



## Vet II Scaler/Polisher Combination

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## READ BEFORE YOU START

The scaler handpiece, ultrasonic transducer (stack), and tip are water cooled devices and must always have adequate water flow to function properly. The amount of water delivered to the handpiece must be regulated according to the power level. If the power level is increased, the amount of water must also be increased. Not having enough water flow through the scaling handpiece may permanently damage the handpiece, will cause the handpiece to get hot, degrade transducer life and void the warranty. For more information, please turn to the **Scaler Operating Instructions** page.

When active, ultrasonic tips vibrate at over a million cycles per minute, if it touches soft tissue or skin it will cause burns due the friction of the vibration. The tip is not normally hot but the ultrasonic vibration will burn you if you touch it, this is due to the friction between the skin and the vibrating tip. This is normal for all ultrasonic scalers. Never let the scaling tip touch soft tissue or skin, Engler Engineering Corporation is not responsible for any damage caused by improper use of this device and / or its accessories.

When using a water bottle, it must be kept pumped to at least 30 PSI. The pressure release valve will slightly move out showing the yellow interior when pressure builds up. As water is used the pressure will decrease and the bottle must be pumped to keep adequate pressure.

Never twist or bend your ultrasonic stack. Be careful not to twist or bend the stack when inserting or removing it from the handpiece. Pull the stack straight out to remove it. Always make sure the stack is properly aligned when inserted into the handpiece. There is a white dot in the handpiece and a hole in the stack, they must be aligned during insertion. Bending the stack or inserting it incorrectly into the handpiece may irreparably damage the stack and degrade it's ability to vibrate. Improper insertion of the stack may also damage the handpiece as well as cause it to get hot. Damage caused by bending or forcing the stack into the handpiece is not covered by the warranty. A stack removal tool is available from Engler Engineering Corporation, it is part number 47903.

Do not alter the scaling tip. The tip is shaped to deliver the optimum vibrating power level and keep its optimum frequency. Deforming the tip in any way will cause the handpiece to get hot, degrade vibration power and void the warranty.

Dropping the handpiece with the stack and tip may alter or damage your tip and stack causing the handpiece to get hot, degrade power / vibration and void your warranty.

Remove the tip and nosecone from the stack and clean / disinfect after every use. Stacks, tips, prophy angles, rubber cups, straight handpieces, burrs, and water filters, are normal wear and tear items. In order to achieve optimum performance they should be replaced regularly.

The ultrasonic stack normally last six months to a year. To maintain optimum performance, replace every six months to a year or as needed. Do not leave the ultrasonic stack inside the ultrasonic handpiece for long periods of time. The O-rings may dry out and make it difficult to remove the stack.

Lubricate the stack O-rings with an appropriate lubricant for your practice, for example mineral oil or petroleum jelly is appropriate for most practices. A stack removal tool and a maintenance kit are available from Engler Engineering Corporation.

The water regulator has multiple turns. Turn the water regulator knob counterclockwise to open and clockwise to close. The amount of turns required is dependent on the supplied water pressure.

The power switch is on the left side of the unit.

Turn off the unit and disconnect the waterline when not in use.

## COMPANY PROFILE

Engler Engineering Corporation has been in business since 1964 and occupies an 8000 square foot facility in Hialeah, Florida (USA). We manufacture ultrasonic dental scalers, polishers and combination units including electro surgery equipment and ultrasonic instruments for the veterinary market as well as a microprocessor controlled anesthesia delivery system and a respiratory monitor.

We also manufacture dental equipment for the human market. Please visit our website [www.englerusa.com](http://www.englerusa.com) for more detailed information or call us at the numbers shown below.

Engler Engineering Corp. acquired the exclusive manufacturing and marketing rights of **Dynax** products, including stretchers, animal restraint devices, comfort cots, heating pads, and other products. We also acquired the Alpha-Sonic, Ora-Sonic, and Pro-Sonic line of piezo scalers.

Engler Engineering Corporation's brand name veterinary products proudly include:

**Excelsior**, high speed dental air unit with vacuum / electro-surge / ultrasonic scaler / low speed / high speed / air / water syringe,

**Son - Mate II**, ultrasonic scaler / polisher,

**Vet II** - 25K ultrasonic dental scaler / polisher

**Sonus II**, ultrasonic dental scaler,

**Poli - X**, micromotor variable speed polisher,

**Drill - Aire**, high speed dental air unit, high speed, air / water syringe,

**Drill - Aire Plus**, high speed dental air unit, high speed, low speed, air / water syringe,

**Scale - Aire Mini**, high speed dental air unit with ultrasonic scaler / high speed / low speed / air / water syringe,

**Scale - Aire**, high speed dental air unit with ultrasonic scaler / high speed / low speed / air / water syringe and compressor / tank,

**Tri - Mate**, ultrasonic scaler / micromotor polisher / electro-surge,

**A.D.S. 2000**, microprocessor controlled anesthesia delivery system / ventilator,

**Sentinel V.R.M.**, respiratory monitor.

Engler manufactures the **Sonus V** ultrasonic dental unit for the human market

We manufacture all of the inserts and tips used in the Engler products as well as many others on the market today in the 18K, 25K, and 30K frequency range.

Our repair department has the technical knowledge to repair and maintain most dental devices manufactured by other companies including Shorline.

**Engler Engineering Corporation's foreign sales are handled through a large and growing network of dental and veterinary distributors. At the present time we are represented throughout Europe, South and Central America, Canada, Asia, New Zealand, Australia, the Middle East, and most other countries.**

**If you have any questions or comments, please contact:**

**Engler Engineering Corporation**

**1099 East 47th Street, Hialeah, Florida 33013**

**800-445-8581 – 305-688-8581 – FAX 305-685-7671**

Web site: [www.englerusa.com](http://www.englerusa.com) Help site: [www.engler411.com](http://www.engler411.com)

## INTRODUCTION

Thank you for purchasing the Engler Vet II Ultrasonic Scaler.

The design of the Vet II scaler circuitry uses integrated computer technology along with our Time Remote Feedback Circuitry. This combination produces a powerful and potent tool against periodontal disease. A reinforced solid aluminum chassis surrounds the circuit board, providing a very durable and reliable unit. The dental scaler utilizes an ultrasonic principle of operation. The circuitry converts ordinary line voltage to an operating frequency of approximately 25,000 Hz. This frequency is then amplified and delivered to the scaling tip. As a result, the tip vibrates at this ultrasonic frequency with an amplitude of 0.001 to 0.004 in. (25.4 um to 102 um).

In designing our unique Engler tips, water flows internally through the tip as it vibrates. As the bubbles in the lavage are bactericidal, the energy released collapses and destroys the bacterial cell walls. The water flowing internally through the tip, effectively cools the area and assists in removing any debris from the operative site.

This device is equipped with a digital readout that provides an indication of the power that the unit is set at.

### PLEASE READ VERY CAREFULLY

Engler Engineering Corporation makes every effort to verify that all parts for the device along with any optional accessories ordered were shipped from our facility in Hialeah, Florida and are included in this shipment. It is imperative that the shipment be inspected immediately upon arrival. Should any parts be missing or damaged, Engler Engineering must be notified immediately. All claims submitted after fifteen days of receipt will not be valid.

All devices manufactured and/or sold by Engler Engineering Corporation are built and tested to approved standards. Any modification to the device, cables or hoses, initiated by others nullifies all warranty statements. Engler Engineering Corporation will not be held liable for any loss, damage, injury or death due to non-authorized service and / or improper installation and / or improper use of the device.

This manual is not intended to teach dentistry. The information contained herein is intended only as a guide. Individuals not properly trained in dentistry should not use this equipment. It is intended for professional use only.

## INSTALLATION INSTRUCTIONS

Before installing or operating your new VET II, carefully read and follow all of the instructions.

**IMPORTANT:** This device must be connected to a clean, filtered, water supply, capable of delivering 30 to 60 psi (2.0 to 4.2 kg/cm<sup>2</sup>) of water input pressure. This unit comes with an In-Line water filter (P/N: A52030). When kept clean and free of foreign matter, it will assist in proper water flow to the unit. If the water pressure in your office is above 60 psi, we recommend you install a water pressure regulator on the supply line to your scaler.

### CONNECTING WATER SUPPLY:

We strongly recommend that a manual shut off valve be placed prior to the Female Quick Disconnect, so that the water can be completely shut-off, and line pressure relieved, when the unit is not in use. This device comes equipped with an 8 foot (244 cm) water line, a male quick disconnect fitting, a water filter and a coupling body.



44301 Male quick disconnect

To connect to a water supply, we suggest using one of the four options shown on the next two pages.

\*\* Please note, male quick disconnect is supplied as a standard item with all Engler scalers.

### PLEASE REMEMBER -

**It is recommended that you disconnect the device from the water supply when it is not in operation. Failure to disconnect the device from the water supply when it is not in operation will void your warranty.**

**Engler Engineering Corporation will assume no liability for damages due to not following recommendations in the Engler manuals.**

Connecting water supply, cont.

1. Female Quick Disconnect (P/N: 44300) - This is the female mating connector to the male quick disconnect supplied with the VET II . Use this to create a custom water installation utilizing ¼ " I.D. water tubing.



44300 Female quick disconnect

2. Saddle Valve Assembly (P/N: A44303) - This kit contains all parts to quickly and easily connect your unit to an existing existing 3/8" to 1-3/8" copper tubing cold water supply line.



A44303 Saddle valve assembly with female quick disconnect & tubing

3. Faucet Adapter Assembly (P/N: A22303) - This screws onto an existing faucet and has a female quick disconnect included.



A22303 Faucet attachment with female quick disconnect & tubing

4. Portable Water Tank (P/N: PT-1) - This is a self-contained water source, which is ideally suited for portable operation. We suggest using distilled water and fill the tank to the water fill line (approximately 2/3). Tighten the cap, insert the male quick disconnect on the water line into the female quick disconnect on top of the tank, pressurize the tank by pumping the handle until the pressure relief valve's yellow indicator begins to show. Lock the handle in place.



**IMPORTANT: Engler strongly recommends the services of a professional plumber. Engler Engineering Corporation will not be held liable for any damage including, but not limited to leakage caused by improper installation of our products.**

**Connecting water supply, cont.**

PLEASE NOTE: Minerals and foreign particles in the water may cause a buildup or blockage of hoses and parts. The water filter supplied with this device must be opened and inspected quarterly and we suggest that the filter disc and O-ring be cleaned regularly and changed out at least once a year. See WATER FILTER CLEANING INSTRUCTIONS.

**CONNECTING POWER SUPPLY:**

Plug the male end of the power cord into a grounded power outlet. DO NOT remove or bypass the ground pin from the power cord of this device. Doing so will void the warranty.



## ULTRASONIC SCALER HANDPIECE



Note: Water lines were purged prior to shipping. When activating the Vet II for the first time, please follow these instructions.

### To begin:

**WITH NO STACK / INSERT IN THE HANDPIECE**, rotate the power control knob to the right, the knob will click “on” and the green LED will illuminate. This indicates that the scaler has power and is ready to be used. Adjust the **POWER CONTROL** knob to the **MINIMUM** power setting, (counterclockwise rotation), set the **WATER CONTROL** to its **MAXIMUM** setting by rotating it counterclockwise, (knob will rotate up to 3 and a half turns for maximum water flow).

Hold the handpiece over a cuspidor or sink and depress the footswitch until water comes out of the handpiece, this should only take a few seconds.. This step is done to insure proper operation of the delayed cavitation feature by removing air that may be trapped in the water lines.

### Place insert into handpiece:

To place an insert into the handpiece, there is no alignment necessary; the operator need only drop the insert straight into the handpiece. When the plastic from the insert meets the rim of the handpiece, push the two together to create a good seal. To change inserts, the operator need only pull the insert straight out of the handpiece and exchange it for a different one. Periodically lubricate O-ring on the insert with petroleum jelly or equivalent.

Set the power control and the water control to a level where you develop a fine mist at the tip.

**NOTE: Inserts sent from our facility are not sterilized.**

**WARNING: The ultrasonic scaler is not designed to run without water. Running the handpiece without water for 30 seconds or longer will damage the handpiece and void the warranty.**

The 25K scaler insert is a one-piece design. This means the tip is not removable from the insert. There is no nosecone to replace.

**Inserts sent from our facility are not sterilized.**

## BASIC SCALING PROCEDURES

1. Before placing tip into patient's mouth, activate the scaler handpiece over a sink by depressing the footswitch. A fine mist, with the temperature between cool to lukewarm to the touch is recommended. This should be accomplished with minimal power and proper water flow.
2. It is recommended that when a tip is placed into a patient's mouth, the lips, cheek and tongue be retracted to prevent contact.
3. Place the tip into the patient's mouth and depress the footswitch to activate the scaler.
4. Bring the tip to the tooth and gently move it over the surface of the tooth with an erasing motion.
5. A saliva ejector or HVE is recommended.

**IMPORTANT: Do not leave the vibrating tip in one place as it can cause serious damage to the tooth or surrounding tissues. Engler Engineering Corporation will not be liable for damage due to improper use of this device.**

**Note:** We have designed the this device with a feature called Delayed Cavitation. This function purges the tip of water after releasing the footswitch to prevent bacteria from entering the tip.

**IMPORTANT:** Excessive pressure on the tip is not necessary to remove calculus or tartar. Enamel on the teeth may be damaged or removed if excessive pressure is used. The enamel may be damaged if the scaling tip is left to rest in one spot for even a few seconds. Using the tip, as a pry to remove calculus or tartar is strongly discouraged as it can damage the teeth and incidentally change the shape of the tip, altering it's performance. The normal power setting for most procedures should be near mid-range. Since every operator has a different technique, the power may be adjusted to satisfy specific requirements. Ultrasonic scaling procedures are not intended for soft tissue.

**CAUTION: Contact with Soft Tissue Will Cause Burns. Engler Engineering Corporation will not be liable for damage or injury due to improper use of this device.**

**DENTAL PROCEDURES SHOULD BE PERFORMED ONLY BY QUALIFIED PERSONNEL.  
THIS EQUIPMENT IS FOR PROFESSIONAL USE ONLY.**

As with any precision instrument, inserts should be handled carefully. To avoid damage to the insert, please familiarize yourself with the installation. Bent or damaged inserts should be replaced.

The use of a face mask is recommended when operating the scaler, to avoid inhalation of contaminated aerosol (water mist) generated during the scaling procedure.

# SCALER MAINTENANCE

## FINAL PROCEDURES AT THE END OF EACH DAY:

1. Turn the unit off.
2. Remove the insert, rinse with running water, then sterilize.
3. Disconnect the unit from its water source or turn off the water supply.
4. Clean and disinfect all surfaces.

## Scaler tip maintenance:

Inserts may be sterilized by autoclave or chemiclave, always following the manufacturer's instructions and recommendations. Do not autoclave over 270 degrees F or more than twenty (20) minutes. Do not leave inserts in the handpiece indefinitely as water and sediment may make it difficult to remove, causing possible damage to the insert and handpiece.

## Transducer / insert:

**Note:** To achieve optimum performance of your equipment, we recommend that the insert be replaced every 6 months or as needed.

## Chassis:

The chassis of your unit should be cleaned at the end of every operating day with a chemical sterilization solution. This procedure could be done by spraying a fine mist of sterilization solution on the unit, allowing it to remain on the chassis for the length of time recommended by the manufacturer. The surface should be wiped with a clean damp cloth or as suggested by the chemiclave manufacturer. Dry completely.

**IMPORTANT:** In using any chemical sterilization solution please follow the manufacturer's suggested procedures.

## HANDPIECE, FOOTSWITCH AND POWER CABLES:

After each procedure, or at least once a day, it is suggested that the handpiece and its cable be thoroughly cleaned and sterilized. The recommended procedure is as follows:

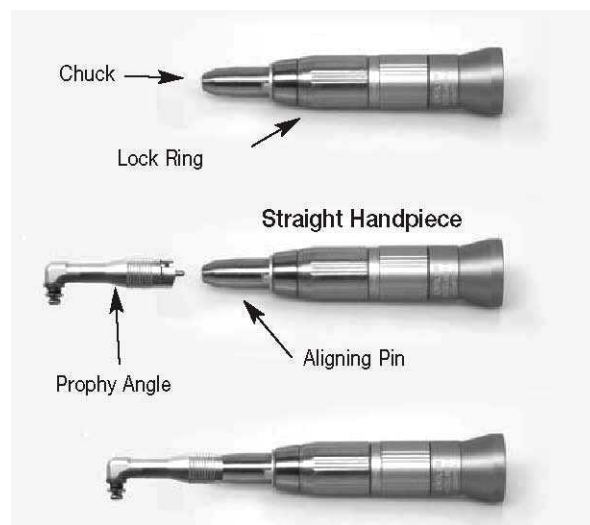
Do not allow sterilizer solutions to enter the handpieces.

If sterilizer solution does enter handpieces, shake out, then rinse or flush thoroughly with clean water.

## POLISHER INSTALLATION

1. Plug the micromotor into the front of the control box. This is done by inserting the male connector at the end of the micromotor cable, into the female receptacle on the front panel of the unit and rotating the lock collar clockwise.
2. Slide the straight handpiece down over the top of the micromotor.
3. Line up the notch of the prophy angle with the aligning pin on the straight handpiece, and then push the shaft of the prophy angle into the chuck of the straight handpiece.
4. Rotate the lock ring clockwise, until it clicks and locks the prophy angle in place.
5. Place a disposable rubber-polishing cup on the end of the prophy angle by snapping it on.

The prophy angle is now secured and ready for operation.



**NOTE 1:** To use the polisher, rotate the function selector switch (far left knob) clockwise to “polisher”, the green LED indicator will illuminate. Select forward or reverse.

**NOTE 2:** High speed will damage the gears in the prophy angle, splatter the polishing compound and overheat the teeth. Always start at the lowest setting, then increase speed as necessary.

### SAFETY INFORMATION:

Never turn the lock ring while the handpiece is in operation.

1. Never reverse the direction of the micromotor while it is in operation. Possible damage to the unit may occur.
2. Do not lock or run the micromotor / straight handpiece assembly without a prophy angle, cutting disc, contra-angle, or test shaft installed. doing so could damage the straight handpiece and / or micromotor.
3. Never oil the micromotor.
4. When installing the prophy angle or other accessory, make sure that the lock ring is rotated fully in the unlock position, otherwise the accessory can not be installed and the straight handpiece will not operate.
5. Do not rotate the selector switch on the front of the control box between forward and reverse rapidly. always allow the micromotor to stop between the two selections.
6. As this is a precision instrument, always return it to Engler Engineering Corporation for maintenance and repair.

## POLISHER OPERATION

1. Dampen the rubber cup and place a small amount of polishing paste on it.
2. Rotate the POWER control to the minimum setting in the PROPHY RANGE.
3. Depress the footswitch and the rubber cup will begin to rotate. The speed of rotation may be adjusted to your desired level by re-adjusting the POWER control.
4. To keep the paste from flying off the cup, maintain a low speed, bring the cup up to the tooth before depressing the footswitch.

**IMPORTANT:** The prophy angle is only rated to rotational speeds up to 5000 RPM - therefore, in order to prevent premature failure of the angle keep the unit set in the prophy range.

5. High-speed settings will fling the polishing paste off of the rubber cup. Always start with a low speed and then adjust to a higher speed as required.
6. Place the end of the angle into the patients' mouth and gently apply the rubber cup to the surface of the tooth with a circular motion. Do not allow the rubber cup to remain stationary on one area for an extended period of time.

## STRAIGHT HANDPIECE MAINTENANCE

### LUBRICATION:

The spray nozzle oiling method is optional but highly recommended because it cleans as well as lubricates. The alternate method is to place 1 drop of approved oil in the chuck hole. Do not lubricate the handpiece while it is on the Micromotor.

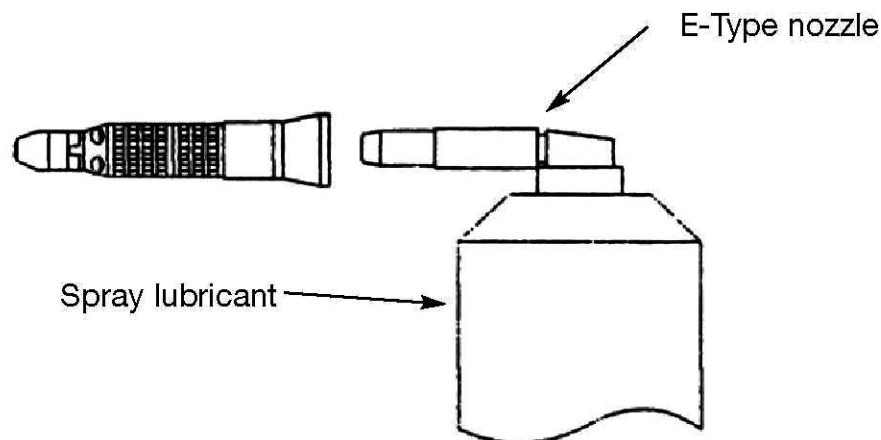
Lubrication of the straight handpiece is required at least once a week.

Lubrication by spray lubricant:

1. Make sure that the straight handpiece is in the unlocked position prior to lubricating.
2. Install the E-Type nozzle by pushing it onto the top of the spray can. To lubricate, insert the E-Type nozzle into the bottom of the handpiece. Holding the two together tightly, with can in the upright position, push spray button for several seconds, until oil begins seeping through the handpiece.
3. Oiling in this manner will force dirt and debris from the handpiece and lubricate at the same time.

NOTE: If spray time is too short, oil may not be propelled into all areas of the handpiece.

### CLEANING and STERILIZATION OF HANDPIECE



## Straight handpiece maintenance cont.

### **CLEANING:**

1. Wipe the handpiece clean with an alcohol-soaked soft tissue.
2. Never clean the handpiece with boiling water, chemical solutions, ultrasonic cleaner, or with wire brushes.

### **STERILIZATION:**

1. Autoclaving is recommended for the Engler straight handpiece.
2. Clean the handpiece as described above.
3. Lubricate the handpiece as described above .
4. Place the handpiece in an autoclaving pouch and seal it in accordance with the instructions on the pouch.
5. Autoclave the handpiece for no longer than 20 minutes at 121 C (250 F), or 15 min. at 132 C (270 F).

Keep the straight handpiece away from water vapor or mist that may settle and cause premature damage to the bearings.

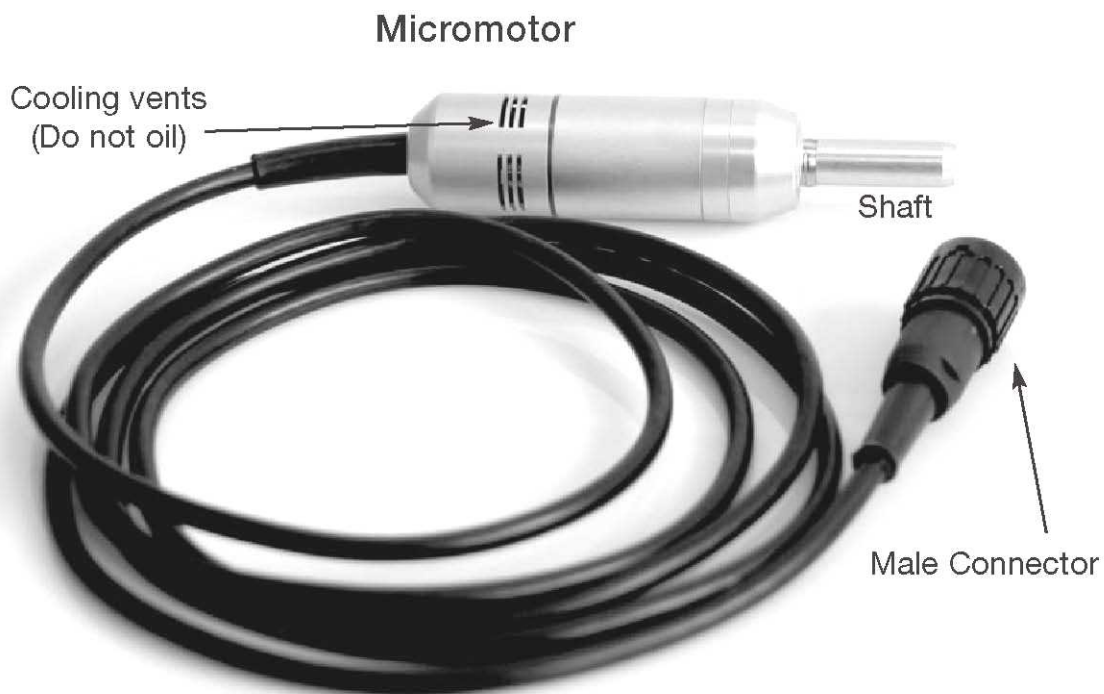
**IMPORTANT:** DO NOT UNDER ANY CIRCUMSTANCE, attempt to repair, disassemble or unscrew the straight handpiece. Doing so may shift the internal springs, causing permanent damage to the unit and will void warranty. If you experience problems during operation, call our repair department.

## MICROMOTOR MAINTENANCE

The Micromotor is capable of speeds up to 35,000 RPM for use in cutting, sectioning and drilling. It contains sealed bearings and does not require any lubrication. The Micromotor has cooling vents at the back of the unit, Do not allow water, oil, or any other substance to enter these vents. Do not block the air vents. Failure to keep debris out of the micromotor will shorten the life of the unit and cause permanent damage.

### IMPORTANT:

1. NEVER change the direction of the micromotor while it is in operation. ALWAYS wait until it has come to a full stop.
2. NEVER oil, or allow oil to get into the micromotor.



## SCALER TROUBLESHOOTING

### “ON” LED INDICATOR DOES NOT LIGHT UP:

1. Verify that unit is switched ON.
2. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
3. Power Outlet not active: try another outlet.
4. Contact Engler Engineering Corporation.

### “ON” LED INDICATOR LIGHTS UP, NO WATER FLOW:

1. Verify that the selector switch is in scaling mode.
2. Verify water line is connected and water is flowing to unit.
3. Check that water line is not kinked or twisted.
4. Check Water Filter and disk: clean disk with plain water and a toothbrush. If clogged, replace O-ring and disc.
5. If using Portable Water Tank: Verify you have the correct water level and sufficient pressure.
6. Water blockage in tip: Leave insert in handpiece, remove tip, depress footswitch. If water does flow out, tip is clogged, (Clean with # 3 (0.012”) piano wire)
7. Contact Engler Engineering Corporation.

### “ON” LED INDICATOR LIGHTS UP, LITTLE OR NO VIBRATION / CAVITATION ON TIP:

1. Tip damaged: replace tip.
2. Old or damaged insert: replace the insert.
3. Contact Engler Engineering Corporation.

### HOT WATER COMING OUT OF SCALING HANDPIECE:

The insert requires a constant cool water flow in order to maintain water temperature below 100 degrees F. You may correct the problem by:

1. Adjusting water flow knob higher (counter clockwise).
2. Tip clogged. See #6 above.
3. Check and / or replace O-ring and disc in the inline filter.
4. Water restriction in unit: contact Engler's repair department.
5. If using a Portable Water Bottle, check water level then pump to pressurize the bottle.

### INTERMITTENT OPERATION:

1. Tip vibrates / cavitates and then stops:
2. Foot switch damaged: Contact Engler Engineering Corporation.
3. Handpiece / cable damaged: Contact Engler Engineering Corporation.

Tip action ceases abruptly during operating procedure.

1. Transducer broken: replace.
2. Handpiece / cable damaged: Contact Engler Engineering Corporation.





P-MM-E 35,000 RPM  
Micromotor W/Cord



P-SH-A1:1 Straight  
handpiece



P-A1-B Propy  
Angle (Sealed  
Bearings)



Snap on rubber cups



Polishing  
paste

## POLISHER TROUBLESHOOTING

“ON” LED indicator does not light up:

1. Verify that unit is switched ON.
2. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
3. Power Outlet not active: try another outlet.
4. Contact Engler Engineering Corporation.

“ON” LED indicator lights up polisher not functioning:

1. Switch unit to Polisher mode.
2. Micromotor not plugged in: plug micromotor in.
3. Short in Micromotor or its cord: Contact Engler Engineering Corporation for instructions.

HOT STRAIGHT HANDPIECE:

1. Straight handpiece not lubricated properly: Lubricate as shown on page 13.
2. Bearings in straight handpiece are worn, causing drag. Contact Engler Engineering Corporation.

HOT MICROMOTOR:

1. Straight handpiece causing drag, lubricate straight handpiece correctly or replace straight handpiece. Never oil micromotor.
2. Worn brushes in micromotor, Contact Engler Engineering Corporation.
3. Oil inside micromotor, return to Engler Engineering Corporation.

INTERMITTENT OPERATION:

Unit polishes and then stops:

1. Damaged micromotor cord: contact Engler Engineering Corporation.
2. Damaged footswitch: contact Engler Engineering Corporation.

MISCELLANEOUS:

1. Micromotor speed not adjustable (runs at one speed): Return the complete VET II with micromotor.
2. If the prophy cup unscrews, (“flies off”) the prophy angle: Micromotor is rotating in the wrong direction, change direction by rotating the selector on the front of the unit to the opposite direction.


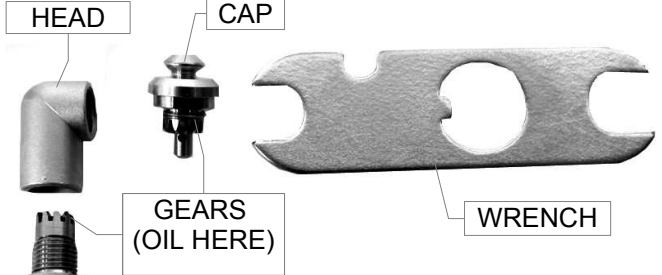
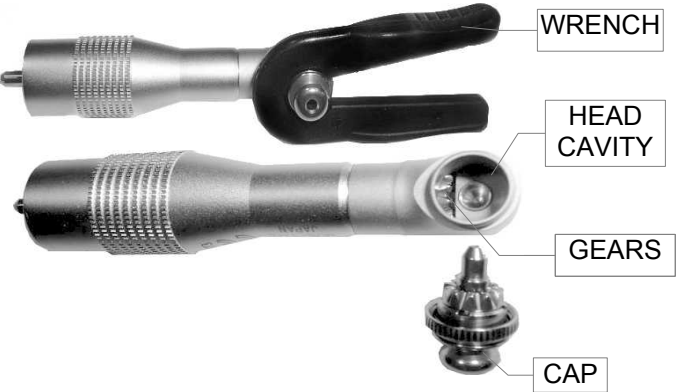

STRAIGHT HANDPIECE ROTATES ON THE MICROMOTOR:

1. Straight handpiece not properly locked.
2. Prophy angle gears worn or Hair may be enmeshed in the gears of the prophy angle, clean prophy angle according to prophy angle cleaning and maintenance instructions (next page).
3. Straight handpiece or prophy angle not properly lubricated.

## PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS

The prophy angle is a precision engineered dental device. all gear and shaft assemblies are made of high grade stainless steel which must be kept free of debris. If cleaned and lubricated correctly will provide long, trouble-free service. The manufacturer recommends replacing prophy angles at least every 3 to 4 months depending on use. Prophyl angles may vary. Use the following instructions accordingly.

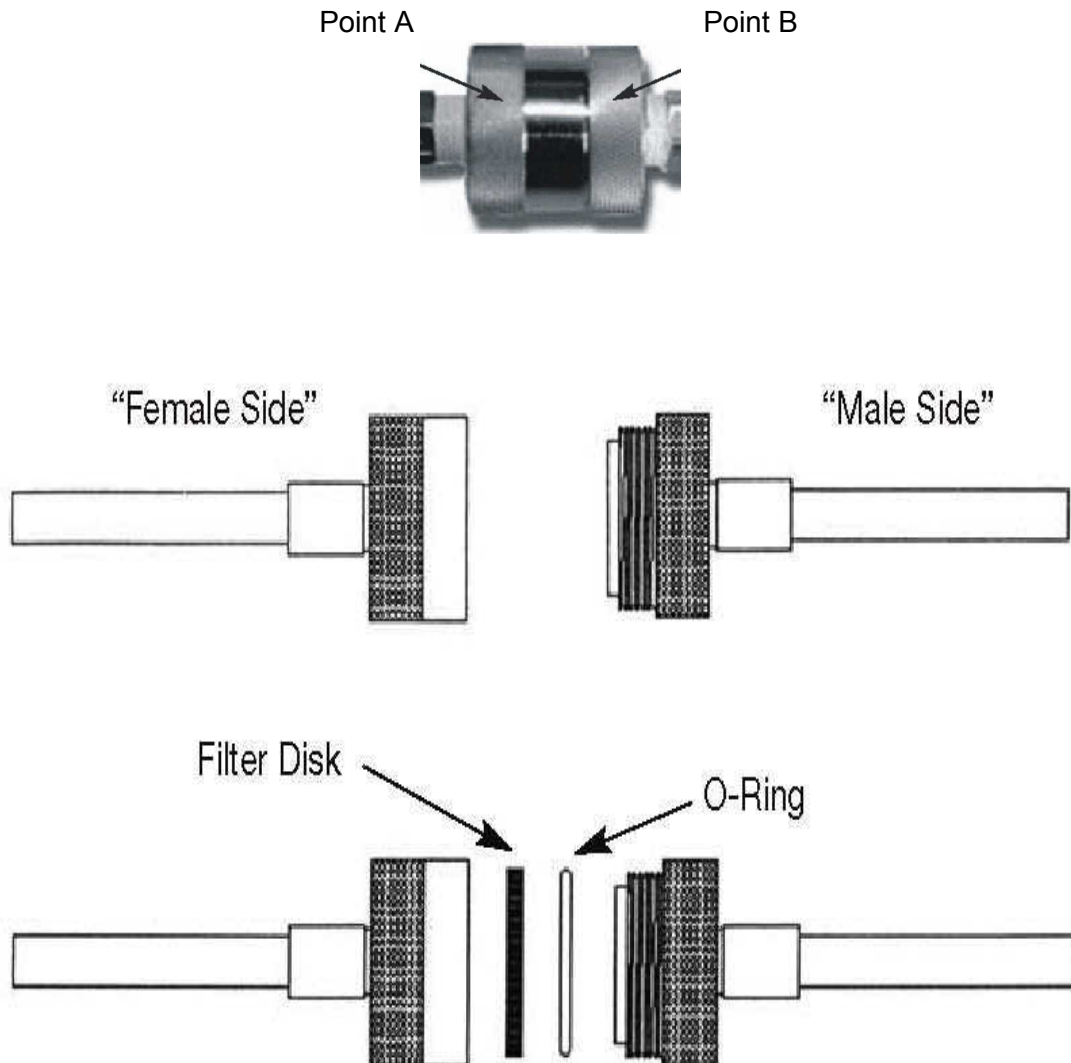
### DAILY CLEANING AND LUBRICATION:

 <ol style="list-style-type: none"> <li>1.) Remove prophy angle from low speed handpiece.</li> <li>2.) Discard used rubber cup.</li> </ol>	<ol style="list-style-type: none"> <li>1.) Remove prophy angle from low speed handpiece.</li> <li>2.) Discard used rubber cup.</li> </ol> 
 <ol style="list-style-type: none"> <li>3.) Remove head cap by turning <b>counterclockwise</b> to unscrew the knurled nut with the wrench provided.</li> <li>4.) Wash the cap and head cavity thoroughly with a toothbrush in a bowl of warm soapy water.</li> <li>5.) Rinse thoroughly with running water and shake off excess water.</li> <li>6.) <b>DO NOT</b> attempt to dry this part with paper or cotton towels / swabs or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or a blow dryer to thoroughly dry the angle.</li> <li>7.) Lubricate by placing one drop of mineral oil on the gears of the head cap and a drop inside the gear cavity.</li> <li>8.) Being careful not to cross-thread, reassemble the prophy angle and wipe off all excess oil. Place a new rubber cup onto the head cap and confirm that the gears are meshing properly by rotating the cap – it should turn easily. If not, remove and try again. DO NOT use the wrench, only finger tighten.</li> <li>9.) Slide the prophy angle onto the handpiece and lock the handpiece.</li> </ol>	 <ol style="list-style-type: none"> <li>3.) Use the wrench to remove the cap from the head.</li> <li>4.) Turn <b>clockwise</b> to unscrew the head (top portion) from the body (bottom portion).</li> <li>5.) Place the cap, head and body into a bowl of hot soapy water.</li> <li>6.) Wash thoroughly with a toothbrush.</li> <li>7.) Rinse well with running water and shake off. <b>DO NOT</b> attempt to dry these parts with paper or cotton towels / swabs or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or a blow drier to thoroughly dry the angle.</li> <li>8.) Lubricate by placing one drop of mineral oil on each gear (see diagram).</li> <li>9.) Being careful not to cross-thread, reassemble the prophy angle and wipe off all excess oil. Place a new rubber cup on the onto the cap and confirm that the gears are meshing properly by rotating the cap – it should turn easily. If not, remove the cap and try again.</li> <li>10.) Slide the prophy angle onto the handpiece and lock the handpiece.</li> </ol>

## WATER FILTER CLEANING INSTRUCTIONS

SHOULD BE PERFORMED AT LEAST QUARTERLY

1. Turn off water supply to unit or disconnect the male from the female water connector
2. Unscrew filter by firmly holding point "A" in your left hand and point "B" in your right hand. (Refer to Figure) Next, unscrew by simultaneously rotating your left hand away from you and rotating your right hand toward you. Continue this process until the filter unscrews into two separate parts.
3. The filter body consists of two sides, one with an outer male thread and another with an inner female thread.
4. Remove the O-ring.
5. Remove the filter disc by turning the female side over and tapping it gently into the palm of your hand.
6. Replace with new filter disc and O-ring part # A52034.
7. Re-assemble the filter in reverse order.
8. Turn on the main water supply and check for leaks.

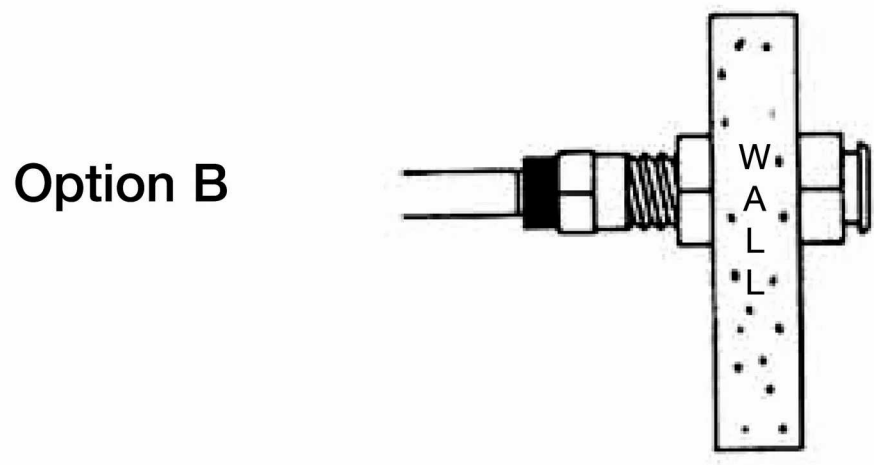
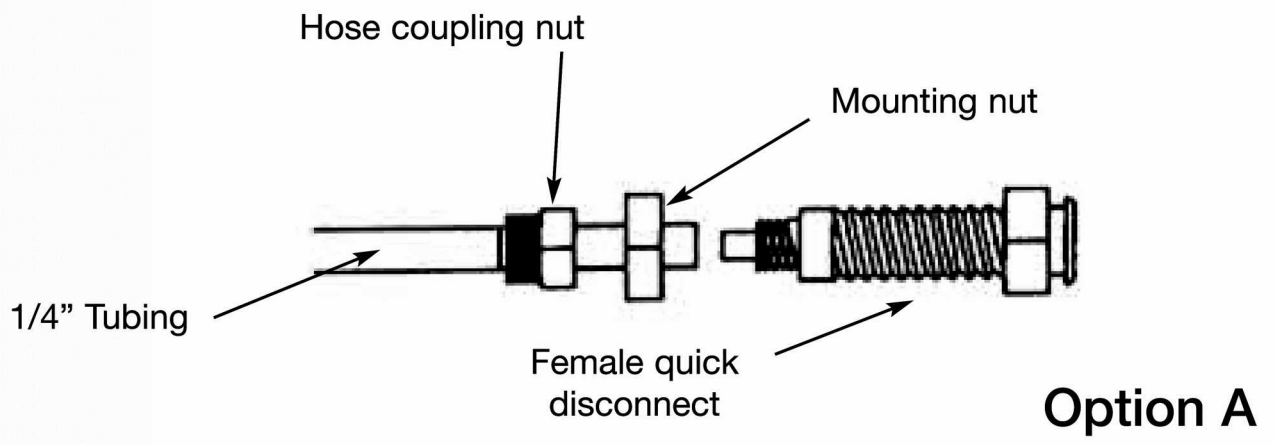
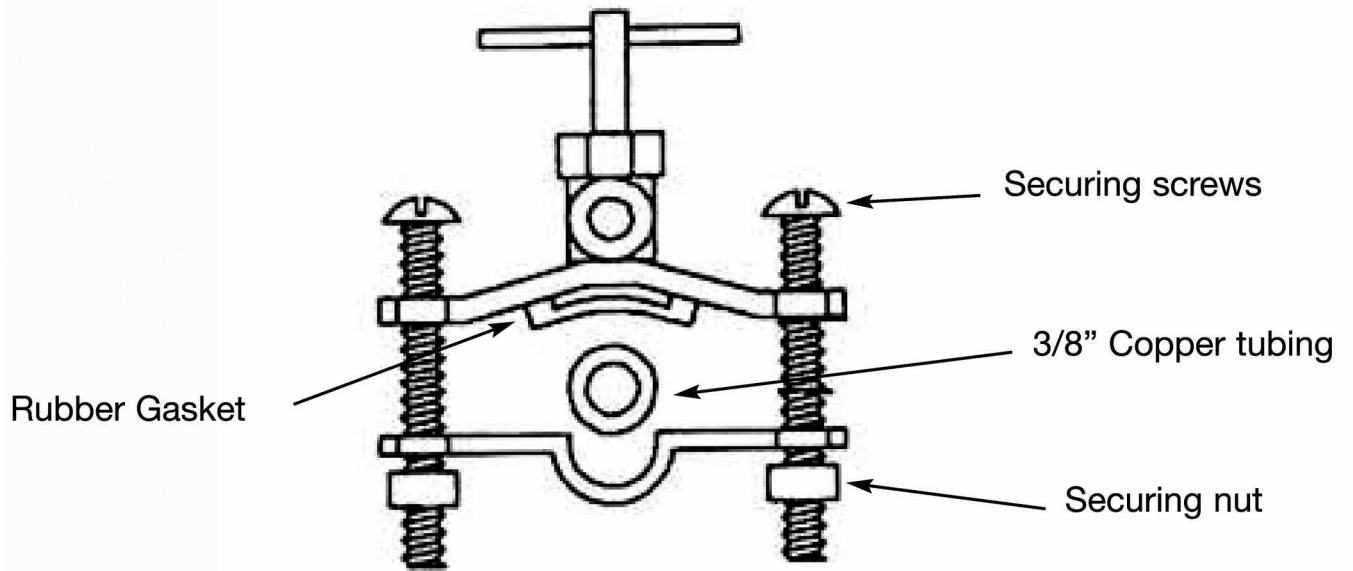


## SADDLE VALVE ASSEMBLY

### Installation Instructions



Installation instructions on the following two pages.



## Options for connecting the saddle valve

1. To connect the **SADDLE VALVE** to an existing water source. Attach the saddle valve to your existing 3/8" to 1-3/8" copper tubing. Tighten the securing screws evenly. (First photo, preceding page)

DO NOT OVERTIGHTEN, THIS MAY CAUSE THE COPPER TUBING TO CRIMP AND REDUCE FLOW.

2. To mount the **FEMALE QUICK DISCONNECT**, there are two options.  
(A44303 Saddle valve assembly w / female connector & tubing)

### Option "A" (Unmounted Assy.)

1. Take the free end of the 1/4" water tubing from the saddle valve and connect it to the female quick disconnect.
2. Placing the hose coupling nut over the water tubing.
3. Placing the hose into the back of the female quick disconnect, then tightening the coupling nut.

### Option "B" (Mounted Assy.)

If you wish, the female quick disconnect may be mounted directly through the sink top or vanity counter.

1. Drill a 1/2" diameter hole through the surface in the space desired. (see previous page)
2. Place the hose coupling nut over the 1/4" water tubing. Place this tubing into the back of the female quick disconnect and tighten the hose coupling nut securely.
3. Mount the female quick disconnect and tighten the mounting nut to hold it securely in place.

### THE COPPER TUBE IS READY TO BE PIERCED.

1. Confirm that the saddle valve assembly is tightened snugly to the copper tube and the female quick disconnect is properly connected to the water line.
2. Turn the "T" handle of the saddle valve in a **CLOCKWISE** direction until it will go no further.
3. Turn the "T" handle in a **COUNTERCLOCKWISE** direction until resistance is felt. Water will now flow to your dental unit.
4. Check for leaks.

You may now connect the male quick disconnect from the dental unit to the female quick disconnect from the water line.

NOTE: The "T" handle on the saddle valve does not shut water to the dental unit. It is only used to pierce the copper tube. It is very important that you mount the saddle valve after a shut off valve.

**Engler Engineering Corporation will not be held liable for any damage including, but not limited to leakage caused by improper installation of our products. It is suggested that a professional plumber make any necessary installations or connections.**

## WATER TANK INSTRUCTIONS



PT-1 Water Tank

### DIRECTIONS:

1. Release air pressure by PULLING and TURNING pressure relief valve, located on the side of the bottle.
2. Remove pump and cap assembly.
3. Fill tank with distilled water or medicated solution up to the "FILL LINE" mark. Do NOT fill beyond this line.
4. Replace pump and cap assembly and tighten securely.
5. Pressurize tank by pumping it approximately 20-40 times (depending on the amount of liquid used). If a hissing sound is detected, tank is over-pressurized. Stop pumping. Leave tank on a level surface until hissing stops. Insert the male quick disconnect on the end of the waterline from scaler into female quick disconnect provided on tank.

**It is critical for patient safety and corrosion prevention of internal components, all cleaning fluids must be rinsed thoroughly.**

## WATER TANK CARE & MAINTENANCE

1. Release air pressure by pulling and turning knob of pressure relief valve. Pull out fully and allow air to escape.
2. Loosen cap slowly. Remove pump & cap assembly. Pour out any remaining liquid & rinse all parts thoroughly with clean water.
3. Always store tank empty and with tank cap loose.

### TROUBLESHOOTING:

#### PROBLEM: TANK FAILS TO PRESSURIZE.

1. Be sure cap is tight.
2. Check to see if pressure relief valve is in safety position.
3. Remove the pump from the tank. Turn pump handle counterclockwise and lift handle to unlock. On top of the pump cap there is an opening that says "oil here". Place 3-5 drops of mineral oil into the opening. Pump several times to work the oil into the walls of the pump until it moves freely. Repeat if necessary. Screw the pump back into the tank and resume normal operations. This process should be repeated often as necessary and depending on usage, or when pump starts to work harder.
4. Black particles found in water bottle indicates that the pump assembly is deteriorating. Order new pump assembly from Engler Engineering.

Pump assembly has been pre-lubricated prior to shipping.

### WARNING:

READ AND FOLLOW ALL INSTRUCTIONS.

ALWAYS INSPECT your pump before each use.

ALWAYS RELEASE AIR pressure before removing pump or servicing tank, by pulling pressure relief valve knob out fully.

DO NOT use mechanical devices to pressurize the tank. This can create excessive and dangerous pressure which could cause the tank to explode.

DO NOT STAND over pressurized tank while using it or pumping it

DO NOT USE solutions warmer than 105F.

DO NOT damage or alter the functions of the pressure relief valve or plug the pressure relief valve hole, as this could cause the tank to explode

DO NOT pressurize the tank until ready for use.

DO NOT lift or carry the tank by waterline, extension rod or pump handle unless it is securely locked in place.

## CARE AND MAINTENANCE OF YOUR PORTABLE WATER TANK

TO KEEP SLIME FROM FORMING INSIDE THE TANK AND EVENTUALLY GETTING INTO THE DENTAL UNIT, CAUSING IRREVERSIBLE DAMAGE:

1. Every two weeks dispose of water in tank. Pour ½ gallon of hot water and 1 ounce bleach into tank. Swirl the liquid thoroughly inside the tank.
2. Dispose of bleach mixture and **rinse tank with clean water thoroughly and completely.**
3. Clean the outside of the pump / tank according to your facilities normal cleaning procedures.
4. The pump assembly has been pre-lubricated. **DO NOT TAKE THIS ASSEMBLY APART.**

**It is critical for patient safety and corrosion prevention of internal components, all cleaning fluids must be rinsed thoroughly**



## OPTIONAL VET II ACCESSORIES



P-MF

P-MF Maintenance free prophy angle



P-106

P-106 screw on rubber cups 144/pkt

### CARE FOR YOUR MAINTENANCE-FREE ANGLE STERILIZATION PROCEDURES:

#### AFTER EACH PROPHY:

1. Discard used rubber cup.
2. Rinse abrasive paste from head area with water.
3. Thoroughly clean the outside of angle with disinfectant.
4. Autoclave angle - not more than 275 °F (135 °C) over 20 minutes.
5. After sterilization cycle is complete, install a new disposable rubber cup and attach angle to handpiece. You are now ready for your next prophy.

#### CAUTIONS AND WARNINGS:

1. Do not attempt to disassemble.
2. DO NOT SUBMERGE IN LIQUIDS, INCLUDING ULTRASONIC SOLUTIONS.
3. Do not heat over 275 °F (135 °C).
4. Use only Engler Care Free Prophylaxis Rubber Cups. Other brands will not properly seal the angle, causing premature wear and voiding the warranty.
5. Replace as necessary.

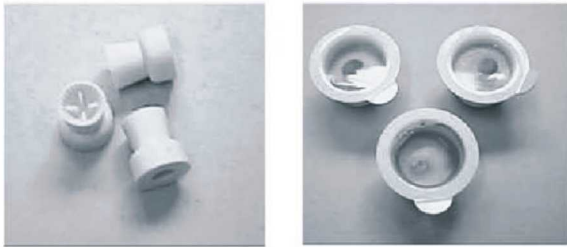
YOUR CARE-FREE ANGLE IS WARRANTED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR 6 MONTHS. A COPY OF OUR INVOICE OR PICKING TICKET WILL BE REQUIRED AS PROOF OF PURCHASE.

#### WARRANTY IS VOID IF:

1. Engler Care-Free rubber cups are not used exclusively.
2. Sterilization procedure is not followed properly.
3. The angle has been submerged in any liquid.
4. The angle has been damaged or abused.
5. Damaged due to use at high speed.



P112 Polishing paste (8 oz. jar)



P-105 Snap on rubber cups 144/pkt  
P-110 polishing paste (200 cups)



Optional Oiling Accessory  
Spray lubricant with E-type nozzle  
for all Engler polisher straight handpieces  
NET WT. 8.8OZ (249.48 GRAMS)



If you have any questions or concerns, please contact us.  
ENGLER ENGINEERING CORP  
800-445-8581

To contact us by INTERNET please use:  
[info@englerusa.com](mailto:info@englerusa.com)

To help troubleshoot problems, download manuals and see our products,  
Visit us at:  
[www.engler411.com](http://www.engler411.com)

## TECHNICAL DATA

### SCALER:

Input Voltage: 120 or 240 VAC +5/-10%  
Input Frequency: 50/60 Hz.  
Current (Amperes) 1.25A at 110 VAC, or 0.63 at 220 VAC

Transducer Style: Magnetostrictive  
Operating frequency: 24,200-25,300 Hz.

Ultrasonic Generator Data: Auto-Tuned Technology.  
Variable Power Control

### WATER:

Input Pressure: 30 PSI (min.) 60 PSI (max)

### POLISHER:

Power Control: Variable Power Control  
Output Voltage: 3 - 30 VDC  
Output Current: 5 Amperes (max)

### MICROMOTOR:

Velocity Range: 500 - 35,000 RPM  
Style: Sealed Bearing "E" type  
Brush Design: Fully Replaceable

### STRAIGHT HANDPIECE:

Maximum Drive Velocity: 40,000 RPM  
Style: Sealed Bearing "E" type

### PROPHY ANGLE:

Recommended RPM: 3,000 (Prophy) - 5,000 RPM  
Type: Sealed Bearing/Open Bushing

## DIMENSIONS

**NET WEIGHT:** 3 Lbs. (1.36 Kg.)

**CHASSIS DIMMESION:**  
Length: 9 in. (23 cm)  
Width: 8 in. (20 cm)  
Height: 3.3 in. (8.4 cm)

**CABLE LENGTH:**  
Handpiece: 96 in. (244 cm)  
Foot switch: 96 in. (244 cm)  
Power Cord: 72 in. (183 cm)  
Water Line: 96 in. (244 cm)

**WEIGHT:**  
Net: 9 3/4 Lbs., 4.4 Kg  
Shipping: 11 Lbs., 5.0 Kg

For warranty information please visit [engler411.com](http://engler411.com)

**Engler Engineering Corp.**  
**1099 East 47 Street Hialeah, FL 33013**  
**If you wish to fax to us, please use 305-685-7671.**