

DELMARVA 2000™

Vantage Plus

Ultrasonic Scaler and Motor Pack

With Focused

LED Illuminated Handpieces pat. pending

Model DE-1V

Owner's Manual



CONTAINS IMPORTANT SAFETY INFORMATION! READ BEFORE USE

Federal Law restricts the sale of this device to, or on the order of,
a licensed veterinarian.

DELMARVA 2000™

VANTAGE^{plus} Veterinary Ultrasonic Scaler Motor Pack Combo

Specifications

| | | |
|--------------------|---|------------------------------|
| Power Requirement: | 120V +/- 10%, 60Hz | 200W max |
| Water Requirement: | Cold Potable Water @ 20 PSI min, 50 PSI max | |
| Temperature: | 40 ⁰ F to 90 ⁰ F (storage 35 ⁰ F to 95 ⁰ F) | |
| Dimensions: | 2.5" (63.5 mm) H, 8.0" (203 mm) W, 6.25" (159 mm) D, (excluding knobs and jacks) | |
| Weight: | 5 lbs (2.3 kg) | shipping weight 9 lbs (4 kg) |

SCALER SECTION

| | |
|----------------------|--------------------------------|
| Operating Frequency: | 25 KHz +/- 15 % |
| Motion: | .001"/.003" elliptical pattern |
| Tuning: | self tuning (automatic) |
| Protection Class | BF |

MICRO-MOTOR SECTION

| | |
|------------------|--|
| Motor RPM: | (bare motor) adjustable from about 8,000 RPM to 18,000 RPM |
| Motor Torque: | (bare motor) nominal value 6.29 mNm |
| Protection Class | BF |

FOOT PEDAL rust proof type, IP20

DELMARVA 2000™

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SAFETY PRECAUTIONS

MUST READ BEFORE USE!

1

WARNING!

ALWAYS sterilize or disinfect handpieces, inserts, and attachments before use

Use only clean, potable, COLD water for lavage

Do not use prophy angle or contra angle if stored at freezing temperature, until warmed up

ALWAYS place handpiece in the side bracket after use and NEVER leave on the patient

ALWAYS use only as much power as necessary when scaling and NEVER use high power with perio tips or the feline urethral catheter

Avoid keeping the prophy cup or insert tip in one place too long

CAUTION!

NEVER operate the scaler without lavage flow

NEVER autoclave the handpieces

NEVER soak the handpieces or inserts

NEVER allow fluid to enter the Micro-Motor handpiece

NEVER lubricate the Micro-Motor handpiece itself

NEVER allow the Micro-Motor handpiece to fall onto a hard surface

NEVER store the Micro-Motor handpiece with the prophy angle or contra angle attached

NEVER wind the cord around the Micro-Motor handpiece or the scaler handpiece

Place the unit away from heat and with adequate ventilation

Be careful moving the unit due to risk of damage from dropping

NOTE!

ALWAYS turn off water supply and disconnect the water line overnight

ALWAYS perform maintenance on contra-angle and prophy angle daily

PACEMAKERS

Although the use of ultrasound scaling is normally considered safe around pacemakers, never the less it is advisable to keep the scaler cord as far away as possible from the pacemaker leads. This advice is applicable to all implanted active devices including cochlear implants, Parkinson's stimulators, insulin pumps, etc.

UNPACKING

2



Verify that all items (listed clockwise from the unit) are accounted for and undamaged:

- Vantage^{plus} Combo Scaler/Motor Pack unit with integral foot pedal
- Ultrasonic Scaler hand piece with LED Illumination pat. pending
- TFI#3 Scaling Insert
- Prophy Angle
- Prophy Cups and Paste (Sample Size)
- Quick Release Valve water connection
- Water Line with Filter installed
- Micro-Motor hand piece with LED Illumination pat. pending

Water Supply

Install the ¼" male iron pipe thread coupler body into a source of **cold** potable water with a pressure of no less than 20 PSI and no more than 50 PSI. If pressure exceeds 50 PSI a regulator will be required. **It is necessary to have a shut off valve in series with the coupler body.** The internal water stop in the coupler body is not meant to act in lieu of a shutoff.

CAUTION! *The water itself must conform to CDC standards* in order to be free of potential bacterial contamination and be relatively soft. Excess mineral content will ultimately degrade the water system in the Vantage unit, requiring repair. *All plumbing work must comply with local building and plumbing codes.* It is strongly advised that a licensed plumber be employed to install the coupling body and shutoff valve into the building potable water system.

Flush the newly installed quick release coupler via the water hose thoroughly before connecting to the filter in order to clear out any debris remaining from the plumbing work. Connect the water supply hose going into the unit to the filter via the Luer Lock fitting. Connect the water line to the filter via the Luer Lock and then into water supply through the quick disconnect coupling using the thumb lever release. **IMPORTANT! REPLACE THE FILTER EVERY 30 DAYS.**

NOTE! Although the flushing instruction given above is meant for one time use on new installations, *it should be repeated if any repair work is done to the building plumbing system or if building water pressure is lost.* **Verify that cold water is present after building plumbing work.**

The **Delmarva 2000™ Vantage^{plus} Ultrasonic Scaler Motor Pack Combo** is a finely engineered instrument, designed to provide years of trouble free service. The following instructions will help you operate and maintain the unit at optimal performance.

ELECTRICAL POWER CONNECTION

Plug the electrical cord into the appliance entry on the rear of the Vantage^{plus} unit. Be sure that it is fully inserted. Plug the cord into a 120V 60HZ *grounded* outlet. The **On/Off** selector switch is located on the lower right side of the control panel.



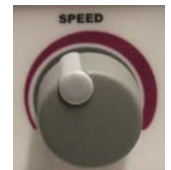
POWER CONTROL KNOB

Adjusting the **Power** control knob from left to right will vary the power output from low (left) to high (right). The **Specialty** area identifies the power setting used by the Feline Urethral Catheter and Cavitron® Slimline™, FSI™, or Modified Periodontal inserts. Refer to “Setting Power” on page 7 for appropriate power settings on various scaler inserts.



SPEED (RPM) CONTROL KNOB

This knob controls the speed of the Micro-Motor handpiece. Turning the knob to the right Increases the RPM.



SCALER HANDPIECE CONNECTION

The handpiece is shipped non-sterile. **Disinfect the handpiece before use.** See pages 5 and 6. Insert the plug into the circular jack on the right front of the unit. Be sure to seat the plug fully. Turn the locking ring clockwise to tighten the plug securely, but avoid cross-threading, forcing, or over tightening the plastic threads. Purge the water system prior to use. See page 6. See page 7 for more detailed information on the scaler inserts. If your Vantage^{plus} unit contains a Scaler handpiece with LED illumination pat. pending (DE-17L), the LED will illuminate once the foot pedal is depressed. **NOTE: Scaler should not be operated unless there is a Magnetostrictive Insert properly installed in the handpiece and there is proper water pressure.**



MICRO-MOTOR HANDPIECE CONNECTION

The handpiece is shipped non-sterile. **Disinfect the handpiece before use.** See pages 5 and 6. Insert the plug into the jack labeled “**Motor Pack**” on the left side of the Vantage^{plus} unit. See pages 9 and 10 for instructions on the Prophy Angle and the Contra Angle. If your Vantage^{plus} unit contains a Micro-Motor handpiece with LED illumination pat. pending (DE-14L), the LED will illuminate once the foot pedal is depressed.



MICRO-MOTOR HANDPIECE CONNECTION (CONTINUED)

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Located next to the **Motor Pack** jack is the **Motor Reverse** rocker switch. This switch allows the motor to run clockwise (FWD) or counterclockwise (REV). The **Speed** setting is not affected by FWD or REV selection and the motor will run at the set speed regardless of direction. This allows the motor to be used such that fluid is directed into the oral cavity for collection by suction whether working on the right or left quadrant. On the other hand, if it is desired to reverse the motor to free the prophylaxis cup or burr from hair, reducing the speed setting prior to reversing the motor is recommended in order to obtain the best control. **Always let the motor stop fully before reversing.**



ADJUSTING LAVAGE WATER PRESSURE/FLOW

Turning the **Water** knob in a clockwise direction increases the flow of water and, conversely, the opposite direction produces a reduction in water flow. Note this control knob will turn about 2 or 3 turns in either direction. Once you feel resistance do not turn past that point.



The red **Low Pressure** light next to the water knob comes on when the water flow/pressure drops below the safety point. **IMPORTANT!** Do not operate the Scaler until you have corrected the condition, and adequate supply water is again available. See pages 5 and 6 for further information. Lavage is active only in the Scaler mode.

SELECTING SCALER OR MOTOR PACK USE

Use the **Function** rocker switch to select **Scaler** or **Motor Pack** operation. LED indicators are provided to show at a glance which mode is selected. It is necessary to step on the foot pedal to activate the Micro-Motor or the Scaler along with lavage.



ALWAYS place the handpiece back in the bracket on the side of the cabinet after use. In order to prevent harm, **NEVER** leave a handpiece unattended on the patient when the foot pedal is depressed.

Tap at the calculus to start then use slow strokes with light pressure in an apical or oblique direction with the tip *parallel* to the tooth surface beginning at the coronal edge of the calculus. Do not stroke laterally at the calculus with the side of the tip as you would with a curette as this tends to burnish heavy calculus instead of removing. *Note that burnishing can also occur if power is set too low or the tip is worn down.* Allow the lavage cavitation to do the work, do not stroke too quickly. It is highly recommended to use manual curettage in conjunction with ultrasonic scaling because manual follow up will reveal any residual calculus and provide tactile feed back of surface smoothness. The thin perio tips used at low power are excellent for plaque bio-film removal but need to be used at medium power for hard calculus. For especially heavy calculus use a general purpose tip. Use only as much POWER as necessary to remove the calculus. Use normal septic precautions with respect to the water lavage spray due to microbial material lifted during scaling.

Do not use the tip as a retractor. Because the tip becomes hot due to friction, use as a retractor has significant risk of burn.

Be sure that the lavage is flowing adequately. The lavage water also serves to cool the magnetostrictive insert. *The scaler insert will fail in less than one minute due to overheating if there is inadequate water flow.*

Ultrasonic magnetostrictive inserts wear at the tip. They will wear out in due course with normal use and become ineffective. Because of the internal mechanical advantage, a little visible wear has a relatively large effect on performance. Check the tips for wear regularly, preferably at every ten autoclaves. The periodontal insert should be checked at every five autoclaves because it is subject to more rapid wear due to size. See page 7 for more information and alternate inspection schedule.

STERILIZING AND DISINFECTING

SCALER MAGNETOSTRICTIVE INSERTS

Wipe and clean using warm water prior to autoclave. Use a toothbrush as needed. Do not clean in an ultrasonic cleaner. Place the insert in an appropriate autoclave bag. Steam autoclave at 135^o C and 215kPa (275^o F and 30 PSI) for a minimum of 12 minutes followed by 20 to 30 minutes drying time. Do not use dry heat.

PROPHY ANGLE AND CONTRA ANGLE

Clean thoroughly and lubricate prior to autoclave. Use a toothbrush and warm water to remove all prophy paste. Place the angle in an appropriate autoclave bag. Steam autoclave at no more than 132^o C (270^o F) and 215kPa (30 PSI) for a minimum of 15 minutes. Do not use dry heat. Lubricate again before use, being sure to wipe away any excess lubricant.

SCALER AND MICRO-MOTOR HANDPIECE

Clean the Micro-Motor handpiece with moistened gauze to remove all traces of prophy paste. Wipe down with an appropriate topical disinfectant. Do not allow fluid to enter the handpiece. Shake off fluid and allow to dry.

Clean the Scaler handpiece thoroughly to remove any detritus or saliva. Wipe down with an appropriate topical disinfectant. Do not allow fluid to enter the handpiece. Shake off fluid and allow to dry.

STERILIZING AND DISINFECTING (CON'T)

6

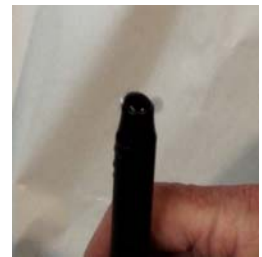
The autoclaving parameters given reflect the recommendations of our component vendors. These recommendations are not intended to supersede routine spore testing in accordance with your state and local health department regulations, where required. It is highly recommended that a spore test be done in any case to verify your autoclave at the parameters cited.

CAUTION! Scaler handpiece and the Micro-Motor handpiece are NOT autoclavable.

Disinfect these items by wiping off any detritus or fluid and then wiping down with an appropriate topical disinfectant. **NEVER soak these items.**

PURGING THE WATER SYSTEM

Purging the water system is done each day after the water is turned on and each time an insert is changed. It is necessary to clear the water system of air before operating the Scaler because entrapped air can cause the insert to overheat and to make a high pitched squealing sound. Proceed by turning on the water, turning on the unit, and selecting SCALER mode without the insert in place. Hold the handpiece vertically with the insert end up and step on the pedal allowing water to flow. Continue until the water flow is free of bubbles. Note the mushroom shaped meniscus on the water as it leaves the handpiece.



With the handpiece still vertical and the system free of air, release the foot pedal and slowly lower the insert into the handpiece. When the insert is about 3/8" (10 mm) from being fully inserted, push it the final distance with a twisting motion. The twisting motion serves to lubricate and seat the "O" ring water seal. Be sure that the insert is all the way in (fully seated).



When the system is purged and the insert is oscillating, the resulting lavage flow forms a fine, fan shaped mist pattern as the water stream is dispersed by the oscillating tip.



NOTE: Lavage flow from the insert depends on the procedure. The range is from 18 cc/minute to 40 cc/minute. Remember that lavage flow is necessary to cool the insert and the tooth.

INSERT WEAR, CARE, and SELECTION

7

Inserts wear out with normal use. Compare your insert against the full size illustration on page 8 to gauge how much wear has occurred. A monthly check is appropriate for the DE-5 and DE-6, however the finer DE-6A should be checked bi-weekly.

When the tip reaches back to the blue line, efficiency is reduced by 25%. When the tip reaches back to the red line efficiency is reduced by 50% and the insert should be discarded. If the tip is bent or damaged, discard the insert. Note that only 1mm of wear can reduce power by 50% due to the mechanical advantage inherent within the internal coupling between the magnetostrictive stack and the tip.

Be careful to avoid damage to the magnetostrictive stack (the metal laminations behind the plastic portion). If broken laminations are evident, discard the insert.

Do not clean with an ultrasound cleaner. Never soak the insert. Never allow to run dry.

SETTING POWER

The correct power setting is primarily a function of the tip type. **Perio tips and the feline urethral catheter tips require low power.** Using “normal” power with the fine tips may easily break them. Use the following chart as a guide. Always use the lowest power setting possible to accomplish the desired result.

NOTE: “Thru-flow” types are generally for supra-gingival use while “Focused spray” types are for periodontal and sub-gingival use. Lavage terminates immediately when the foot pedal is released with “Thru-flow” types whereas the “Focused-spray” types produce a stream of water for a short time after the pedal is released in order to give a full flush of loose detritus.

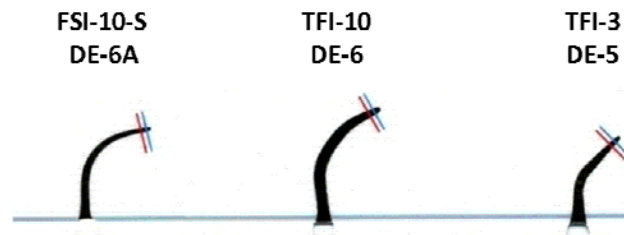
| | | |
|-------------------|---|--|
| DE-5 TFI #3 | Extrinsic stain and heavy calculus removal Thru-flow type, commonly called “Beaver tail” | Any low to high power setting as appropriate |
| DE-5A FSI #3 | Extrinsic stain and heavy calculus removal Focused spray type, commonly called “Beaver tail” | Any low to high power setting as appropriate |
| DE-6 TFI #10 | Light to moderate calculus removal Thru-flow type, also called “Straight” or “Universal” | Any low to high power setting as appropriate |
| DE-6A FSI-10-S | Light deposit removal and deplaquing pockets <4mm Focused spray type, also for perio maintenance | Low power only Use “Specialty” setting |
| DE-6B FSI #10 | Light to moderate calculus removal Focused spray type, also called “Straight” | Any low to high power setting as appropriate |
| DE-7 | Feline urethral catheter Cavitron® Slimline™, FSI™, or Modified Periodontal inserts WARNING! Excess power will injure patient! | Low power only Use “Specialty” setting |

NOTE: Use the 30% power boost for *brief* periods of time to loosen stubborn calculus. Keep the tip moving to avoid over heating a small area. **NEVER use power boost with perio inserts or with the DE-7.**

WEAR GUIDE

8

Hold tip up against page and align root with illustration to measure wear.



USING THE MICRO-MOTOR HANDPIECE

9

The Micro-Motor handpiece is used in conjunction with the prophy angle for polishing with a prophy cup, or with the contra angle and a burr to cut down dentin in accordance with standard dental practice. Internal gearing within the prophy angle allows cup speeds from about 1,000 RPM to 8,000 RPM while the contra angle allows about 4,000 RPM to 20,000 RPM at the burr or disc.

It is absolutely essential to perform routine maintenance on the angles after each use.

Without maintenance the angle will fail in use and can also easily damage the Micro-Motor.

THE ANGLES *MUST* BE STERILIZED BEFORE USE. SEE page 5 FOR INSTRUCTIONS.

Use low speed when polishing. Do not remain in one spot too long due to the risk of over heating the dentin. If a rough spot is evident which normal polishing will not address directly, employ appropriate alternate steps to reduce the roughness before continuing to polish. Do not allow the patient to swallow prophy paste. Use appropriate suction, lavage, and positioning to prevent swallowing of the paste.

See the Dental Accessories Pack (DE-12) literature for specific information on burrs and discs. Individual item labeling will give maximum permissible speeds. Note that the single sided disc is not intended for splitting teeth directly, however, if a series of pilot holes are made along the axis of the split then the single sided disc will perform adequately for splitting.

ATTACHING AN ANGLE TO THE MICRO-MOTOR



Align the slot in the angle with the pin in the Micro-Motor collar. *Push with a straight motion* until the angle seats fully against the Micro-Motor.



TO REMOVE: *Pull with a straight motion.* Use a firm grip and a deliberate motion. Use a cloth or rubber glove to increase grip if needed. *Do not use tools.* If the angle will not come off by hand, call Delmarva 2000™ Technical Support for advice.

ATTACHING THE PROPHY CUP TO THE PROPHY ANGLE

Bring the single use rubber prophy cup up to the angle as shown. Push the prophy cup over the pin on the rotating hub of the prophy angle using an arcing motion.



Be sure that the cup is evenly seated all the way around. Proper seating of the prophy cup on the pin is illustrated here. When using a tool to remove the prophy cup from the hub be sure to grasp only the rubber, NOT the hub.



Lubrication *before and after* autoclaving is necessary. Dip the angle into the DE-11 cleaner lubricant and run the handpiece for 20 to 30 seconds. Shake off the excess fluid. Clean gauze may be used to dry the angle. Autoclaving will cause the angle to rust internally if you do not lubricate before hand. Close the DE-11 container immediately after use to prevent contamination.



CAUTION! DE-11 cleaner/lubricant contains isopropyl alcohol. **Flammable!** Do not use near fire or flame. Use with adequate ventilation. The DE-11 cleaner/lubricant also contains mineral oil. While normally non-reactive, some individuals have allergic sensitivity to mineral oil. Use appropriate precaution when needed.

It is strongly advised that you lubricate angles once a week whether they have been used or not. This protects against internal corrosion and lubricant evaporation. Regular maintenance will assure maximum useful service life from your prophy angle, however, expect to replace them between 6 months and one year depending on usage.

The upper prophy angle in the photo is far beyond the acceptable limits of wear. The gap, which should not exist, caused a blackened mixture of prophy paste and saliva to exude onto the patient. Compare the edge of the hub to one in the prophy angle in the lower part of the photo.



Remember, the pumice in prophy paste will wear the hub of the prophy angle as well as the target dentin, hence the finite service life.

The prophy angle and contra angle should be thoroughly cleaned of prophy paste, saliva, and blood before lubrication prior to autoclave. Use a toothbrush and warm water. DE-11 fluid may be used in addition to water in order to loosen stubborn material.

MICRO-MOTOR HANDPIECE CARE

ALWAYS remove the contra angle, but especially the prophy angle, after use. NEVER store the Micro-Motor handpiece with an angle on it. The reason for emphasis on this point is because prophy paste in particular, but also blood or saliva, will solidify overnight and “glue” the angle to the Micro-Motor hub so firmly that the angle cannot be removed by hand due to the high precision tight tolerance fit between the angle and the motor hub. Use moistened gauze to clean the Micro-Motor handpiece. Do not allow fluid to enter the Micro-Motor.

NEVER lubricate the Micro-Motor. Doing so *will* damage the motor beyond repair and void the warranty.

NEVER autoclave the Micro-Motor. Doing so *will* damage the motor beyond repair and void the warranty.

NEVER soak the Micro-Motor. Doing so *will* damage the motor beyond repair and void the warranty.

HANDLE WITH CARE! Dropping the Micro-Motor handpiece on the floor has a high probability of damaging the motor beyond repair and voiding the warranty.

DO NOT coil up the cord tightly. Tightly winding the cord can cause the wires inside to fail.

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| Unit will not come on (no lights) | Cord loose at outlet | Plug in firmly |
| | Cord loose at unit | Plug in firmly |
| | Faulty outlet | Use another outlet or else correct the fault |
| | Unit internal failure | Call Delmarva 2000™ Technical support |
| No water flow, first use of the day with the insert out <i>Using building water supply</i> | The water supply turned off or else the quick release is disconnected | Turn on, connect |
| | Water adjustment set too low | Set for proper flow |
| | Clogged filter | Examine; replace if clogged |
| | Clogged line | Flush as per page 2 |
| Water flow stops sometime during the day <i>Using building water supply</i> | Water adjustment set too low | Set for proper flow |
| | Clogged filter | Examine; replace if clogged |
| | Clogged insert | Use another insert |
| | Building water supply low or lost pressure | Check pressure/flow at a fixture on the same supply line; correct as required |
| No water flow <i>Using portable water supply</i> | No or low pressure in tank | Pump up to normal |
| | No or low water in tank | Refill and pump up |
| | Clogged filter or insert | See above |
| Cannot resolve water flow problem with above solutions | Clog is internal to unit | Call Delmarva 2000™ Technical support |
| No scaler action when pedal is pressed, has water flow | Wrong power setting for insert | Set power for proper operation |
| | Insert not pushed in fully | Re-seat (see page 6) |
| | Faulty insert | Substitute a known good insert |
| | Faulty handpiece | Replace |
| No scaler action, no water flow, no micro-motor rotation, but lights are lit | Faulty foot pedal | Call Delmarva 2000™ Tech Support |

| PROBLEM | CAUSE | SOLUTION |
|---|--|--|
| "Low Pressure" light is on but some water flows | Water knob set too low | Adjust higher |
| | Clog or restriction | See Part 1; check filter |
| "Low Pressure" light is on and no water flows | Water supply is off; DE-4 tank is empty or has no pressure | Turn on supply; fill and pump up tank |
| | Clog | See Part 1; clear the clog |
| Scaler handpiece gets hot | Insufficient water flow | Set water knob higher |
| | POWER set too high | See page 7; set POWER lower |
| | Air in the water system | See page 6; purge the system |
| | Broken insert laminations | Replace insert |
| Insert pops out of handpiece | Worn or faulty "O" ring | Replace insert |
| Poor ultrasonic vibration | Power is set too low | See page 7; Increase setting |
| | Insert not fully seated | See page 6; re-seat the insert |
| | Insert is bent or worn out | Replace the insert |
| Screeching noise during scaling | Air in water system | See page 6; purge the system |
| Poor scale removal, tip seems to cavitate OK | Improper technique | See page 5; use proper technique |
| | Wrong tip for task | See page 7; select correct insert |
| | Worn out tip | See page 7; replace insert |
| Micro-Motor will not rotate, lights are lit | Handpiece unplugged, or not fully plugged into unit | Plug in fully |
| | Reversing switch "hung up" | Firmly flip the reversing switch a couple of times |
| | Jammed (seized up) angle | Remove angle; if motor runs then replace the angle |
| | Faulty cable | Call Delmarva 2000™ Tech Support |

PORTABLE WATER SUPPLY (DE-4)

13



The optional DE-4 water tank allows the Vantage^{plus} Scaler Motor Pack Combo to be used anywhere that 120V 60Hz electrical power is available.

The DE-4 tank is fitted with a hose terminated by the same quick release coupler normally shipped with the Vantage^{plus} allowing very rapid change over from fixed to portable use without tools.

It is imperative for antiseptic reasons to **fill the DE-4 tank only with clean, potable, cold water**. See page 1. Distilled water is desirable because it has the additional advantage of being mineral free.

Anti-microbial agents per se added into the water do not harm the DE-4 tank or the Vantage^{plus} water system. However, over time and with continual use, deposits will form in the tubing and in the water system. Depending on concentration, deposits in the Vantage^{plus} water system could eventually become severe enough to restrict water flow to the point where the unit will have to be returned to Delmarva 2000TM for service. The same is true for hard water.

USING THE DE-4

Remove the top of the DE-4 by turning counter-clockwise. Each day fill with clean, potable, **COLD** water. **Do not use hot water**. Replace the top by turning clockwise. Using the handle, pump up the pressure until the yellow ring is visible. Connect the water line from the Vantage^{plus} unit via the quick disconnect. See page 6 for purging the system. NOTE: Under typical conditions, it is expected that the water in the DE-4 will eventually reach room temperature. This is normal and the Vantage^{plus} should operate as intended.



At the end of each day's use, release pressure from the tank by pulling out the button on the side of the DE-4 tank. Uncouple the quick disconnect. Note that the button may be rotated ¼ turn counterclockwise and will stay open until turned back clockwise.

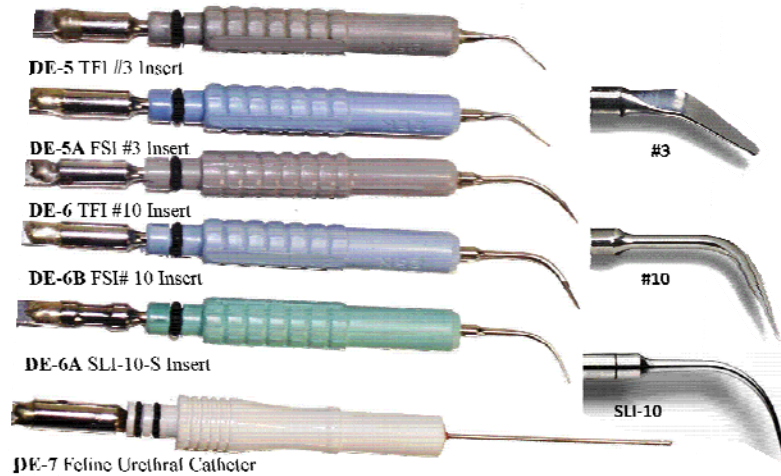
To insure cleanliness of the DE-4, it is advisable to periodically rinse it out with a suitable anti-microbial solution. Be sure to drain and rinse thoroughly before use with the Vantage^{plus} unit.

Drain and refill regularly. Do not allow water to become stale. Be sure to drain the DE-4 completely if storing or transporting in freezing conditions.



Item# Description

- DE-5 TFI #3 Insert - 25k (Thru Flow Insert) Included with all dental units. "Beaver Tail" for heavy calculus
- DE-5A FSI #3 Insert - 25k (Focus Spray Insert) "Beaver Tail" for heavy calculus
- DE-6 TFI #10 Insert - 25k (Thru Flow Insert) "Universal" straight for light to moderate calculus
- DE-6A SLI-10-S Insert - Periodontal - 25k (Focus Spray Slim Line Insert) Perio (low power)
- DE-6B FSI #10 Insert - 25k (Focus Spray Insert) "Universal" straight for light to moderate calculus
- DE-7 Feline Urethral Catheter. Use low power "Specialty" setting





DE-14 Micro-Motor handpiece



DE-14L Micro-Motor handpiece with LED illumination pat. pending



DE-17 Scaler handpiece



DE-17L Scaler handpiece with LED illumination pat. pending

DELMARVA 2000TM, LTD. (hereinafter referred to as DELMARVA), subject to the terms/conditions herein below expressly set forth in Paragraphs (1) through (4), **HEREBY WARRANTS** that it will repair any part of the enclosed DELMARVA VANTAGE^{plus} ULTRASONIC SCALER MOTOR PACK COMBO which proves defective by reason of improper workmanship and/or material for a period of **THREE YEAR** from the date of **ORIGINAL** purchase without charge for parts or labor.

- (1) **THREE YEAR** parts and labor coverage on the entire unit excludes the following components:

Micro-Motor handpiece coverage, excluding dropping or oil or water damage, one (1) year.

Scaler handpiece assembly (two (2) year warranty) not warranted if subjected to abuse from excessive pulling/stretching, debris and/or chemical accumulations from water supplies.

Foot pedal is covered for two (2) years parts and labor.

All ancillary items (i.e. Scaler Inserts, Prophylaxis Angle, Contra Angle, etc.) have a 30 day warranty. These items are consumable and need periodic replacement. Replacement time varies with usage.

- (2) **ORIGINAL PURCHASER:** This warranty is limited to the original purchaser of the unit. The warranty card must be postmarked and returned to DELMARVA within 30 days of purchase date to validate warranty.
- (3) **PROPER DELIVERY:** To render the services provided hereunder, the unit must be shipped Freight Prepaid or delivered to DELMARVA in either its original package or a similar package affording equal degree of protection. Warranty does not include shipping and handling back to the customer. In the event a loaner is needed, it is the user's responsibility to return the unit, prepaid.
- (4) **UNAUTHORIZED REPAIR, ABUSE, ETC.:** The unit must not have been previously altered, repaired or serviced by anyone other than a service facility authorized by DELMARVA. To render such service, the serial number on the unit must not have been altered or removed. The unit must not have been subject to accident, misuse, or abuse or operated contrary to the operating instructions. Micro-Motor handpiece and Scaler handpiece assemblies are not warranted if subjected to abuse from excessive pulling/stretching, debris and/or chemical accumulations from water supplies. Water system is not warranted by failure due to debris, and/or chemical deposits from water supplies. Foot pedal is not warranted by failure due to operation or storage in a wet environment.

EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, NO OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS UNIT. UNDER NO CIRCUMSTANCES SHALL DELMARVA BE LIABLE FOR CONSEQUENTIAL DAMAGES SUSTAINED IN CONNECTION WITH THE SAID UNIT, AND DELMARVA NEITHER ASSUMES, NOR AUTHORIZES ANY REPRESENTATIVE OR OTHER PERSON TO ASSUME FOR IT, ANY OBLIGATION FOR LIABILITY OTHER THAN SUCH AS EXPRESSLY SET FORTH HEREIN.

Shipping Policy

Warranty Work – To render the services provided hereunder, the unit must be shipped in either its original package or a similar package affording equal degree of protection. It is the customer's responsibility to ship equipment in need of repair to DELMARVA. It is also the customer's responsibility to return any "loaner" equipment to DELMARVA when repairs are completed. Shipping charges to return repaired equipment will be applied to the final bill.

Non-Warranty Work - It is the customer's responsibility to ship equipment in need of repair to DELMARVA, in the same manner as above. It is also the customer's responsibility to return any rental equipment to DELMARVA when repairs are completed. Shipping charges to return repaired equipment will be applied to the final bill.

UPS Ground Service is used for all shipping. Upgrade service will be quoted to customer at time of service.