



Veterinary Ultrasonic Dental Scaler / Polisher Instruction Manual



Engler Engineering Corporation 1099 East 47th Street, Hialeah, Florida 33013 800-445-8581 – 305-688-8581 – FAX 305-685-7671 Web site: <u>www.englerusa.com</u> Support site: <u>www.engler411.com</u>

REV. B 11 / 22 / 2019

Table	of	Contents
IUNIC		Contonto

READ BEFORE YOU START	4
COMPANY PROFILE	5
INTRODUCTION	7
INSTALLATION INSTRUCTIONS	9
SCALER OPERATING INSTRUCTIONS	12
SCALER MAINTENANCE	14
POLISHER INSTALLATION	15
POLISHER OPERATION	16
POLISHER MAINTENANCE: PROPHY ANGLE	17
STRAIGHT HANDPIECE MAINTENANCE	18
CLEANING and STERILIZATION OF HANDPIECE	19
MICROMOTOR MAINTENANCE	20
SCALER TROUBLESHOOTING	21
POLISHER TROUBLESHOOTING	23
PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS	25
WATER FILTER CLEANING INSTRUCTIONS	26
SADDLE VALVE ASSEMBLY	27
Installation Instructions	27
To mount the female quick disconnect, there are two options	29
WATER TANK INSTRUCTIONS	30
WATER TANK CARE & MAINTENANCE	31
OPTIONAL Piezo-Mate ACCESSORIES	33
TECHNICAL DATA	35
DIMENSIONS	

READ BEFORE YOU START

The handpiece and tip are water cooled 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, 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, gums or skin, it will cause burns due the friction of the vibration. The tip does not get hot but the ultrasonic vibration will burn if it makes contact with soft tissue. This is due to the friction between the skin and the vibrating tip. <u>This is normal for all</u> <u>ultrasonic scalers. Never let the scaling tip touch soft tissue / skin.</u> Engler Engineering Corporation is not responsible for any damage caused by improper use of this device or its accessories.

When using a water bottle, it must be kept pumped to at least 30 PSI. The pressure relief valve (if equipped) 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. The bottle should be maintained at ½ to ¾ full. Always use distilled water.

It is recommended to remove the tip and clean / disinfect the handpiece after every use to prevent the spread of germs, bacteria and disease.

Handpieces, tips, prophy angles, rubber cups, straight handpieces, burrs, and water filters, are normal wear and tear items. In order to achieve optimal performance they should be replaced regularly.

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

COMPANY PROFILE

Engler Engineering Corporation has been in business since 1964 and occupies an 8000 square foot facility in Hialeah, Florida (USA). Engler manufactures high speed and table top ultrasonic dental scalers, polishers and combination units. Other devices include electrosurgery equipment and ultrasonic instruments for the veterinary market as well as a microprocessor controlled anesthesia delivery system and a respiratory monitor for veterinary use.

Engler Engineering Corp. acquired the exclusive manufacturing and marketing rights of Dynax products, including stretchers, gurneys, The Cat Grabber, comfort cots, warm water heater / circulator with pads, and other products. We also acquired the Alpha-Sonic, Ora-Sonic, and Pro-Sonic line of piezo scalers.

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

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

Engler Engineering Corporation's foreign sales are handled through a large and growing network of veterinary distributors. At the present time we are represented throughout the Middle East, Europe, Central and South America, Canada, Asia, New Zealand, Australia, 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 Help site: www.engler411.com Engler Engineering Corporation's brand name veterinary products proudly include:

- ADS 2000, microprocessor controlled anesthesia delivery system / ventilator,
- **Excelsior,** high speed dental air unit with vacuum / electrosurgery / ultrasonic scaler / high speed drill / low speed polisher / air water syringe, and on demand compressor,
- Scale Aire, high speed dental air unit with ultrasonic scaler / high speed drill / low speed polisher / air water syringe and on demand compressor,
- Scale Aire Mini, high speed dental air unit with ultrasonic scaler / high speed drill / low speed polisher / air water syringe,
- **Drill Aire Plus**, high speed dental air unit, high speed drill / low speed polisher / air water syringe,
- Drill Aire, high speed dental air unit, high speed drill / air water syringe,
- Son Mate II, ultrasonic scaler / 35,000 RPM drill / low speed polisher,
- Sonus II, ultrasonic dental scaler,
- Tri Mate, ultrasonic scaler / 35,000 RPM drill / low speed polisher / electrosurge,
- Electro Son, touch screen, mono / bi-polar electrosurgical unit,
- Poli X, 35,000 RPM drill / low speed polisher,
- Sentinel V.R.M., respiratory monitor,
- Engler Veterinary Respiratory Monitor (EVRM)
- More coming soon!

If you have any questions or comments, please contact us!

Engler Engineering Corporation 1099 East 47th Street, Hialeah, Florida 33013 800-445-8581 – 305-688-8581 – FAX 305-685-7671 Web site: <u>www.englerusa.com</u> Help site: <u>www.engler411.com</u>

INTRODUCTION

Thank you for purchasing the Engler Piezo-Mate Scaler Polisher combination.

The design of the Piezo-Mate 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 internal circuit board, providing a very durable and reliable unit.

The dental scaler utilizes an ultrasonic principle of operation. The internal circuitry converts ordinary line voltage to an operating frequency of approximately 30,000 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 setting.

PLEASE READ VERY CAREFULLY

Engler Engineering Corporation (EEC) makes every effort to verify that all parts for this device including any optional accessories ordered with it are included in this shipment. It is imperative that you inspect the package and if you find any parts damaged or missing, you must notify us immediately. Claims for damaged or missing parts will only be accepted within five days of receipt.

EEC makes every effort to verify that our devices are built and tested to approved standards. Any modification to the device, hoses or power supply initiated by others nullifies all warranty statements. Engler Engineering Corporation will not be held liable in any way, for any damage, injury or death due to non-authorized service, improper installation, or improper use of this device. EEC's liability will not exceed the purchase price of this machine.

The information contained herein is intended only as a guide. Individuals not properly trained should not use this equipment. It is intended for professional use only

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: <u>www.englerusa.com</u> Help site: <u>www.engler411.com</u>



INSTALLATION 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/cm2) 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.

The water line must be connected to the white fitting located on the back of the device before a connection is made to the water source. To connect the water line, slide the white (male) insert into the coupling body until the metal latch locks it in place making a clicking sound. The water line can now be connected to your water source.

We suggest that you use one of the four methods as shown on the next two pages.



44301 Male quick disconnect

** 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.

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

Connecting water supply continued on next page

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



44300 Female quick disconnect

 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" <u>copper</u> tubing cold water supply line.





A22303 Faucet attachment with female quick disconnect & tubing



4. Portable Water Tank (P/N: PT-1) - This is a selfcontained 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 (if equipped) yellow indicator begins to show. Lock the handle in place.

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



PLEASE NOTE: Minerals and foreign particles in the water may cause a buildup or blockage of internal hoses and parts.

The water filter supplied with this device should be opened and inspected on a regular basis.

Engler suggests that the filter disc and O-ring be changed out at least twice per year. See WATER FILTER CLEANING INSTRUCTIONS.

CONNECTING THE FOOT SWITCH:

To connect the footswitch to the unit, insert the male quick disconnect into the female quick disconnect at the rear of the device and then tighten the securing nut by turning it clockwise.

CONNECTING POWER SUPPLY:

First plug the power cord into the unit and then 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.

IMPORTANT: Your Piezo-Mate has been equipped with a universal switching power supply and will automatically adjust the input voltage. It will not require any adjustments in this regard. See technical data for specifications.

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

SCALER OPERATING INSTRUCTIONS

Initial procedures at the start of every day:

- 1. The power switch is located on the left side of the unit. Switch it ON.
- 2. Make sure the water is open (counter-clockwise) and flowing to the device. Rotate the Selector Switch to the "SCALER" position, the red LED indicator should light up, showing that you have power to the unit.
- 3. Adjust the power control knob to the **minimum** power setting fully counter-clockwise. The digital readout will read 1.
- 4. Install handpiece and tip. Use the tip wrench to gently tighten the tip.
- 5. With handpiece and tip installed, 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) hold the handpiece over a sink and press the footswitch until water comes out in a stream. This should take no more than 30 seconds. This step is done to insure proper operation of the delay cavitation feature by removing air that may be trapped in the water lines.



6. Always keep the power control at the lowest setting and the water control at a level where you have a fine mist at the tip. Higher power settings will result in hotter water.

NOTE: Tips sent from our facility are not sterilized.

IMPORTANT: Keep in mind that higher power levels tend to heat the out-flowing water. Temperature control can be achieved by balancing the power with water flow volume. Thus, high power settings require high water flow rates and conversely low power requires low water flow rates.

- 7. The scaler is now ready for use.
- 8. Do not alter the scaling tip. The tip is shaped to deliver the optimal vibrating power and frequency. Deforming the tip in any way will cause the handpiece to get hot, degrade vibration power and void the warranty.
- 9. An anti fatigue mat is recommended to prevent the handpiece from contacting the floor should the handpiece get dropped. Piezo handpieces work with a crystal which vibrates when energized, transmitting energy to the tip. Dropping the handpiece could break the crystal. A dropped handpiece is not covered by the warranty.

IMPORTANT: Operating this device with hot water may cause damage to gums, lips and tongue. If the handpiece begins to get warm, stop and check water temperature. If it is hot, make sure that the power is at the lowest setting and the water is set at a high enough setting to provide a lukewarm mist.

Engler Engineering Corporation will not be liable for damage due to improper use of this device. Do not use this device if the water temperature is too hot.

Call Engler Engineering Corporation technical support if further help is needed.

ULTRASONIC SCALING PROCEDURES

- 1. Before placing tip into patient's mouth, activate the scaler 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 unwanted contact.
- 3. Place the tip into the patient's mouth and press the footswitch to activate the scaler.
- 4. Bring the tip lightly up 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: Pressure on the tip is not necessary to remove calculus or tartar. Enamel on the teeth may be damaged or removed if using excessive pressure. It can also 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 will likely damage the tooth and may change the shape of the tip, which in-turn, changes the frequency. The normal power setting for most procedures should be LOW range. Since every operator has a different technique and some patient's are more sensitive than others, the power may be adjusted to satisfy specific requirements.

The use of a face mask is recommended when operating the scaler, to avoid inhalation of bacterially contaminated aerosol (water mist) by the operator.

Only individuals properly trained in modern dental cleaning techniques should be allowed to perform dental procedures. Improper use of dental equipment can permanently and severely harm a

patient's teeth. This manual does not attempt to teach dentistry. Do not use this equipment without proper training.

SCALER MAINTENANCE

FINAL PROCEDURES AT THE END OF EACH DAY:

- 1. Make sure the unit is turned off.
- 2. Detach the tip and ultrasonic handpiece and sterilize.
- 3. Disconnect the unit from its water source or turn off the water supply.
- 4. Clean and disinfect all surfaces.

Instrument Tips:

IMPORTANT: The scaling tips should be thoroughly cleaned and free of blood, tissue, or any other debris before sterilization.

The scaling tips,and ultrasonic handpiece 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..

It is recommended to remove tips daily for sterilization. The tip may "weld" itself in the handpiece if left in for weeks on end.

Chassis:

The chassis 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.

SCALER 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:

- 1. Remove tip, and ultrasonic handpiece- sterilize these items as listed above.
- 2. Clean the outer surface of the handpiece and its cable with an antiseptic soap, rinse off with water and sterilize with a chemical sterilization solution.

Note: If any chemicals are allowed to get into the handpiece it must be flushed out with clean water.

- 3. Place cleaned tip and into handpiece for next patient.
- 4. The footswitch and power cables should be cleaned periodically by spraying a mist of sterilization or cleaning solution on the cables. It should remain on the cables for the length of time recommended by the manufacturer. Wipe the surface with a damp cloth and dry the cables completely.

POLISHER INSTALLATION

- 1. Connect 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 pushing / snapping it on. The prophy angle is now secured and ready for operation.
- 6. Rotate the selector knob on the front of unit to either forward or reverse operation.



NOTE 1: When using the polisher the green led indicator should be on.

NOTE 2: High speed will damage the gears in the prophy angle, splatter the polishing compound and overheat the teeth, possibly burning them. 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. Damage to the unit may occur.
- 2. Take care not to drop the micromotor, handpiece, or prophy angle on the floor or other hard surface.
- 3. 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.
- 4. Never oil the micromotor.

Polisher continued on next page

- 5. 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.
- 6. Do not rotate the selector switch on the front of the control box between forward and reverse rapidly. always allow a moment between the two selections.
- 7. 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 onto it.
- 2. Rotate the POWER control to the minimum setting in the Prophy Range.
- 3. Press 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 and bring the cup up to the tooth *before* depressing the footswitch. Then gently rotate the spinning cup against the tooth.

Caution: It is very easy to overheat and cause permanent damage the teeth. Use the lowest speeds possible with minimal pressure when polishing.

IMPORTANT: The prophy angle is only rated for up to 5000 RPM - therefore, in order to prevent premature failure of the bearings and gears, keep the unit set in the prophy range whenever the prophy angle is attached to the straight handpiece.

- 5. High-speed settings can overheat the tooth being polished and throw the polishing paste off of the rubber cup. Always start with a lower speed and then adjust to a higher speed as required.
- 6. Place the end of the angle into the patient's 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.

POLISHER MAINTENANCE: PROPHY ANGLE

The Prophy Angle is a precision engineered dental device. All of the gears and shaft assemblies are made of high-grade stainless steel, which when kept clean and properly lubricated, will provide trouble free service.

Daily Cleaning and Lubrication:

- 1. Remove prophy angle from straight handpiece.
- 2. Discard used rubber cup.
- 3. Follow the cleaning instructions that were supplied with the prophy angle.
- 4. Place a new rubber cup onto the angle.
- 5. Slide the prophy angle down over the straight handpiece and lock it in place.

IMPORTANT: For a long dependable life, the prophy angle should be cleaned and lubricated daily, if possible after each use.

Keep hair away from prophy cup and head cap.

SUGGESTION: To keep hair from being tangled in the angle, we recommend using a gentle adhesive tape such as masking tape around the lips, keeping hair in place and away from treatment area.



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



P-SH-A1:1 Straight handpiece



P-A1-B Prophy Angle (Sealed Bearings)



Snap on rubber cups



Polishing paste

STRAIGHT HANDPIECE MAINTENANCE

LUBRICATION:

- 1. The spray nozzle oiling method is optional but highly recommended because it cleans as well as lubricates. It forces lubricant into the smallest spaces and forces dirt out. 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.
- 2. Lubrication of the straight handpiece is required at least once a day when used. Preferably by the end of the day.
- 3. Make sure that the straight handpiece is in the unlocked position prior to lubricating.
- 4. Install the E-Type nozzle by pushing it into the top of the spray can. Insert the E-Type nozzle into the bottom of the handpiece (where the micromotor goes). Holding the two together tightly, with can in the upright position, push spray button for 2 to 3 seconds.

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



CLEANING and STERILIZATION OF HANDPIECE

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 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 the warranty. If you experience problems during operation, call our repair department.

MICROMOTOR MAINTENANCE

The E-Type 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. 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.
- 2. ALWAYS wait until it has come to a full stop.
- 3. NEVER oil, or allow oil or water to get into the micromotor.



Page 19 of 35

SCALER TROUBLESHOOTING

"ON" LED INDICATOR DOES NOT LIGHT UP:

- 1. Verify that unit is switched ON, the ON / OFF switch is located on the left hand side.
- 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. The power cord is not connected to the device.
- 5. 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. Verify that the waterline is correctly connected to the coupling insert at the back of the unit.
- 4. Check if water line is kinked or twisted.
- 5. Check Water Filter and Disk: clean disk with plain water and a toothbrush. If clogged, replace O-Ring and Disc.
- 6. If using Portable Water Tank: Verify you have the correct water level and sufficient pressure.
- 7. Water blockage in tip: replace the tip. (Clean with 0.012" piano wire)
- 8. Contact Engler Engineering Corporation.

"ON" LED INDICATOR LIGHTS UP, LITTLE OR NO VIBRATION / AT THE TIP:

- 1. Tip loose: tighten the tip.
- 2. Tip damaged: replace the tip.
- 3. Handpiece dropped or the crystal is otherwise damaged.
- 4. Contact Engler Engineering Corporation.

Scaler troubleshooting continued on the next page

HOT WATER COMING OUT OF SCALING HANDPIECE:

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

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

INTERMITTENT OPERATION:

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

II Tip action ceases abruptly during operating procedure.

- 1. Tip not tightened: tighten tip.
- 2. Handpiece / cable damaged: Contact Engler Engineering Corporation.

POLISHER TROUBLESHOOTING

NO POWER:

"ON" LED indicator does not light up:

- 1. Verify that unit is switched ON, the ON / OFF switch is located on the right hand side.
- 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. Electrical short in micromotor or its cord: Contact Engler Engineering Corporation for instructions.

STRAIGHT HANDPIECE GETS HOT:

- 1. Straight handpiece not lubricated properly: Lubricate as shown on page 17.
- 2. Bearings in straight handpiece are becoming worn, causing drag. Contact Engler Engineering Corporation.

HOT MICROMOTOR:

- 1. Straight handpiece causing drag, lubricate straight handpiece correctly or replace straight handpiece.
- 2. Worn brushes in micromotor, Contact Engler Engineering Corporation.
- 3. Oil got into the micromotor, return to Engler Engineering Corporation. See Engler411.com

INTERMITTENT OPERATION:

Unit polishes and then stops:

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

Polisher troubleshooting continued on next page

MISCELLANEOUS:

- 1. Micromotor speed not adjustable (runs at one speed): Return the complete Piezo-Mate with micromotor to Engler Engineering Corporation.
- 2. If the prophy cup unscrews, ("flies off") the prophy angle:

Micromotor is rotating in the wrong direction, Let the micromoter come to a full stop, then change direction by rotating the selector on the front of the unit to the opposite direction.

STRAIGHT HANDPIECE ROTATES ON THE MICROMOTOR:

- 1. Prophy angle (or other accessory) is not properly locked to the straight handpiece.
- 2. There is hair binding the gears or the gears are worn. 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. When 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. Prophy angles may vary. Use the following instructions accordingly.

DAILY CLEANING AND LUBRICATION:



- 1.) Remove Prophy Angle from Straight Handpiece.
 2.) Discard used rubber cup.
 - 3.) Use the wrench to remove the cap from the head.
 - 4.) Unscrew the head (top portion) from the body (bottom portion).
 - 5.) Place the cap, head and body into a bowl of hot soapy water.
 - 6.) Wash thoroughly with a toothbrush.
 - 7.) Rinse well with clear running water and shake off. DO NOT attempt to dry these parts with paper or cotton towels, Q-tips 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.
 - Lubricate by placing one drop of oil on each gear (see diagram).Oil is available from Engler it is part number P-01.
 - 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.
 - 10.) Slide the Prophy Angle onto the Straight handpiece and lock it.

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 rotating your left hand clockwise and rotating your right hand counterclockwise. Continue this process until the filter housing unscrews into two separate pieces.
- 3. The filter body consists of two sides, one with a male thread and the other with a female thread.
- 4. Remove the O-Ring.
- 5. Next, remove the filter disc by tapping the female side gently into the palm of your hand or a tabletop.
- 6. Replace with new disc and O-ring part # A52034 (7/8").
- 7. Reassemble the filter in the reverse order as you disassembled it.
- 8. Turn on the main water supply and check for leaks.



SADDLE VALVE ASSEMBLY



Installation Instructions

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.

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

See diagram below



To mount the female quick disconnect, there are two options.

Option "A" (Unmounted Assy.)

Take the free end of the ¼" water tubing that comes from the saddle valve and connect it to the female quick disconnect. This is done by placing the hose coupling nut over the water tubing and placing the hose into the back of the female quick disconnect, then tightening the coupling nut.

A44303 Saddle valve assembly w / female connector & tubing

Option "B" (Mounted Assy.)

The female quick disconnect may be mounted directly through the sink top or vanity counter. To choose this way, a 1/2" diameter hole has to be drilled through the surface in the space desired. (see previous page) Then mount the female quick disconnect and tighten the mounting nut to hold it securely in place. Then 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.

The copper tube is ready to be pierced.

Confirm that the saddle valve assembly is tightened onto the copper tube and the female quick disconnect is properly connected to the water line.

Turn the "T" handle of the saddle valve in a CLOCKWISE direction until it will go no further. Next, turn the "T" handle in a COUNTERCLOCKWISE direction until resistance is felt. Water will now flow to your dental unit. Check for leaks.

You may now connect the water line to the dental unit.

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 beyond 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. Remove pump and cap assembly.
- 2. Fill tank with distilled water or medicated solution up to the "FILL LINE" mark (approx. 2/3).
- 3. Replace pump and cap assembly and tighten securely.
- 4. 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.
- 5. To replace, remove, or add liquid, release the air pressure in the bottle by pulling and turning the pressure relief valve, located on the side of the bottle (if equipped). Otherwise, carefully unscrew the cap until the hissing stops.

WATER TANK CARE & MAINTENANCE

- 1. Release air pressure by pulling and turning knob of pressure relief valve (if equipped). Pull out fully and allow air to escape. Otherwise, unscrew the cap slowly then wait until the hissing stops.
- 2. 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. Confirm the cap is tight.
- 2. Check to see if pressure relief valve (if equipped) is in safety position. Release the relief valve by twisting 1/4" turn in either direction.
- 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 it becomes harder to pump.
- 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.

WARNING:

READ AND FOLLOW ALL INSTRUCTIONS

INSPECT the pump periodically.

DO NOT use mechanical devices to pressurize the tank .

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

DO NOT USE solutions warmer than 105F.

D0 NOT alter the functions of the pressure relief valve or plug the pressure relief

valve hole, as this could cause an unsafe condition.

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.

Continued on next page

TO PREVENT SLIME FROM FORMING INSIDE THE TANK

Allowing slime mold to form inside the tank is a generally hazardous and unhealthy condition. Slime in the water tank will make it's way into the dental unit possibly causing permanent damage by clogging the small tubing inside. This will cause the unit (electronics, hoses, handpiece, stack, and tip) to overheat.

It can easily be prevented by using a few simple steps.

- 1. Every two weeks dispose of water in tank. Pour ½ gallon of hot water and 1 ounce bleach into tank and 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.

OPTIONAL Piezo-Mate ACCESSORIES





P-106

P-MF Maintenance free prophy angle

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 Prophy 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.

Accessories continued on the next page



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. 8.80Z (249.48 GRAMS)

Optional handpiece available without LED lighting. Contact Engler Engineering for pricing.



TECHNICAL DATA

SCALER:		
	Input Voltage: Input Frequency: Current (Amperes)	100-250VAC Universal (switching) power supply 50/60 Hz. 2.3 Amps
	Transducer Style: Operating frequency:	Piezo 27,500 -31,000 Hz
U	trasonic Generator Data:	Auto-Tuned, Variable Power Control
WATER:	Input Pressure:	30 PSI (min.) 60 PSI (max)
POLISHER:		
	Power Control:	Variable Power Control
	Output Voltage:	24 VDC
	Output Current:	3 Amperes (max)
MICROMOTOR:	Range:	500 - 35 000 RPM
	Style:	Sealed Bearing "E" type
	Brush Design:	Fully Replaceable
STRAIGHT HANDPIECE:		
••••••••••••••••••••••	Maximum:	40,000 RPM
	Style:	Sealed Bearing "E" type
PROPHY ANGLE:		
	Recommended Drive: Type:	3,000 - 5,000 RPM Sealed Bearing / Open Bushing

DIMENSIONS

3 Lbs. (1.36 Kg.)

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

CABLE LENGTH:

CHASSIS DIMMESION:

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: 3 Lbs. (1.36 Kg.) Shipping: 7 Lbs. (3.17 Kg.)



Web: www.englerusa.com / Email: info@englerusa.com www.dynaxusa.com / www.ez-stretcher.com www.ez-breathe.com / www.25KSeries.com for brochures, manuals and "how to" pages please visit www.engler411.com

Engler Engineering Corporation 1099 East 47th Street - Hialeah, Florida 33013 USA Tel: (800) 445-8581 / (305) 688-8581 / Fax: (305) 685-7671

