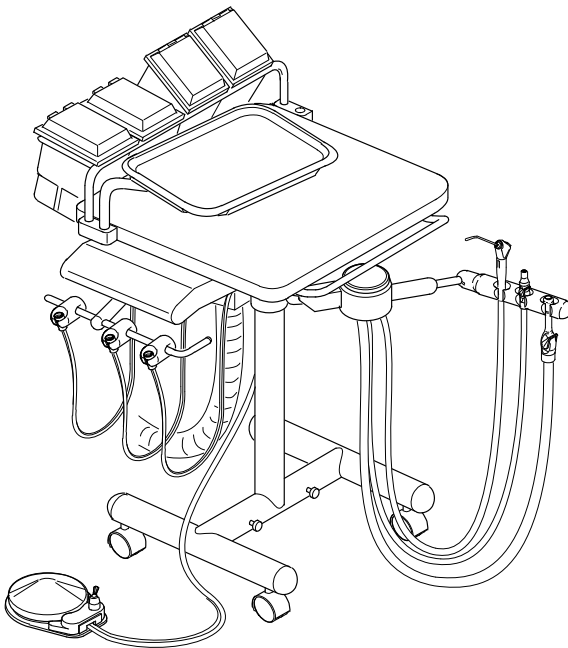
## ***Model 6545*** ***Introduction***

Thank you for your purchase of the ***DCI System 6000*** dental unit. This booklet contains detailed information about the operation and care of this state-of-the-art system. Carefully following these instructions will assure that your new dental equipment will give you years of reliable service.

The **Model 6545 Left-Right Duo Cart**, shown below, features DCI's ***System 6000*** Asepsis Automatic Control for three handpieces and Assistant's Instrumentation mounted on a mobile cart.

The control head and assistant's instruments are mounted on pivoting brackets that allow instant left-right convertibility. The swing-out tray holder can also be moved to either side of the cart.

The adjustable height work surface is mounted on a stable H-frame. Mounted on the back of the cart is a storage organizer to provide convenient access to frequently used consumables.



**Model 6545 Left-Right Duo Cart**

## Section One Features and Controls

### The Handpiece Control Head

All of the operating controls are located on the underside of the control head, where they are sheltered from most airborne contaminants. *Figure 1* shows the location of the controls.

The **Master On-Off Toggle** activates the air and water shut-off valves, which control the air and water supplies to the unit. The toggle is located on the left side, near the front.

Be sure to turn the Master On-Off Toggle OFF whenever the treatment room is unoccupied, to provide protection from damage resulting from water leakage from the unit.

The **Water Coolant Flow Controls**, are located beneath the front of the control housing, near the right side. There is a separate control for each handpiece, and they are arranged to correspond with the positions of the handpiece holders.

The **Air Coolant Flow Control** is located on the right side of the control head, directly behind the Arm Brake Toggle. This control affects the flow of coolant air to all of the handpieces.

The **Handpiece Flush Toggle** is used to purge the coolant water from the handpiece tubings. This is a momentary toggle, located on the right side of the control head, to the rear of the Master On-Off Toggle.

Handpiece selection is automatic. The **Handpiece Autoholders** contain actuator valves that allow the operation of whichever handpiece is lifted from its holder, without the need for a manual selector of any sort.

### The Foot Control

All **System 6000** units 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. A signal relay within the foot control simultaneously activates the air and water coolant.

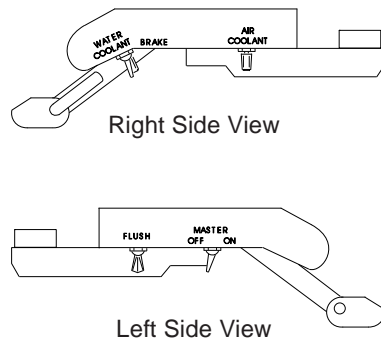


Figure 1: Control Locations

The **Water Coolant On-Off Toggle**, or wet-dry toggle, interrupts the flow of water coolant to the handpieces when you are performing a procedure that requires dry cutting. Flip the toggle toward the blue dot to activate water coolant.

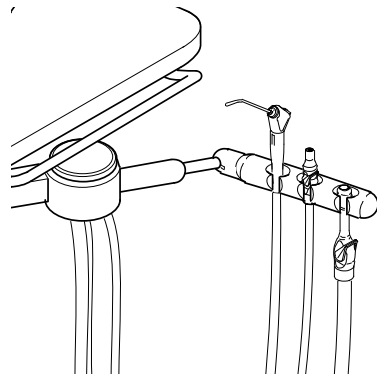
The optional **Chip Air Button** on the foot control provides a convenient means of blowing loose debris from the prep area without moving hands or changing instruments. The optional **Scaler Button** is a momentary on-off valve that can be connected to an air-actuated electric switch to control the operation of an ultrasonic scaler.

### *The Assistant's Side*

#### **Arm and Holder**

The **Model 6545** features the assistant's instrument holder on a movable bracket mounted beneath the cart's work surface.

The instrument holder accommodates a saliva ejector valve, an HVE valve, and the autoclavable syringe. The holder swings horizontally, and can be rotated on its axis, for maximum flexibility in positioning the instruments,



*Figure 2: Assistant's Instruments*



*Figure 3: Utility Housing*

#### **Solids Collector**

On assistant's holder arm is a solids collector for the vacuum instruments. The strainer screen must be cleaned and disinfected *at least* once a week.

#### **Water Outlet & Flow Control**

A water outlet is located on the front panel of the utility housing mounted beneath the cart top. The outlet accepts a 1/4-inch QD fitting (*DCI part no. 0014*), and has an integral shut-off valve.

Just above the outlet (*see Figure 3*) is a control valve to adjust the flow from the water outlet.

## ***Section Two Operation***

### ***Routine Adjustments***

#### **Caution**

When making handpiece adjustments, observe these precautions:

Never operate any handpiece without a bur in the chuck. When there is no bur in place, parts of the chuck are loose, causing the turbine to be out of balance, potentially damaging the handpiece.

You should also avoid running the handpiece at full speed or for more than a few seconds at a time when not actually cutting. The bearings and turbine can easily be damaged by over-revving

#### **Handpiece Air Coolant**

The air coolant flow control will affect all of the handpiece positions in unison. Since the air coolant characteristics of most handpieces are similar, one setting is normally acceptable for all of your handpieces.

Note that some handpieces draw their air coolant from the drive air. These include any handpiece that uses a 2-hole handpiece tubing, as well as some that have a coaxial swivel connector. These handpieces will not be affected by the air coolant adjustment

1. On the foot control, flip the wet-dry toggle OFF. Install a bur in the handpiece that you are going to run while making this adjustment.
2. Step on the foot control to run the handpiece at half speed. While the handpiece is running, turn the air coolant flow control to achieve the desired flow.
3. If you have the optional chip blower button on your foot control, you may wish to double-check your adjustment to be sure you have satisfactory air flow for this function as well.

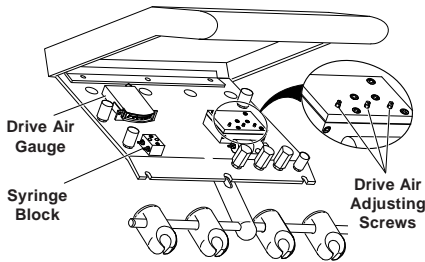
#### **Handpiece Water Coolant**

The water coolant characteristics vary significantly from one handpiece to another, so individual flow controls are provided. Perform the following steps to adjust the water coolant for each handpiece.

1. After adjusting the air coolant as described above, flip the wet-dry toggle on the foot control ON (toward the blue dot). Install a bur in the handpiece for which you are making this adjustment.
2. Turn the water coolant flow control knob clockwise to its stop. Step on the foot control to run the handpiece at medium speed. Gradually open the flow control (counter-clockwise) until a fine mist appears around the bur.
3. This setting achieves optimum cooling, while minimizing the creation of potentially hazardous aerosols.

### Drive Air Pressure

Maximum handpiece speed is controlled by adjusting the drive air pressure. The adjusting screws are located inside the control head, as shown in *Figure 4*. There is a separate adjusting screw for each handpiece.



*Figure 4: Inside the Control Head*

1. Refer to the handpiece manufacturers' instructions for recommended drive air pressure. Exceeding the manufacturers' recommendation may damage the handpiece.
2. Use a 1/8-inch hex key to remove the two screws located at the front corners, on the bottom of the control head. Lower the hinged chassis to expose the internal components.
3. Identify the drive air gauge and the drive air adjusting screws on the control block.

**Important:** The drive air gauge on the control head reads pressure at the control block. Because of the normal restrictions in tubings and connectors, the pressure delivered to the handpiece will be about *15 psi less than shown* on this gauge. Take this into account when using the built-in gauge. Alternatively, a more accurate reading may be attained by using a gauge (*DCI part no. 7263*) that screws onto the connector, right at the handpiece.

4. Install a bur in the handpiece you are going to adjust. The adjusting screws should correspond in sequence with the positions of the handpieces on the hanger bar. Use a small straight-slot screwdriver to make the adjustment.

5. Run the handpiece, while turning the adjusting screw (*clockwise to decrease pressure, counter-clockwise to increase*) to achieve the manufacturer's recommended maximum pressure with the foot control fully depressed. As you do this, be very careful not to allow the handpiece to run at higher than the recommended maximum pressure. This could damage the handpiece.

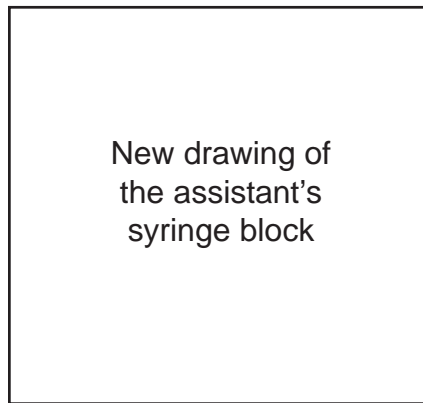
### Syringe Flow

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 for the optional syringe on the handpiece control, are located inside the control head

For the syringe on the assistant's side, the screws are located inside the utility housing next to the point where the assistant's holder arm is attached (*refer to Figure 5*). Look up inside the housing to see the adjusting screws.

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. 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 counter-clockwise 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.



*Figure 5: Syringe Adjusting Screws*

### Repositioning the Handpiece Holders

The handpiece holders are attached to the holder bar by two socket head setscrews. To reposition a holder, use a 3/16-inch hex key to loosen the setscrews, move the holder to the desired position, then re-tighten the screws.



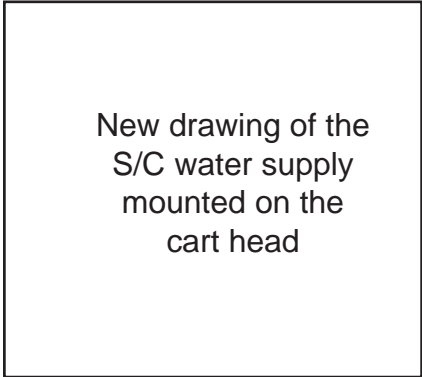
## *Self-Contained Water Supply*

Your *System 6000* cart may be equipped with an optional self-contained water system that 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 unit, giving you full control of the source and quality of the water.

A selector valve on the front panel of the utility housing allows you to select either the city water supply or a bottled water supply of your own choice.

### **Using Bottled Water**

1. Fill the water bottle and install it on its receptacle on the cart. Tighten the bottle firmly to prevent leakage.
2. Turn the unit ON and check for leakage at the bottle. If air or water leakage is observed, turn the unit OFF to release all pressure before tightening the bottle to stop the leaking.
3. Select either city water or bottled water, as desired, using the selector valve on the utility housing



New drawing of the  
S/C water supply  
mounted on the  
cart head

*Figure 6: Self-Contained Water Supply*

### **Changing the Bottle**

1. Turn the unit 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 one.
3. Turn the unit ON and check for leakage at the bottle, as previously described.

#### **Warning**

Do not use any bottle other than that provided by DCI. Never use standard soft drink bottles, which may fail under pressure.

Do not attempt to adjust the water pressure, which is pre-set at the factory. Pressurizing the bottle over 40 psi may cause it to rupture.

## Adjusting the Cart Height

The vertical support post on the cart frame has a telescoping section that allows the cart top to be adjusted to any height between 32 and 42 inches. Your setting is secured by a large knob.

### Caution

When making the cart height adjustment, you must support the weight of the cart head before loosening the knob. If you do not do this, the cart top will drop freely to the bottom of its range, possibly causing damage or injury.

To adjust the work surface height, loosen the knob, while supporting the weight of the cart head. Raise or lower the work surface to the desired height, then tighten the knob firmly.

## *Section Three* *Care of the Unit*

### *Asepsis Automatic Control*

#### **Control Head and Work Surface**

The control head, work surface and cart frame 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.

If you use an iodophor (*refer to Table 1 on Page 14*), it is especially important that you follow up with an iodophor neutralizer.

**Important:** 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.

#### **Handpiece Flush**

The *System 6000* control 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 that the low flow of water through the tubings during normal use can lead to stagnation and the potential growth of "biofilm" contamination.

We recommend that you flush the tubings at the beginning and end of each day. This may be done with or without handpieces installed, but having 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, which is located on the left side of the control head (*refer to Figure 1*).

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 anti-bacterial solutions in the self-contained water system.

## *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.

### **At the End of Each Day**

We recommend that you draw a vacuum system sanitizing solution through each valve, while opening and closing it. *EcoVac* (DCI part no. 5835 and 5837) is an effective vacuum system cleaner that is non-toxic and environmentally safe.

### **Cleaning the Solids Collector**

At least once a week, the solids collector screen should be removed for cleaning. Turn off the vacuum pump and swing-out the instrument holder. Remove the solids collector cap and lift out the screen. Disposable screens are available in packages of 100 (DCI part no. 5817). If you find an excessive amount of material in the screen, more frequent cleaning is necessary.

### **Cleaning**

Clean the external surfaces of the vacuum instruments using a solution of mild detergent and warm water. Thoroughly rinse the syringe with clear water, then dry with a clean, soft, lint-free cloth.

Ultrasonic cleaning is not recommended, as the chemicals used may damage the surface finishes of the instrument.

**Important:** Do not use sodium hypochlorite or any chlorine bleach on the vacuum instruments. These products will permanently damage the instruments. Never use powdered cleansers, scouring pads or abrasive scrubbers, any of which can damage the finishes.

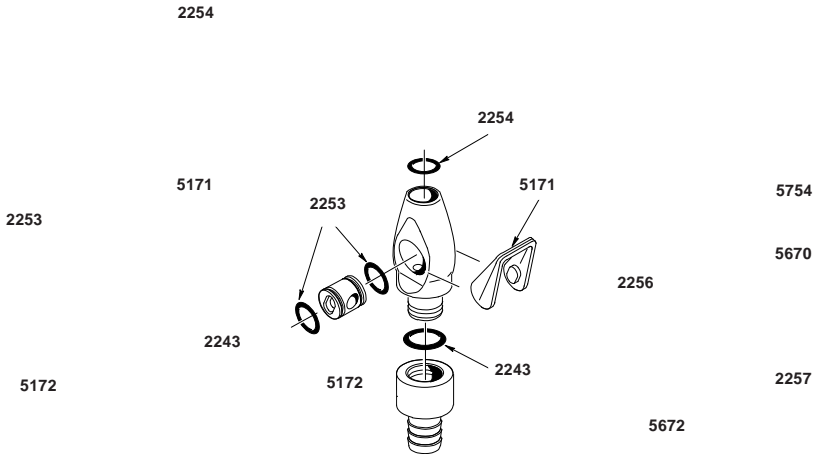
### **Sterilization**

Remove each valve from its tubing for sterilization. A vacuum plug (DCI part no. 5179) may be inserted into the quick-disconnect while there is no valve in place.

In any situation involving high-risk patients, it is recommended that the instruments be removed for sterilization after every patient. Instructions for disinfecting and sterilizing the vacuum instruments may be found in **Section Four** of this manual.

**As Needed**

Disassemble the valve and lubricate the internal parts when operation becomes stiff or sticky (*refer to Figure 7*). Clean the inner surfaces and apply a small amount of O-ring lubricant (*DCI part no. 8030*) to the moving parts and O-rings.



*Figure 7: Assistant's Vacuum Instruments*

## *Section Four*

### *Disinfecting and Sterilization*

The procedures given here apply to the vacuum instruments and the autoclavable syringe. Additional information on sterilization and disinfection may be obtained from the American Dental Association and the Centers for Disease Control.

#### **Disinfecting**

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. The following table lists the disinfectants commonly available through dental supply sources.

<b>Disinfectant</b>	<b>Brand Name</b>	<b>Manufacturer</b>
Phenol/Water Sprays	BIREX se Sporicidin	Biotrol, Int. Ash Div. Dentsply Int'l
Glutaraldehyde Phenol Sprays	Coldspor Procide Spray Sterall Spray	Matrex Research Cottrell Ltd. Colgate Hoyt
Iodophors	Asepti-IDC Biocide Promedyne Iodo-Five Wescodyne	Huntington Labs Biotrol, Int. Cottrell, Ltd. Amsco Medical Prod.
Synergized Chemicals	Cavicide	E & D
Iodophor Neutralizers	Promedyne	Cottrell, Ltd.

*Table 1: Chemical Disinfectants*

#### NOTE

While none of the products listed in Table 1 will adversely affect the performance of your instruments, 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.

### **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 vacuum 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.

**Important:** 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.

## One Year Guarantee

DCI has put a lot of time and effort into designing, manufacturing or selecting all the fine products in our catalog. Therefore we are able to fully guarantee every product we sell to be free of manufacturing defects for one year from time of purchase (except the fiber optic tubings which are guaranteed for 6 months). Should any product fail, for whatever reason due to manufacturing defect, DCI will repair or replace that product at no charge to the customer. Beyond the one-year period, we still back everything we sell with service at little or no cost to the customer.



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