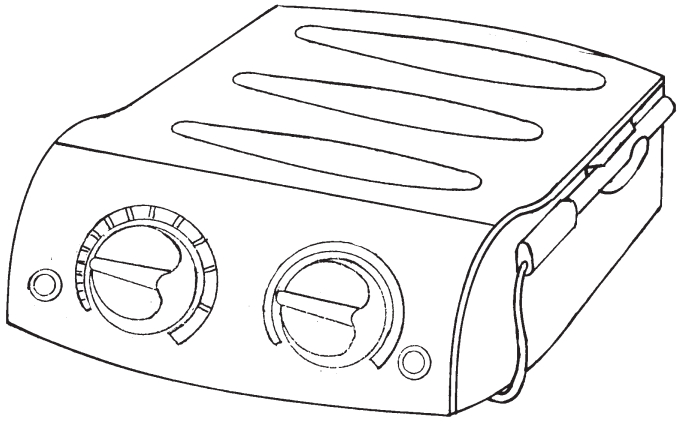
DENTSPLY
PROFESSIONAL

ENGLISH



Cavitron® SPS™ Ultrasonic Scaler with Steri-Mate® Handpiece

Directions For Use

Please read carefully and completely before operating unit.

Introduction

Cavitron® SPS™ Ultrasonic Scaler with Steri-Mate® Handpiece

DENTSPLY® Professional is an ISO9001 and EN46000 certified company. The Cavitron® SPS™ Scaler System is classified by Underwriters Laboratories Inc. with respect to electric shock, fire, mechanical hazards only in accordance with UL 2601-1 1 and Can/CSA C22.2 NO. 601.1, assigned control # 13VA.

The System operates by converting ordinary AC house current into high frequency current. The ultrasonic system consists of two parts: an insert, and the SPS™ electronic system. The SPS™ system incorporates two closed loops. One loop provides automatic tuning (operating frequency is adjusted to be at resonance for each insert), the second loop automatically controls the tip stroke over different working conditions. The Cavitron® SPS™ scaler produces 30,000 microscopically small strokes per second at the insert's working tip. This combined with acoustic effects of the coolant water, produces a synergistic action that literally "powers away" the heaviest calculus deposits while providing exceptional operator and patient comfort.

Technical Support

For technical support and repair assistance in the U.S., call 1-800-989-8826 Monday through Friday, 8:00 AM to 5:00 PM (Eastern Time). For other areas, contact your local DENTSPLY® representative.

Supplies & Replacement Parts

To order supplies or replacement parts in the U.S., contact your local Dentsply® Distributor or call 1-800-989-8826 or 717-767-8502 Monday through Friday, 8:00 AM to 5:00 PM (Eastern Time). For other areas, contact your local DENTSPLY® representative.

Caution: U.S. Federal Law restricts this device to sale by or on the order of a Dentist.

Table of Contents

Section 1: Indications

Ultrasonic procedures:

- All general supra and subgingival scaling applications.
- Periodontal debridement for all types of periodontal diseases.
- For patients with a history of sensitivity to ultrasonics.
- Endodontic procedures.

Section 2: Contraindications and Warnings

2.1 Contraindications

- Ultrasonic Systems should not be used for restorative dental procedures involving the condensation of amalgam.
- For optimum performance use only inserts manufactured by DENTSPLY® Professional.

2.2 Warnings

- Persons fitted with cardiac pacemakers have been cautioned that some types of electronic equipment might interfere with the operation of a pacemaker. Although no instance of pacemaker interference has ever been reported to DENTSPLY®, we recommend that the handpiece and cables be kept at least 6 to 9 inches (15 to 23 cm) away from any pacemaker and pacemaker leads during use.
- There are a variety of pacemakers on the market. Clinicians should contact the pacemaker manufacturer or the patient's physician for detailed information about the pacemaker.

Section 3: Precautions

3.1 Precautions for All Systems

- Do not place the System on or next to a radiator or other heat source. Excessive heat may damage the System's electronics. Place the System where air is free to circulate on all sides and beneath it.
- The System is portable, but must be handled with care when moving.
- Equipment flushing and dental water supply system maintenance are strongly recommended. See Water Supply under Section 9: System Care
- Close the coolant water shut-off valve to the System every night before leaving the office. The use of an in-line water filter is recommended.

3.2 Precautions for Ultrasonic Prophylaxis Procedures

- Like a toothbrush, ultrasonic inserts "wear out" with use. Inserts with just 2 mm of wear lose about 50% of their scaling efficiency. In general, it is recommended that ultrasonic inserts be discarded and replaced after 2 mm of wear to maintain optimal efficiency and avoid breakage.
- If excessive wear is noted, or the insert has been bent, reshaped or otherwise damaged, discard the insert immediately.
- Ultrasonic insert tips that have been bent, damaged, or reshaped are susceptible to in-use breakage and should be discarded and replaced immediately.
- Retract the lips, cheeks and tongue to prevent contact with the insert tip whenever it is placed in the patient's mouth.

Section 4: Infection Control

4.1 Infection Control Information Reference Card

For your convenience, an Infection Control Information reference card has been included with your Cavitron® SPS™ System. Additional cards can be obtained by calling Customer Service at 1-800-989-8826 Monday through Friday, 8:00 AM to 5:00 PM (Eastern Time). For other areas, contact your local DENTSPLY® representative.

4.2 General Infection Control Recommendations

- As with all dental procedures, use standard personal protection equipment (i.e., wear face mask, eyewear, or face shield, gloves and protective gown).
- For maximal operator and patient safety, carefully follow the Infection Control Information procedures detailed on the reference card accompanying your System.
- As with high speed handpieces, and other dental devices, the combination of water and ultrasonic vibration from your Cavitron® SPS™ System will create aerosols. With proper technique, much of the Cavitron® SPS™ System's aerosol dispersion can be effectively controlled and minimized. Please carefully follow the procedural guide lines in this manual regarding the use of your System.

4.3 Water Supply Recommendations

It is highly recommended that all dental water supply systems conform to applicable CDC (Centers for Disease Control and Prevention) and ADA (American Dental Association) standards, and that all recommendations be followed in terms of flushing, chemical flushing, and general infection control procedures. See sections 4.2 and 9.

Section 5: Installation Instructions

5.1 General Information

If the installation of your Cavitron® SPS™ System is performed by someone other than trained DENTSPLY® Distributor personnel, care should be taken to observe the following requirements and recommendations.

5.2 Water Line Requirements

- The System's water supply line is factory installed. Do not disconnect from the System.
- Incoming water supply line pressure to the System must be 25 psi (172 kPa minimum) to 60 psi (414 kPa maximum). If your dental water system's supply line pressure is above 60 psi, install a water pressure regulator on the water supply line to your Cavitron® SPS™ System.
- A manual shut-off valve on the dental water system supply line should be used so that the water can be completely shut-off when the office is unoccupied.
- A filter in the dental water system supply line is recommended so that any particles in the water supply will be trapped before reaching the System.
- After the above installations are completed on the dental water supply system, the dental office water line should be thoroughly flushed prior to connection to the System.

5.3 Electrical Requirements

Refer to Section 11: Specifications.

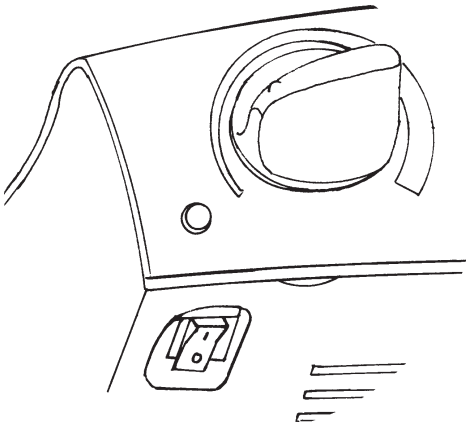
5.4 Unpacking the System

Carefully unpack your Cavitron® SPS™ System and verify that all components and accessories are included:

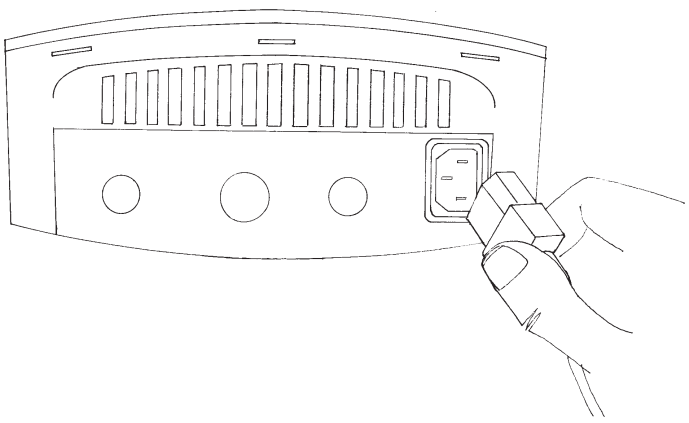
1. Cavitron® SPS™ System with water supply line and handpiece cable connector assembly factory installed.
2. Detachable AC Power Cord set.
3. Steri-Mate™ Detachable Sterilizable Handpiece.
4. Dual position Foot Control Assembly.
5. Cavitron® Ultrasonic Inserts (quantity optional).
6. Efficiency Indicator for Cavitron Inserts.
7. Literature Packet.

5.5 Power Cord/Power Connection

- Verify the Power Control ON/OFF switch located at the left front underside of the System is set to the OFF position before proceeding.
- Plug the detachable AC cord into the back of the System.
- Plug the 3 prong grounded plug into an approved outlet.

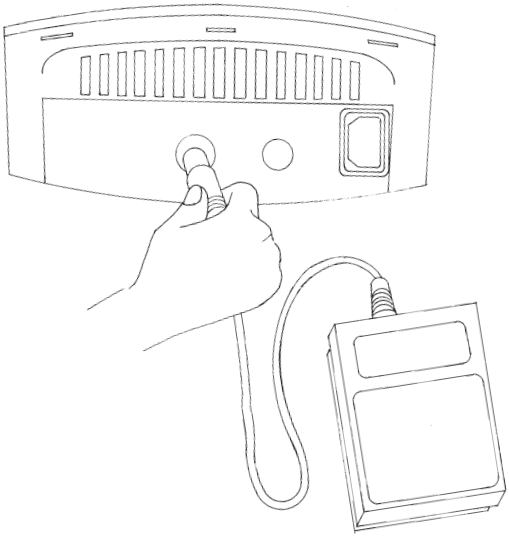


Left underside of System.



5.6 Foot Control Cable Assembly Connection

Align the Foot Control plug with the receptacle on the back of the System and push it in until firmly seated.



5.7 Water Supply Line Connection

- Connect the free end of the system's water supply line to the office water supply line or a Cavitron® DualSelect™ Dispensing System.
- Inspect all connections to make certain there are no leaks.

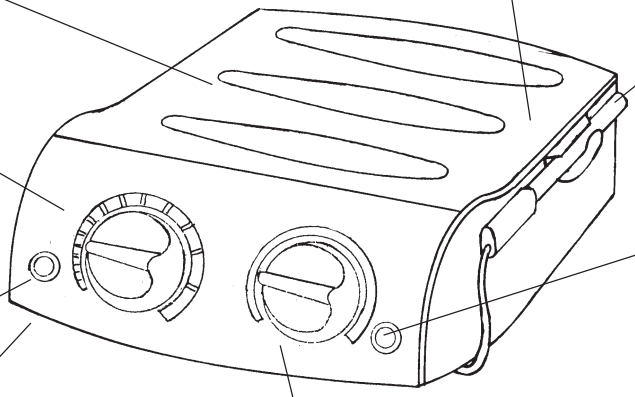
Section 6: SPS Ultrasonic Scaler Description

6.1 System Controls

Handpiece Holder
Securely holds the System's Handpiece when system is not being used.

Top Grooves
Provide a convenient, temporary palcement for the handpiece during treatment procedures. Always place handpiece in holder when not being used.

Handpiece
Operates all Cavitron® 30K™ Ultrasonic inserts and transmits power and lavage from the System to the insert.



Power Adjustment
Turn knob to select ultrasonic power level for operation: clockwise increases system power, counter clockwise decreases system power.

Boost Indicator Light
The two-position Foot Control provides the capability to increase the front panel Power dial setting. When lighted, indicates Foot Control is fully depressed, and System is functioning in"Boost" mode.

AC Power Indicator Light
Lighted when System is switched ON.

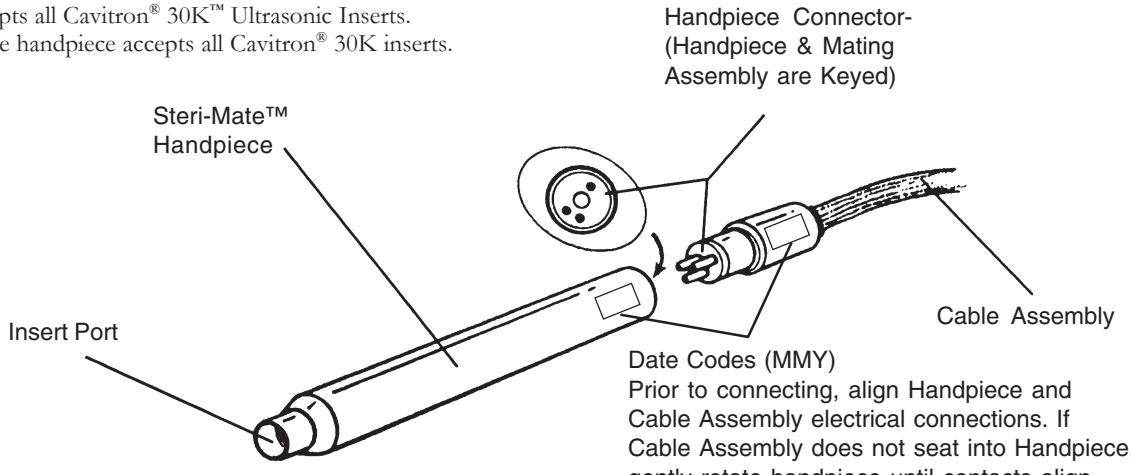
Power Control
ON/OFF switch located at the left front underside of the Sytem.

Lavage Flow Adjustment
Turn knob to select Lavage Flow level during System operation. Clockwise increases flow at insert tip, counter clockwise decreases flow.

The rate of flow through the Handpiece determines the temperature of the lavage. Low flow rates produce warmer temperatures, higher flow rates produce cooler temperatures.

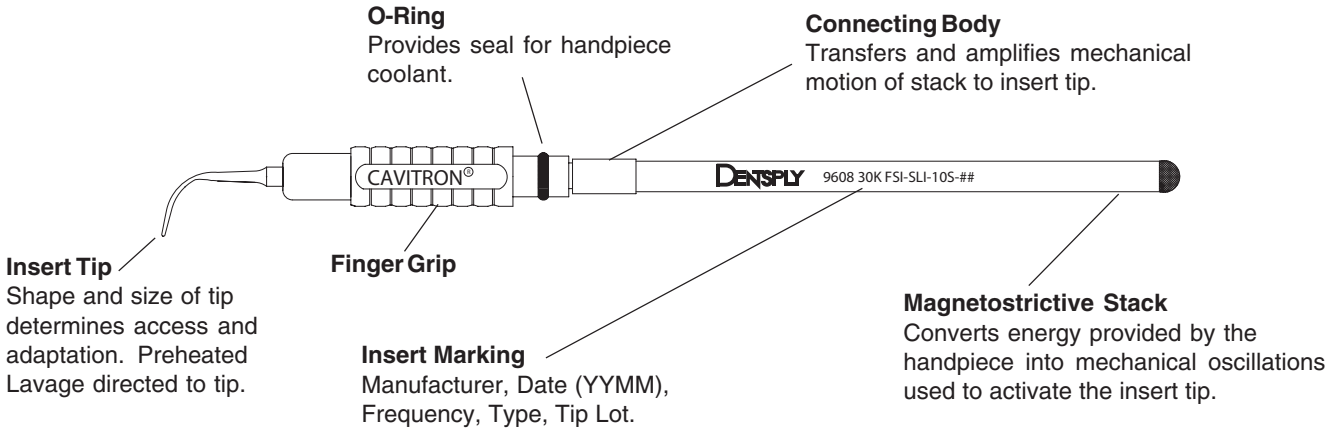
6.2 Handpiece

The handpiece accepts all Cavitron® 30K™ Ultrasonic Inserts.
The open end of the handpiece accepts all Cavitron® 30K inserts.



6.3 Cavitron® 30K™ Ultrasonic Inserts

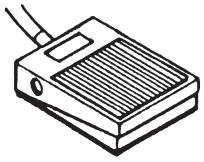
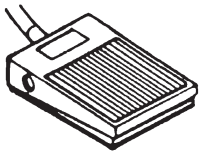
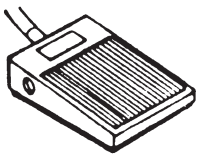
The many styles of Cavitron® 30K™ Ultrasonic Inserts are easily interchangeable for various procedures and applications. See enclosed booklet for specific information.



Hold the handpiece in an upright position. Activate the Foot Control to bleed any air bubbles that might be trapped inside the handpiece. Lubricate the rubber O-ring on the insert with water before placing it into the handpiece. Fully seat insert with a gentle push-twist motion. DO NOT FORCE.

6.4 Foot Control Information & Operation

The Foot Control is a two-position momentary switch, which activates both ultrasonic energy and Lavage Flow at the insert tip.

Foot Control released... 	Foot Control depressed half way... (1st position) 	Foot Control fully depressed... (2nd position) 
Both ultrasonic activation and irrigating flow stop. 	The ultrasonic insert tip is activated and irrigating water flows. 	This activates the "Boost" mode. 

Section 7: Accessories

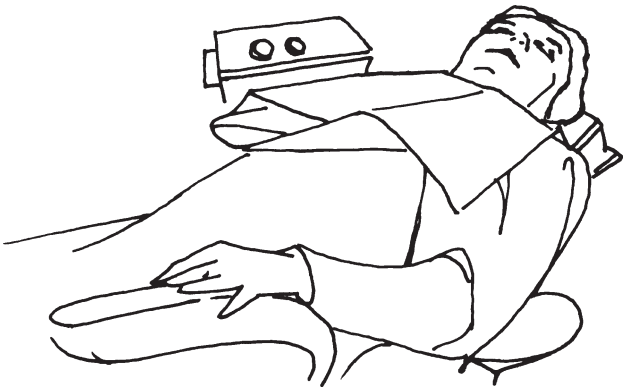
1. Steri-Mate® Detachable Sterilizable Handpiece
2. AC Power Cord Set
3. Cavitron® Ultrasonic Inserts
4. Dual position Foot Control Assembly
5. DualSelect™ Dispensing System

*For detailed information, contact your local DENTSPLY® Representative or authorized DENTSPLY® Distributor.

Section 8: Techniques for Use

8.1 Patient Positioning

- For optimal access to both the upper and lower arches, the backrest of the chair should be adjusted as for other dental procedures. This assures patient comfort and clinician visibility.



- Have the patient turn their head to the right or left. Also position their chin up or down depending upon the quadrant and surface being treated. Evacuate irrigant using either a saliva ejector or High Volume Evacuator (HVE).

8.2 Performing Ultrasonic Scaling Procedures

- NOTE: Refer to the Infection Control Information card supplied with your System for general procedures to be followed at the beginning of each day and between patients.
- The edges of Cavitron® Ultrasonic Inserts are intentionally rounded so there is little danger of tissue laceration with proper ultrasonic scaling technique. Whenever the insert tip is placed in the patient's mouth, the lips, cheek and tongue should be retracted to prevent accidental prolonged contact with the activated tip.
- Hold the empty Handpiece in an upright position. Activate the Foot Control until fluid exits.
- Lubricate the rubber O-ring on the insert with water before placing it into the handpiece. Fully seat insert with a gentle push-twist motion. DO NOT FORCE.
- Activate the System. Hold the handpiece over a sink or drain. Check spray temperature to verify fluid is reaching the working end of the insert tip. Adjust the Lavage Control knob to ensure adequate flow for the selected Power setting. Greater flow settings provide cooler irrigant.
- It may be necessary to adjust lavage with the System in "Boost" mode (Foot Control fully depressed) so adequate fluid will be available to cool tip tooth interface.
- In general, it is suggested that a "feather-light-touch" be used both supra- and subgingivally. The motion of the activated tip and acoustic effects of the irrigating fluid, in most cases, is adequate to remove even the most tenacious calculus.
- Periodically check the Cavitron® ultrasonic insert for wear with the DENTSPLY® Insert Efficiency Indicator.
- The use of a saliva ejector or High Volume Evacuator (HVE) is recommended during all procedures.
- Set the System's Power Adjustment knob to the lowest power setting for the application and the selected insert.

8.3 Patient Comfort Consideration

Reasons for sensitivity

- Incorrect tip placement. Point should be directed away from root surfaces.
- Not keeping tip in motion on tooth. Do not allow the insert to remain in a static position on any one area of the tooth. Change the insert's path of motion.
- Applying pressure. Use extremely light grasp and pressure, especially on exposed cementum.
- If sensitivity persists, decrease power setting and/or move from the sensitive tooth to another and then return.

Section 9: System Care

It is recommended that you perform the following maintenance procedures to help minimize bio-film formation in the lavage path of your Cavitron® SPS™ ultrasonic scaler which could affect the lavage flow to the ultrasonic insert tip and scaling performance.

9.1 Daily Maintenance

Start-Up Procedures at the beginning of the day:

1. Open the manual shut-off valve on the dental office water supply system.
2. Turn the System ON using the Power ON/OFF switch. (see illustration on page 5) Verify the Power Indicator Light is lighted.
3. Set the Power Adjustment knob at the top of the blue scale.
4. Set the Lavage Control knob to maximum.
5. Hold the Handpiece (without an insert installed) upright over

a sink or drain. Activate the Foot Control and flush the water line for at least 2 minutes.

6. Place a sterilized insert into the Handpiece and set the Lavage Control knob to your preferred operating position.

Between Patients

1. Remove all ultrasonic inserts and handpiece used, clean and sterilize.
2. Clean and disinfect the surfaces of the cabinet, Power Cord, Handpiece Connector and cable assembly, Foot Control and cable assembly by applying an approved non-immersion type disinfectant solution* carefully following the instructions provided by the disinfectant solution manufacturer. To clean system, generously spray disinfectant solution on a clean towel and wipe all surfaces. Discard used towel. To disinfect system, generously spray disinfectant on a clean towel and wipe all surfaces. Allow disinfectant solution to air dry.
3. Connect a freshly sterilized handpiece to its matching cable connector. Hold the handpiece over a sink or drain and flush the water line of the unit as above at maximum water flow for 30 seconds.
4. Place a freshly sterilized insert into the handpiece.

Shut-Down Procedures at the end of the day:

1. Remove all ultrasonic inserts and handpiece used, clean and sterilize.
2. Turn the System OFF.
3. Clean and disinfect the surfaces of the cabinet, Power Cord, Handpiece Connector and cable assembly, Foot Control and cable assembly by applying an approved non-immersion type disinfectant solution* carefully following the instructions provided by the disinfectant solution manufacturer. To clean system, generously spray disinfectant solution on a clean towel and wipe all surfaces. Discard used towel. To disinfect system, generously spray disinfectant on a clean towel and wipe all surfaces. Allow disinfectant solution to air dry.
4. Close the manual shut-off valve on the dental water supply system.

*NOTE: Water-based disinfection solutions are preferred. Some alcohol-based disinfectant solutions may be harmful and may discolor plastic materials.

9.2 Weekly Maintenance

End of Week Procedures (when connected to a DualSelect™ Dispensing System)

Follow the end of week procedures listed in the DualSelect™ manual.

9.3 Water Filter Maintenance

When the water filter becomes discolored, the filter should be replaced to prevent reduced water flow to the Cavitron® SPS™ Ultrasonic Scaler. A 10-pack of replacement filters is available by ordering Part Number 90158 from your local DENTSPLY® distributor.

1. Disconnect the water supply hose from the water source. If a quick-disconnect connector is attached to the end of the hose, relieve the water pressure by pressing the tip of the connector in an appropriate container and drain the water.
2. Grasp the fittings on either side of the filter disk and twist counterclockwise. Remove the filter section from either side of the water hose.
3. Install the replacement filter onto the water hose fittings. The filter should be positioned to match up with the correct hose fitting.
4. Hand tighten the two hose fittings in a clockwise direction. Reconnect the water supply hose, operate the unit to bleed the air and test for leaks.

Section 10: Troubleshooting

Although service and repair of the Cavitron® SPS™ Ultrasonic Scaler should be performed by DENTSPLY® personnel, the following are some basic trouble shooting procedures that will help avoid unnecessary service calls. Generally, check all lines and connections to and from the System, a loose plug or connection will often create problems. Check the settings on the System's knobs.

10.1 Troubleshooting Guide

System will not operate:

(Power Indicator Light is not lighted.)

1. Check that the Power switch is in the ON position, and that the detachable Power Cord is fully seated in the receptacle on back of System.
2. Check that the System's three-prong plug is fully seated in an appropriate AC receptacle, and that AC current is present.

Power Indicator Light is lighted.)

1. Check that the Foot Control Connector is fully seated in the Foot Control Receptacle on the back of the System.

System operates:

(No lavage flow at insert tip.)

1. Assure that Lavage control is properly adjusted.
2. Check that irrigant supply control valve/s (dental office water supply) are open.
3. If connected to DualSelect™ Dispensing System, check that fluid level in thse selected bottle is sufficient. Make sure valves are open when using external water source.

10.2 Technical Support and Repairs

For technical support and assistance call 1-800-989-8826 Monday through Friday, 8:00 AM to 5:00 PM (Eastern Time). For other areas, contact your local DENTSPLY® representative.

Section 11: Specifications

Cavitron® SPS: 100/115 VAC Systems

Electrical Voltage	100V Gen 119J 115V Gen 119	
Current	.9/.8 amps @ 100v/115v	
Frequency	50/60 Hertz	
Water Pressure	25–60 psig	
Flow Rate	Minimum setting (CCW) < 15 ml/min Maximum setting (CW) > 55 ml/min	
Weight	12 lb.	
Dimensions	Height:	4 in.
	Width:	7 3/8 in.
	Depth:	9 ½ in.
	Handpiece Cable:	81 in.
	Foot Control Cable:	96 in.
	Power Cord:	84 in.
	Water Supply Line:	96 in.
	Air Supply Line:	98 in.

Cavitron® SPS: 230 VAC Systems

Electrical Voltage	230V Gen 119U	
Current	.5/.4 amps @ 200v/230v	
Frequency	50/60 Hertz	
Water Pressure	172 - 414 kPa	
Flow Rate	Minimum setting (CCW) < 15 cc/min Maximum setting (CW) > 55 cc/min	
Weight	5,4 kg	
Dimensions	Height:	10,2 cm
	Width:	18,7 cm
	Depth:	24,1 cm
	Handpiece Cable:	2,0 m
	Foot Control Cable:	2,4 m
	Power Cord:	2,1 m
	Water Supply Line:	2,4 m
	Air Supply Line:	2,5 m

Footswitch	Not for operating theatres Protection Class 1PXO
Operating Environment	
Temperature:	15 to 40 Deg. Celsius
Relative Humidity:	30% to 75% (non-condensing)

Transport and Storage Conditions

Temperature:	0 to 70 Deg. Celsius
Relative Humidity:	10% to 95% (non-condensing)
Atmospheric Pressure:	500 to 1060 hPa

SYSTEM ON/OFF

TYPE B EQUIPMENT

FOOTSWITCH

Section 12: Classification

- Type of protection against electric shock: Class 1
- Degree of protection against electric shock: Type B
- Degree of protection against the harmful ingress of water: Ordinary
- Mode of operation: Continuous
- Degree of safety of application in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of flammable anesthetics or oxygen.