



Son-Mate II

Veterinary Ultrasonic Dental Scaler

Instruction Manual

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 Support site: www.engler411.com

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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, prophylactic 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 for veterinary use only

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,

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,

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

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

Sentinel V.R.M., respiratory monitor.

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 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 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:

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INTRODUCTION

Thank you for purchasing the Engler Son-Mate II Scaler Polisher combination unit.

The design of the Engler Engineering Corporation, Son-Mate 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 18,000 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 μ m to 102 μ m).

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

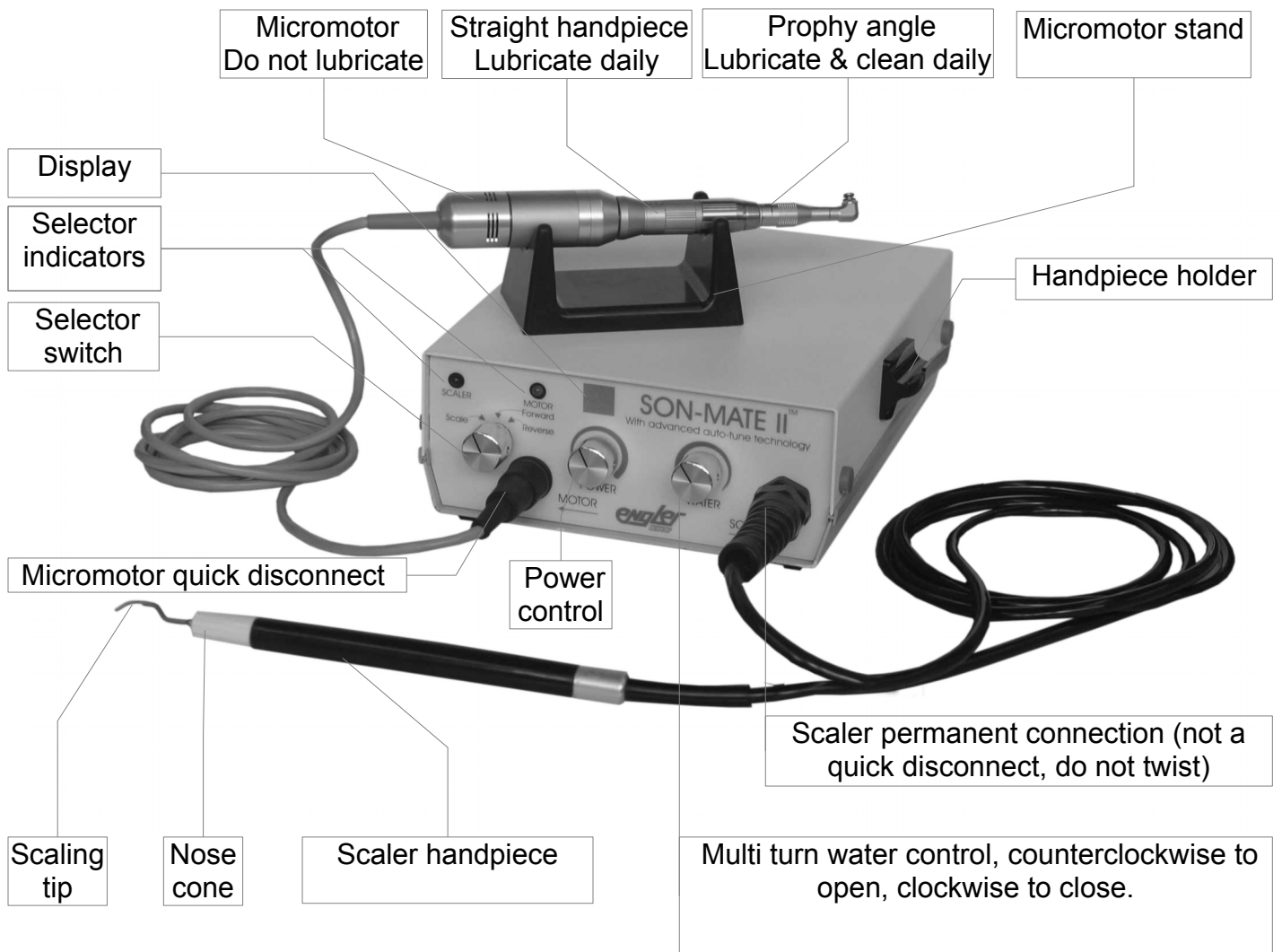
Engler Engineering Corporation makes every effort to verify that all parts for the device along with any optional accessories ordered were shipped from our facility in Hialeah, Florida and are included in this shipment. It is imperative that the shipment be inspected immediately upon arrival. Should 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.

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INSTALLATION INSTRUCTIONS

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

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:

Engler Engineering Corp. strongly recommends that a manual shut off valve be placed before 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.

44301 Male quick disconnect



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

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

PLEASE REMEMBER -

The unit should be disconnected 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 and 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 Son-Mate 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 Engineering Corp. 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.)

Distilled water is recommended when using the pump bottle.

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 must be opened and inspected quarterly and we suggest that the filter disc and O-ring be changed out at least once a 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 on 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.

Your Son-Mate II has been equipped with a universal switching power supply and will not require adjustments in this regard. See technical data for specifications.

SCALER OPERATING INSTRUCTIONS

Initial procedures at the start of every day:

1. Make sure the power switch is ON, it is located on the left side of the unit.
2. Make sure the water is turned on 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.
4. Adjust the power control knob to the **minimum** power setting fully counter-clockwise. The digital readout will read 1.
5. With no transducer (stack) in the handpiece (no 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 depress 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.

NOTE : The O rings on the stack should be lubricated every week or two with a small amount of petroleum jelly to keep the stack from sticking in the handpiece.

6. Insert the transducer (stack), install nosecone and then install a sterile tip into the nosecone, and rotate the nosecone in a clockwise direction. Then firmly tighten by hand.
7. **IMPORTANT:** It is important that you DO NOT over-tighten the tips, as this could damage the stack and / or tip and void your warranty.
8. Always keep the power control at the lowest setting and the water control to 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 pre-sterilized.

IMPORTANT: If you find that tightening the nosecone by hand is not successful, you may lightly tighten the nosecone with the tip wrench. Since the tip wrench is designed to remove the tips, it is important that you DO NOT over-tighten the tips with the tip wrench, as this will damage the Stack and / or the tip and void your warranty.

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.

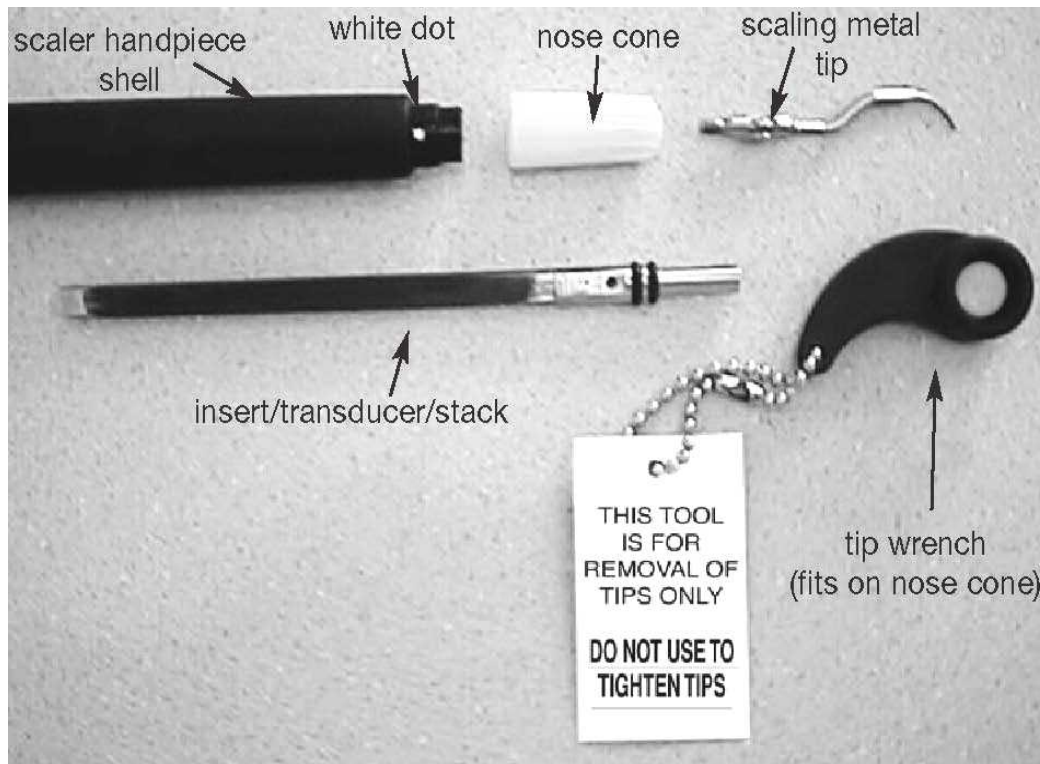
9. The scaler is now ready for use.

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.

10. 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 for further help.

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 accidental contact.
3. Place the tip into the patient's mouth and depress the footswitch in order 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 when 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 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.

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

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

SCALER MAINTENANCE

FINAL PROCEDURES AT THE END OF EACH DAY:

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

Ultrasonic Scaler Tips:

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

The scaling tips, nosecone and stack 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 minutes..

It is recommended that you do not leave tips screwed into the handpiece for extended periods, as water and sediment may make it difficult to remove, causing possible damage to the stack.

Transducer / Stack:

The stack may be sterilized using the same methods as listed above. **Do not sterilize the entire stack, tip and nosecone assembly as one piece. Separate the tip from the stack before sterilization.**

To re-install stack into handpiece, follow correct procedures on the following page.

Note: To achieve optimum performance of your equipment, we recommend that the stack, tip and nosecone be replaced every 6 months to a year.

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.

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 nosecone - 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.

Caution: No chemicals or cleaners should ever be used inside or allowed to get into the scaler handpiece. Flush the handpiece thoroughly and completely with clean water.

3. Place cleaned tip and nosecone into handpiece for next patient.
4. The footswitch and power cables should be cleaned periodically by spraying a fine 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.

STACK (TRANSDUCER) INSTALLATION / REMOVAL INSTRUCTIONS

You have purchased a precision instrument. Please handle gently - It is easily damaged

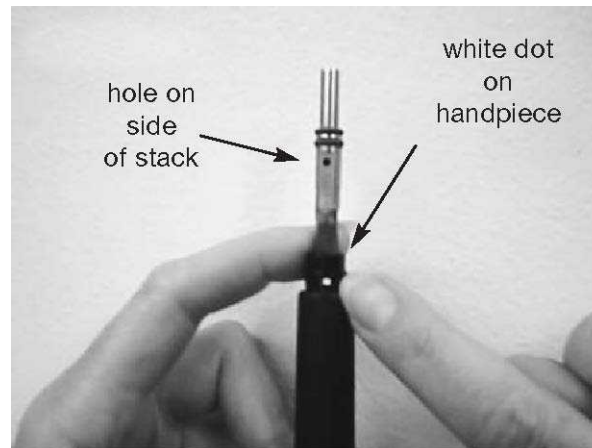
TO REMOVE THE STACK:

1. Unscrew the scaling tip by turning the plastic nosecone counterclockwise using the tip wrench.
2. Remove tip.
3. Pull off plastic nosecone. Pull stack straight up. **DO NOT USE PLIERS!** If you have difficulty pulling the stack out, screw the tip back in (without the nosecone) and pull the stack straight out with the tip.

IF YOU STILL CANNOT REMOVE IT CALL ENGLER ENGINEERING CORP. AT 800-445-8581.

Do not twist or rotate stack while it is in the handpiece, as it will damage the stack and / or handpiece and void your warranty.

TO INSTALL THE STACK:



Carefully remove the new stack from the clear shipping tube.

1. Locate the hole (see photo above) on the side of the stack. Align it with the white dot on the top of the handpiece and let the stack slide down into the handpiece.
2. Gently push the stack down until it stops. There should be approximately $\frac{1}{2}$ inch showing above the handpiece.
DO NOT force the stack into the handpiece.
3. Push plastic nosecone onto scaler handpiece.
4. Place scaling tip into nosecone and turn nose-cone clockwise.

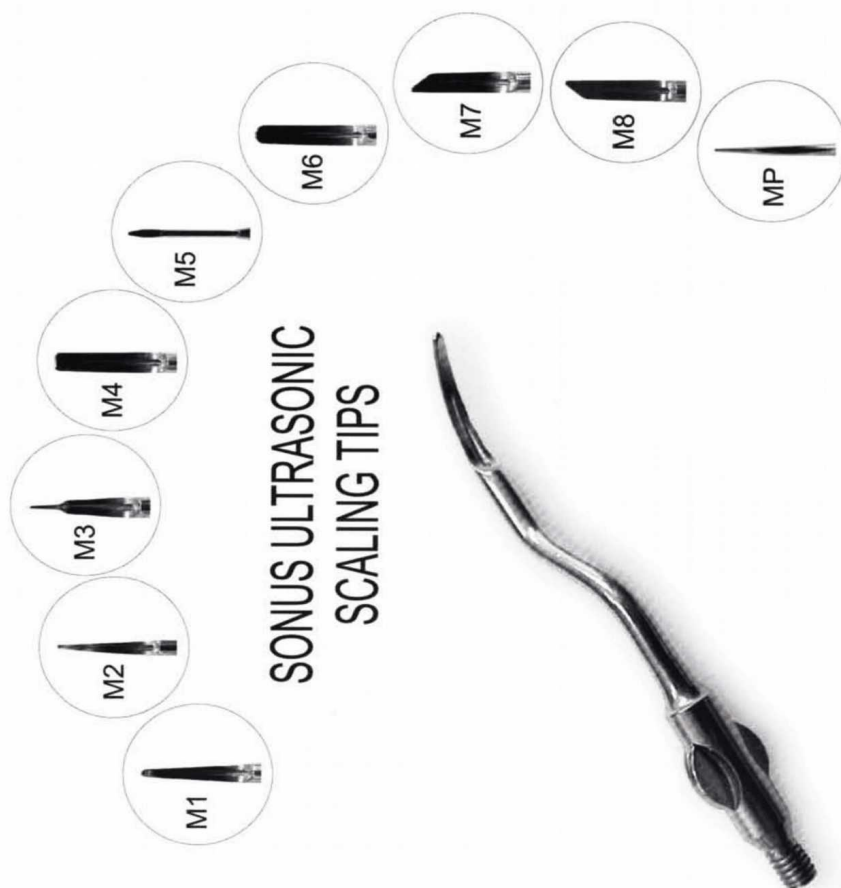
NOTE 1: Tighten securely by hand. **DO NOT USE TIP WRENCH.**

NOTE 2: The O-rings on the stack should be lubricated every week or two with a small amount of petroleum jelly or equivalent to keep the stack from sticking in the handpiece.

NOTE: Twisting the nosecone or tip with excessive force will damage the stack and void your warranty.
FOR FURTHER ASSISTANCE CALL CUSTOMER SERVICE 800-445-8581 OR 305-688-8581

SONUS TIP SHAPES

- M1 (133-1201) - UNIVERSAL POINTED
- M2 (133-1202) - EXTRA FINE
- M3 (133-1203) - INTERPROXIMAL SICKLE TYPE
- M4 (133-1204) - BROAD FLAT SPATULA
- M5 (133-1205) - HYPODERMIC NEEDLE TIP
- M6 (133-1206) - BROAD ROUNDED SPATULA
- M7 (133-1207) - GOLDMAN LEFT
- M8 (133-1208) - GOLDMAN RIGHT
- MP (133-120P) - PERIO SUBGINGIVAL



Tips may be added or discontinued without notice

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.
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. 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.
2. Never oil the micromotor.
3. 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.
4. As this is a precision instrument, always return it to Engler Engineering Corporation for maintenance or 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 and bring the cup up to the tooth before depressing the footswitch.

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

5. High-speed settings will throw 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 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 as friction can overheat / burn the tooth.

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 if cleaned and lubricate correctly will provide long, 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 lubricated daily, if possible after each use. **Use mineral oil (#P-O1, supplied with the unit).** Keep hair away from prophy cup and head cap.

SUGGESTION: To keep hair from becoming 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.

This device is shipped with



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



P-SH-A1:1 Straight
handpiece



P-A1-B Prophylaxis
Angle (Sealed
Bearings)



Snap on rubber cups



Polishing
paste

STRAIGHT HANDPIECE MAINTENANCE

The spray nozzle oiling method is optional but highly recommended. It cleans as well as lubricates. Pressure of the spray forces dirt out.

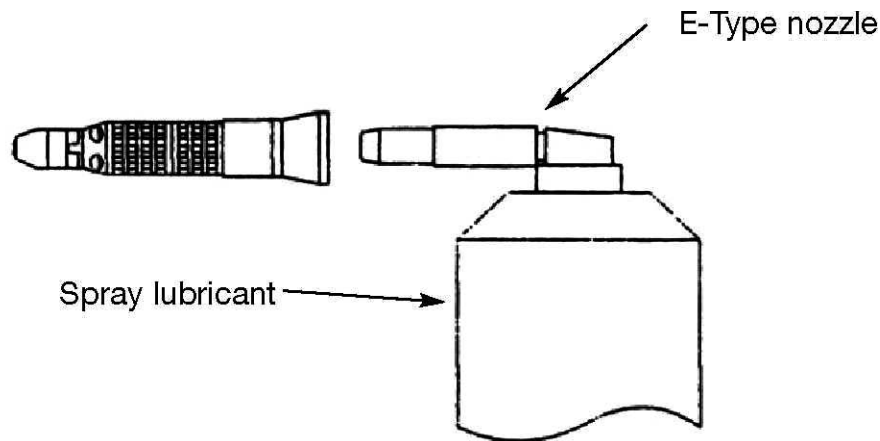
The alternate method is to place 1 drop of approved oil (mineral oil #P-O1) in the chuck hole.

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 unlocked prior to lubricating.
2. Install the E-Type nozzle by pushing it onto the top of the spray can. To lubricate and expel debris, insert the E-Type nozzle into the bottom of the straight handpiece. 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 with an alcohol-soaked soft tissue.
2. Never clean the handpiece with boiling water, chemical solutions, ultrasonic cleaner, or 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 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, 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

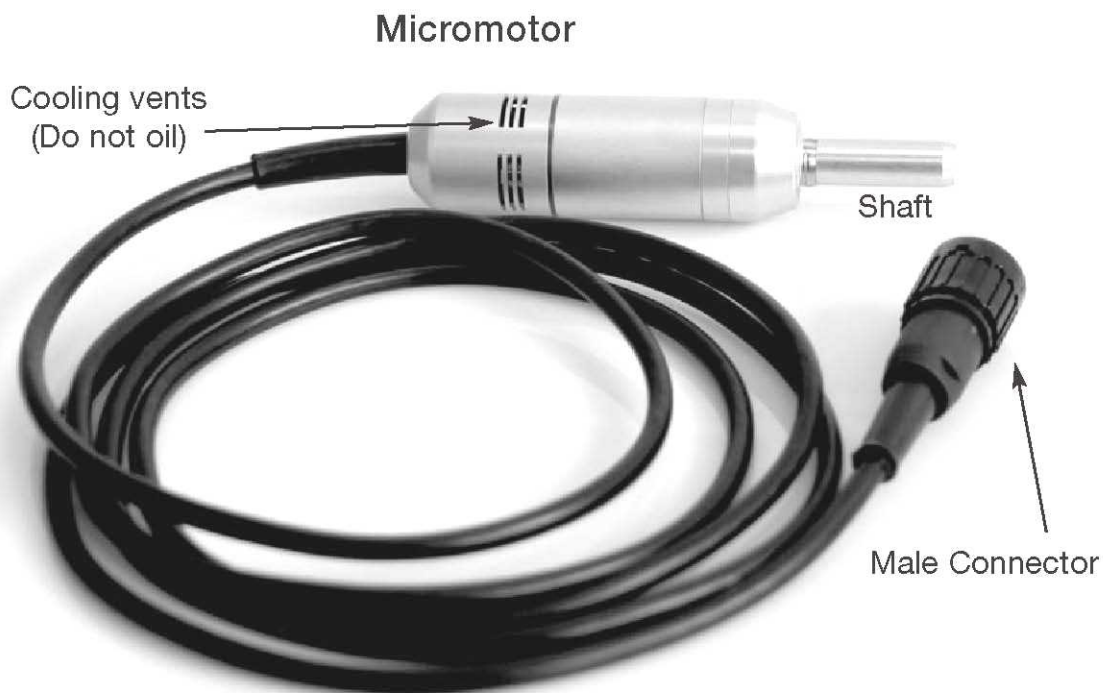
Due to Federal regulations, spray lubricant cannot be shipped by air. Engler spray lubricant can be shipped together with orders delivered by ground, otherwise it will be shipped separately. Engler P-02 Lubricating spray is optional but highly recommended.

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. 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 allow oil or any liquid to get into the micromotor.



SCALER TROUBLESHOOTING

I. “ON” L.E.D. INDICATOR DOES NOT ILLUMINATE:

1. The unit is not plugged into a power outlet: verify that the unit is plugged in.
2. Power outlet not active: try another outlet.
3. The power supply (cable) is not plugged into the unit.

II “ON” L.E.D. INDICATOR LIGHTS UP, NO WATER FLOW:

1. Verify that water source is connected. If using a pump bottle, fill it at least half way.
2. Check that handpiece hose / cable not is kinked or twisted.
3. Water regulator not open, turn water regulator counter clockwise to open. Water regulator has multiple rotations.

III “ON” L.E.D. INDICATOR LIGHTS UP, LITTLE OR NO VIBRATION AT THE TIP:

- I. Old or damaged stack: replace the stack.

IV WATER FROM SCALER TOO HOT:

The insert requires a constant flow of cool water to maintain water temperature below 100F. at the tip. You may correct a hot water problem by:

1. Adjusting water flow knob higher (counter clockwise). Water regulator has multiple rotations.
2. Lower the power by adjusting the power knob counterclockwise.
3. Tip clogged. Replace or unclog tip.
4. Water restriction in unit.
5. Clogged water filter. Clean filter or replace filter media.

INTERMITTENT OPERATION:

1. Tip vibrates, then stops:
2. Foot switch damaged: Contact Engler Engineering Corporation.
3. Scaler handpiece / cable damaged
4. Damaged or worn out stack / tip.

TIP ACTION CEASES ABRUPTLY DURING PROCEDURE:

1. Stack has a broken element / damaged: replace.
2. Scaler handpiece / cable damaged

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 side of the unit.
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 circuit in micromotor or its cable: 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 inside micromotor, return to Engler Engineering Corporation.

INTERMITTENT OPERATION Unit polishes and then stops:

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

MISCELLANEOUS:

1. Micromotor speed not adjustable (runs at one speed): Return the complete Son-Mate II with micromotor to Engler Engineering Corporation.
2. Prophylaxis cup unscrews during procedure, (“flies off”) the prophylaxis 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:


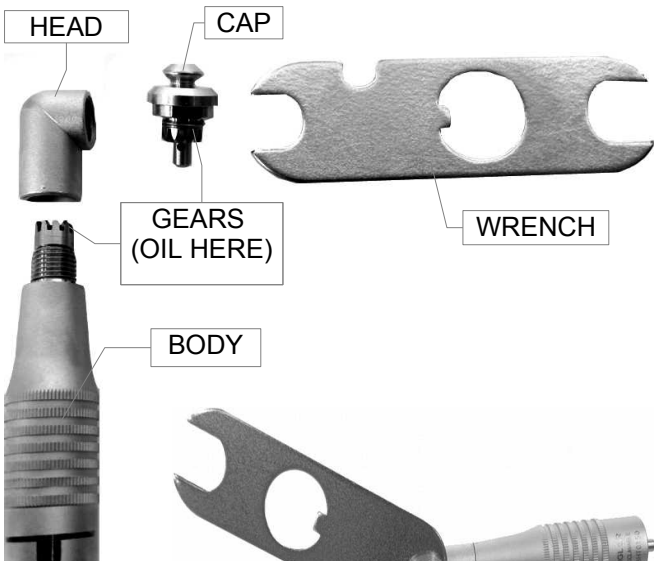

3.

1. Accessory in straight handpiece not locked in. Tighten locking ring on straight handpiece.
2. Prophylaxis angle gears worn.
3. Hair may be enmeshed in the gears of the prophylaxis angle, clean prophylaxis angle according to PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS (next page).
4. Straight handpiece or prophylaxis 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.

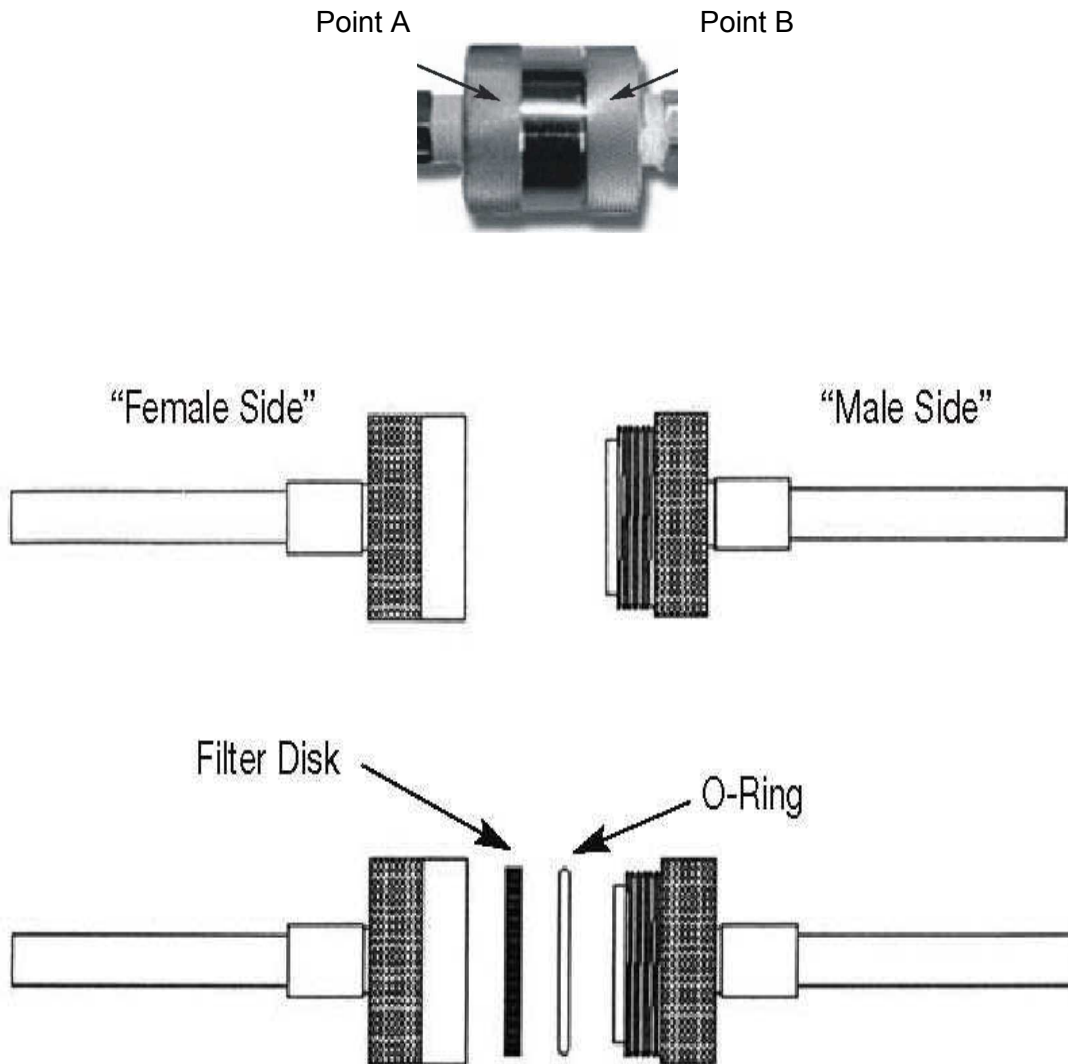
DAILY CLEANING AND LUBRICATION:

 <ol style="list-style-type: none"> 1.) Remove prophy angle from low speed handpiece. 2.) Discard used rubber cup. 	<ol style="list-style-type: none"> 1.) Remove prophy angle from low speed handpiece. 2.) Discard used rubber cup. 
 <ol style="list-style-type: none"> 3.) Remove head cap by turning counterclockwise to unscrew the knurled nut with the wrench provided. 4.) Wash the cap and head cavity thoroughly with a toothbrush in a bowl of warm soapy water. 5.) Rinse thoroughly with running water and shake off excess water. 6.) DO NOT 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. 7.) Lubricate by placing one drop of mineral oil on the gears of the head cap and a drop inside the gear cavity. 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. 9.) Slide the prophy angle onto the handpiece and lock the handpiece. 	<ol style="list-style-type: none"> 3.) Use the wrench to remove the cap from the head. 4.) Turn clockwise to 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 running water and shake off. DO NOT 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. 8.) Lubricate by placing one drop of mineral oil on each gear (see diagram). 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 handpiece and lock the handpiece.

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. Reassemble the filter in reverse order.
8. Turn on the main water supply and check for leaks.



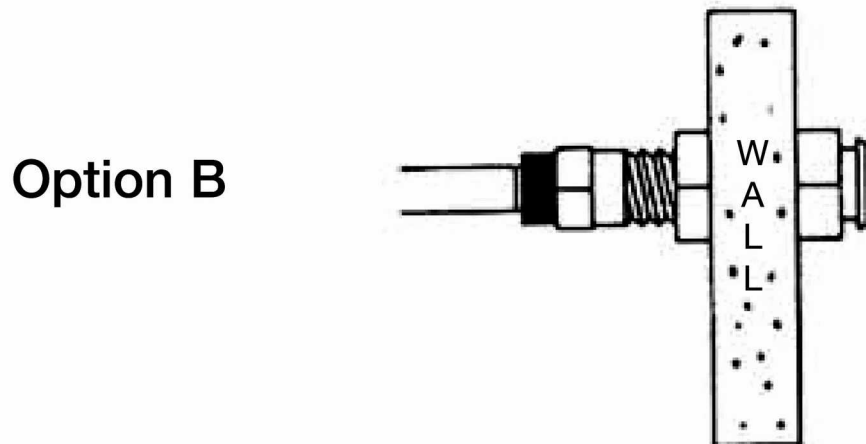
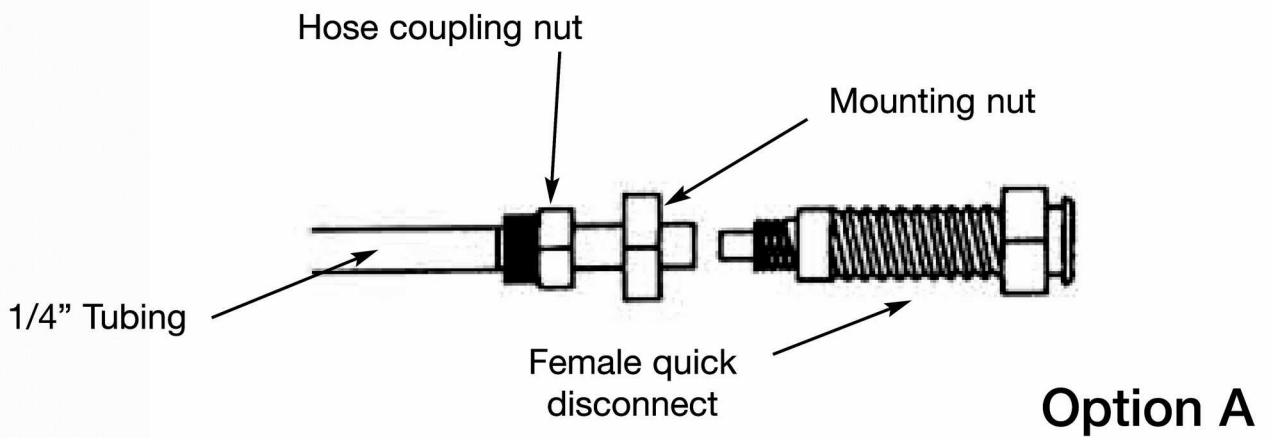
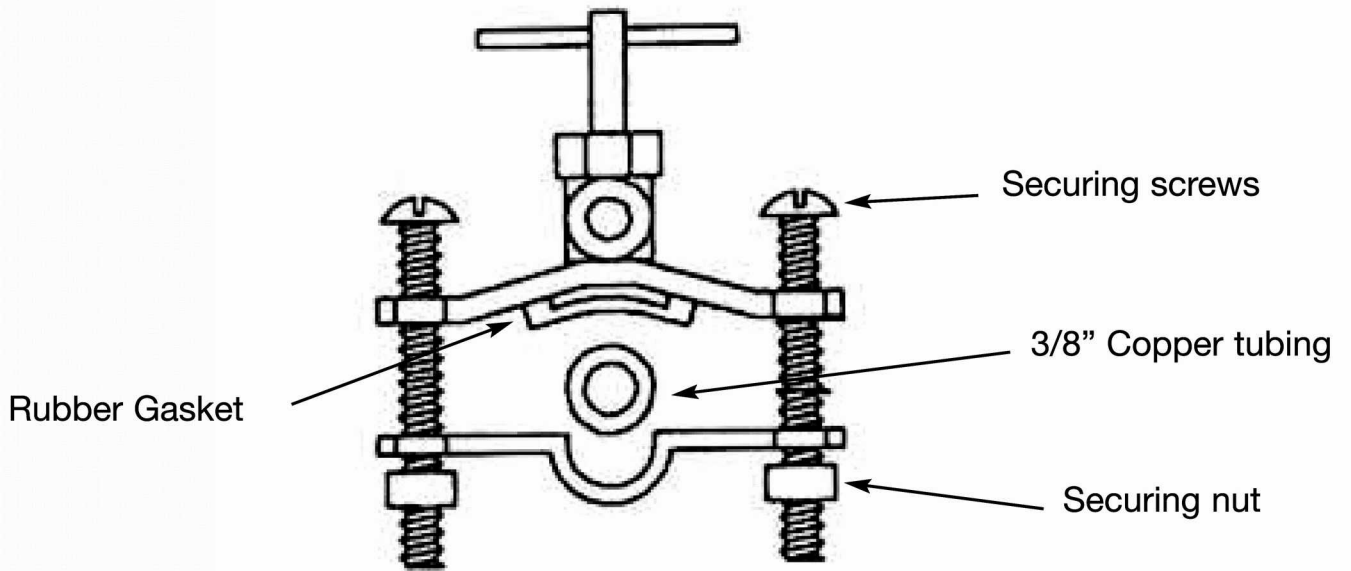
SADDLE VALVE ASSEMBLY

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.



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.

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

2.

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 SON-MATE 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 Propy 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

To troubleshoot problems, download manuals and review our brochures,
please visit us at:
www.engler411.com

TECHNICAL DATA

SCALER:

Input Voltage: 100 – 250 VAC (UNIVERSAL POWER SUPPLY)
Input Frequency: 50 / 60 Hz.
Current (Amperes) 2.3 Amps

Transducer Type: Magnetostrictive
Operating frequency: 17,500 -19,000 Hz

Ultrasonic Generator Data: Advanced Auto-Tuned Technology.
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:

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

STRAIGHT HANDPIECE:

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

PROPHY ANGLE:

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

DIMENSIONS

NET WEIGHT: 3 Lbs. (1.36 Kg.)

CHASSIS DIMENSION:

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

CABLE LENGTH:

Scaler Handpiece: 96" (244 cm)
Micromotor Handpiece: 76" (193 cm)
Foot switch: 96" (244 cm)
Power Cord: 72" (183 cm)
Water Line: 96" (244 cm)

SHIPPING WEIGHT:

7 Lbs. (3.17 Kg.)

For information on Engler Engineering Corporation's warranty, repair, loaner, or product brochures, please visit engler411.com.

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