



Son-Mate

Ultrasonic Dental Scaler / Polisher



Instruction Manual

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INTRODUCTION:

Thank you for purchasing an Engler Son-Mate Scaler Polisher combination.

The design of the Engler Engineering Corporation, Son-Mate scaler circuitry combines Integrated Phase Lock Loop technology along with our time tested delayed cavitation 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 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 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 bacteriocidal, 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

IMPORTANT:

We recommend that ultrasonic scalers should not be used by or in close proximity to anyone who has any electronic implant device (pacemaker, defibrillator, or has any neurological problems).

PLEASE READ VERY CAREFULLY

Engler Engineering Corporation makes every effort to verify that all parts for the unit along with any optional accessories shipped from our location are included in your order. It is imperative that you inspect the package and if you find any pieces missing or damaged, you must notify us immediately.

All devices manufactured by Engler Engineering 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 damage, injury or death due to non-authorized service and / or improper installation of the device.

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

TECHNICAL DATA:

I. SCALER:

Input Voltage:	120	240 VAC
Input Frequency:	50/60 Hz.	50/60 Hz.
Current (Amperes)	1.2	0.6

IMPORTANT: Your Son-Mate has been pre-set to the voltage as requested in you order and will not require adjustments in this regard. The voltage of operation is indicated on the last line of the label on rear panel of your unit.

Transducer Style:	Magnetostrictive
Operating Frequency:	17,000-19,000 Hz.

Ultrasonic Generator Data-
Auto-Tuned Feedback Oscillator
Variable Amplitude Power Control
Pulse Modulation Output

II. WATER:

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

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

IV. MICROMOTOR:

Velocity Range:	300 - 35,000 RPM
Style:	Sealed Bearing
Brush Design:	Fully Replaceable

V. STRAIGHT HANDPIECE:

Maximum Drive Velocity:	30,000 RPM
Style:	Sealed Bearing Twist Lock Collet

TECHNICAL DATA: (cont.)

VI: PROPHY ANGLE:

Recommended Drive Velocity: 5,000 - 6,000 RPM
Type: Sealed Bearing/Open Bushing

IMPORTANT: Since the gears and bushings of the Propy Angle are of a open design they **MUST** be kept clean and lubricated daily to insure long life.

VII. DIMENSIONS:

CHASSIS:

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

VIII. ACCESSORIES:

Handpiece Cable: 96 in. (244 cm)
Footswitch Cable: 96 in. (244 cm)
Power Cord: 72 in. (183 cm)
Water Line: 96 in. (244 cm)

NET WEIGHT: 8 1/2 Lbs. (3.85 Kg.)

SHIPPING WEIGHT: 10 Lbs. (4.5 Kg.)

INSTALLATION INSTRUCTIONS:

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

IMPORTANT: The Son-Mate 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.

The Son-Mate comes equipped with an 8 foot (244 cm) water line with a male Poly-Quick disconnect fitting. The water line may be connected to your water source in many different ways. We offer four suggestions:

It is imperative that you disconnect the device from the water supply when it is not in operation.

1. Female Quick Disconnect (P/N: 44300) - This is the female mating connector to the male quick disconnect supplied with the Son-Mate. Use this to create a custom water installation.



44301 Male quick disconnect

** Please note male quick disconnect is supplied as a standard item with all Engler dental units



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 cold water supply line.



A-44303 Saddle valve assembly w/female connector & tubing

3. Faucet Adapter Assembly (P/N: A22303) This screws on the faucet and has a female mating connector.



A-22303 Faucet attachment w/female connector & tubing

4. Portable Water Tank (P/N: PT-1) - This is a self contained water source which is suited ideally for portable operation. All you do is fill tank with distilled water, pressurize the tank, and begin scaling.



PT-1 Portable water tank (one gallon)

IMPORTANT: If you do not feel comfortable doing the water installation yourself, we highly recommend 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 POWER SUPPLY:

Plug the power cord into a grounded power outlet. DO NOT remove or bypass the ground pin from the power cord of this device.

IMPORTANT: Your Son-Mate has been pre-set to the voltage as requested in you order and will not require adjustments in this regard. The voltage of operation is indicated on the rear panel of your unit.

SCALER OPERATING INSTRUCTIONS:

Initial procedures at the start of every day!

1. Make sure the water is turned on and flowing to the Son-Mate.
2. 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.

NOTE: The transducer (stack) has already been installed into the hand-piece, please do not remove it at this time.

4. With only the transducer (stack) in the handpiece (no tip installed), set the WATER CONTROL to its maximum setting by rotating it counterclockwise, hold the handpiece over a cuspidor or sink and depress the footswitch until water comes out in a stream. This should take a few 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.
5. Insert a sterile tip into the nosecone, and rotate the assembly in a clockwise direction. Then firmly tighten by hand.

IMPORTANT: It is important that you DO NOT over-tighten the tips, as this will damage the Stack and / or the tip.

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

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.

ULTRASONIC SCALING PROCEDURES:

1. Before placing tip into patient's mouth activate the scaler over a sink by depressing the footswitch. Check for the desired power and water spray.
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 in a circular motion.

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 by keeping the tip in one location for a short period of time. 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 near mid-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. Ultrasonic Scaling Procedures (Tip Application) is not intended for contact with Soft Tissue

CAUTION: Contact with Soft Tissue May Cause Burns.

As with any precision instrument, stacks should be handled carefully. To avoid damage to the stack during insertion, please familiarize yourself with the stack installation on page 10.

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

FINAL PROCEDURES AT THE END OF EACH DAY:

1. Switch the unit to the off position.
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.

SCALER MAINTENANCE:

Instrument 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 (20) minutes..

It is recommended that you do not leave tips screwed into the handpiece for several days, 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 page 9.

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.

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.
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.

FOR HUMAN DENTISTRY:

1. It is recommended that the Stack, Nose Cone and Tip be removed and properly sterilized after each patient. This can be done as shown on page 9, however always replace stack by properly lining up the white dot on the handpiece with the small hole on the stack.
2. If using an Autoclave, DO NOT exceed 270 degrees F. for more than 20 minutes as higher temperatures may reduce the effectiveness of the stack and tip.

STACK (TRANSDUCER) INSTALLATION / REMOVAL INSTRUCTIONS

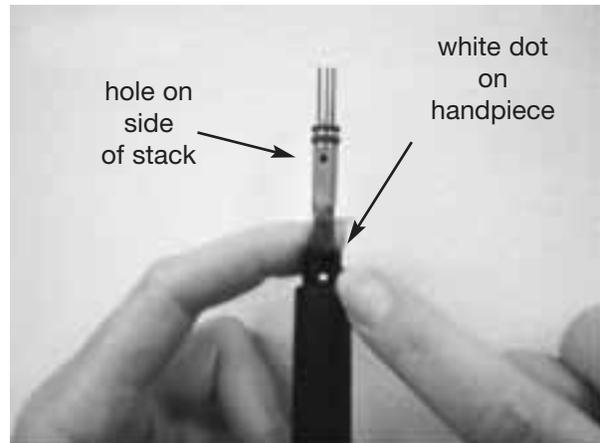
You have purchased a precision instrument
Please handle gently- It is easily damaged

TO REMOVE THE STACK:

- A. Unscrew the scaling tip by turning the plastic nose-cone counterclockwise.
- B. Remove tip.
- C. Pull off plastic nose-cone.
Pull stack straight up . **DO NOT USE PLIERS!**

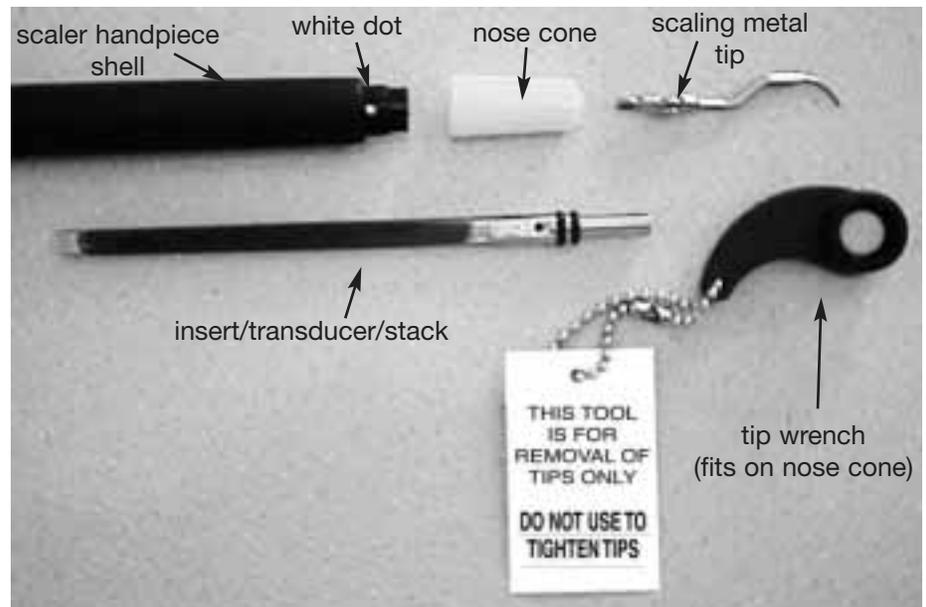
If you have difficulty pulling up, insert the scaling tip and pull from tip. **(IF YOU STILL CANNOT REMOVE IT CALL US AT 800-445-8581)**

- D. Do not twist or rotate stack while it is in the handpiece as it will damage the stack and / or handpiece.



TO INSTALL THE STACK:

- A. Carefully remove the new stack from the clear shipping tube.
- B. Locate the hole (see photo above) on side of stack. Align it with the white dot on the top of the handpiece and let the stack slide down into the handpiece.
- C. Gently push the stack down until it stops. There should be approximately 1/2 inch showing above the handpiece.
- D. Push plastic nosecone onto scaler handpiece.
- E. Place Scaling Tip into nosecone and turn nosecone clockwise. Tighten securely by hand. **DO NOT USE TIP WRENCH.**



NOTE: Twisting the nosecone or tip with excessive force will damage the stack.

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

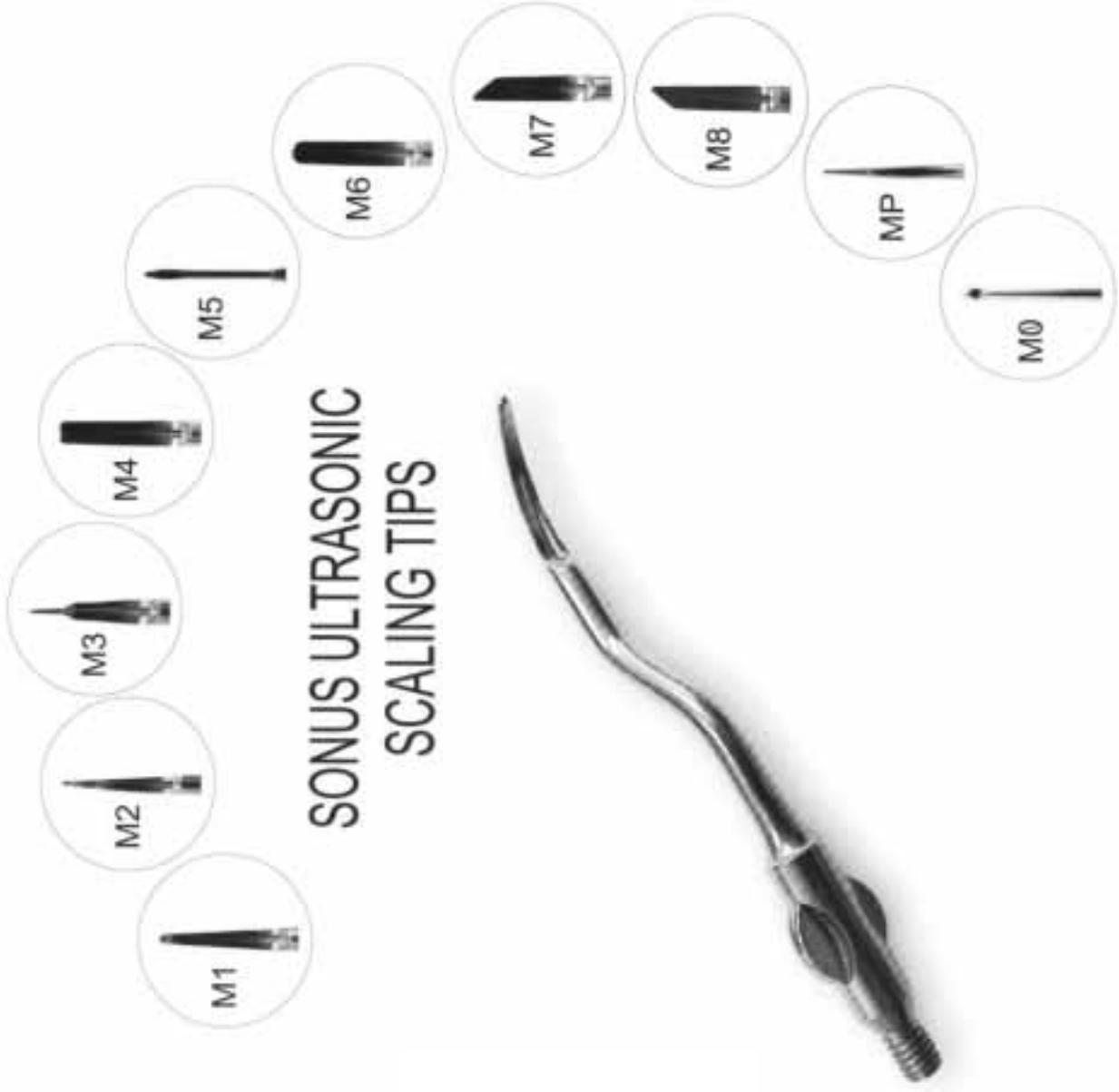
M6 (133-1206) - BROAD ROUNDED SPATULA

M7 (133-1207) - GOLDMAN LEFT

M8 (133-1208) - GOLDMAN RIGHT

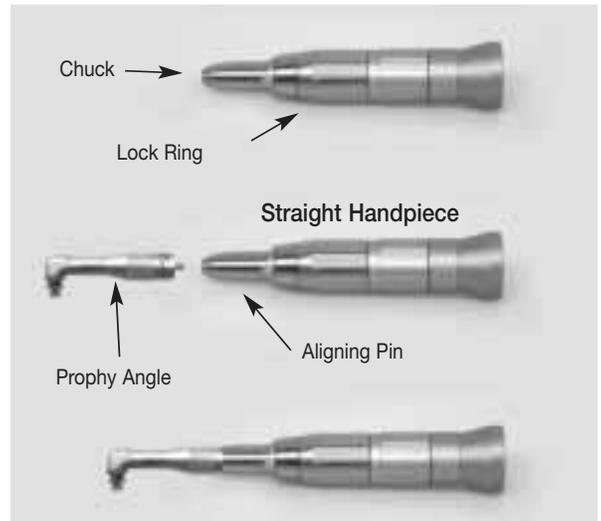
MP (133-120P) - PERIO SUBGINGIVAL

M0 (133-1199) - VETERINARY FELINE CATHETER



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 locking collar clockwise.
2. Slide the Straight Handpiece down over the top of the Micromotor.
3. Line up the notch of the Propy Angle with the Aligning Pin on the Straight Handpiece, and then push the shaft of the Propy 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 Propy 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: When using the polisher the GREEN LED indicator should be on.

NOTE: It is suggested to use a low to mid range speed setting for polishing. High speed will damage the gears in the Propy angle

SAFETY INFORMATION:

1. Never turn the Lock Ring while the handpiece is in operation.
2. Never reverse the direction of the micromotor while it is in operation. Possible damage to the unit may occur. Always let the micromotor come to a complete stop before reversing directions.
3. Do not drop the Micromotor, Handpiece or Propy Angle on the floor or other hard surface as the shock may cause malfunction.
4. Do Not lock or run the Micromotor / Straight Handpiece Assembly without a Propy Angle, Cutting Disk, Contra Angle, or test shaft installed. Doing so could damage the Straight Handpiece and / or Micromotor.

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 second between the two selections.
7. As this is a precision instrument, always return it to Engler Engineering Corporation for 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 readjusting the POWER control.
4. To keep the paste from flying off the cup, maintain a low speed and gently bring the cup up to the tooth before depressing the footswitch

IMPORTANT: The prophy angle is only rated to rotational speeds of 5,000 RPM - therefore, in order to prevent premature failure of the angle keep the unit set in the prophy range whenever the prophy angle is attached to the straight handpiece.

5. High speed settings may 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 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 if cleaned and lubricate correctly will provide long, trouble-free service.

Daily Cleaning and Lubrication:

1. Remove prophy angle from straight handpiece.
2. Remove used rubber cup.
3. Follow the cleaning and lubricating 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. Keep hair away from prophy cup and head cap.

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

Shipped with Son Mate



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



P-SH-A
1:1 Straight handpiece



P-A1-B Prophy
Angle (Sealed
Bearings)



Snap on rubber cups
Polishing paste

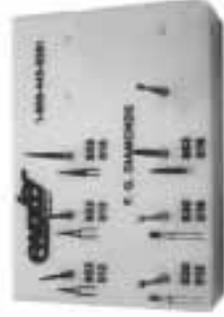
Optional Accessories which fit into straight handpiece



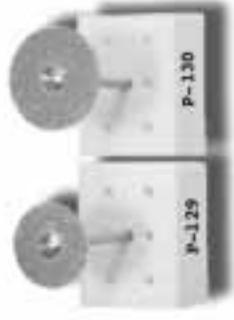
P-A3 F.G. Contra Angle
for Handpiece



P-A4 F.G. Contra Angle
for Micromotor



P-131 Carbide
Burs- Kit of 6



P-129 Diamond cutting disc 18 MM dia.
P-130 Diamond cutting disc 22 MM dia.
Both disc's have a 2.35 mm post diameter

STRAIGHT HANDPIECE MAINTENANCE:

LUBRICATION:

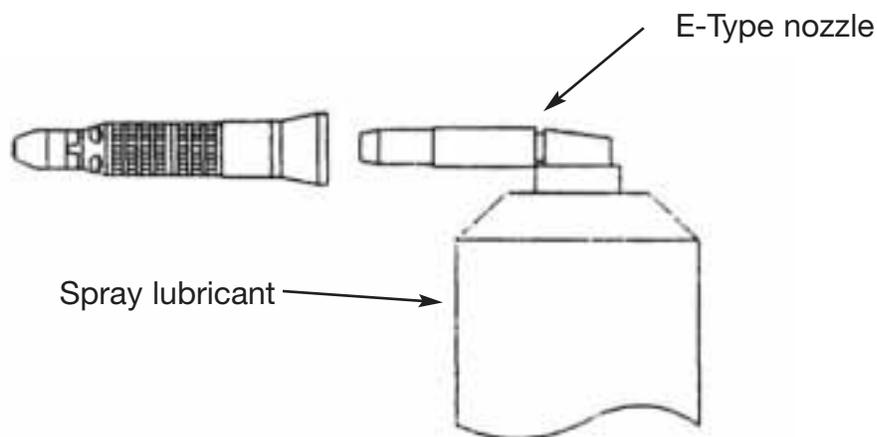
The spray nozzle oiling method is optional but highly recommended because it cleans as well as lubricates. The alternate method is to place 1 drop of approved oil in the chuck hole. Do not lubricate the handpiece while it is on the Micromotor.

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 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 in the lubrication section of this manual.
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: If you experience problems during operation, call our repair department. **DO NOT** attempt to repair the straight Handpiece. Doing so may shift the internal springs and may cause permanent damage to the unit and will void your warranty.

MICROMOTOR MAINTENANCE:

The Micromotor is capable of rotational 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 located at the back of its body, **DO NOT** allow water, oil, or any other substance to enter these vents. Failure to keep debris out of the Micromotor will shorten the lifespan of the unit and may 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.

IMPORTANT:

2. **NEVER** oil, or allow oil to get into the micromotor.



SCALER TROUBLESHOOTING:

- I “ON” LED INDICATOR DOES NOT LIGHT UP:
 - A. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
 - B. Power Outlet not active: try another outlet.
 - C. Contact Engler Engineering Corporation.

- II “ON” LED INDICATOR LIGHTS UP, NO WATER FLOW:
 - A. Verify that the selector switch is in scaling mode.
 - B. Verify water line is connected and water is flowing to unit.
 - C. Check if water line is kinked or twisted.
 - D. Check Water Filter and disk: clean disk with plain water and a toothbrush. If clogged, replace “O” ring and disc
 - E. If using Portable Water Tank: verify you have sufficient pressure in the tank.
 - F. Water blockage in tip: replace the tip. (Clean with # 5 piano wire)
 - G. Contact Engler Engineering Corporation.

- III “ON” LED INDICATOR LIGHTS UP, LITTLE OR NO VIBRATION / CAVITATION ON TIP:
 - A. Tip loose: tighten the tip.
 - B. Tip damaged: replace the tip.
 - C. Old or damaged stack: replace the stack.
 - D. Contact Engler Engineering Corporation.

HOT WATER AND / OR SCALING HANDPIECE:

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

- A. Adjusting water flow knob higher (counter clockwise).
- B. Tip clogged. Replace tip.
- C. Check and / or replace “O” ring and disc.
- D. Water restriction in unit: contact Engler Engineering Corporation repair department.
- E. If using Portable Water Bottle, pump up to pressurize the bottle.

INTERMITTENT OPERATION:

- I. Tip vibrates/cavitates and then stops:
 - A. Tip loose: tighten tip.
 - B. Footswitch damaged: Contact Engler Engineering Corporation.
 - C. Handpiece / cable damaged: Contact Engler Engineering Corporation.

- II Tip action ceases abruptly during operating procedure.
 - A. Tip not tightened: tighten tip.
 - B. Transducer broken: replace.
 - C. Handpiece / cable damaged: Contact Engler Engineering Corporation.

POLISHER TROUBLESHOOTING:

NO POWER:

I. "ON" LED indicator does not light up:

- A. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
- B. Power Outlet not active: try another outlet. Also check the electrical panel to verify circuit is on.
- C. Contact Engler Engineering Corporation.

II. "ON" LED indicator lights up polisher not functioning:

- A. Switch unit to Polisher mode.
- B. Micromotor not plugged in: plug micromotor in.
- C. Short in Micromotor or its cord: Contact Engler Engineering Corporation for instructions.

HOT HANDPIECE:

- I. Handpiece not lubricated properly: Lubricate as shown on page 15.
- II. Bearings in straight handpiece are becoming worn, causing drag. Contact Engler Engineering Corporation.

POLISHER TROUBLESHOOTING:

HOT MICROMOTOR:

1. Straight handpiece causing drag, lubricate correctly.
2. Worn brushes in micromotor, Contact Engler Engineering Corporation.
3. Oil inside micromotor, return to Engler Engineering Corporation.

INTERMITTENT OPERATION:

- I. Unit polishes and then stops:
 - A. Damaged micromotor cord: contact Engler Engineering Corporation.
 - A. Damaged footswitch: contact Engler Engineering Corporation.

MISCELLANEOUS:

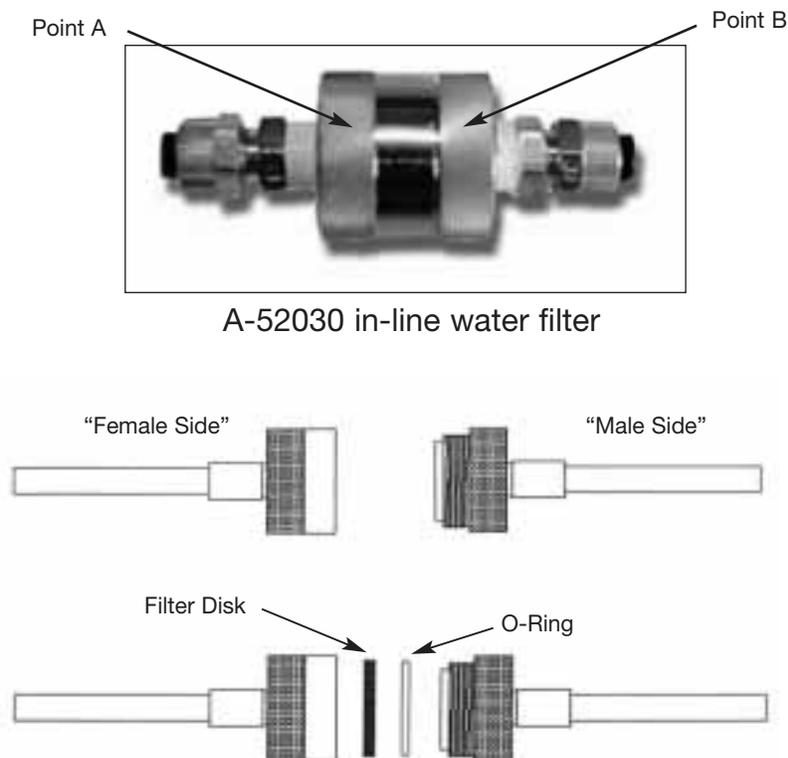
- I. If the micromotor speed does not vary (runs high speed only): return the complete SonMate to Engler Engineering Corporation.
- II. If the prophy cup "flies off" the prophy angle: micromotor is rotating in the wrong direction, change direction by rotating the selector on the front of the unit to the opposite direction.
- III. Straight handpiece rotates on the micromotor: straight handpiece not properly locked, or Prophy angle gears worn or binding. (Refer to Page 11)

WATER FILTER CLEANING INSTRUCTIONS – SHOULD BE DONE 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 pieces.
3. The filter body consists of two sides, one with an outer male thread and another with an inner female thread. Take the side with the inner female thread and look into it, should see an O-RING and under it a FILTER DISK (Refer to Figure below).
4. Remove the O-RING by carefully prying it out of the inner wall with a finger nail or other dull object.

NOTE: Be careful not to rip or break this O-RING, a water leak could result.

5. Next, remove the FILTER DISK by turning the female side over and tapping it gently into the palm of your hand.
6. Replace with new disc and “O” ring. Engler part number A-52031.
7. Reassemble the filter in the reverse order as you disassembled it.
8. Turn on the main water supply and check for leaks.



SON MATE ACCESSORIES

Son-Mate Accessories

A number of optional handpieces and attachments are available for the Son-Mate unit. 1:1 handpieces, reduction handpieces, friction grip or latch type contra angles, prophy angle, 2.35 mm diamond cutting disc, 1.60 mm diamond and carbide bur kits, prophy paste and snap-on rubber cups.

AUTOCLAVABLE: All handpieces , metal accessory angles, metal discs and burs are autoclavable. ** Please note Micro motor is not A.C.**

MAINTENANCE FOR THE FRICTION GRIP CONTRA ANGLE (See diagrams on pages 20 and 21)

Part A

1. Hold the contra angle in one hand and the special wrench in the other.
2. Position the “U” cutout on the wrench which corresponds to the correct head cap size, over the head cap. Note the wrench only fits on to the flats of the head cap.
3. Rotate wrench in a clockwise direction until head cap is loose.
4. Unscrew the head cap with your fingers, and put aside to be cleaned with alcohol and a toothbrush.
5. Pull the collet assembly from the contra angle’s head.
6. Clean the collet assembly with alcohol and a toothbrush then lubricate with mineral oil.
7. Put the collet assembly back into the head making sure the long part of the collet assembly is first into the head, and that the crown on the collet assembly mates with the crown in the head.
8. Replace head cap, turning counterclockwise secure with finger tight pressure: note do not use the wrench to tighten the cap.

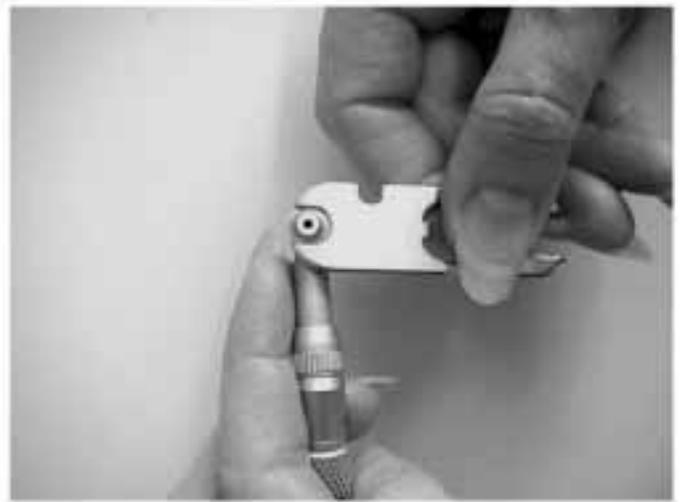


P-A3 F.G. Contra angle for handpiece

Part B

1. Locate the nut approximately one inch from the head located on the elbow.
2. Unscrew counterclockwise, and separate the head from the main body.
3. Remove the shaft that is located in either the main body or the head.
4. Clean the shaft with alcohol and a toothbrush, then lubricate with a light film of mineral oil making sure that a drop of oil is placed in the hole that is in the middle of the shaft. Apply a drop of mineral oil on both ends (crowns) for lubrication.
5. Replace the shaft into the main body (short end first).
6. Fit the head onto the long end of the shaft, making sure that the teeth on the head aligns with the teeth of the main body at the correct angle for the desired operation.
7. Secure the nut using only finger pressure.

CONTRA ANGLE



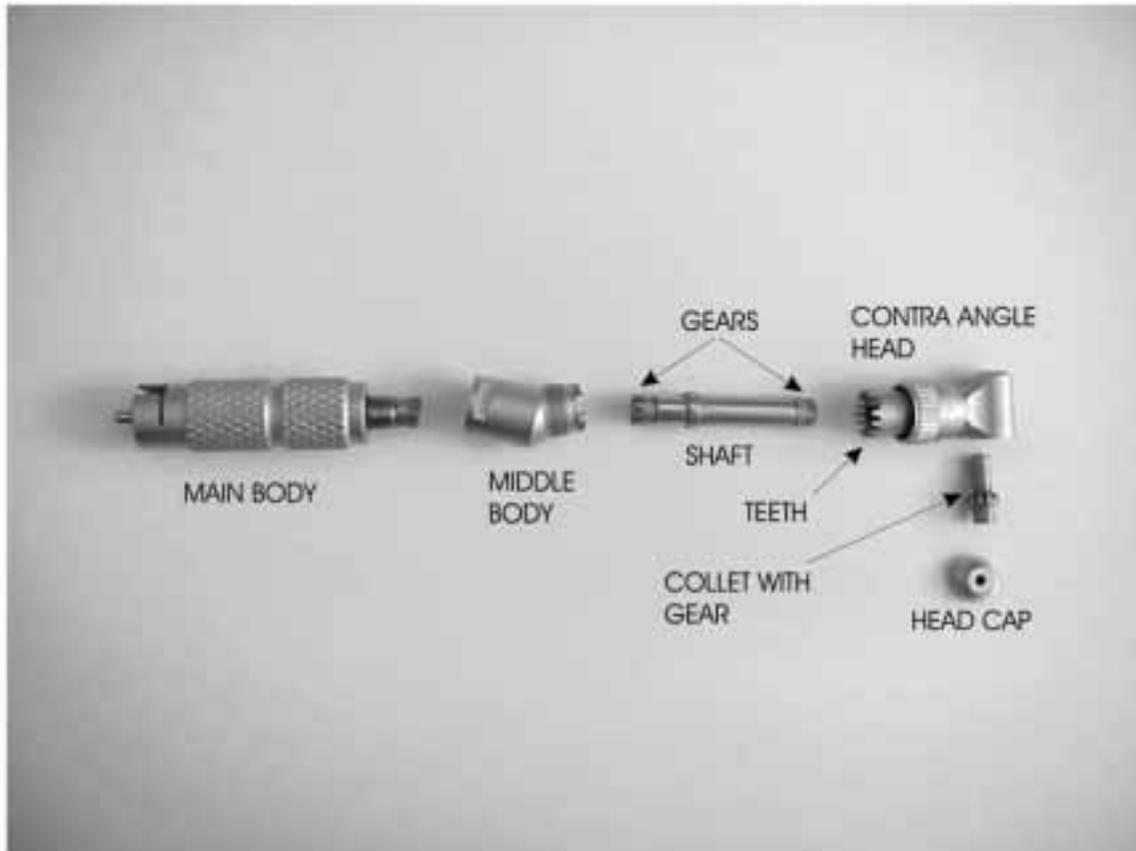
LOOSEN CLOCKWISE AS SHOWN AND KEEP TURNING WITH FINGERS UNTIL HEAD CAP COMES OFF.



TO SEPARATE MIDDLE BODY FROM MAIN BODY POSITION THE WRENCHES AS SHOWN. TURN WRENCH IN FIGURE B COUNTER CLOCKWISE (DO NOT MOVE LOWER WRENCH.)

DISASSEMBLE ALL PARTS AS SHOWN . WASH ALL PARTS IN A BOWL WITH WATER AND A LITTLE SOAP. RINSE WELL AND DRY THOROUGHLY WITH A LINT FREE CLOTH. LUBRICATE ALL GEARS WITH VASELINE PETROLEUM JELLY (NOT K-Y) AND REASSEMBLE.

CONTRA ANGLE



TO REMOVE BUR: PUSH PIN INTO CONTRA ANGLE HEAD, UNTIL BUR FALLS OUT.



TO INSTALL BUR: INSERT BUR INTO HEAD CAP, USE RUBBER END OF TOOL TO PUSH BUR INTO THE CONTRA ANGLE HEAD.

FRICITION GRIP DRILLING ACCESSORIES

CARBIDE BUR No.  P-131 F. G. CARBIDE BURS 1.60 mm X 19 mm L	2	4	6	35	37	703
HEAD SHAPE	 ROUND	 ROUND	 ROUND	 INVERTED CONE	 INVERTED CONE	 CROSS-CUT TAPERED FISSURE
HEAD SIZE (1/10 mm) DESCRIPTION	010 - DRILLING RESULING IN ROUND BOTTOM - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH	014 - DRILLING RESULING IN ROUND BOTTOM - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH	018 - DRILLING RESULING IN ROUND BOTTOM - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH	010 - DRILLING RESULING IN SQUARE BOTTOM - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH	014 - DRILLING RESULING IN SQUARE BOTTOM - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH	021 - RETURNING TEETH FOR ESTIMATION - TOOTH REDUCTION PROCEDURES - FINISHING & TRIMMING WITH LIGHT TOUCH

F. G. CARBIDE BURS (KIT OF 6)



PART # P-131

SET OF 6 ASSORTED FRICTION GRIP CARBIDE BURS
 1.60 MM SHANK DIAMETER. FITS INTO OPTIONAL
 CONTRA ANGLE FOR DRILLING DENTAL PROCEDURES.
 WHEN DRILLING IRRIGATION WITH WATER IS
 RECOMMENDED.

F. G. CONTRA ANGLE FOR HANDPIECE



PART # P-A3

THIS FRICTION GRIP CONTRA ANGLE FOR STRAIGHT
 HANDPIECE ACCEPTS 1.60 MM FRICTION GRIP CARBIDE
 OR DIAMOND BURS (SOLD SEPARATELY) FOR DRILLING.
 DAILY OILING AND CLEANING REQUIRED. SUPPLIED
 WITH A 30 DAY WARRANTY. (AUTOCLAVABLE)

F. G. CONTRA ANGLE FOR MICROMOTOR



PART # P-A4

THIS FRICTION GRIP CONTRA ANGLE FOR MICROMOTOR
 ACCEPTS 1.60 MM FRICTION GRIP CARBIDE OR DIAMOND
 BURS (SOLD SEPARATELY) FOR DRILLING. DAILY OILING
 AND CLEANING REQUIRED. SUPPLIED WITH A 30 DAY
 WARRANTY. (AUTOCLAVABLE)

SADDLE VALVE ASSEMBLY

Installation Instructions:

1. To assemble the saddle valve to existing water source:
Place the saddle valve over and around your existing 3/8" copper tubing. Evenly tighten the securing screws so that the saddle valve is securely fastened onto the copper tubing.

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

2. To Mount the Female Quick Disconnect:

YOU HAVE TWO OPTIONS.

Option "A"

Take the other end of the 1/4" 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.



A-44303 Saddle valve assembly
w/female connector & tubing

Option "B"

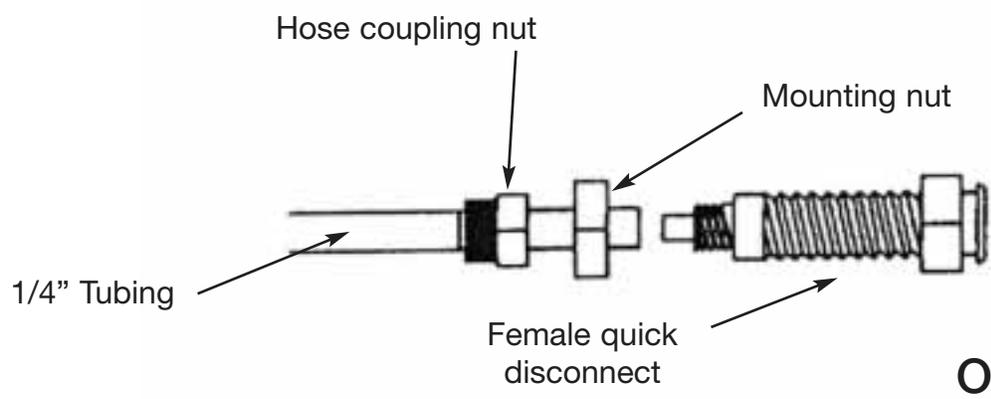
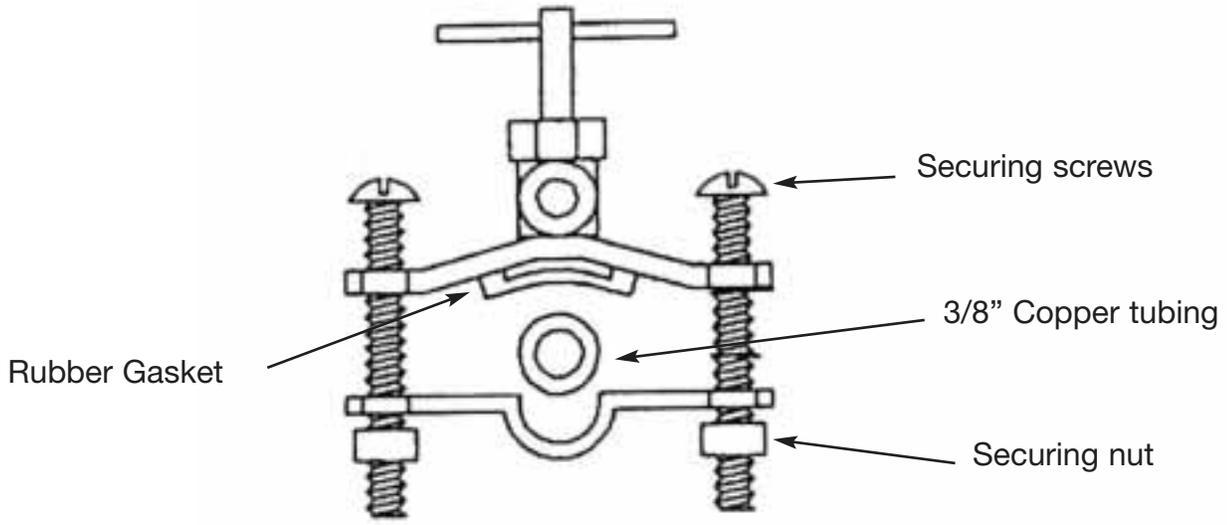
If you wish, the female quick disconnect may be mounted directly through the sink top or vanity counter. If you choose this way, you must first drill a 1/2" diameter hole through the surface in the space desired. (see next page) Then mount the female quick disconnect and tighten the mounting nut to securely hold it in place. Then proceed to 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. To Pierce Existing Water Tube:

You are now ready to pierce the copper tube. Turn the handle of the saddle valve in a CLOCKWISE direction until it will go no further. The Saddle valve is now installed and in the OFF position. Turn the handle of the Saddle valve counter-clockwise until resistance is felt. Water is ready to flow into the dental unit. Check for leaks.

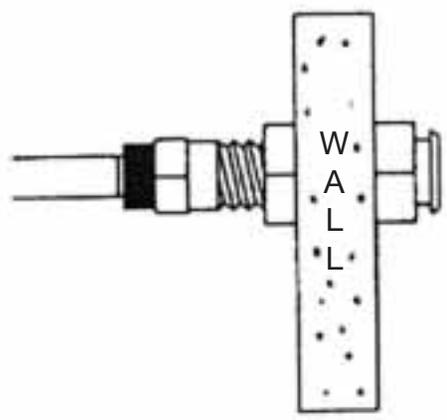
4. To Connect the Scaler to the Quick Disconnect:

Push the male quick disconnect from the scaler into the female quick disconnect until they lock and installation is complete.



Option A

Option B



Engler Engineering Corporation will not be held liable for any damage including, but not limited to leakage caused by improper installation of our products.

WATER TANK INSTRUCTIONS:

DIRECTIONS:

1. Remove pump and cap assembly.
2. Fill tank with water or medicated solution up to the "FILL LINE" mark. Do NOT fill beyond this line.
3. Replace pump and cap assembly and tighten securely.
4. Pressurize tank by pumping it approximately 10-20 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.



PT-1 Water Tank

WATER TANK CARE & MAINTENANCE:

NOTE: A small amount of care will repay in long life and efficient operation.

1. RELEASE AIR PRESSURE by 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, upside down.

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 2 or 3 drops of oil (20 weight, household vegetable oil, etc.) 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 depending on usage, or when pump starts to work harder.
4. Black particles found in water, the pump assembly is deteriorating. Order new pump assembly from Engler Engineering.

Pump assembly has been pre-lubricated...**DO NOT TAKE THIS ASSEMBLY APART TO CLEAN INSIDE PUMP.**

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.

ALWAYS TIGHTEN CAP securely, a loose cap could be forcibly ejected & cause injury.

DO NOT use mechanical devices to pressurize the tank They 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 hotter than 105°F.

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:

Every two weeks dispose of water in tank. Pour 1/2 cup of bleach and one quart of hot water into tank and swirl the liquid thoroughly inside the tank.

DO NOT PLACE pump assembly in tank with Clorox solution as lubrication inside the assembly may react with the mixture.

Dispose of the bleach mixture and rinse the tank out. You can allow the tank to dry overnight or fill it again with distilled water.

Clean the outside of the pump assembly with paper towels and alcohol.

The pump assembly has been pre-lubricated. **DO NOT TAKE THIS ASSEMBLY APART.**

DIAMOND DISC OPERATING INSTRUCTIONS:

The diamond disc is an extremely powerful and versatile tool which may be used for dental and other surgical procedures.

WARNING !!!

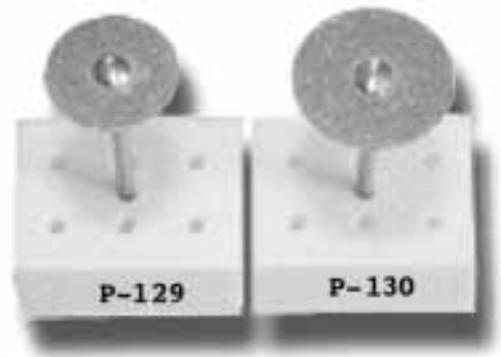
Keep the cutting disc away from any surface you DO NOT wish to cut. The disc operates at a very high speed and it is extremely sharp. The disc will cut through Skin, Bone, and Tooth surfaces with no resistance. Keep fingers away from disc at all times.

NOTE: To prevent thermal damage to the surface being cut, it is highly recommended that you irrigate the area being cut with water during the procedure.

Always wear protective eyewear when using the cutting disc.

1. Place the cutting disc into the straight handpiece. This can be done by performing the following:

- A. Hold the straight handpiece in one hand, and rotate the movable collar so that the dot on the collar lines up with the arrow/marker on the straight handpiece.
- B. If there is another tool in the straight handpiece, remove it at this time
- C. Fully insert the shaft of the disc into the chuck of the straight handpiece.
- D. Rotate the movable collar so that the dot on the collar lines up with the dot on the straight handpiece.



2. Rotate the selector knob on the front of unit to either micromotor forward or reverse operation.

P-129 Diamond cutting disc 18 MM dia.
P-130 Diamond cutting disc 22 MM dia.
Both disc's have a 2.35 mm post diameter

Important: Do Not run the Micromotor/Straight Handpiece Assembly without a Prophy Angle, Cutting Disk, Contra Angle or other accessory installed. Doing so could damage the Straight Handpiece and/or Micromotor.

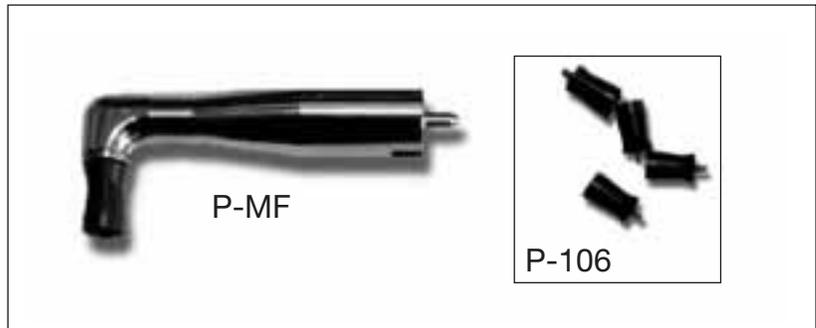
Important: When installing the Cutting Disc or other accessory make sure that the dots line up EXACTLY, and when securing the Prophy Angle or other accessory make sure that the White Dot on the Collar lines up exactly with the White Dot on the Straight Handpiece, otherwise the Straight Handpiece will not operate.

3. Adjust "POWER" control to a medium to high setting.
4. To activate, depress footswitch.

CARE FOR YOUR MAINTENANCE-FREE ANGLE

STERILIZATION PROCEDURES: After each prophy...

- A. Remove rubber cup.
- B. Rinse abrasive paste from head area with water.
- C. Thoroughly clean the outside of angle with disinfectant.
- D. Autoclave angle - not more than 275°F (135°C)
- E. After sterilization cycle is complete, install a new disposable rubber cup and attach angle to handpiece.



You are now ready for your next prophy.

P-MF Maintenance free prophy angle
P-106 screw on rubber cups 144/pkt

CAUTIONS AND WARNINGS:

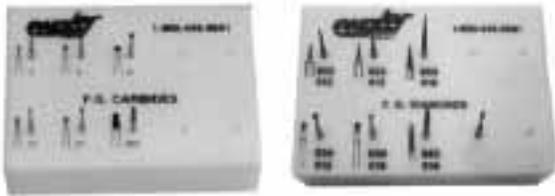
- A. Do not attempt to disassemble.
- B. DO NOT SUBMERGE IN LIQUIDS, INCLUDING ULTRASONIC SOLUTIONS.
- C. Do not heat over 275°F (135°C).
- D. Use only Engler Care Free Prophy Rubber Cups. Other brands will not properly seal the angle, causing premature wear and voiding the warranty.
- E. Use 1 year and dispose of properly.

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:

- A. Engler Care-Free rubber cups are not used exclusively.
- B. Sterilization procedure is not followed properly.
- C. The angle has been submerged in any liquid.
- D. The angle has been damaged or abused.
- E. Damaged due to use at high speed.

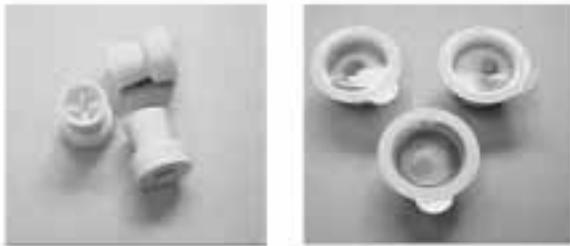
Optional Son-Mate Accessories



P-131 Carbide Burs - Kit of 6
P-132 Diamond Burs - Kit of 7



P112 Polishing paste (8 oz. jar)



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



133-1199 Sonus feline catheter

To Order call:



At 1-800-445-8581
or 305-688-8581

Optional Oiling Accessory Spray Lubricant with E-Type Nozzle for all Engler Polishing Straight Handpieces

8.8 Oz / 355 ML



8.8 Oz. / 355 ML # P-02

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

WARRANTY INFORMATION

It is imperative that when calling Engler Engineering regarding the operation of your unit, that you have the serial number available for quick reference.

The Son-Mate, scaler polisher combination, with attachments, is warranted to be free from material and manufacturing defects to the original consumer / purchaser for a period as specified below.

The Son-Mate control box is warranted for a period of six (6) years from date of purchase.
The scaler handpiece is warranted for a period of two (2) years from date of purchase.
The Micromotor is warranted for a period of one (1) year from date of purchase.
The polishing straight handpiece is warranted for a period of one year from date of purchase.
Stacks (transducer) are warranted for a period of six (6) months from date of purchase.
Scaling tips are warranted for a period of thirty (30) days from date of purchase.
Prophy and Contra angles, burs and cutting discs are warranted for a period of thirty (30) days from date of purchase.

All warranties are void if the items have been damaged due to negligence, improper use, failure to lubricate, removed parts, or opening the control unit.

PLEASE NOTE:

Whenever returning any products for evaluation and / or repair, we strongly suggest you send in the complete unit with all attachments so that a correct evaluation can be made. Engler Engineering Corp., has been in business since 1964, in Hialeah, Florida, building and maintaining dental units and parts for not only our ultrasonic scalers, polishers, and anesthesia machine, but for many others on the market today. As a leader in the field, we would appreciate a minute of your time to let us know how we can better serve you.

You can mail all comments, suggestions and questions to us at the following address and number:

Engler Engineering Corp.
1099 East 47 Street
Hialeah, FL 33013

If you wish to fax to us, please use 305-685-7671.

For your convenience, the following names are listed for your correspondence:

President	Eva Engler
VP Sales & Marketing	Steven Menaged
Operations Manager	Joel Katz
Customer Service	Raya Engler
Cust. Service/Repair	Harvey Meinstein

RETURN FOR EVALUATION / REPAIR FORM

PLEASE PHOTOCOPY AND INCLUDE A COMPLETED COPY WHENEVER SENDING UNITS IN TO US FOR EVALUATION AND / OR REPAIR.

CLINIC PHONE NUMBER: _____ FAX # _____

CLINIC NAME: _____

Contact person: _____

Shipping Address: _____

City: _____ State: _____ Zip: _____

Item being sent: _____

Please describe what is happening or why you are sending in this unit:

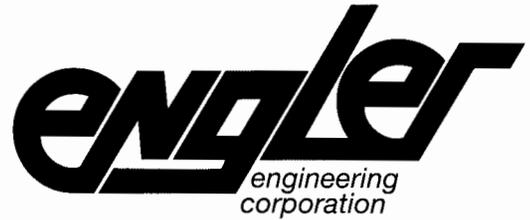
When returning items to us, we would prefer you send the complete unit so that a proper evaluation can be made.

It is suggested that you ship all returns to us by Federal Express, UPS or DHL. If using US Mail, it is suggested that you track and insure the package.

Address all returns as follows:

**ENGLER ENGINEERING CORP.
REPAIR DEPARTMENT
1099 EAST 47 STREET
HIALEAH, FL 33013**

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



Lifetime Loaner Program Form

CONTACT NAME: _____ FAX #: _____

LOANER TYPE - (circle) (Sonus V) (Son-Mate) (Poli-X) (Tri-Mate) (ADS-1000) (Snetinel) (Other) _____ from us. Please review and complete this form then FAX it back to us at 305-681-3831 or 305-688-0018 so that we can ship a unit out to you.

CONDITIONS of the Engler Engineering Corporation loaner program:

1. We must receive this completed and signed form before a loaner is shipped out.
2. Loaners will only be shipped by Federal Express and UPS air.
3. A Credit Card is required – the information must be shown on the form below.
4. It is understood that if Engler Engineering does not receive your unit for repair within two weeks of receiving the loaner, your credit card will automatically be charged \$50.00 per week for rental of the loaner.
5. Our loaner must be shipped back to us by Federal Express or UPS (NOT GROUND), to be received within two week of the date you receive your unit. You need to insure it and keep record of the tracking number for reference if needed. If the loaner is not received, Engler Engineering will automatically charge your card for the full value of the loaner.
6. All charges for shipping to and from your location will be your responsibility.
7. All parts are double checked at shipping to verify that they are included with the loaner. It is your responsibility to notify Engler Engineering at 800-445-8581 on the day the loaner is received if any items are missing.
8. All loaner items must be returned in good working condition to avoid additional charges on your credit card. We supply a check off list for you to use to verify all parts are being returned. Missing and / or damaged items will be charged to your credit card.

NOTE: Loaner requests receive after 2:00 PM Eastern time will be shipped out the next day. Unless specified, all loaners will be shipped FedEx - Express Saver with a 3 to 4 day delivery time.

Please fill in the information below authorizing the transaction to accommodate your request.

Clinic Name: _____ Phone _____

Address: _____

City: _____ State: _____ Zip: _____

Credit card number (Amex) (Visa) (MC) _____

Expiration: _____ Zip Code of billing address: _____

I understand and agree to the terms and conditions stated above. Date: _____

Signature

Print Name

Notes: