

U.S. Federal law restricts this device to sale by
or on the order of a dentist.

**WITH HST[®]
POLISHING SYSTEM**

Ultrasonic Scaler & Airpolishing Combination Unit

IMPORTANT: Read instructions fully before operating this device

THE JETSONIC 2000M™

Users Operating
Instructions

OPERATING INSTRUCTIONS

Features:

The **JETSONIC 2000M™** offers a complete prophylaxis package in one compact esthetic unit. The **JETSONIC 2000M** incorporates the **H.S.T.(R)** airpolishing system that has revolutionized prophylaxis treatments because of its minimum of servicing, and its patented design that has virtually eliminated irritating clogging to save you, the operator, irritating down-time and costly repairs..

The Jetsonic 2000M has a patented magnetostrictive scaling system that automatically tunes either 25K or 30k scaling inserts in the same handpiece. The advanced electronics ensures smooth effortless calculus removal, even at low power settings, and compensates for the degree of tenacity of the deposits to ensure maximum patient comfort, and reduced operator fatigue.

Smart sensors automatically detect which handpiece is being operated and ensure smooth transition from scaling to polishing procedures and vice-versa. The Jetsonic 2000M can operate from a main water supply or via an independent pressurized fluid supply (see accessories).

The handpiece holders and control knobs have been designed for easy removal for autoclaving between patients to reduce cross infection. Replacement holders and control knobs are provided with the unit for autoclaving.

INSTALLATION

1. Connect the water supply tube provided (the end distant from the filter) (1A) to the water inlet connector (1) on the rear of the unit.(fig 1) Push well home before tightening the locking collar, Connect a suitable connector to the water supply tube and connect to the water supply source or to a **STREAM SELECTOR™** independent fluid source if available - See accessories) and **check for leaks**.
2. Connect the air supply tube provided to the air supply inlet on the rear of the unit (2). Push well home before tightening the locking

collar. Connect a suitable connector that is different to the water connector fitted, and connect to the air supply and check for leaks.

⚠ ENSURE THAT THE AIR AND WATER CONNECTORS ARE OF DIFFERENT TYPES SO THAT THEY CANNOT BE INADVERTENTLY INTERCHANGED. CONNECTION OF WATER TO THE AIR TUBING CAN LEAD TO CLOGGING OF THE POLISHING SYSTEM AND FAILURE OF WATER FLOW FOR THE SCALER "

3. Ensure that the mains electrical supply is compatible with the device, and connect the mains supply lead (ML) to the connector (CN) on the power supply unit. (Deldent model JS2000M-PWR). Connect the 24 Volt lead from the power supply unit to the 5-pin 24 Volt inlet socket connector on the rear of the unit.(3) (Fig. 1)

4. Attach the airpolishing handpiece (10A) to the polishing handpiece connector (10B), and place it and the scaling handpiece (11) (Fig.2,) into the handpiece holders. 4P & 4S respectively (Fig.1).

⚠ The scaling handpiece must always be located in the scaling handpiece holder 4S, and the polishing handpiece in the polishing handpiece holder 4P when not in function. Interchanging the handpieces into the wrong holders can result in activation of the wrong handpiece and subsequent damage to the operators, patient or surroundings.


5. Light finger pressure on the on/off switch (5) on the rear of the unit will illuminate the switch indicating that the unit is in the stand -by mode.


⚠ If the unit is moved from one work station to another , always ensure that the connections are correct.

MODE SELECTION

The Jetsonic 2000M has been designed with smart sensors (6) located in the handpiece holders 4S & 4P (Fig.4) . Selection of the scaling handpiece (11) will cause its indicator light (27) to illuminate and automatically activate the scaler when the foot control (12) is

activated. On replacing the scaler handpiece in its holder the indicator light (27) will switch off, and selection of the polishing handpiece (10) will will illuminate the indicator (18) and automatically activate the polisher when the foot control is activated. If both handpieces have inadvertently been removed from their respective holders, the unit will recognize the error and neither handpiece can be activated. In addition, if both handpieces have been properly replaced in their holders, depressing the foot-control will not activate either of the handpieces.and both indicator lights (18,&27) should be off.


 **If either of these indicator lights fails to illuminate when the respective handpiece is selected, or fails to switch off when the handpiece is replaced, this may indicate a fault in the sensor function. Inadvertant activation of the foot -switch in such a case, may cause the respective handpiece to be activated, with associated untoward sequelae.**

 **Care therefore should be taken to replace the handpieces fully into their respective holders to ensure that the handpieces are not activated by inadvertently depressing the foot-control. This can result in harm to the patient, staff or to surrounding equipment.**

ULTRASONIC SCALING MODE

If the unit has been used in the polishing mode, replace the polishing handpiece fully into its holder, and select and remove the the scaling handpiece fromitsholder . The **JETSONIC 2000M** is now in the scaling mode and pressure on the foot control (12) will activate the scaling handpiece (11). This handpiece will only function in the scaling mode.

SCALING INSERT CONNECTION

 **Always sterilize scaling inserts prior to each use** (see insert of manufacturer's sterilization instructions).

O-rings:

Before placing inserts (15) into the handpiece, performinghe

following steps will increase 'O' ring life.

Fill entire handpiece with water, by depressing the foot control (12) for a few moments.

Lubricate the insert O -ring (black or green material) with water, and gently **rotate** the insert down into the handpiece until fully seated.

Tip Selection:

The primary factor in selection of an insert is the type of deposit that is to be removed (biofilm, light, medium or heavy calculus) and the location of these deposits.

Fine tips are designed for the removal of light subgingival calculus in pockets > 4mm and for disrupting subgingival biofilm.



Warning:

Finely designed inserts are more likely to fracture if used with a high power setting, and therefore thin scaling tips should always be operated on LOW-POWER setting only.

Select the insert for the procedure at hand, and always select the lowest power setting when beginning a procedure. Increase power incrementally to achieve efficient deposit removal and patient comfort.

Standard-diameter tips should be used for heavy or medium calculus deposits.

Straight or Universal tips are designed to be used in pockets < 4mm.



Warning:

If any change in power is experienced during use, which may indicate a micro-fracture of the tip, or if the tip and handpiece is dropped accidentally, the insert should be discarded and replaced. If for any reason the insert has become bent or deformed, do not attempt to bend it – discard and replace with a new insert.

Some wear of the tip occurs with time and use and is normal. When approximately 2mm of length of the tip is worn, the tip has outworn its usefulness (approximately 50% of scaling power has been lost) and should be replaced (See insert manufacturer's template if provided)



Warning:

Micro-fractures can occur in tips if they are dropped. This is not always immediately visible. This can sometimes result in a reduction of power during usage and further use can lead to fractures of the tip during function and subsequent soft tissue trauma, or inhalation or swallowing of the fractured portion.. Always discard tips that have been dropped or where a change of power is experienced during use.



Remember:

Do not leave tips in the handpiece at the end of the working session. Scaling tips should always be positioned in the handpiece -holder, such that they will not cause damage to patients or staff.

WATER FLOW

Operators must learn to manage water production and visibility.

Adequate water spray is needed (approximately 35ml/min.) to cool the vibrating insert and to provide lavage of the work area to improve visibility and flushing of debris. Turn the scaler power control knob (13) to low or medium output (Fig.2). Hold the handpiece over a bowl and depress the foot switch (12) to activate the scaler. The scaler water control knob (14) is then rotated to achieve a satisfactory 'hal o' spray or rapid drip around the instrument tip

The patient should be positioned in a supine position with head turned to the side and chin pointing down. This will enable the water to collect in the corner of the mouth where it can easily be suctioned.



Warning:

Reduction of the amount of water may result in overheating of the insert in function., and can cause patient discomfort or trauma to soft tissues.



Remember: Disconnect the JETSONIC 2000M™ from the water

supply at the end of a working session.


 **Warning:**

Use of power-driven scalers are contra-indicated with patients who are at risk of aspiration into the respiratory tract because of breathing or swallowing difficulties or for patients with strong gag reflexes.

POWER CONTROL (13)

The power control ranges on a scale from 1-7.

Always select the minimum power setting when beginning to scale and increase incrementally according to the power needed to achieve efficient calculus removal and patient comfort.

 Excessive power can result in early fracture of the tips, without increasing the scaling efficiency.

N.B. It is not necessary to use more power than is necessary to remove the calculus gently and efficiently.

POWER-SURGE MODE®.

Pressure on the footswitch in the scaling mode activates the scaler. If the footswitch is 'double-clicked' the power-surge mode is activated and illuminates the yellow indicator light (26) on the front of the unit. This results in an increase of approximately 20% extra power for any power setting being used. This extra power is useful when encountering tenacious deposits.. Release of the pressure on the footswitch will automatically return the power setting to its original power value. Further adjustment of the power control setting is not possible when the power-surge mode has been activated.

SCALING TECHNIQUE

Aerosol production:

Power scaling units can generate high levels of contaminated aerosols.

This can be reduced in the following ways.

1. Having a patient rinse with a pre-procedural antibacterial mouthwash containing chlorhexidine can reduce bacterial counts by over 90%.
2. Reduction of the power setting and modifying the water flow rate to a drip rather than mist.
3. 'Cup' the patients lips and cheeks to contain the spray, rather than to retract them .



Warning:

Patients with communicable diseases or at high risk for infection should not be treated with power scaling devices, because of the potentially highly infective aerosol production.

Although modern cardiac pacemakers are shielded, care must be taken when using the Jetsonic 2000M scaling unit with patients with cardiac pacemakers. Consult the patients cardiologist if in doubt. Magnetic field generation may interfere with certain types of pacemakers.

Proper use of personal protective equipment, including eye protection for the operator and patient, and effective surface disinfection and barriers should be employed.

The Jetsonic 2000M enables efficient calculus removal to be achieved in less time and with less operator fatigue than with hand instrumentation, but adequate training is needed. In contrast to hand scaling, where heavy lateral pressure is applied to engage the lower edge of the deposit, power scaling requires light pressure of multiple strokes and light taps, to pulverize and detach the deposits. It is important to keep the tip moving in short strokes with light pressure. If blanching of the finger tips is observed during the scaling procedure, too heavy pressure is probably being applied.

Deplaquing can be effectively accomplished using a series of gentle sweeping movements that overlap to cover the entire surface in a multidirectional pattern.

N.B. With adequate water flow and low power settings, it has been reported that, there is little concern for damage to teeth with large pulp chambers, because the amount of heat generated will not be sufficient to harm the pulp.

Although tip changing is simple, it is normally more efficient to perform as much work as possible with a tip before changing. Only the minimum power needed to perform the work required should be selected and light finger pressure only should be used.

Use less angulation than with hand instruments. Angulation should be close to 0 degrees and should never exceed 15 degrees. Firm pressure should be avoided as this can cause overheating and damping of the tip vibration which decreases scaling efficiency.

 **Warning:**

Contra-indications.

The Jetsonic 2000M scaling unit should not be used on patients with dental hypersensitivity, demineralised areas, or on porcelain or composite restorations. It is contra-indicated for use on titanium implant surfaces unless specially designed tips for this purpose are used. Care should be used when considering the use of the Jetsonic 2000M scaling unit on patients with cardiac pacemakers.

 **Warning:**

Continuous function without adequate water coolant can cause overheating and may cause damage to tooth and soft tissues.

 **Warning:**

This unit is not designed for use in operating theaters. This equipment should not be used in the presence of a flammable anaesthetic mixture with air oxygen or nitrous oxide.



Warning:

Subgingival scaling should be regarded as a surgical procedure for patients with cardiac conditions and implants. Systemic antibiotics and other relevant medication should be used appropriately and with the advice of a medical doctor. Patients that have undergone organ transplants should be treated with caution, and only with the advice of a their medical doctor.



Warning

Always disconnect the water and electrical supply to the scaler at the end of each working day. When reconnecting at the beginning of a treatment session ensure that all connections are made correctly. **DO NOT INTERCHANGE THE WATER AND AIR CONNECTIONS!**

AIRPOLISHING MODE

Ensure that the scaling handpiece has been replaced fully in its holder 4S. The scaling indicator light (27) should be off. Select the polishing handpiece and the indicator light (18) will illuminate, and will switch off when the polishing handpiece is replaced in the holder. In the airpolishing mode the foot control (12) has two active positions. With light depression of the foot-control the first micro-switch is engaged and activates the **rinsing mode**, bringing water and air only into the spray nozzle. Depressing the foot control further the second micro-switch is engaged and activates the **polishing mode**, which brings powder into the air stream to produce the unique patented homogeneous H.S.T™ polishing mixture.

POWDER FILLING:


Switch off the unit by pressing the on/off switch (5) and unscrew the powder chamber lid (17) located on the top of the unit. Position the specially provided funnel (16) (Fig.3) into the powder bottle to prevent spill of powder into the unit. Gently pour the airpolishing

powder (Only Deldent's Jetstream Powder is recommended for this unit) into the chamber ensuring that the level does not exceed the level indicator mark (18) located on the window on the side of the unit.


ADDITION OF POWDER

To check if additional powder is needed during treatment, glance at the aperture on the side of the unit (18). This will indicate the powder level. Always ensure that the machine is switched 'Off' before adding powder to the powder chamber. **Do not fill above the lower level of the funnel or the red indicator line.** The threads on the powder chamber and cap should be brushed clean before closing the powder chamber.

Adjustment of the powder level will also determine the degree of powder emitted from the unit and the efficiency of stain removal. For sensitive gums, it is advisable to reduce the amount of powder before treatment.

 **ALWAYS ENSURE THAT THE POWDER LEVEL DOES NOT EXCEED THE MAXIMUM MARK AS THIS CAN AFFECT THE POWDER TURBULENCE AND CAN LEAD TO CLOGGING OF THE SYSTEM.**

Remove the funnel, clean the powder bottle threads, and replace the powder chamber lid and screw down fully. The threads on the powder chamber bottle and lid should be regularly brushed clean of powder, to ensure ease of removal and replacement of the powder chamber lid

 **Warning:**
The powder chamber becomes pressurised during function and this pressure could displace the lid if not secured tightly.

Switch 'on' the unit by pressing the 'On/Off' switch (5).

Attach the 'Standard' polishing handpiece provided (10A). Ensure that the scaling handpiece is fully seated in its handpiece holder 4S. Select the polishing handpiece. The foot control has two positions when functioning in the polishing mode only. Light Pressure on the

foot control in the polishing mode, activates the first microswitch that introduces a stream of water and a stream of air, into the patented spray head design. This results in a pressurized stream of air and water that is used for rinsing. Further depression of the foot control activates the second micro-switch that introduces a stream of powder into the air stream that meets the water stream in the patented spray head, where they are mixed prior to emission, to form the patented homogenous stream. (H.S.T®.- Homogenous stream technology) that gently and efficiently cleans plaque and stain from the tooth surfaces. The patented homogeneous stream of air, water and powder, produced by the **JETSONIC 2000M** prevents the formation of the hard anhydrous sodium bicarbonate deposit in the nozzle, which results in frequent clogging of other units.

SETTING UP – “THE FINGER TIP TEST”

To achieve optimum cleaning efficiency, the following instructions must be followed step by step.

1. Set air control knob (19) to the fully open position. (Fig.2)
2. Rotate water control knob (20) (Fig.3) to achieve an excess water supply.
i.e. approx. 2 full turns from the fully closed position.
3. Hold the nozzle approx. 1 cm from the finger tip angulating the nozzle at right angles to the surface of the finger tip. (Fig.6)
4. Depress the foot control fully to activate the airpolisher, a slight 'stinging' feeling may be experienced.
5. While maintaining pressure on the foot control, slowly reduce the water flow until the powder is seen to just begin to collect on the finger at this distance, as shown in (Fig. 6). A white spot of powder approx. 2 -3 mm in diameter will be seen.

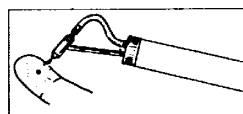


Fig. 6

6. Increase the water flow gently until the powder just disappears and

a steady homogeneous stream is developed.

The polishing stream is now correctly balanced for optimum function.

Please check the section on trouble shooting if your airpolisher fails to please.

PRACTICAL TIPS TO HELP REDUCE EXCESSIVE SPRAY :

The following are some tips on how to reduce the spray effect .

1. Use the least amount of water needed. The Minipolisher II has a water control knob on the right side of the unit. Turn this down as far as possible - an excess of water detracts from cleaning efficiency and just causes too much spray. The minimum stream of water that can be achieved is all that is needed.

2. Do not have too much powder in the powder bottle .

a) The first rule is "Never fill above the red line"

b) Even less powder will result in less powder in the spray and the operator should use as much or as little as they prefer .

3. Learn to direct the nozzle at an angle to the tooth surface . Aiming the spray directly at the tooth , will result in a "bounce back " and therefore increase of spray.

4. Use high speed suction, if possible, at all times - this will soak up much of the spray.

5. A very useful tip is to connect a simple funnel to the high suction tube and ask the patient or assistant to hold this close to the patient's mouth. Much of the spray will be collected by this funnel and reduce excess overspray.

6. Clinical experience with the unit will enable the operator to manipulate the soft tissues - cheeks , lips etc. to contain the spray, rather than using retraction of the soft tissues, which allows the spray to " escape."

POLISHING CONTROL SETTINGS:

For heavy stain removal the intensity control knob (19) (Fig.2) should be turned to the maximum clockwise position i.e. at the fully open position. A Booster handpiece, available as an accessory, is also useful for heavy stain removal. Turning the air control anticlockwise

reduces the airflow and powder. The reduced airflow position is used for removal of light stain or when clinical judgement dictates a lower pressure.

N.B. The air control valve does not turn off the air completely. There is a built-in automatic pressure control valve to limit the maximum air flow through the head.

CLINICAL APPLICATIONS :

The **JETSONIC 2000M** airpolishing unit is the method of choice for the following procedures:

- * Efficient removal of heavy stains and dental plaque.
- * Cleaning pits and fissures, prior to sealant placement.
- * Surface cleaning, prior to any acid etch or bonding procedure.
- * Cleaning around orthodontically banded or bracketed teeth.
- * Cleaning around Implants under dentures



Warning: Caution should be exercised when using the Jetsonic 2000M's polishing system around dental implants. Clinical consideration must be given to implants surface coating of the implants being treated, and to maintaining the health of the peri-implant soft tissues.

AIRPOLISHING TECHNIQUE:

1. The medical history should ascertain that the patient is not on a physician directed sodium restricted diet. Patients with renal insufficiency, chronic respiratory disease, chronic diarrhea and patients on long term steroid or diuretic therapy should be excluded.
2. The use of the airpolishing system should be avoided on composite resins and cements surrounding cast restoration margins.
3. The patient should be asked to rinse for 1 minute prior to treatment with a 0.12-0.2% chlorhexidine gluconate mouth rinse, to reduce airborne bacteria during treatment to insignificant clinical levels.
4. The patient's lips should be lubricated with vaseline jelly for patient

comfort.

5. Protective eyewear should be worn by the patient and operator. Contact lenses should not be worn, and a close fitting eye shield should be provided.

6. The operator should wear a facemask or shield.

7. Direct vision is recommended whenever possible. The mouth mirror can be used to shield the soft tissues, as can gauze sponges. To "contain" the spray, the operator should "cup" the patient's cheek and have the patient or assistant hold a simple funnel attached to one of the evacuation tubes, close to and below the lower lip.

8. The patient's head should be turned away from the operator when cleaning on the right side and turned towards the operator when polishing the left side. (For left handed seated operators, the opposite is true).

9. Because a patented homogeneous mixture of air, powder and water is produced prior to emission from the nozzle, it is not necessary to work in a circular motion, as with other airpolishing units, when directing the spray to the tooth surface. The handpiece is held approximately 3 mm. from the surface being polished.

10. The correct angle for directing the spray, is learned by clinical experience and is related to the angulation of the patient's teeth, but the following is a guide:

Anterior teeth: The spray should be directed at a 30 -35 degree angle to the tooth surface, directing the spray away from the gingiva onto the tooth. (Fig.7)

Posterior teeth: The spray should be directed at a 60 -70 degree angle always directing the spray away from the gingiva towards the tooth.

Occlusal surfaces: The spray should be directed at an angle of 90 degrees to the occlusal surface. (Fig. 7)



Warning:

The spray should never be directed into the gingival sulcus or onto the gingival margin, as this can result in unnecessary abrasion of the gingival tissues and / or extension of the periodontal pocketing, with associated clinical sequelae. (Fig. 8)

Only one or two teeth should be polished at a time, with frequent rinsing performed. An efficient intraoral evacuation system will prevent excessive build-up of fluid and increase patient comfort. A short learning period is required by the operator, as with any new technique, until the ideal angulations, soft tissue management and effective spray containment can be mastered. On achieving this, the air polisher will reduce the tedium of routine polishing.

Any external air and water filters that have been fitted on the advice of your serviceman should be examined periodically to ensure that they are still serviceable.

Any water that has collected in the filters on the service lines should be 'bled' regularly and cartridges replaced or cleaned as required. **A clean dry air supply is essential to ensure trouble free and clog- free function of your unit.**

CLEANING AND STERILIZATION

Cover: Wiped off with a soft cloth. Use 45% isopropanol and detergent or appropriate disinfection equivalent.

Handpiece Sensors (6, fig.4) Located in the handpiece holders, these should be cleaned with a damp cloth or sponge with 45% isopropanol and detergent or appropriate disinfection equivalent.

Scaling Handpiece:(11) The scaling handpiece must not be soaked in solution. It should be wiped clean with a gauze or soft sponge using 45% isopropanol and detergent or appropriate disinfection equivalent. A single-use handpiece barrier is recommended to avoid cross patient infection.

Handpiece Holders, Fig.4 (4S & 4P) These can be easily removed by gently pressing on the curved plastic spring (21) that is engaging the

lip on the lower edge of the window of the holder, and gently sliding upwards. The special sensors (6) can be seen located on the retaining base (22) of the holders. The handpiece holders should be removed after each patient's treatment, and bagged together with the control knobs for autoclaving at a maximum 134°C for 7 min. at 2.2 Bar. Do not use dry heat sterilization. Multiple autoclaving cycles will eventually result in discoloration or crazing of these components and they should be replaced as required.

Ensure that the handpiece holder is fully seated when replaced, so that the sensor (6) seated in the retaining base (22) is located opposite the small window of the handpiece holder (23). Failure to fully seat the holder, may result in obstruction to the sensor and faulty function.

Control knobs:(13,14,19&20) (Figs.2&3) These can be easily removed by a gentle pulling motion. Autoclave at maximum 134°C for 7 min. at 2.2 Bar. Do not use dry heat sterilization. Replace knobs with new knobs as necessary. Multiple autoclaving cycles will eventually result in discoloration or crazing of these components and they should be replaced as required. (see accessories).

Scaling Inserts: These should be autoclaved according to the insert manufacturer's instructions.

Foot switch:(12, Fig.2) Wipe off with a soft cloth. Use 45% isopropanol and detergent or appropriate disinfection equivalent.

Water filter:(1A, Fig.1) The water filter should be dismantled and cleaned every 6 months or sooner depending on the quality of the local water supply, and be replaced as indicated when clogged.

Airpolishing Handpiece:(10A, Fig5) show show the handpiece (10A) is disconnected from the handpiece tubing by simply unscrewing the rear tubing connector (10B) and gently pulling the handpiece away from the connector.

⚠ WARNING: The transparent spray head tubing (10C) can be autoclaved but should be replaced after every patient. If this transparent tube becomes perforated or allows leakage of air during treatment, it should be immediately replaced to prevent

inadvertent soft tissue trauma. The spray head tubing should be examined regularly to ensure no perforation.

Fig. 9 illustrates the correct procedure for replacing the spray - head tubes. Always ensure that there are no 'Kinks' in the tube which will interfere with normal flow.

After disconnection from the connector 5B, the complete handpiece should be disassembled into its three components 5D, 5A & 5E before autoclaving .(Fig. 5)

Autoclaving is performed at 134°C for 7 mins. at 2.2 Bar.

Re-assembly of the handpiece ready for use is carried out after autoclaving.

 **Warning:**

Always disconnect the water, air and electrical supplies to the unit at the end of each working session and when the unit is not in use for any extended period.

1. Only the power supply Model JS 2000M-PWR supplied by Deldent should be used with this equipment.
2. Only the foot switch Model JS2000M-FS supplied by Deldent should be used with this equipment.

The cordset is the disconnect device in this product .

 **IMPORTANT:**

Patients on a restricted sodium diet or having respiratory problems, should consult their physician before having treatment with the airpolisher. Patients should not wear contact lenses during the cleaning procedure, or should be supplied with a close fitting eye shield.

ACCESSORIES

SCALING INSERTS: A variety of scaling insert patterns are available from Deldent Ltd.. It is the manufacturer's policy to constantly

improve and expand the range of available tips. Check with your distributor.

INDEPENDENT FLUID SOURCE - The Stream Selector™

A unique 2-bottle system designed for use with ultrasonic scaler units. It replaces the mains water supply and enables the operator to choose from a variety of antimicrobial solutions for subgingival or endodontic irrigation or routine flushing with sterile water. It is ideally suited also for field and demonstration units. It is simply connected to a convenient air source. (Item No. 501000)

FILTERS

1. An in-line water filter (Item no. 506011) is supplied with the unit. The water filter (1A) should be dismantled and cleaned every 6 months or sooner depending on the quality of the local water supply.
2. Any air or oil filters fitted to the air supply line should be drained daily to remove accumulated water and manufacturers instructions for maintenance closely followed to ensure a dry, oil free air supply. A moist air supply can lead to clogging of the airpolishing system.

JETSTREAM POWDER Spearmint flavored air polishing powder is supplied in boxes of 4x250 gm. tubs. (Item No. 500004)

REPLACEMENT SPRAY HEAD TUBES -50 pieces (Item No. 509550)

ADDITIONAL AUTOCLAVABLE AIRPOLISHING HANDPIECE

(Item No. 509120)

ADDITIONAL AUTOCLAVABLE HANDPIECE HOLDERS

(Item No.512045)

AUTOCLAVABLE 'BOOSTER' AIRPOLISHING HANDPIECE

(Item No. 509111)

The Booster handpiece has a larger aperture 1.1mm and therefore increases the amount of polishing powder delivered to the work area. The amount of powder delivered is also dependant on the amount of powder remaining in the powder bottle. The Booster handpiece is especially useful for removing very heavy extrinsic staining, such as heavy nicotine or chlorhexidine staining.

QUICK DISCONNECT FITTINGS

Both male (Item No. 171024) and female (Item No. 171025) components are available for convenient and simple connection to water and air supplies.

REPLACEMENT CONTROL KNOBS:

Set of 1 large and 1 small control knobs (Item No. 512044)

If all 4 control knobs are required please order 2 sets.

TROUBLE SHOOTING GUIDE:

GENERAL



THE SCOPE OF THIS TROUBLE SHOOTING GUIDE IS FOR SIMPLE IN OPERATORY MANAGEMENT OF SIMPLE PROBLEMS. ANY MORE COMPLICATED PROBLEMS MAY REQUIRE DISMANTELING, TESTING, SERVICING AND RE -ASSEMBLY OF COMPONENTS. THESE PROCEDURES REQUIRE ACCESS TO THE INSIDE OF THE UNIT AND CAN BE DANGEROUS. THIS MUST BE UNDERTAKEN ONLY BY QUALIFIED PERSONS OTHERWISE IT WILL INVALIDATE THE WARRANTY .

SENSORS

IF EITHER OF THE INDICATOR LIGHTS (18&27) FAILS TO ILLUMINATE WHEN THE RESPECTIVE HANDPIECE IS SELECTED, OR FAILS TO SWITCH OFF WHEN THE HANDPIECE IS REPLACED, THIS MAY INDICATE A FAULT IN THE SENSOR FUNCTION. ENSURE THAT THE SENSOR IS CLEAN AND NOT OBSTRUCTED

SCALING TROUBLE SHOOTING:

ENSURE THAT THE POLISHING HANDPIECE IS RETURNED TO ITS HOLDER AND FULLY SEATED. IF BOTH HANDPIECES ARE OUT OF THEIR HOLDERS THE UNIT WILL NOT FUNCTION. CHECK THAT THE HANDPIECE HOLDERS 4P & 4S ARE FULLY SEATED AND DO NOT OBSCURE THE SENSORS (6) ENSURE THAT THE SENSORS ARE CLEAN AND NOT OBSTRUCTED .

FAULT CONDITION	REMEDIAL ACTION
1. Tip will not oscillate & mains	Check electrical supply. Replace with another tip and retry. Check fuse (24) (Fig.1) and replace

switch fails to illuminate.	with correct fuse rating,if necessary. When tip is oscillating, light contact with a glass bowl will produce a squeaking noise.
2. Tip does not oscillate, but mains lamp is on.	Try with another tip. Check electrical connections and sensors(6). If this fails to produce results, the fault condition is in the electronic unit, foot switch or handpiece. Call service technician.
3. Water failure.	<p>a. Check electrical connections</p> <p>b. Check water mains supply, or Stream Selector bottles if fitted.</p> <p>c. Check that the water regulator is set at the full open position.</p> <p>d. Check operation of the solenoid valve by listening for a clicking noise from the electronic unit when the foot switch is operated. If there is no noise, call service technician.</p> <p>e. Verify that the scaling insert is not the source of blockage. Remove the scaling insert, application of the foot pedal should cause water to flow out of the handpiece. Using a thin wire along the insert water channel, may on occasion unblock the tip.</p> <p>f. Check the water filter for signs of clogging. Unplug the electrical mains cable and disconnect the water supply cable from the water supply. Keep the apparatus horizontal to prevent residual water leaking into the electronic unit. Disconnect the filter, and clean the filter if clogged. If this fails to restore the fault condition, call the service technician.</p>

AIRPOLISHING TROUBLE SHOOTING:

ENSURE THAT THE SCALING HANDPIECE IS RETURNED TO ITS HOLDER AND FULLY SEATED. IF BOTH HANDPIECES ARE OUT OF THEIR HOLDERS THE UNIT WILL NOT FUNCTION. CHECK THAT THE HANDPIECE HOLDERS 4P & 4S ARE FULLY SEATED AND DO NOT OBSCURE THE SENSORS(6)

FAULT CONDITION

1.PRESSURE ON FOOT CONTROL WITH POLISHER HANDPIECE SELECTED DOES NOT ACTIVATE THE AIRPOLISHER

Check all electrical, air, water and foot control connections and ensure that the air and water supplies are open. and that the intensity valve (19) on the front control panel of the unit is in the maximum open position. Check that the sensor is clean and not obstructed.

Possible Cause	Test Procedure	Corrective Action
1. No apparent electrical supply	1. a. Press on/off switch (5). The switch will illuminate b. If not, check fuse at rear of instrument (24)& electrical supply c. Faulty electronic switch or circuitry	1. a. Check electrical connection. If light does not illuminate, check other functions of the unit. The indicator light only may be faulty and need replacement by a service man. b. Replace fuse with correct rating as indicated. Ensure good electrical connections. c. Refer to service man.
2. Handpiece (10A) incorrectly connected or reassembled	2. Check air & water connections to handpiece	2. Disconnect and reconnect handpiece to handpiece tubing ensuring no water or air leaks. Re-test.
3. Handpiece blockage	3. Disconnect handpiece from its connector (10B) and depress foot control to ensure	3. Disconnect handpiece into components (Fig.5). Place the components in an ultrasonic bath for a

Possible Cause	Test Procedure	Corrective Action
	adequate air flow from the connector to the handpiece	few minutes in WARM water, flush, dry, reconnect and test again.
4. Kinked or bent transparent spray head air tube	See Fig.8	4. Change or shorten as indicated. The transparent spray head tube should be replaced after every patient.
5. Powder blockage in airpolishing system	<p>5. Depress foot control fully to bring the polishing mode into action. The powder should be seen to be in turbulence when observed through the observation window (Fig.3). If the powder level remains stationary with the foot control fully depressed this indicates a blockage in the system.</p> <p>A main cause of blockage is overfilling of the powder bottle. DO NOT OVERFILL Refer to section 'POWDER FILLING'</p>	<p>5. Occasionally the blockage may be located in the handpiece tubing especially if the unit has not been in use for some time. Remove the handpiece and disconnect the handpiece connector from the tubing. Light tapping along the length of the handpiece tubing may be sufficient to break up any lumps of powder in the tubing. Activation of the unit in the rinse mode will then expel the powder from the tubing. Discard any remaining powder in powder chamber, rinse and dry fully, and replace with fresh powder. Always check that the air supply to the unit is dry and clean. A moist air supply can cause clogging. Consult your</p>

Possible Cause	Test Procedure	Corrective Action
		service man regarding the need for drying valves etc. for your compressor.
6. Faulty foot control	6. Despite good electrical connections, no audible click is heard from inside the unit when depressing the foot control	6. The fault may lie in the electrical solenoids or a faulty foot control. This needs the service of an authorized service man.

2. PRESSURE ON FOOT CONTROL SUPPLIES AIR BUT NO WATER

Possible Cause	test Procedure	Corrective Action
1. Water supply leaking or kinked, or not connected.	1. Check for leaks and kinks, and water supply connection.	1. Correct as indicated.
2. Blockage in the water filter.	2. Disconnect water tube from water supply. Disconnect water supply tube from rear of unit, reconnect tube to water supply and check for adequate water flow to the unit.	2. Dismantle in- line water filter. Clean or replace cartridge as indicated, reassemble and test again. This procedure is recommended every 6 months.
3. Faulty or blocked water solenoid.		3. Refer to service man.

3. AIRPOLISHER FUNCTIONING BUT INEFFICIENT CLEANING

Possible Cause	Test Procedure	Corrective Action
1. Foot control not fully depressed to activate polishing mode.	1. The foot control has two active positions. With first depression the first micro switch activates the rinsing	1. Ensure that the foot control is fully depressed to engage the second micro-switch.

Possible Cause	Test Procedure	Corrective Action
	<p>mode bringing water and air only into the spray nozzle. Depressing the foot control further brings powder into the spray nozzle to produce the unique patented homogeneous H.S.T™ polishing mixture. The powder in the powder chamber is observed to be in turbulence during the POLISHING mode.</p>	
<p>2. No powder or inadequate powder</p>	<p>2. Observe powder level in powder chamber. When level reaches 1/2 - 1/4 cm. level, it is time to add more powder.</p>	<p>2. Attach funnel and add powder but ENSURE not to overfill above indicated mark on view window.</p>
<p>3. Too much powder in powder chamber</p>	<p>3. Check that the air inlet (downward directed tube inside the powder chamber) is not occluded by powder. Adequate clearance from the powder level is needed to ensure good turbulence of the powder (Approximately 1 cm.)</p>	<p>3. Refer to section 'POWDER FILLING'</p>
<p>4. Perforation in spray head transparent tubing.</p>	<p>4. Check the tubing for perforation which would allow escape of spray mixture and therefore reduce polishing efficiency.</p>	<p>4. This tubing should be replaced after every patient.</p>
<p>5. Incorrect adjustment of air / water balance.</p>	<p>5Refer to section 'SETTING UP-“The</p>	<p>5. Adjust setting correctly.</p>

Possible Cause	Test Procedure	Corrective Action
<p>6. Intensity valve on front panel not in fully open position.</p>	<p>fingertip test'</p> <p>6. The fully open position is normally used. A reduced pressure setting can be used for cleaning light stain or when low pressure is felt to be clinically necessary.</p>	<p>6. Adjust intensity setting as indicated. The fully open position is the preferred position for normal function.</p>
<p>7. Powder not being delivered to spray nozzle</p> <p>a. inadequate powder</p> <p>b. blockage in system</p> <p>c. damp powder</p>	<p>7. No turbulence is observed in powder chamber when unit is activated in polishing mode. Open powder chamber cap and observe powder consistency should be free - flowing.</p>	<p>7. a. See previous sections 3 (2), (3).</p> <p>b. See previous sections 1 (2), (3), (4), (5).</p> <p>c. Discard the powder in the chamber and rinse and dry fully ensuring that no blockages are present in the powder bottle, handpiece tubing or handpiece or nozzle. The air supply from the compressor should be clean and dry at all times and may require fitting special filters as recommended by your serviceman. Regular drainage of the compressor is obligatory in non self-draining compressors. It is advisable to empty the powder from the chamber if the unit is not to be used for some time or at the end of each working day. It can be sealed in an airtight container.</p>

4. WATER HEATER NOT FUNCTIONING ALTHOUGH ALL OTHER FUNCTIONS ARE WORKING AND UNIT IS IN POLISHER MODE. THE WATER HEATER UNIT DOES NOT FUNCTION IN THE SCALING MODE. REFER TO SERVICE MAN.

WARRANTY

This Jetsonic2000M scaler / airpolishing combination unit is manufactured to the highest standards. It is guaranteed for a period of 12 months from the date of purchase against defects arising from faulty materials or workmanship. Normal wear and tear, willful, accidental or consequential damage, however caused, is specifically excluded from this guarantee.

The manufacturer is responsible for the effects on safety, reliability and performance of the equipment only if:

1. Repairs and service are carried out by persons authorized by the manufacturer.
2. The electrical installation of the relevant room in which the equipment is being operated complies with appropriate requirements.
3. The equipment is used in accordance with the instructions for use.

The manufacture or his representative undertakes to replace or repair free of charge any defective parts within 12 months of purchase. The warranty does not cover the ultrasonic scaling tips, which are only warranted for a period of 3 months.

N.B. Scaling insert O-rings are not covered by this warranty.

N.B. Clogging of the airpolishing system can occur because of factors beyond the control of the manufacturer, such as moist air supply etc. and therefore clogging of the airpolishing unit components is not covered by the warranty. Please contact the manufacturer, your distributor or your service agent for printed instructions as to how to correct and prevent clogging.

TECHNICAL SPECIFICATIONS

Height:		10 mm
Width:		27 mm incl.handpiece holders
Depth:		19 mm
Weight:		2.95 Kgs. excl. footswitch
Fuse:		T 3.15 AL 250V
Water supply:		0.2-0.6 Mpa, 29-87 PSI
Air supply:	Inlet pressure	0.4-0.7 Mpa, 58-101.5 PSI
	Working pressure	35 PSI
Scaler working frequency:		28-31 KHz

Switching mode power supply pack: JP2000M-PWR

Voltage:	Inlet	100-240V AC, 50-60 Hz, 2.5A
	Outlet	24VDC , 60W, 2.5A
Dimensions:		13 x 6.7 x 3.5 mm
Weight:		0.350 Kgs.



Footswitch:


Weight	0.350 Kgs.
Water resistance	IP20, type 1 enclosure

Standard Package includes:

- 1 Jetsonic 2000M unit and power supply unit.
- 1 DF-10 25K Universal Scaler Insert
- 1 DF-10 30K Universal Scaler Insert
- 1 pack of replaceable spray-head tubes.
- 2 additional autoclavable handpiece holders.
- 2 additional autoclavable water control knobs.
- 2 additional autoclavable power control knobs.
- 1 in-line water filter.
- Sample of Jetstream polishing powder

INDEX

-  Indicates fuse housing. Only a “slow blow” T 3.15 AL 250V rated fuse should be used.
-  ATTENTION, consult accompanying documents.

 THIS **JETSONIC 2000™** ULTRASONIC SCALER/AIRPOLISHER COMBINATION UNIT HAS BEEN DESIGNED FOR USE ONLY BY QUALIFIED OPERATORS SUCH AS DENTISTS AND DENTAL HYGIENISTS IN DENTAL OFFICES. PLEASE FAMILIARISE YOURSELF WITH THE INFORMATION IN THE USERS OPERATING INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT.

U.S. Federal law restricts this device to sale by or on the order of a dentist