

Cavitron® JET Plus™

Ultrasonic Scaler & Air Polishing Prophylaxis System

Installation and Service Manual



Please read carefully and completely before operating unit.

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INTRODUCTION

Congratulations!

Your decision to add the Cavitron® JET Plus™ Ultrasonic Scaler and Air Polishing Prophylaxis System to your practice represents a wise investment in good dentistry.

For over four decades, dental professionals have preferred the clinical benefits and labor-saving advantages inherent in Cavitron ultrasonic scalers. Clinical studies and independent research have proven that no other method of supra- and subgingival calculus removal can surpass the speed, efficiency, and versatility of ultrasonic scaling.

With the addition of air polishing capabilities in the Cavitron JET Plus Combination System, your Cavitron JET Plus system becomes a compact prophylaxis center that maximizes the time spent performing scaling and polishing procedures and minimizes the need for strenuous calculus and stain removal with hand instruments. Clinical studies have proven that air polishing is far superior to traditional cup and pumice for stain and plaque removal. With proper technique and simple daily maintenance, your Cavitron® JET Plus™ Combination System will immediately become an indispensable component in your practice of modern preventive dentistry.

DENTSPLY Professional is an ISO 13485 registered company. All DENTSPLY Professional medical devices sold in Europe are CE marked in conformance with Council Directive 93/42/EEC.

Website: www.professional.dentsply.com

Rx Only: This product is intended for use by qualified dental professional healthcare providers.

PRODUCT OVERVIEW

The Cavitron® JET Plus™ Combination System is a precision engineered and manufactured instrument. It contains controls and components for ultrasonic scaling and air polishing modes. In the scaling mode, the system produces 30,000 strokes per second at the ultrasonic insert's working tip that when combined with the cavitation effect of the

coolant lavage creates a synergistic action that literally "powers away" even the heaviest calculus deposits while providing exceptional operator and patient comfort. In the air polishing mode, the system delivers a precise air/water/powder mixture at the JET air polishing insert tip that polishes the tooth enamel without contact so there is less abrasion to enamel and no physical pressure or heat build-up to cause discomfort in sensitive patients.

The Cavitron JET Plus Combination System is equipped with the Sustained Performance System™ (SPS Technology), which offers a constant balance between scaling efficiency and patient comfort by maintaining clinical power when the insert tip encounters tenacious deposits, allowing the clinician to effectively scale even at a decreased/lower power setting. The Cavitron Plus System has extended the SPS technology by spreading out the Blue Zone range, providing finer resolution to the power settings.

Advanced features that make the Cavitron JET Plus a wise investment include a wireless foot control, illuminated diagnostic display, rinse setting, automated purge function, JET-Mate™ detachable sterilizable handpiece, and 330° swivel handpiece cable with lavage control. These features combine with established features, such as a low power range (Blue Zone™) and hands-free Boost Mode to provide the ultimate in ultrasonic scaling and air polishing experiences for your patients, while still providing the quality and reliability you've come to expect from Cavitron Brand ultrasonic systems.

The Cavitron JET Plus Combination System is UL/ULC certified and approved. The Cavitron JET Plus Combination System is classified by Underwriters Laboratories Inc. with respect to electric shock, fire, mechanical hazards in accordance with IEC 60601 Standard. The Cavitron JET Plus Combination System complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation. Cavitron JET Plus base FCC certification/registration number: FCC ID: TF3-DPD73227323; IC: 4681B-73227323. Cavitron JET Plus foot control FCC certification/registration number: FCC ID: TF3-DPD81675; IC: 4681B-81675. The term IC before the certification/registration number signifies that the Industry Canada technical specifications were met.

TECHNICAL SUPPORT

For technical support and repair assistance in the U.S., call the DENTSPLY Professional Cavitron CareSM Factory Certified Service at 1-800-989-8826, Monday through Friday, 8:00 A.M. to 5:00 P.M. (Eastern Time). For other areas, contact your local DENTSPLY® Professional Representative.

SUPPLIES & REPLACEMENT PARTS

To order supplies or replacement parts in the U.S., contact your local DENTSPLY Professional Distributor or call 1-800-989-8826, Monday through Friday, 8:00 A.M. to 5:00 P.M. (Eastern Time). For other areas, contact your local DENTSPLY Professional Representative.

SECTION 1: Indications For Use

Ultrasonic Procedures

- All general supra and subgingival scaling applications
- Periodontal debridement for all types of periodontal diseases
- Endodontic procedures

Air Polishing Procedures

- Removal of a variety of extrinsic stains, e.g. tobacco, coffee, tea, chlorhexidine.
- Prophylaxis of orthodontic patients.
- Preparing tooth surfaces prior to bonding and sealant procedures.

SECTION 2: Contraindications

- Ultrasonic Systems should not be used for restorative dental procedures involving the condensation of amalgam.
- Cavitron® PROPHY-JET Prophy Powder is a water-soluble Sodium Bicarbonate powder. Therefore, this powder is not recommended for patients on a sodium restricted diet. Cavitron® JET-Fresh Prophy Powder is a sodium free powder and can be used on patients who are on sodium restricted diets.

SECTION 3: Warnings

- It is the responsibility of the Dental Healthcare Professional to determine the appropriate uses of this product and to understand the health of each patient, the dental procedures being undertaken, and industry and governmental agency recommendations, requirements, and regulations for safe practice of dentistry.
- Persons fitted with cardiac pacemakers, defibrillators and other active implanted medical devices, have been cautioned that some types of electronic equipment might interfere with the operation of the device. Although no instance of interference has ever been reported to DENTSPLY, we recommend that the handpiece and cables be kept 6 to 9 inches (15 to 23 cm) away from any device and their leads during use.

There are a variety of pacemakers and other medically implanted devices on the market. Clinicians should contact the device manufacturer or the patient's physician for specific recommendations. This unit complies with IEC 60601 Medical Device Standards.

- Failure to follow the recommendations for environmental operating conditions, including input water temperature, could result in injury to patients or users.
- The use of High Volume Saliva Evacuation to reduce the quantity of aerosols released during treatment is highly recommended.
- Do not direct the air polishing stream at soft tissue or into the sulcus. Tissue emphysema has been reportedly caused when the air/water/powder stream was directed at the soft tissue or into the sulcus.
- Where asepsis is required or deemed appropriate in the best professional judgment of the Dental Healthcare Professional, this product should not be used.
- During boil-water advisories, this product should not be operated as an open water system (e.g. connected to a public water system). A Dental Healthcare Professional should disconnect the system from the central water source. The Cavitron DualSelect system can be attached to this unit and operated as a closed system until the advisory is cancelled. When the advisory is cancelled, flush all incoming waterlines from the public water system (e.g. faucets, waterlines and dental equipment) in accordance with the manufacturer's instructions for a minimum of 5 minutes.
- Prior to beginning treatment, patients should rinse with an antimicrobial such as Chlorhexidine Gluconate 0.12%. Rinsing with an antimicrobial reduces the chance of infection and reduces the number of microorganisms released in the form of aerosols during treatment.

- Per FCC Part 15.21, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

SECTION 4: Precautions

4.1 System Precautions

- 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 Section 9: System Care.
- Close manual shut-off valve on the dental office water supply every night before leaving the office.
- The use of an in-line water filter is recommended.
- Never operate system without fluid flowing through handpiece.
- The use of an air dryer on the compressor line supplying the System will prevent condensation from forming in the air line which in turn may cause "caking" of the air polishing powder and clogging of the lines and air polishing nozzle.
- Cavitron® Prophy Powders are specially formulated for use in Cavitron® Air Polishing Systems. Do not use any other materials in the air polishing powder reservoir.
- Empty the air polishing powder bowl at the end of the day to prevent "caking" of the powder and clogging of the lines and air polishing nozzle.
- Never operate the air polishing mode without fluid flowing through the handpiece.

4.2 Procedural Precautions

Ultrasonics

- The Cavitron JET Plus unit works with Cavitron inserts as a system, and was designed and tested to deliver maximum performance for all currently available Cavitron and Cavitron Bellissima™ brand ultrasonic inserts. Companies that manufacture, repair or modify inserts carry the sole responsibility for proving the efficacy and performance of their products when used as a part of this system. Users are cautioned to understand the operating limits of their insert before using in a clinical setting.

- Like bristles of a toothbrush, ultrasonic inserts "wear" 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 one year of use to maintain optimal efficiency and avoid breakage. A DENTSPLY Professional Insert Efficiency Indicator is enclosed for your use.
- 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.

Air Polishing

- Patients who have severe respiratory illness should consult their physician before undergoing air polishing prophylaxis procedures.
- Patients wearing contact lenses should remove them prior to air polishing treatment.
- Avoid use on cementum or dentin.
- Direct contact of prophy powder with surfaces and marginal areas of dental restorations should be avoided.
- Set the air polishing powder flow control to the maximum (H) position only when it is necessary to remove particularly difficult stains. Return the powder flow control to the medium position upon the completion of the procedure.
- JET Air Polishing Insert nozzles that have been bent, damaged or re-shaped, are susceptible to in-use breakage and should be discarded and replaced immediately.
- Check o-ring and threads on powder bowl cap to ensure a tight seal. If o-ring or threads are worn, replace immediately.
- Residual prophy powder in threads can result in excessive wear and disengagement of the cap during unit operation. Be sure to clean threads regularly as per Section 9 System Care.

SECTION 5: Infection Control

5.1 General Infection Control

- As with all dental procedures, use universal precautions (i.e., wear face mask, eyewear, or face shield, gloves and protective gown).
- For operator and patient safety, carefully practice the infection control procedures detailed in the Infection Control Information Booklet accompanying your System. Additional booklets can be obtained by calling Customer Service at 1-800-989-8826, Monday through Friday, 8:00 A.M. to 5:00 P.M. (Eastern Time). For areas outside the U.S., contact your local DENTSPLY Professional representative.
- As with high speed handpieces and other dental devices, the combination of water and ultrasonic vibration from the Cavitron JET Plus Combination System will create aerosols. Following the procedural guidelines in Section 8 of this manual can effectively control and minimize aerosol dispersion.

5.2 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 6.1 and 9.
- As a medical device, this product must to be installed in accordance with applicable local, regional, and national regulations, including guidelines for water quality (e.g. drinking water). As an open water system, such regulation may require this device to be connected to a centralized water control device. The Cavitron® DualSelect™ Dispensing System may be installed to allow this unit to operate as a closed water system.

SECTION 6: Installation Instructions

Anyone installing a Cavitron JET Plus System should observe the following requirements and recommendations.

6.1 Water Line Requirements

- A water supply line with user-replaceable filter is supplied with your system. See Section 9 System Care for replacement instructions.

- Incoming water supply line pressure to the system must be 20 psi (138 kPa) to 40 psi (275 kPa). If your dental water system's supply line pressure is above 40 psi, install a water pressure regulator on the water supply line to your Cavitron JET Plus Combination 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.
- In addition to the water filter supplied, it is recommended that a filter in the dental water system supply line be installed so that any particulates in the water supply will be trapped before reaching the Cavitron 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 Cavitron system.

6.2 Air Line Requirements & Recommendations

- An air supply line with a user-replaceable filter assembly is supplied with your Cavitron JET Plus Combination System. A filter mounting bracket is included for hanging the air filter. The clear bowl should hang downward allowing for moisture separation and drainage of water from the air filter. See Section 9 System Care for replacement instructions.
- Incoming air supply line pressure to the system must be 65 psig (448 kPa) to 100 psig (690 kPa). If your office air line pressure is above 100 psig (690 kPa), install an air pressure regulator on the supply line to your Cavitron JET Plus Combination System.
- A manual shut-off valve on the office air supply line should be used so that the air line can be completely shut-off, and the line pressure relieved when the office is unoccupied.
- The Cavitron System must be supplied with clean, dry air to help prevent water condensation from forming in the air supply line which may cause it to malfunction. In addition to the air filter supplied with your System, it is strongly recommended that an air dryer be used on the compressor line supplying the Cavitron System.

6.3 Electrical Requirements

- Incoming power to the system must be 100 volts AC to 240 volts AC, single phase 50/60 Hz capable of supplying 1.0 amps.
- The system power should be supplied through the AC power cord provided with your system.

6.4 Unpacking the System



Carefully unpack your Cavitrone JET Plus Combination System and verify that all components and accessories are included:

1. Cavitrone® JET Plus™ Combination System with Handpiece Cable Assembly with swivel
2. Air Line Assembly (Black) with Filter and Quick Disconnect
3. Water Line Assembly (Blue) with Filter and Quick Disconnect
4. Additional Water Line Filter
5. Detachable AC Power Cord
6. Wireless Foot Control Assembly
7. "AA" Batteries (4-Pack)
8. Auxiliary Cable for Foot Control
9. Cavitrone® JET Air Polishing Nozzle with cleaning tool
10. JET-Mate Detachable Sterilizable Handpiece
11. Prophy Handpiece Cleaning Wire (not shown)
12. Cavitrone® Ultrasonic Inserts (quantity optional)
13. Efficiency Indicator for Cavitron Inserts
14. JetShield™ Aerosol Reduction Device Kit (not shown)
15. Literature Packet
16. PROPHY-JET® Sodium Bicarbonate Prophy Powder
17. JET-Fresh® Aluminum Trihydroxide Prophy Powder
18. Powder Removal Container

6.5 System Installation

- The Cavitrone JET Plus Combination System is designed to rest on a level surface. Be sure unit is stable and resting on four feet.
- Placing unit in direct sunlight may discolor plastic housing.
- The system has been equipped with a wireless foot control which was factory synchronized to operate with the system's base unit. If your office has more than one Cavitrone JET Plus system, it is recommended that you mark the foot control and base unit for easy reference as to which foot control operates with which base unit. Should resynchronization be necessary, follow the instructions in Section 6.10.

6.6 Power Cord Connection



- Verify the Main Power ON/OFF switch, located at the center front underside of the System, is set to the OFF (O) position before proceeding.



- Insert the AC power cord into the power input on the back of the System.
- Insert the pronged plug into an AC wall outlet.

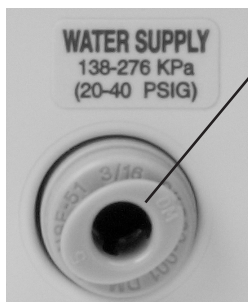
6.7 Water Line Connection

- Grasp the Water Supply Line (blue hose) by the end opposite the quick-disconnect and insert it into the water inlet connector until fully seated.



- Connect the quick-disconnect to the dental office water supply or a Cavitrone DualSelect Dispensing System.
- Inspect all connections to make certain there are no leaks.
- To remove the water line from the Cavitrone JET Plus Combination System, turn off the dental office water supply. Disconnect the water supply line from the dental office water supply. 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 allow water to drain. To

remove the hose from the system, push on the outer ring of the system's water inlet and gently pull out the water line.



Press ring to release water supply tube.

6.8 Air Supply Line Connection

- Grasp the Air Supply Line (black hose) by the end opposite the quick-disconnect and insert it into the air inlet connector until fully seated.



- Connect the quick-disconnect to the dental office air supply or a Cavitron DualSelect Dispensing System.
- Inspect all connections to make certain there are no leaks.
- To remove the air supply line from the Cavitron JET Plus Combination System, turn off the dental office air supply. Disconnect the air supply line from the dental office air supply, then push on outer ring of the system's air inlet and gently pull out air line.



Press ring to release air supply tube.

6.9 Foot Control Battery Installation/Replacement

- Turn foot control over and using a Philips screwdriver carefully remove battery cover screw and battery cover. If applicable, remove used batteries and install two new "AA" batteries as shown. Do not depress foot control while installing batteries.



Look for blinking communications light.

- The communication light will blink for approximately two seconds to indicate the foot control's ability to communicate with the unit. If the light does not blink, check the batteries. If the batteries are good and the light doesn't blink, a communications error may exist. Re-established communication with Foot Control Synchronization procedure, Section 6.10.
- The remote frequency communication can be bypassed using the auxiliary foot control cable. Refer to Section 10.2 Technical Support and Repair for further action.
- Replace the battery cover and screw and hand tighten with Philips screwdriver.
- Remove batteries if foot control is to be stored for an extended period of time.

6.10 Foot Control Synchronization

The wireless foot control supplied with your system has been factory synchronized with the base unit. Should a replacement foot control be necessary, synchronization will be required prior to system operation. Perform the following steps to synchronize the foot control with the base unit.

- Turn the Main Power switch located at the center front underside of the system to the OFF (O) position.
- Install a new set of "AA" batteries into the foot control (See Section 6.9) Leave the battery cover of the foot control open so the red push button is accessible.



3. Maintain a distance of no more than 10 feet (3m) between the base unit and foot control during the synchronization process.
4. Remove any inserts from the handpiece and adjust the Power Level Control out of Rinse Mode. Turn the Main Power switch to the ON (I) position and wait for the Diagnostic Display graphics to light (refer to Section 7.2).
5. While all graphics are lit, press the Purge button, located on the Diagnostic Display.



The graphics will begin to blink in a sequential pattern, representing the synchronization mode. This mode will last 5 to 6 seconds.

6. During this mode, press the red button located in the battery compartment of the foot control. This will complete the synchronization process.
7. Synchronization is successful when all graphics blink at the same time.
8. To verify proper communication, press the foot control to the Boost position (foot control fully depressed – 2nd position) and ensure the Boost graphic on base unit lights.
9. Replace battery cover and the screw.
10. In the event communication cannot be established, temporarily use the supplied Auxillary Foot Control Cable to connect the Foot Control directly to the unit.



SECTION 7: Cavitron JET Plus Combination System Description

7.1 System Controls

Ultrasonic Power Level Control

Turn knob to select the ultrasonic power level for operation. Turning the knob clockwise increases the distance the insert tip moves (stroke) without changing the frequency; turning the knob counterclockwise decreases the distance the insert tip moves (stroke) without changing the frequency.

The Blue Zone is a low-power range for effective subgingival debridement and improved patient comfort during definitive therapy.

Rinse

Turn the ultrasonic power level control knob fully counterclockwise until a “click” is heard. Rinse mode is for use during an ultrasonic scaling procedure when lavage is desired with minimal cavitation.

Powder Flow Control

Rotate clear Powder Flow Control to adjust powder flow rates. For minimum powder flow turn control clockwise to “L”. For maximum flow turn to “H”.

JET-Mate™ Handpiece

Accepts all Cavitron® 30K™ Ultrasonic inserts and Cavitron JET Air Polishing Inserts. Automatically selects air polishing or scaling mode. See Section 7.3

Diagnostic Display

See Section 7.2

Handpiece Holder

Securely holds the system's handpiece, or cable connector when handpiece is not installed. Handpiece must be oriented as shown and pressed gently into position.

Main Power ON/OFF Switch

ON/OFF Switch located at the center front underside of the system.

Dual Position Foot Control

Operates the system in Boost and normal power modes. See Section 7.6



7.2 Diagnostic Display Indicators and Controls

Rinse Indicator

Lights when the Power Level Control is turned fully counterclockwise. Rinse mode provides lavage to flush the procedural area with minimal cavitation.

Service Indicator

Lights when the system is not functioning properly. This display has three distinct modes.

- A fast blink (3 blinks per second) indicates an improper set-up.
- A slow blink (1 blink per second) means the system is operating out of factory specifications.
- A steady light indicates the system is overheating.

Refer to Section 10.1 for Troubleshooting guidelines.

Blue Zone Indicator

Lights when the Power Level Control is positioned in the Blue Zone of the power scale.

Ideal for effective subgingival debridement and greater patient comfort.

Boost Indicator

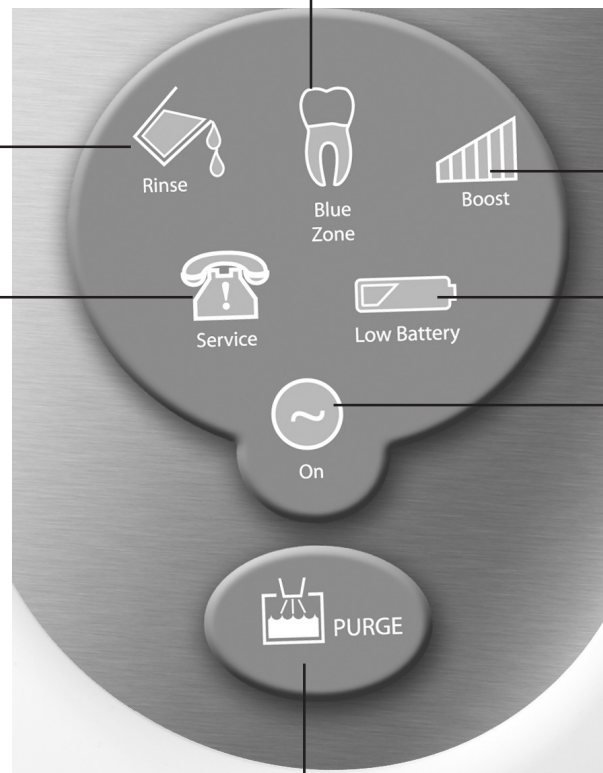
Lights when the Boost Mode has been activated with the Foot Control.

Low Battery Indicator

Lights when the foot control battery power is approaching end of life. Replace batteries as instructed in Section 6.9.

Power Indicator

Lights (3 sec. delay) when the Main Power ON/OFF Control Switch is ON ("I" position).



Purge Control

Lights when the Purge function is activated.

To activate Purge, remove insert from the handpiece, and press the Purge button. Water will purge through system for 2 minutes. For optimal efficiency, turn the handpiece lavage control to maximum water flow. To deactivate mode during the 2 minute cycle, press Purge button again or press foot control.

The Purge Control is also used during the Foot Control Synchronization process. See Section 6.10.

7.3 Handpiece / Cable



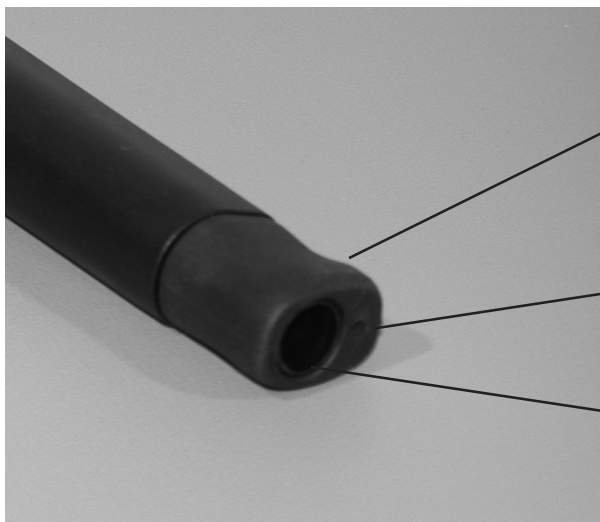
Lavage Control

Turn the Lavage Control to select flow rate during system operation. Clockwise increases flow at insert tip, counter-clockwise decreases flow. The flow rate through the handpiece also determines the temperature of the lavage. Lower flow rates produce warmer lavage. Higher flow rates produce cooler lavage.

If the handpiece becomes warm, increase the flow rate. With experience the Dental Healthcare Professional will be able to determine the best flow rate setting for optimum operating efficiency and patient comfort.

Swivel Feature

Reduces cable drag as handpiece rotates during procedures.



Soft Nozzle Grip

Provides an ergonomic and comfortable grasp of the handpiece. The grip is a replaceable wear component. Prior to use, verify that the grip is flush with the hard plastic of the insert port.

Powder Delivery Port

Creates an airtight seal between the air polishing insert and the handpiece. Replace when wear is noticed or powder is leaking at nozzle interface.

Insert Port

The Cavitron® JET-Mate Sterilizable Handpiece accepts all Cavitron® 30K Ultrasonic Inserts and JET air polishing insert.

7.4 Cavitron 30K Ultrasonic Inserts

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



7.5 Cavitron JET Air Polishing Inserts

Air Polishing Insert Nozzle:

Tube-in-a-tube design delivers precise air/water/powder mixture at point of delivery.

Prophy Powder Delivery Tube:

Directs air/powder flow to insert tip.

Insert Heater Rod:

Heats the delivered water for patient comfort.

Insert Marking:

Manufacturer, Date (YDDD=Single Digit Year and Triple Digit Day of the Year).

O-Ring:

Seals water when Insert is fully seated in Handpiece. O-ring should be replaced when worn.

7.6 Wireless Foot Control Operation

The foot control is a two-positioned momentary switch. For scaling operation, the first position activates both the ultrasonic energy and lavage at the insert tip. The second position activates the Boost Mode. The Boost Mode (fully depressed Foot Control) increases the ultrasonic power level for quick, efficient removal of tenacious deposits without adjusting the power level knob. To deactivate Boost Mode, release foot control to first position.

For prophy operation, the first position activates Rinse Mode. The second position activates Air Polishing Mode. (Boost Indicator will not illuminate.)

- Pressing anywhere on the top of the foot control activates the system.



7.7 Accessories and User Replaceable Parts

7.7.1 Accessories

1. AC Power Cord
2. Dual Position Foot Control (Wireless)
3. Auxiliary Foot Control Power Cable
4. Cavitron JET-Mate Sterilizable Handpiece
5. Prophy Handpiece Cleaning Wire
6. Cavitron 30K Ultrasonic Inserts
7. Cavitron DualSelect Dispensing system
8. Cavitron JET Air Polishing Insert
9. Cavitron JET Nozzle Cleaning Tool
10. JetShield Aerosol Reduction Device

7.7.2 User Replaceable Part Kits

1. Powder Bowl Cap O-Ring, Part Number 628052001
2. Powder Bowl Cap, Part Number 81728
3. Cavitron Insert Replacement O-ring Kits, 12/packs
Part Number 62351 (black) for plastic and soft grips
Part Number 62605 (green) for metal grips and prophy
4. Handpiece Cable O-Ring, Part Number 79357
5. JET-Mate Handpiece Nozzle Grip, 81717
6. Lavage (Water) Filter, 10/Pack, Part Number 90158

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

SECTION 8: System Setup, Operation and Techniques for Use

8.1 Handpiece Setup



- Connect the Handpiece to the Cable Assembly by aligning the electrical connections. If Cable Assembly does not seat into the handpiece, gently rotate the handpiece until contacts align, then fully insert handpiece.
- Hold empty handpiece in a semi-upright position over a sink or drain. Activate the Foot Control until water exits to bleed any air bubbles that might be trapped inside the handpiece. Avoid letting water into the Powder Delivery Port as clogging may result.

- Lubricate the 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. If using the air polishing insert, align the powder delivery tube with the powder delivery port and gently push into handpiece until fully seated. DO NOT FORCE.
- Turn the Lavage Control to select flow rate during system operation. Clockwise increases flow at insert tip, counterclockwise decreases flow. The flow rate through the handpiece also determines the temperature of the lavage. Lower flow rates produce warmer lavage. Higher flow rates produce cooler lavage. If the handpiece becomes warm, increase the flow rate. With experience the Dental Healthcare Professional will be able to determine the best flow rate setting for optimum operating efficiency and patient comfort.



8.2 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 his/her head to the right or left. Also position chin up or down depending upon the quadrant and surface being treated. Evacuate irrigant using either a saliva ejector or High Volume Evacuator (HVE).

8.3 Performing Ultrasonic Scaling Procedures

Note: Refer to the Infection Control Information booklet supplied with your system and Section 9 of this manual 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 minimal 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.

- Turn Power Level Control to select ultrasonic power level for operation. Clockwise increases system power. Power level will increase throughout the full range of the control. Hold the handpiece over a sink or drain. Press the Foot Control to activate the system. Check spray to verify fluid is reaching the working end of the insert tip. Adjust the water control to ensure adequate flow for the selected power setting. Greater flow settings provide cooler irrigation.
- 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 to tooth interface.
- In general, it is suggested that a "feather-light-touch" be used for ultrasonic scaling. The motion of the activated tip and acoustic effects of the irrigating fluid, in most cases, are adequate to remove even the most tenacious calculus.
- Periodically check the Cavitron Ultrasonic Insert for wear with the Cavitron Insert Efficiency Indicator.
- The use of a saliva ejector or High Volume Evacuator (HVE) is recommended during all procedures.
- Set the system's Power Level Control to the lowest efficient power setting for the application and the selected insert.

8.4 Patient Comfort Considerations

Reasons for sensitivity

- Incorrect tip placement. The point should never be directed toward tooth 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 excessive pressure. Use a very light grasp and pressure, with a soft tissue fulcrum whenever possible, especially on exposed cementum.
- If sensitivity persists, decrease power setting and/or move from the sensitive tooth to another and then return.

8.5 Air Polishing Powder Bowl

- Use only Cavitron® Prophyl Powders in your Cavitron JET Plus Combination System. Any other substance or additives may clog the system and will void the warranty. For your convenience, the prophyl powders are supplied in bottles. Keep stored in a location that does not exceed 95°F.
- A special container is provided with your System for use in emptying the powder bowl.
- It is strongly recommended that the powder bowl be emptied at the end of each day. This will reduce moisture absorption and minimize clogging.

To fill, or refill, the powder bowl:

- Turn the System OFF.
- Unscrew the Powder Bowl Cap.
- With the cap of the powder bottle closed, shake the powder bottle vigorously to break up any lumps that may have formed from settling. Carefully pour powder into the bowl until the level reaches the top of the center tube.
- Using a soft dry cloth, remove powder adhering to the cap and bowl threads. Secure the cap on the powder bowl.
- Turn the System ON.

NOTE: Use only Cavitron® Prophy Powders in the system. Powder should be kept dry and stored in a location that does not exceed 95°F.

To adjust the flow of powder:

- Adjust the powder flow rate by positioning the control pointer on the cap at H (12 o'clock), M (9 o'clock) or L (6 o'clock).
- For heavy stain removal, set the control to H.
- For light stain removal, set the control to L.
- The control can be set at any position between H and L.
- The view window at the center of the pointer lets you observe the powder flow (small white circle of powder) during operation. If no flow is seen, check for clogging or add prophy powder.

8.6 Air Polishing Using the JetShield™ Aerosol Reduction Device Accessory

JetShield Precautions:

The JetShield cup assemblies are designed for single use only. Use of chemical or heat sterilization will lead to poor performance and malfunction of product.

The reusable components are wipe-disinfectable, using clean cloths and appropriate non-immersion type disinfectant. Wipe once with disinfectant to remove bioburden, then use a fresh cloth and more disinfectant to clean surface. Dry with clean paper towel or air.

JetShield Set-Up Instructions:

1. Remove entire assembly from package.
2. Insert air polishing nozzle through cup and seat shoulder flush on nozzle. **See Figure 2.**
3. Insert small barb from ejector tube into evacuation tube of cup assembly.
4. Insert large barb from ejector tube into operator saliva ejector.

5. Place ejector tube clip around ejector tube and handpiece cable such that the cables drape together for patient and clinician comfort.
6. (Optional) Place handpiece clip such that the clip is holding the JetShield evacuation tube in place along handpiece as shown in Figure 3.

Figure 1.

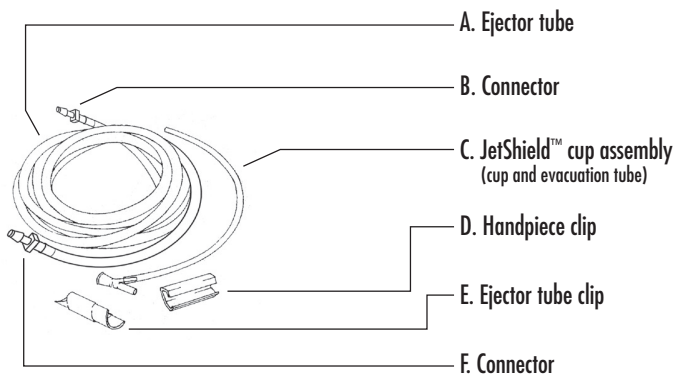
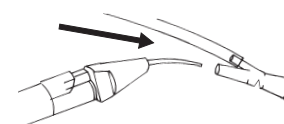
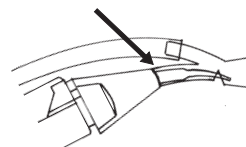


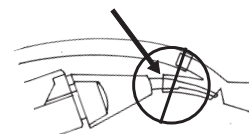
Figure 2.



1. Insert air polishing nozzle

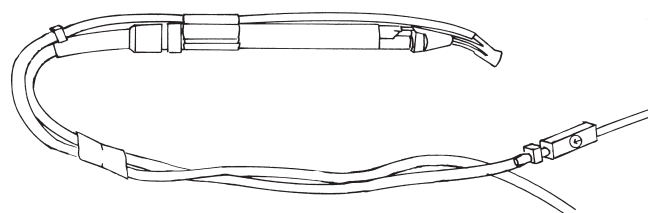


2. Seat shoulder flush on nozzle



3. Incorrect positioning

Figure 3.



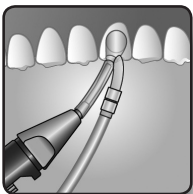
8.7 Performing Air Polishing Procedures with JetShield

NOTE: Refer to the Infection Control card supplied with your System for general procedures to be followed at the beginning of each day and between patients.

- Install JetShield on the Cavitron Air Polishing Nozzle as instructions indicate in Section 8.6.
- Select the proper amount of powder and water to create the slurry needed using the Powder Flow Control on the powder bowl cap and the Lavage Control on the handpiece cable. Ensure that the system's Power Level Control is in the "Prophy Mode" range. Use more powder for heavy stains and less powder for light stains. With experience the Dental Healthcare Professional will be able to determine the best flow rate settings for optimum efficiency and patient comfort. Never operate the system with powder only.
- Verify that slurry exits from the cup when held outside the mouth; adjust saliva ejector as necessary.
- Divide the tooth visually into segments to polish (incisal, middle and gingival).



- Apply cup to middle third with light pressure so cup flares slightly.



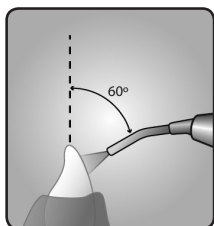
- Pivot nozzle inside the cup to adapt to incisal, gingival, mesial and distal surfaces.

- Apply two seconds of spray for each segment of the tooth, releasing the Foot Control each time. If spray escapes, readjust cup to maintain flat contact with tooth surface. Adjust angle by pivoting nozzle inside the JetShield cup.
- After completing each procedure, dispose of clear JetShield assembly according to Federal, State and local regulations. Properly disinfect all other JetShield accessories prior to next use.

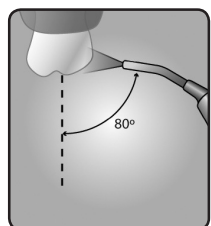
8.8 Performing Air Polishing Procedures without JetShield

- Place a 2 x 2 gauze on lip.
- Select the proper amount of powder and water to create the slurry needed using the Powder Flow Control on the powder bowl cap and the Lavage Control on the handpiece cable. Ensure that the system's Power Level Control is in the "Prophy Mode" range. Use more powder for heavy stains and less powder for light stains. With experience the Dental Healthcare Professional will be able to determine the best flow rate settings for optimum efficiency and patient comfort. Never operate the system with powder only.
- Flush the patient's tongue with water to help reduce the saline taste.
- The recommended normal procedure is to clean 1-3 teeth with the air polishing spray (Foot Control depressed to the second position) and then rinse the area with water (Foot Control depressed to first position) to inspect the work site before proceeding to the next 1-3 teeth. If desired, the bleed air passing through the air polishing insert tip can be used to dry the work site during inspection (Foot Control released).
- Use your free hand and the patient's cheeks or lips to form a cup to contain aerosols. Tilt the patient's head toward you to help prevent puddling in the cupped lip and minimize aerosol dispersion. Rinse excessive slurry from the patient's mouth thoroughly and often.
- Maintain a 2 to 4 mm tip-to-tooth operating distance. Keep the tip in constant circular motion and maintain a sweeping motion from interproximal to interproximal. When air polishing the anteriors, center the spray on the middle third of the tooth. The edge of the spray will clean the teeth to the gingiva. Refer to Section 8.9 Proper Angulations for all tooth surfaces.
- Use adequate evacuation. Use of a high-speed suction (High-Volume Evacuator) with the aid of a dental assistant is recommended. When performing air polishing without the aid of a dental assistant, the use of a saliva ejector and/or aerosol-reduction device is recommended.
- Do not aim directly at the soft tissue.
- Avoid use on surfaces and marginal areas of dental restorations.

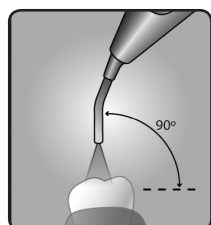
8.9 Proper Angulation of the Air Polishing Insert without JetShield



Recommended angulation on the anterior teeth is 60° with the tip aimed at the middle third of the tooth surface.



Recommended angulation on the buccal and lingual surfaces of posterior teeth is 80° with the tip aimed slightly distally.



Recommended angulation to occlusal surfaces is 90°

SECTION 9: System Care

It is recommended that you perform the following maintenance procedures to help maximize water quality and to be in compliance with CDC guidelines for infection control.

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. With the Cavitron JET Plus Combination System OFF, unscrew the powder bowl cap. Verify the powder bowl is empty. Turn the system ON for 15 seconds to eliminate residual moisture in the lines. Turn the system OFF.
3. Shake the powder bottle well to create an even consistency of powder mixture.
4. Pour enough powder into the bowl for the procedure to be performed. With experience the Dental Healthcare Professional will be able to determine the amount of powder required. Do not fill above the top of the center tube.
5. Secure the cap on the powder bowl.

6. Install a sterilized JET-Mate Handpiece onto the handpiece cable.
7. Set the Power Level Control to minimum and the Lavage Control to maximum.
8. Turn the system ON.
9. If powder fluffing is observed when Foot Control is not in use, this would indicate an air leak. To correct, turn the System OFF, remove the Powder Cap, clean any residual powder from the O-ring seal and threads, replace the Powder Cap, tighten, and turn the System back ON.
10. Hold the handpiece (without an insert or nozzle insert installed) over a sink or drain. Activate the Purge Control button.
 - The Purge button will light for two minutes indicating proper activation of the purge function.
 - If the Purge button is activated with an insert present in the handpiece, the button will blink for 3 seconds and disable. Remove the insert from the handpiece and press the Purge button again.
 - The Purge function can be interrupted at any time during the two minute cycle by pressing the Purge button again or by pressing the foot control.
11. After completing the purge cycle, place a sterilized 30kHz Cavitron® Ultrasonic Insert into the handpiece and set the Power Level Control and Lavage Control to your preferred operating position for ultrasonic scaling. For air polishing, place a sterilized JET Air Polishing Insert into the handpiece and adjust the Power Level Control to Prophyl Mode, and the Powder Flow and Lavage Controls to your preferred operating positions.

BETWEEN PATIENTS:

1. Remove the used Cavitron® Ultrasonic Insert or JET Air Polishing Insert. Clean and sterilize following the Infection Control Procedures that were enclosed with your insert.
2. Hold the handpiece over a sink or drain and activate Purge function as described in Step 10 of the Start-Up procedure.
3. After the purge cycle is complete, turn the System OFF.
4. Remove JET-Mate handpiece, clean and sterilize following the procedures outlined in the Cavitron Systems Infection Control Procedures booklet that was enclosed with your system.
5. Disinfect the surfaces of the cabinet, Power Cord, Handpiece Cable, Foot Control and Cable assembly (if applicable), Water Supply and Air Supply lines 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. Dry with a clean cloth. To disinfect system, generously spray disinfectant on a clean towel and wipe all surfaces. Allow disinfectant solution to air dry. Never spray disinfectant solution directly on the System.

6. Inspect the handpiece cable for any breaks or tears.
7. If using a closed water supply or DualSelect Dispensing System, check for adequate fluid volumes for the next patient.
8. Check the powder bowl for sufficient powder for the next procedure.
9. When ready to use, place a sterilized JET-Mate Handpiece onto the handpiece cable assembly and insert a sterilized ultrasonic insert or air polishing insert into the handpiece and adjust system controls as preferred.

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

SHUT-DOWN PROCEDURES AT THE END OF THE DAY:

1. Follow the “Between Patients” maintenance procedures, Steps 1 through 6. In addition, it is recommended to close the manual shut-off valve on the dental water supply system.
2. Unscrew the powder bowl cap.
3. Remove the powder bowl from the cabinet and discard the unused powder.
4. Holding the open end of the powder bowl away from you, activate the system for 15 seconds to clear the bowl. A high volume evacuator can be used to remove any residual powder.
5. Remove the o-ring seal from the powder bowl cap and using a soft dry cloth, wipe residual powder from the cap, the o-ring and the powder bowl threads. Be careful not to scratch or otherwise damage the cap.
6. Return the o-ring to the cap and secure the cap on the powder bowl.

9.2 Weekly Maintenance

- Remove residual prophylaxis powder from the cap and bowl threads using a soft brush (toothbrush). If not removed, caked powder in threads can result in thread wear and powder bowl cap disengagement.
- It is strongly recommended that this system be disinfected by chemically flushing the waterlines with a 1:10 Sodium Hypochlorite solution (NaOCl) at the end of each week. This can be accomplished by connecting this device to the Cavitron DualSelect Dispensing System or a number of other devices available from your local distributors. Where this device is connected to the Cavitron DualSelect Dispensing System, please follow the DualSelect system’s Directions for Use manual. If connected to another device, please follow those directions for use, keeping in mind that a chemical flush should be performed at maximum water flow for at least 30 seconds. The system should be left undisturbed for 10 minutes but no more than 30 minutes

to allow the sodium hypochlorite solution to soak in the lines. As a suggestion, it is recommended that a sign be placed on the system stating that the SYSTEM IS BEING DISINFECTED WITH A STRONG DISINFECTANT AND SHOULD NOT BE USED. When ready, flush system with clean water for at least 30 seconds or until sodium hypochlorite odor disappears. ALL CHEMICALS MUST BE FLUSHED FROM THE SYSTEM BEFORE IT IS READY FOR PATIENT USE.

9.3 Water Line Filter Maintenance

When the water line filter becomes discolored, the filter should be replaced to prevent reduced water flow to the system. A 10-pack of replacement filters is available by ordering Part Number 90158 from your local DENTSPLY Professional distributor.

1. Verify that the system is turned OFF.
2. Disconnect the water supply hose from the dental office water supply. 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.
3. Grasp the fittings on either side of the filter disk and twist counterclockwise. Remove the filter section from either side of the water hose.
4. Install the replacement filter onto the water hose fittings. The filter should be positioned to match up with the correct hose fitting.
5. Hand tighten the two hose fittings in a clockwise direction. Reconnect the water supply line, operate unit to bleed the air and test for leaks.

9.4 Air Supply Line Filter Maintenance

Water build up in the air supply line filter should be drained. This can be accomplished by turning the knob on the bottom of the filter counterclockwise to open. After draining, turn the knob fully clockwise to close. If the inner filter element becomes discolored or dirty, a new filter assembly should be installed. Replacement filter assemblies are available by ordering Part Number 90088 from your local DENTSPLY Professional distributor.

1. Verify that the system is turned OFF.
2. Disconnect the air supply line from the dental office air source.
3. Using pliers or a wrench, loosen the nuts on the side fittings of the filter. Unscrew the nuts and slide them down the hose. Disconnect hoses from the filter and discard the used filter.
4. Insert the short hose into the input port of the filter and the long hose into the output port of the filter. Slide the nuts up the hoses and screw onto the fittings. Tighten using pliers or a wrench.
5. Turn the System ON, operate the system and check for leaks.

9.5 Powder Bowl Maintenance

1. Turn the System OFF.
2. Allow the powder bowl to depressurize and unscrew the Powder Cap.
3. Empty powder from the bowl and use the high suction to remove any residual powder in the bowl.
4. Turn the System ON and check for strong air flow from the center tube of the powder bowl.
5. If no or low air flow is present, turn the System OFF.
6. Unscrew the knurled ring at the bottom of the bowl assembly and remove the fitting assembly.
7. Using the JET Air Polishing Insert nozzle cleaning wire tool, clean clogged powder from the fitting assembly. Turn the System ON and check for strong air flow. Turn the system OFF.
8. Check that the o-ring is properly positioned in the groove of the fitting assembly and reassemble the fitting assembly to the bowl. Tighten knurled ring. Place powder bowl into System.
9. Fill the powder bowl with fresh prophylaxis powder and test for flow and leaks.
10. Remove residual powder from thread on the cap and bowl with a soft, dry cloth.

SECTION 10: Troubleshooting

Although service and repair of the Cavitron JET Plus Combination System should be performed by DENTSPLY personnel, the following are some basic troubleshooting 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 controls.

10.1 Troubleshooting Guide

Symptom:

System will not operate: No Power ON indicator

1. Check that the Main Power Switch is in the ON (I) position, and that the detachable Power Cord is fully seated in the receptacle on back of System.
2. Check that the system's power cord plug is fully seated in an approved AC wall outlet.
3. Check that the wall outlet is functional.

Symptom:

System will not operate: Power ON Indicator is illuminated

1. If the office has more than one Foot Control, test each to ensure that the proper Foot Control is being used. With a handpiece and insert installed, depress the Foot Control to the first position. The system

should dispense water. If none of the Foot Controls operate the system, continue to the next step.

2. Resynchronize one Foot Control to the system (see Section 6.10 Foot Control Synchronization).

Symptom:

System operates: No water flow to insert tip

1. Assure that handpiece lavage control is properly adjusted.
2. Check for clogged insert. Replace insert if necessary.
3. Check that dental office water supply valves are open.
4. If the system is connected to DualSelect Dispensing System, check that fluid level in the selected bottle is sufficient. Make sure valves are open when using external water source.
5. Check that the water line filter is clean. Replace filter if needed.

Symptom:

System operates: No insert cavitation

1. Check that the Power Level Control is not in Rinse Mode.
2. Check the insert for damage and that it is properly installed in the handpiece.
3. Check that the handpiece is properly installed to the cable assembly.
4. Verify that the soft nozzle grip is flush with the hard plastic of the insert port.
5. Turn the system's Main Power Switch to the OFF (O) position. Wait 5 seconds and turn the system back ON.
6. If problem still exists, replace both "AA" batteries in Foot Control with new "AA" batteries (Refer to Section 6.9) or connect the Auxiliary Foot Control Cable.

Symptom:

System operates: Purge Mode will not function – Indicator flashing

1. Check that there is no insert in the handpiece.
2. Check that handpiece is properly installed to the cable assembly.

Symptom:

System operates: Service Indicator blinking

- Fast Blinking (3 blinks per second)
– Indicates improper set-up
 1. If insert is in the handpiece, remove. Verify the handpiece is properly seated and hold the foot control for 2 seconds. If blinking stops, the system is ready for use. If blinking remains, continue to the next step.
 2. Attach a NEW handpiece and hold Foot Control for 2 seconds. If blinking stops, the system is ready for use. Discard the old handpiece or return if within warranty. If blinking remains, continue to the next step.

3. Install and fully seat an insert into handpiece. Hold Foot Control for 2 seconds. If blinking stops, the system is ready for use. If blinking remains, continue to the next step.
4. Install and fully seat a NEW insert in handpiece and hold Foot Control for 2 seconds. If blinking stops, system is ready for use. Discard old insert or return if within warranty. If blinking remains, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.

- Slow Blinking (1 blink per second)
 - The system is not operating within factory specifications.
 1. Remove insert.
 2. Turn Main Power Switch OFF, (O) position. Wait five seconds. Turn unit ON, (I) position.
 3. Operate Purge function.
 4. If service indicator still blinks, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.

Symptom:

System operates: Service Indicator illuminated

1. Ensure that the base unit has adequate ventilation and is not near a heat source (i.e. radiator, heat lamp, sunlight or other heat producing operatory equipment).
2. Turn Main Power Switch to the OFF (O) position. Allow system to cool for 10 minutes and turn system to the ON (I) position. Verify light is not illuminated.
3. If light is still illuminated, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.

Symptom:

System operates: Air Polishing Insert nozzle blocks repeatedly

1. Powder is contaminated (lumpy). Discard powder.
2. Air Supply Line Air Filter is contaminated. Refer to Section 9.4 Air Supply Line Air Filter Maintenance.
3. Dental office air source should be serviced to eliminate the source of the contamination.

Symptom:

System operates: No bleed air

1. Blocked JET Air Polishing insert nozzle. Clean nozzle using supplied tool.
2. Blocked air bleed “duckbill” air filter. Refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.

Symptom:

System operates: No or poor cleaning action

1. Very low powder level or empty powder bowl. Fill Powder bowl.
2. Blocked JET Air Polishing insert nozzle. Clean nozzle using supplied tool.
3. Powder Cap loose. Turn Main Power switch to the OFF (O) position. Tighten Powder Cap to powder bowl and turn System ON. If cap does not fit tightly, check for thread wear and replace cap, o-ring seal, or bowl assembly.
4. Clogged fitting assembly on powder bowl. Refer to Section 9.5 Powder Bowl Maintenance.
5. Dental office air source should be serviced to eliminate the source of the contamination.

Symptom:

System operates: Continuous powder agitation

1. Powder Cap not securely sealed. Turn Main Power switch to the OFF (O) position and remove Powder Cap.
2. Remove the o-ring seal from the Powder Cap and clean residual powder from the cap. Be careful not to scratch or otherwise damage the plastic cap.
3. Wipe off the o-ring and place it in the Powder Cap. Tighten Powder Cap to Powder Bowl and turn system ON. Worn caps and o-rings should be replaced when wear is noted.

10.2 Technical Support and Repairs

For technical support and repair assistance call DENTSPLY Professional Cavitron CareSM Factory Certified Service at 1-800-989-8826 Monday through Friday, 8:00 A.M. to 5:00 P.M. (Eastern Time). For areas outside the U.S., contact your local DENTSPLY Professional Representative.

SECTION 11: Warranty Period

The Cavitron JET Plus Combination Ultrasonic Scaler and Air Polishing System is warranted for TWO YEARS from date of purchase. The JET-Mate Handpiece enclosed with your system is warranted for SIX MONTHS from date of purchase. Refer to the Warranty Statement Sheet furnished with your system for full Warranty Statement and Terms.

SECTION 12: Specifications

Electrical Voltage	Continuous (100-240 VAC)
Current	1.0 Amperes, Maximum
Phase	Single
Frequency	50/60 Hertz
Water Pressure	20 to 40 psig (138 to 275 kPa)
Air Pressure	65 to 100 psig (448 to 600 kPa)
Water Flow Rate	Minimum Setting (CCW) < 15 ml/min Maximum Setting (CW) > 55 ml/min
Weight	4.4 lbs (2 Kg)
Dimensions	Height: 6 in (15,24 cm) Width: 9.5 in (24,13 cm) Depth: 8 in (20,32 cm) Handpiece Cable length: 6.5 ft. (2.0 M) Auxillary Footswitch Cable length: 8 ft. (2.4 M) Water Supply Line length: 8 ft. (2.4 M) Air Supply Line length: 10 ft. (3.04 M)
Footswitch	Protection Class IPX1. Not for operating theatres.
Remote Communication	Frequency: 2405 to 2480 MHz Power: < 1mW Channels: 16
Operating Environment	Temperature: 15 to 40 Deg. Celsius (59 to 104 Deg. Fahrenheit) Relative Humidity: 30% to 75% (non-condensing)
Transport and Storage Conditions	Temperature: -40 to 70 Deg. Celsius (-40 to 158 Deg. Fahrenheit) Relative Humidity: 10% to 100% (non-condensing) Atmospheric Pressure: 500 to 1060 hPa

SECTION 13: Classifications

- | | |
|--|--|
| • 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 anaesthetic or oxygen. |
| • According to medical device directive: | IIA (rule 9) |

SECTION 14: Disposal of Unit

- Accordance with local and state laws.

Cavitron JET Plus Ultrasonic Scaler and Air Polishing System

QUICK REFERENCE GUIDE

Diagnostic Display



ON

Illuminates when the Main Power On/Off switch is in the "ON" (I) position.



BLUE ZONE

Illuminates when the ultrasonic power level control knob is positioned in the Blue Zone of the power scale. The Blue Zone extended low-power range is effective for subgingival debridement and greater patient comfort during definitive therapy.



RINSE

Illuminates when the ultrasonic power level control is turned fully counterclockwise. With an insert in the handpiece, activate the Foot Control and lavage will occur with negligible tip movement.



BOOST

Illuminates when the Boost Mode is activated by the Foot Control. To activate, fully depress Foot Control to the second position. To deactivate Boost Mode, release Foot Control to first position.



PURGE BUTTON

Illuminates when the Purge function is activated. To activate Purge, remove insert from the handpiece, press the Purge button on the Diagnostic Display and water will purge through system lines for two minutes. For optimal efficiency, turn the Handpiece Lavage Control to maximum water flow. To deactivate during the two minute cycle, press Purge button again or press Foot Control.



SERVICE

Lights when the system is not functioning properly. This display has three distinct modes:

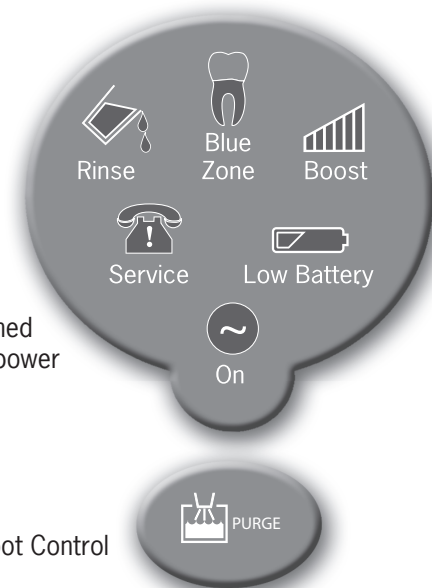
- Slow blink (1 blink per second) means the system is not operating within factory specifications.
- Fast blink (3 blinks per second) indicates an improper set-up.
- Steady light indicates the system is overheating.

Refer to Troubleshooting guidelines on reverse side.

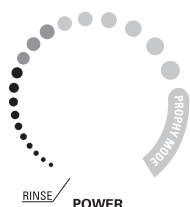


LOW BATTERY

Illuminates when the Foot Control battery power is approaching end of life. Replace batteries as instructed in the Directions for Use.



Power Control



POWER LEVEL CONTROL

Turn knob to select ultrasonic power level for operation. Turning the knob clockwise increases the distance the insert tip moves (stroke) without changing the frequency; turning the knob counterclockwise decreases the distance the insert tip moves (stroke) without changing the frequency.

RINSE

Rinse mode is used during an ultrasonic scaling procedure when lavage is required to flush the procedural area. To activate, turn Power Level Control Knob fully counterclockwise until a "click" is heard.

BLUE ZONE

Provides an extended low-power range for effective subgingival debridement and greater patient comfort during definitive therapy.



QUICK REFERENCE GUIDE—Troubleshooting

SYMPTOM	ACTION TAKEN
System will not operate: No Power ON Indicator	1. Check that the Main Power Switch is in the ON (I) position, and that the detachable power cord is fully seated in the receptacle on back of system. 2. Check that the system's power cord plug is fully seated in an appropriate AC wall outlet. 3. Check that the wall outlet is functional.
System will not operate: Power ON Indicator is illuminated	1. If the office has more than one Foot Control, test each to ensure that the proper Foot Control is being used. With a handpiece and insert installed, depress the foot control to the first position. The system should dispense water. If none of the Foot Controls operate the system, continue to the next step. 2. Resynchronize one Foot Control to the system (see Section 6.10 Foot Control Synchronization).
System operates: No water flow to insert tip	1. Assure that handpiece lavage control is properly adjusted. 2. Check for clogged insert; Replace insert if necessary. 3. Check that dental office water supply valves are open. 4. If the system is connected to DualSelect Dispensing System, check that fluid level in the selected bottle is sufficient. Make sure valves are open when using external water source. 5. Check that the water line filter is clean. Replace filter, if needed.
System operates: No insert cavitation	1. Check that the Power Control is not in Rinse Mode. 2. Check the insert for damage and that it is properly installed in the Handpiece. 3. Check that the handpiece is properly installed to the cable assembly. 4. Verify that the soft nozzle grip is flush with the hard plastic of the insert port. 5. Turn the system's Main Power Switch OFF, (O) position. Wait 5 seconds and turn the system back ON. 6. If problem still exists, replace both "AA" batteries in Foot Control with new "AA" batteries (Refer to Section 6.9) or connect Auxiliary Foot Control Cable.
System operates: Service indicator blinking	1. Fast blinking (3 blinks per second) – Indicates improper set-up A. If insert is in the handpiece, remove. Verify the handpiece is properly seated and hold the foot control for 2 seconds. If blinking stops, the system is ready for use. If blinking remains, continue to the next step. B. Attach a NEW handpiece and depress Foot Control for 2 seconds. If blinking stops, the system is ready for use. Discard the old handpiece or return if within warranty. If blinking remains, continue to the next step. C. Install and fully seat an insert into handpiece. Depress Foot Control for 2 seconds. If blinking stops, the system is ready for operation. If blinking remains, continue to the next step. D. Install and fully seat a NEW insert in handpiece and depress Foot Control for 2 seconds. If blinking stops, system is ready for use. Discard old insert or return if within warranty. If blinking remains, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible. 2. Slow blinking (1 blink per second) - The system is not operating within factory specifications. A. Remove insert. B. Turn Main Power Switch OFF, (O) position. Wait five seconds. Turn unit ON, (I) position. C. Operate Purge function. D. If service indicator still blinks, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.
System operates: Service indicator illuminated	1. Ensure that the base unit has adequate ventilation and is not near a heat source (i.e. radiator, heat lamp, sunlight or other heat producing operatory equipment). 2. Turn Main Power Switch OFF (O) position. Allow system to cool for 10 minutes and turn system to the ON (I) position. Verify light is not illuminated. 3. If light is still illuminated, refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.
System operates: Purge mode will not function --icon flashing	1. Check that there is no insert in the handpiece. 2. Check that Handpiece is properly installed to the cable assembly.
System operates: Air Polishing Insert Nozzle blocks repeatedly	1. Powder is contaminated (lumpy). Discard powder. 2. Air Supply Line Air Filter is contaminated. Refer to Section 9.4 Air Supply Line Air Filter Maintenance. 3. Dental office air source should be serviced to eliminate the source of the contamination.
System operates: No bleed air	1. Blocked JET Air Polishing insert nozzle. Clean nozzle using supplied tool. 2. Blocked air bleed "duckbill" air filter. Refer to Section 10.2 Technical Support and Repairs to have unit serviced as soon as possible.
System operates: No or poor cleaning action	1. Very low powder level or empty powder bowl. Fill Powder Bowl. 2. Blocked JET Air Polishing insert nozzle. Clean nozzle using supplied tool. 3. Powder Cap loose. Turn Main Power switch to the OFF (O) position. Tighten Powder Cap to powder bowl and turn System ON. If cap does not fit tightly, check for thread wear and replace cap, o-ring seal, or bowl assembly. 4. Clogged fitting assembly on powder bowl. Refer to Section 9.5 Powder Bowl Maintenance.
System operates: Continuous powder agitation	1. Powder Cap not securely sealed. Turn Main Power switch to the OFF (O) position and remove Powder Cap. 2. Remove the o-ring seal from the Powder Cap and clean residual powder from the cap. Be careful not to scratch or otherwise damage the plastic cap. 3. Wipe off the o-ring and place it in the Powder Cap. Tighten Powder Cap to powder bowl and turn system ON. Worn caps and o-rings should be replaced when wear is detected.

SECTION 16: Cavitron® JET Plus™ Troubleshooting and Analysis

This troubleshooting section is meant for use by qualified Cavitron® Service Technicians.

SYMPTOMS	CAUSES	CORRECTIVE MEASURES
Cavitron® JET Plus™ does not power up: pilot light does not illuminate.	1. Faulty wall outlet. 2. Damaged power cord. 3. Fuse F3 and/or F4 blown. 4. Damaged On/Off switch.	1. Check wall outlet and if faulty take necessary corrective measures. 2. Replace the power cord. 3. Replace internal fuses F3 and F4 with specified fuses. 4. Replace the On/Off switch.
Slo-Blo Fuses good. No power to circuitry.	1. Unit is installed in a confined area (such as a cabinet), or is too close to a heat source to insure proper air circulation around unit.	1. Provide adequate air circulation around unit.
Slo-Blo Fuse F3 and/or F4 Failed.	1. Short in Power supply assembly. 2. Short in Power Drive PC Board assembly.	1. Replace the Power Supply assembly. 2. Replace the Power Drive PC Board assembly.
Low insert scaling power or insert stops vibrating when contacting tooth surface.	1. Insert malfunction. 2. Insert is not pushed in far enough for automatic pick-up. 3. Unit improperly calibrated.	1. Test with another Cavitron® insert. If test insert works properly, discard the original insert. 2. a. Check if insert is fully seated in the handpiece. b. Verify that the soft nozzle grip is flush with the hard plastic of the insert port. The soft nozzle grip is a user replaceable part which should be changed if worn or leaking. 3. a. Return the Cavitron® JET Plus™ unit to DENTSPLY® for factory certified service. b. Refer to DENTSPLY® Professional Division-Product Service SOP PS-154.

Cavitron® JET Plus™ Troubleshooting and Analysis, continued

This troubleshooting section is meant for use by qualified Cavitron® Service Technicians.

SYMPTOMS	CAUSES	CORRECTIVE MEASURES
Intermittent scaling power or no scaling power.	1. Insert malfunction. 2. Insert is not pushed in far enough for automatic pick-up. 3. Malfunction in JET-Mate™ Handpiece. 4. Bent or missing electrical pin in JET-Mate™ Handpiece. 5. Open or intermittent wires in handpiece cable assembly. 6. Loose wiring or defective solder joint in the unit wiring 7. Foot Control batteries are weak. 8. Foot Control not synchronized to the unit.	1. Test with another Cavitron® insert. If test insert works properly, discard the original insert. 2. a. Check if insert is fully seated in the handpiece. b. Verify that the soft nozzle grip is flush with the hard plastic of the insert port. The soft nozzle grip is a user replaceable part which should be changed if worn or leaking. 3. Replace JET-Mate™ Handpiece. 4. Replace JET-Mate™ Handpiece. 5. Install a working JET-Mate™ Handpiece on the cable. Unplug the Handpiece cable connector at J3 of the Power Drive PC Board and check the continuity of the wires. a. Connect the ohmmeter between RED-GRN wire terminals. Flex the handpiece cable and check for intermittent readings. If the ohmmeter reading is not consistent or it is indicating an open circuit, the handpiece cable assembly is likely to be damaged and should be replaced. b. Connect the ohmmeter between WHT-GRN wire terminals and repeat the procedure above. 6. Troubleshoot the unit wiring and connectors. 7. a. Check information center for Low Battery light indication. Replace batteries as needed. b. Connect an auxiliary Foot Control cable between the Foot Control and the unit. The unit can be operated with the cable until the battery is replaced. 8. a. Follow the Cavitron® JET Plus™ Directions for Use & Service Manual instructions for Foot Control synchronizing. b. Connect the auxiliary Foot Control cable between the Foot Control and unit. Unit can be operated with the cable until the Foot Control is synchronized.