



## SCALE – AIRE MINI INSTRUCTION MANUAL



### Engler High Speed Dental Air Unit

## 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.

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

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

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

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

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

**Sonus II**, ultrasonic dental scaler,

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

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

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

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

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

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

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

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

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

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

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

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

If you have any questions or comments, please contact:

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# INTRODUCTION

Thank you for selecting the Scale - Aire Mini High Speed Dental Air Unit. We believe you have selected the best product available for performing basic and advanced dentistry for your veterinary patients.

The design of the Scale - Aire Mini uses state-of-the-art integrated computer technology together with time tested technology. This combination produces a powerful and potent tool against periodontal disease.

The dental scaler utilizes an ultrasonic principle of operation. Our state of the art circuitry converts nominal line voltage to an operating frequency of approximately 25, or 30 Hz. (depending on the unit selected) This frequency is then amplified and delivered to the scaling tip. As a result, the tip vibrates at this ultrasonic frequency with amplitude of 0.001 to 0.004 in. (25.4 um. to 102 um.).

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

The high speed drilling handpiece allows the operator to quickly and efficiently perform the same advanced dental techniques, drilling shaping and cutting to name a few, being taught in the largest teaching hospitals and clinics around the world. The low speed handpiece is used for smoothing and polishing the teeth after scaling.

## 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 you inspect the contents and if you find any pieces missing or damaged, you must notify us 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 injury, death or damage of any type, 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.

## **READ BEFORE YOU START**

The handpiece and ultrasonic transducer "insert" are water cooled devices and must always have adequate water flow to function properly. The amount of water sent 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 throughout the scaling handpiece will cause the handpiece to get hot, degrade transducer life and void the warranty. Turn OFF scaler power and press the footswitch until water flows out, then turn ON the scaler power.

When active, the ultrasonic insert vibrates 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 / accessories.

Never twist or bend your ultrasonic insert. Be careful not to twist or bend the insert when inserting or removing it from the handpiece. Pull the ultrasonic insert straight out to remove it. Bending it or inserting it incorrectly into the handpiece may irreparably damage the ultrasonic insert and degrade it's ability to vibrate. Improper insertion of the ultrasonic insert may also damage the handpiece as well as cause it to get hot. Damage caused by bending the ultrasonic insert is not covered by the warranty.

Do not alter the scaling tip. The tip is shaped to deliver the optimum vibrating power and 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 ultrasonic insert may alter or damage your tip causing the handpiece to get hot, degrade vibration / power and void your warranty.

Remove the ultrasonic insert and clean / disinfect after every use.

Ultrasonic insert, tips, water filter, prophy angle, straight handpiece and accessories are wear and tear items. In order to achieve optimum performance they should be replaced regularly.

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

Lubricate the ultrasonic insert O-rings with an appropriate lubricant for your practice, for example mineral oil or petroleum jelly is appropriate for most practices.

Do not coil tightly, kink or pull the hoses. Kinking the hoses will restrict or cutoff water flow to the handpiece.

As a safety precaution, all water is purged from the water lines prior to shipping. When installing the unit, no water will come out of the handpiece until the water lines are filled. Remove the ultrasonic insert, turn the water regulator counterclockwise 3 to 4 turns and press on the footswitch until water flows, then reduce water to proper water level and re-install the ultrasonic insert.

**Warning: The handpiece is water cooled and it will get hot when running without water.**

The high speed (drill) handpiece, low speed (polisher) handpiece, prophy angle, and straight handpiece (when available) must be oiled regularly. Failure to clean and oil your handpieces may cause premature failure and void your warranty. Please refer to this manual, the instruction sheet inside your handpiece box and our web tutorials for further education on how to maintain the handpieces.

**For better care and maintenance of your Scale-Aire Mini, order the Scale-Aire Mini deluxe maintenance kit which includes Lares Handpiece Conditioner from Engler Engineering Corporation (kit and Handpiece Conditioner not included with new units).**

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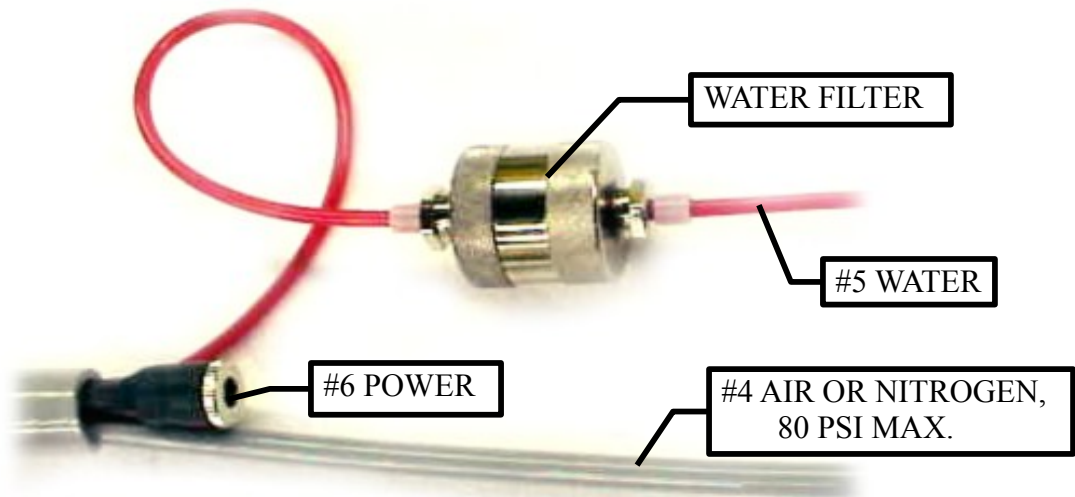
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# INSTALLATION

1. Unpack unit and confirm all items checked off on your packing list..



2. Attach unit to optional stand or wall mount (included):
  - A. Assemble stand.
  - B. Connect stand bracket to “key holes” on the back of the unit.
  - C. Tighten wing nuts.
3. Place handpieces on handpiece holders.



4. Connect pressurized air / nitrogen to gray hose. DO NOT EXCEED 80 PSI. Use pressure regulator and filter when needed. The recommended operating pressure is 75 PSI.
5. Connect water to red hose.
6. Connect power supply to power plug located at the end of the umbilical cord.
7. Connect power supply to power outlet.
8. Test each handpiece.

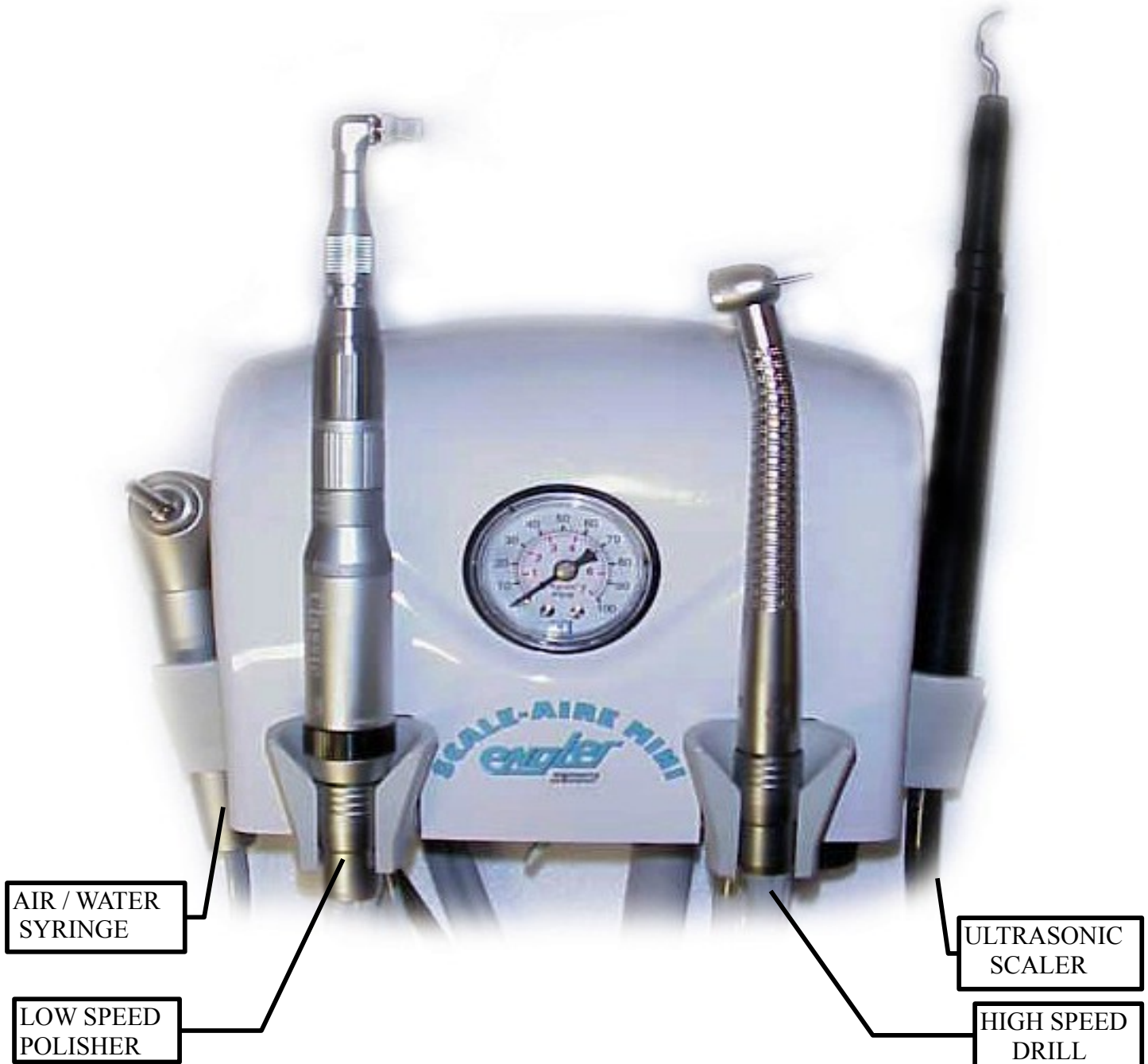
To avoid unit damage and / or injury, confirm input line pressure for the air or nitrogen is set to a maximum of 80 PSI. If using a compressor, verify your compressor pressure ratings, if it provides more than 80 psi, a pressure regulator is required.

Note: All Images in this document are for reference only. Style and / or colors may change without notice.

## SCALE-AIRE MINI DIAGRAM

Locate the handpieces on the front of your Scale-Aire Mini. From right to left they are:

- Ultrasonic Scaler Handpiece
- High Speed Handpiece
- Low Speed Handpiece
- Air / Water Syringe





# GETTING TO KNOW YOUR HANDPIECES

## ULTRASONIC SCALER HANDPIECE

Two different options are available for the ultrasonic scaler handpiece, 25K (Standard, as shown above) and Piezo handpiece (optional, not shown).

The Scale – Aire Mini was purged before shipping, the first time the scaler and high speed handpieces are activated, the water lines will be empty. Turn the water regulator several rotations counterclockwise, lift the handpiece from it's cradle, holding the handpiece over a sink, turn the power ON by turning the power knob to click on, then press the footswitch until water comes out.

Note 1: The ultrasonic scaler is not designed to run without water. Activating the handpiece without water for more than ten seconds will void the warranty and damage the handpiece.

Note 2 : Do not leave insert in the handpiece for extended periods as bacteria may form.

### THE POWER KNOB AND THE WATER KNOB

The power knob controls the AMPLITUDE of the scaler vibration, from low (slight action) to high (vigorous action). The water control knob controls the amount of water flowing through the scaling tip.

**Water should ALWAYS be used when operating the scaler.**

**NOTE:** WHEN ULTRASONIC SCALER IS ON, THE HIGH SPEED AND LOW SPEED HANDPIECES WILL NOT OPERATE. AIR / WATER SYRINGE WILL ALWAYS WORK.

## HIGH SPEED HANDPIECE



Two different options are available for the high speed handpiece, one without fiber optic lighting (standard, as shown above) and with fiber optic lighting (optional).

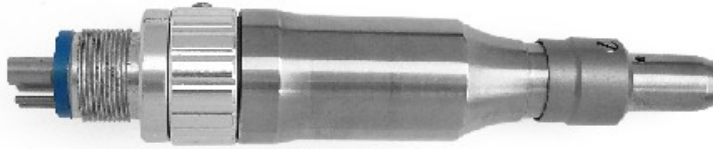
This handpiece is used for advanced dentistry, including but not limited to; cutting, sectioning, and shaping cracked or broken teeth, repairing, preparing cavities etc.



Flush to remove water. Keep well oiled.



## LOW SPEED HANDPIECE



The Mini is equipped with the Doriot One-piece Handpiece.



Maximum rpm: 20,000

**Attachments:** Accepts both handpiece burs and Doriot / U-type attachments (prophy angle). It is used with a prophy angle to polish the teeth after a scaling procedure. Use only approved attachments and polishing compounds. Follow all manufacturers recommendations.

The water should be turned OFF when using the low speed handpiece (polisher).

No straight handpiece is used with the short-grip Doriot one-piece handpiece since the prophy angle is attached directly to the motor.



## AIR / WATER SYRINGE

The three-way air / water syringe features

- <sup>35</sup>/<sub>17</sub> Well balanced design, and smooth styling for comfortable use.
- <sup>35</sup>/<sub>17</sub> Easy release for a speedy exchange of tips.
- <sup>35</sup>/<sub>17</sub> Fully autoclavable tips.

This handpiece allows the operator the ability to rinse the operative site with a stream of water or mist or dry / blow debris with a stream of air.



AIR FLOW  
CONTROL FOR  
LOW SPEED

AIR FLOW  
CONTROL FOR  
HIGH SPEED

WATER ON / OFF,  
WATER OFF AS SHOWN

LOW SPEED / HIGH  
SPEED HANDPIECE  
SELECTOR

ULTRASONIC SCALER ON / OFF AND POWER  
CONTROL, POWER IS ON WHEN GREEN LED IS  
ON

WATER REGULATOR

FOOTSWITCH



# GETTING TO KNOW YOUR CONTROLS

## WATER ON / OFF

The control is equipped with a wet / dry toggle to activate the water flow. Move the toggle forward to turn water on.

## AIR HANDPIECE TOGGLE SWITCH

This switch allows you to select between low speed and high speed handpieces when the scaler is not activated.

## HANDPIECE AIR FLOW CONTROL CONTROLS

On the bottom side of the unit the flow control screws can be found. These screws control the maximum amount of air that is delivered to the handpiece once the footswitch is pressed.

**Caution:** Allowing more pressure than the maximum allowed pressure to your handpiece will cause your handpiece to fail prematurely. Verify your handpiece manufacture's specifications before modifying these settings.

## WATER FLOW CONTROL

This control adjusts the water flow to the handpieces. A water control knob is provided for each handpiece. Turn clockwise to decrease flow, and counter-clockwise to increase flow.

## ULTRASONIC SCALER ON / OFF AND POWER CONTROL

Rotating this knob clockwise will turn scaler ON (click), ILLUMINATE the power LED and disable the low and high speed handpieces. Rotating this knob further will increase power to the handpiece. Note: Turn scaler OFF to use low and high speed handpieces. As you turn the knob counterclockwise you will hear a click and the power LED will turn OFF.

## AIR HANDPIECE PRESSURE GAUGE

Gives a visual indication of the air pressure delivered to the handpieces. The pressure gauge will not work when scaler is ON.

## FOOTSWITCH CONTROL

The foot control applies air pressure to the selected handpiece. The footswitch is responsive, high volume, and variable flow that can be actuated by pressing any point on the durable, chrome-plated cover. By pressing harder on the footswitch, more power will be delivered to the air handpieces.

**Note:** The high and low speed handpieces are **NOT** interchangeable

# **INSTRUCTIONS FOR OPERATION AND MAINTENANCE**

## **REGULAR OPERATIONAL CONSIDERATIONS**

The low speed polisher and the high speed drill must be lubricated daily when in use. Remove the quick disconnect hose and spray lubricant in the smaller of the two larger ports of the handpiece.

The straight handpiece (if available) must be lubricated daily. Note: Short grip Doriot low speed handpiece does not use a straight handpiece.

The prophy angle head must be removed, cleaned with soap and water, dried, and lubricated at the end of each day depending on use, then re-assembled.

All handpiece holders and three way syringe must be kept cleaned.

For 25K handpiece: Remove the insert from the handpiece when not in use or when sterilization is performed. O-ring may be lubricated.

For Piezo: Tip must be tightened with the tip tightening tool, remove tip at the end of the day or when sterilization is performed.

One can of Lares Handpiece Conditioner spray lubricant is included with every Scale – Aire Mini.

For the best care and maintenance order the Scale-Aire Mini deluxe maintenance kit which includes Lares Handpiece Conditioner from Engler Engineering Corporation (optional, not included with unit).

## **MAINTENANCE KIT**

There are maintenance kits available for the Scale-Aire Mini (optional, not included with unit). These kits are essential to keep your unit working properly. Each kit varies. Please make sure you specify your systems configuration and part number when ordering the kit.

# KIT MINI BASIC , The standard kit, includes spray lubricant with E nozzle for straight HP, One Step conditioner for the low and high speed handpieces, and port cleaning tool necessary to perform basic maintenance.

# KIT MINI DELUXE , includes replacement parts that are normal wear and tear items such as F.G. Bur kit, S - 1 and S - 4 inserts, prophy angle, replacement O-rings for high and low speed handpieces in addition to items in the standard kit.

## START UP AND SHUT DOWN SEQUENCE

### Start up:

1. Connect unit to a clean, filtered water source.
2. Connect air / nitrogen source.
3. Set the air / nitrogen regulator to 75 PSI.
4. Insert a 25K insert in the scaler handpiece or install tip for piezo depending on model. For piezo use tip tool to tighten piezo tip.
5. To use the scaler, turn the Scaler ON knob, clockwise. Green light will turn on.

### Shut down:

1. Clean all air handpieces according to the original manufacturer instructions. Thoroughly wipe the unit, all handpieces and cables with a mild cleaning solution or disinfectant and a damp cloth. Follow the procedures approved by your institution or use a validated infection control procedure. Do not allow fluids to enter the chassis. Do not autoclave the main unit.
2. Remove, clean and autoclave the scaler insert (or piezo tip), three way syringe tip (tip only), prophylaxis angle, burs, low and high speed handpieces. **Prophylaxis angle, low and high speed handpieces must be lubricated regularly and after autoclave.** If using fiber optic handpiece or LED piezo handpiece, **Do not autoclave fiber optic swivel or LED piezo handpiece.**
3. Disconnect the air / nitrogen source.
4. Disconnect unit from the water source.

## SCALER HANDPIECE

**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 higher water flow rates and conversely low power requires lower water flow rates. The scaler is now ready for use.

**IMPORTANT:** Operating this device with insufficient water flow will cause the water to get hot and may cause burns to gums, lips and tongue. If the handpiece begins to get warm, stop and check water temperature. If it is hot, set the power to a lower setting and the water at a high enough setting to provide a lukewarm mist.

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.

It is recommended that when a tip is placed into a patient's mouth, the lips, cheek and tongue be retracted to prevent contact.

Place the tip into the patient's mouth and depress the footswitch to activate the scaler. Bring the tip to the tooth and gently move it over the surface of the tooth with an erasing motion. DO NOT allow the tip to stay in one spot for an extended period of time.

A saliva ejector or H.V.E. is recommended.

**Note:** This device features delayed cavitation. To avoid internal contamination by back flow, this device forces clean water through the lines causing droplets to form and fall from the tip when unit is disengaged.

**IMPORTANT:** Excessive 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. The enamel may be damaged if the scaling tip is left to rest in one spot for even a few seconds. Using the tip, as a pry to remove calculus or tartar is strongly discouraged as it may damage the teeth and incidentally 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, the power may be adjusted to satisfy specific requirements. Ultrasonic Scaling Procedures (Tip Application) is not intended for contact with Soft Tissue.

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

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

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

## **SCALER MAINTENANCE**

### **SCALER FINAL PROCEDURES AT THE END OF EACH DAY**

Switch the unit to the off.

Remove scaler insert (piezo tip), clean and sterilize.

Disconnect the unit from its water source or turn off the water supply.

Clean and disinfect all surfaces.

**Always follow the manufacturer's instructions and recommendations for proper sterilization and autoclave techniques and procedures.**

The insert / piezo tip should be thoroughly cleaned and free of blood, tissue, or any other debris before sterilization by rinsing with running water.

The insert / piezo tip may be sterilized by Autoclave or Chemiclave, do not autoclave over 270 degrees F or more than twenty (20) minutes.

It is recommended that you do not leave inserts in the handpiece for extended periods, as water and sediment may make it difficult to remove, and cause possible damage to the insert / tip and handpiece.

### **25K ULTRASONIC INSERT**

The insert may be sterilized using the methods as listed above. To re-install insert into handpiece, follow correct procedures. **Note:** To achieve optimum performance of your equipment, we recommend that the insert be replaced every 6-12 months or as needed.

### **CHASSIS**

The chassis of your unit should be cleaned at the end of every operating day with a chemical sterilization solution. This procedure could be done by spraying a fine mist of sterilization solution onto 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 manufacturer. Dry completely.

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

### **CLEANING HANDPIECES, FOOTSWITCH AND POWER CABLES**

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

Remove the 25K insert - Sterilize these items as listed above. Clean the outer surface of the handpieces and cables with an antiseptic soap, rinse with water and sterilize with a chemical sterilization solution. Place sterilized 25K insert into handpiece for next patient.

**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.

The footswitch and power cables should be cleaned regularly 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.



## **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 connected to the device.

### **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:**

1. Old or damaged insert: replace the insert.

### **IV WATER FROM SCALER TOO HOT:**

The insert requires a constant flow of cool water maintain water temperature below 100 degrees F. 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 insert / tip.
4. Water restriction in unit.
5. Clogged water filter. Clean filter or replace filter media.

### **INTERMITTENT OPERATION:**

#### **I. Tip vibrates then stops:**

1. Footswitch damaged: Contact Engler Engineering Corporation.
2. Scaler handpiece / cable damaged
3. Damaged or worn out insert tip.

#### **II Tip action ceases abruptly during operating procedure.**

1. Insert broken / damaged: replace.
2. Scaler handpiece / cable damaged

## HIGH SPEED HANDPIECE



### INSERTING A BUR INTO THE HANDPIECE: CHANGING BURS

Lares high speed handpieces should be used with friction grip burs with shank diameters that conform to ISO and ADA size standards.

Model	Recommended	Optional
757 Ultralite / Euro	Standard (19.0 mm)	Surgical Length (26 mm) 757 Ultralite / Euro

1. Hold handpiece handle as shown and position end of thumb on push button with index finger wrapped around underside of handpiece neck for support.



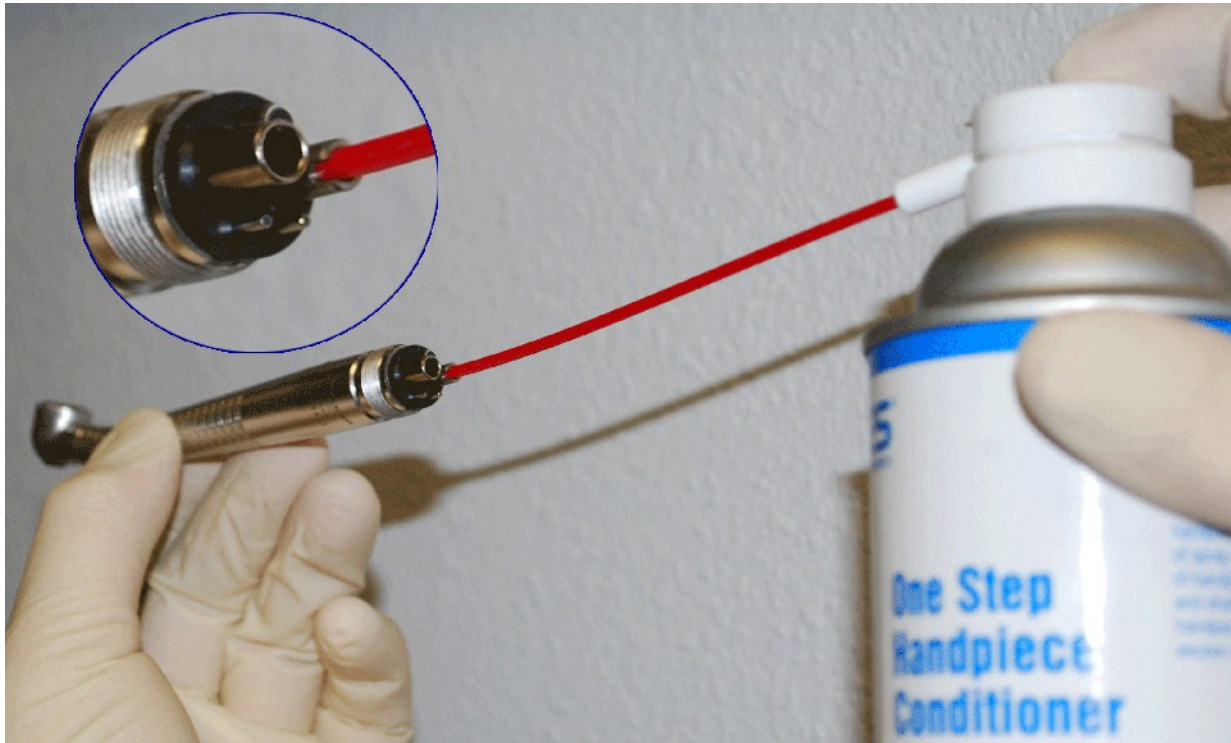
Figure 2

2. To insert a bur, first be sure bur is clean and free of external debris or corrosion. Without depressing push button, insert bur into chuck as far as possible. Then fully depress push button hard and fast while simultaneously inserting bur into chuck the rest of the way until fully seated. Release push button and insertion is completed.  
Caution: Be sure to tug firmly on the bur immediately after completing the insertion procedure to verify full seating and secure retention of the bur before operation.
3. To remove a bur, fully depress push button hard and fast while simultaneously pulling bur until removed from chuck. **Figure 2.** Push button may then be released until next bur is inserted.

Caution: Never force a scored, bent or rusty bur into chuck as it may damage the chuck voiding the warranty. Never depress push button during handpiece operation or while turbine is still rotating. Be sure to remove bur at end of day.

## Cleaning the high speed handpiece:

1. Remove the bur.
2. Unscrew the high-speed handpiece from the air-hose coupler.



3. Use the water port cleaning tool (item # 10541) to clean the small water spray holes.
4. Use the spray lube (with red tube) to spray lubricant into the chuck and into the air drive hole (the smaller of the two large holes).
5. Re-connect the air-hose coupler.
6. Re-insert a bur or bur blank – NEVER run the handpiece without a bur or bur blank in place.
7. With water toggle switch OFF, depress the foot-switch pedal for 5 seconds to expel excess lube from the handpiece.
8. Wipe the handpiece of excess lubricant.

### DAILY HANDPIECE LUBRICATION IS ABSOLUTELY ESSENTIAL.

Operate the high speed handpiece between 25 - 32 PSI. The handpiece is engineered to attain speeds of 360,000 RPM at 32 PSI.

Use the brush to remove foreign particles. A fine wire is provided for cleaning the water spray hole and to prevent clogging. Blowing air backward into the drill head can dislodge particles. NOTE: DO NOT attempt to blow particles from the rear end of the handpiece, as larger particles could block the water tube.

## **HIGH AND LOW SPEED HANDPIECE STERILIZATION PROCEDURES: (AUTOCLAVE AND CHEMICLAVE ONLY)**

Clean external surface: Remove bur from handpiece and scrub with a toothbrush or 2" x 2" gauze using warm tap water. DO NOT IMMERSE HANDPIECE.

Dry: Thoroughly dry handpiece using gauze, paper towel or air syringe.

Clean / lubricate internal surface: Using a combination cleaner / lubricant, spray into handpiece drive air hole and in chuck.

Expel cleaner / lubricant: Reinsert bur into handpiece head, connect handpiece to tubing and run for 5 seconds to thoroughly expel debris and excess lubricant.

Clean Fiber optic Bundle: Using a cotton swab with isopropyl alcohol, wipe the surface on both ends of handpiece.

Bag and cycle in autoclave: Place handpiece into autoclave bag or pouch. Cycle as per autoclave / chemiclave manufacturer's instructions. DO NOT EXCEED 275° F (135° C).

Cool down and lubricate: Allow handpiece to return to room temperature. Lubricate handpiece as per instructions listed above. Expel excess lubricant as per previous instructions. Wipe down handpiece.

### **DO**

- \_ Use warm tap water to scrub the exterior of handpiece.
- \_ Expel excess lubricant from handpiece by running it for 5 seconds after cleaning and lubricating.
- \_ Use separate cans of lubricant before and after sterilization to prevent cross contamination.
- \_ Clean both ends of fiber optic bundle with a cotton swab dipped in isopropyl alcohol.
- \_ Use autoclave bags and pouches with indicators to protect handpiece.

### **DON'T**

- \_ DON'T immerse handpiece in water or chemical disinfectant / sterilizer
- \_ DON'T use any type of disinfectant on handpiece.
- \_ DON'T sterilize handpiece with bur inserted.
- \_ DON'T exceed 275° F (135° C) in autoclave or chemiclave.
- \_ DON'T dry heat or heat transfer sterilize.
- \_ DON'T operate handpiece without bur or bur blank inserted in chuck.

## **TROUBLESHOOTING COMMON HIGH SPEED HANDPIECE ISSUES**

A. Handpiece sluggish (could be lack of lubrication or too much debris)

1. Try heavily spraying "correct" drive air tube with a combination cleaner / lubricant #10083 available from Engler Engineering Corporation and run handpiece for a minute.

B. Burs are sticking inside of turbine or falling out

1. Flush the chuck / spindle with a handpiece cleaner.
2. Ensure that burs are not worn or scored, less than .0625" or larger than .0630" which can damage spindle.

C. Water spray is weak or completely stopped

1. Insert water port cleaning tool item # 10541 into water tube from head of handpiece to remove debris.
2. Use our Smart Cleaner to clear clogged tube.

If these simple solutions fail, more serious problems are likely affecting the handpiece, which should be sent to the manufacturer if under warranty or Engler Engineering Corporation if warranty has expired.

## FOR FIBER OPTIC HIGH SPEED HANDPIECE MAINTENANCE

### 1 Clean & Dry

- **KEEP HEAD OF THE HANDPIECE UP IN VERTICAL POSITION.**

Scrub handpiece with soft brush and warm water to remove debris.

- **OBSERVE ALL CAUTIONS LISTED!**

Towel dry handpiece thoroughly.



### 2 Lubricate and Operate

Using a well-shaken can of Lares Handpiece Conditioner with lube nozzle, attach handpiece and apply conditioner for **TWO SECONDS** over a towel or sink. With bur in place, run handpiece at full speed without water for **45 SECONDS** to expel excess conditioner.

Dry exterior of handpiece with a towel.



### 3 Insert into Bag and Cycle

Remove bur, bag handpieces individually and autoclave or chemiclave per manufacturer's instructions.

- **DO NOT** exceed 275 °F (135 °C).

Remove from autoclave immediately after cycle and allow to cool.

**CAUTION: HANDPIECE MAY BE TOO HOT TO HANDLE!**



### 4 Clean Fiber Optics

When handpiece is cool to the touch, gently clean fiber optic light transmitting surfaces on both ends of handpiece with cotton swab dampened with isopropyl alcohol.



## CONNECTING HANDPIECE TO SWIVEL COUPLER

1. Lubricate the handpiece.
2. Attach the coupler to the dental unit hose securely.

A. Align pins on the coupler with the tubing.

B. Thread the hose nut onto the coupler

C. Fit the coupler wrench to the flats and tighten the hose nut.



3. Holding the swivel coupler in straight alignment with the back of the handpiece, insert the swivel coupler into the back of the handpiece, pushing more firmly when fully inserted until the coupler snaps with a “click” sound on the back end of the handpiece indicating complete engagement. Never force engagement or swivel coupler will be damaged.



4. With bur engaged, operate handpiece to expel excess lubricant. Wipe off excess lubricant with a towel or cloth.

## TO EXTEND OPERATING LIFE

Detach swivel handpiece from swivel coupler at the end of each day and prior extended periods of non use to avoid water mineral freeze up.

Cover swivel coupler with dust cap when handpiece is detached.

## **IMPORTANT SAFETY PRECAUTIONS**

All high speed handpieces are potentially dangerous if safety precautions are not followed. Be sure to read and observe the following precautions.

Never use the back of the handpiece for tissue retraction, or otherwise cause push button to be depressed during operation. Doing so may result in button getting hot and burning the patient.

Never operate handpiece with a bent or damaged bur engaged in chuck.

Never insert or remove handpiece from oral cavity before rotation of bur is completely stopped.

Never operate handpiece at air pressure in excess of recommended maximum settings.

Never operate handpiece after turbine cartridge replacement without double checking that head cap is tightened securely.

Never depress push button during operation.

Never operate handpiece without fully inserting bur in chuck. Do not extend burs. Longer burs are available

Sterilize between patients to prevent cross contamination.

## **INFECTION CONTROL**

Be sure to use only Lares Handpiece Conditioner for this handpiece. Use of lubricants / conditioners other than Lares approved conditioner or failure to follow the maintenance schedule described above will automatically void the limited warranty for this product. Lares Handpiece Conditioner is available from Engler engineering corporation, part #10083.

All Lares high speed handpieces may be steam autoclaved or chemiclaved.

Prior to cycling, be sure to have Lares Handpiece Conditioner available with the appropriate nozzle hardware attached.

## **PROCEDURE**

This procedure should be performed after every patient to prevent cross-contamination and to assure long, trouble-free operation.

1. Detach handpiece from swivel coupler. (Do not autoclave / chemiclave swivel coupler). Clean external surface of handpiece thoroughly to remove saliva, blood, and other organic soil. Scrub handpiece with small brush under running water. Rinse and dry thoroughly.

CAUTION:

NEVER Submerge Components In Any Cleaning Or Disinfecting Solution

DO NOT Use Ultrasonic Cleaners

2. Apply Lares Handpiece Conditioner. Follow specific instructions detailed on can.

3. Remove bur from chuck.

4. Place handpiece in autoclave bag. The use of autoclave bags prevents damage to fiber optics and reduces cosmetic damage to handpiece.

5. Load autoclave bag containing handpiece into autoclave or chemiclave. Be sure to load autoclave bags for maximum penetration of steam or chemical vapor.

6. Cycle the handpiece according to the autoclave / chemiclave manufacturer's instructions. Do not exceed 275°F (135°C).



**CAUTION:**

DO NOT Autoclave or Chemiclave For Extended / Unusual Periods Of Time (Such As Overnight).

DO NOT Leave Handpiece Components In Sterilizer After Cycle Is Completed.

7. Immediately remove handpiece from autoclave or chemiclave. Allow to cool sufficiently prior to handling.

8. When handpiece is cool enough to handle, wipe fiber optic light transmitting surfaces clean at front and back ends of handpiece with isopropyl alcohol and cotton swab. This step is particularly critical to maintaining light output.

**WEEKLY CLEANING OF SWIVEL COUPLER ROTATING SURFACE**

Once each week prior to application of Lares Handpiece Conditioner remove swivel handpiece from swivel coupling and clean external surface of male swivel connection with isopropyl alcohol and gauze pad. This will keep swivel rotating freely.

**CHANGING / REPLACING FIBER OPTIC BULB**

Caution: Electrical shock and burn hazard. Before removing bulb, be sure swivel coupler is detached from hose until cool to the touch.

1. Grasp metal sheath covering bulb and rotate counterclockwise (when viewed from end of bulb) to loosen and remove.
2. Pull bulb straight out to remove from coupler.
3. Re-install bulb by carefully aligning bulb pins with holes in coupler bulb socket and fully inserting bulb into socket. Then slide metal bulb sheath over bulb, threaded end first. Rotate clockwise (when viewed from end of bulb) tighten sheath into coupler.

**CHANGING DIFFUSER - 757 MODELS**

1. Unscrew the diffuser using the wrench (part # 10109) by aligning the posts on the wrench with the holes on the diffuser.
2. Clean the surfaces of the head and diffuser. Do not leave the O-ring inside the head. When refitting, position the O-ring on the diffuser, then fit the threads into the head and tighten moderately.

## **SGII – Doriot One - Piece Handpiece**

Your unit may be equipped with the **SGII – Doriot One-Piece Handpiece** instead of the **E-TYPE LOW SPEED HANDPIECE**, in this case use the following instructions.

The speed of the polishing head is proportional to the amount of pressure applied to the foot-switch pedal. Use low pressure to maintain a low speed.

**SGII – Doriot One-piece Handpiece**

### **Technical Facts**

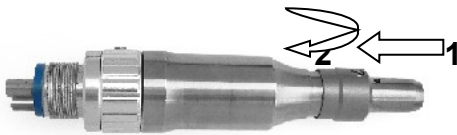
SGII: Doriot One-piece Handpiece

Maximum RPM: 20,000 min or 5,000 max

Attachment: accepts both handpiece burs and Doriot / U-type attachments

Air Requirements: Clean filtered moisture free air with recommended pressure of at least 45 psi. **Do not exceed 60 psi**.

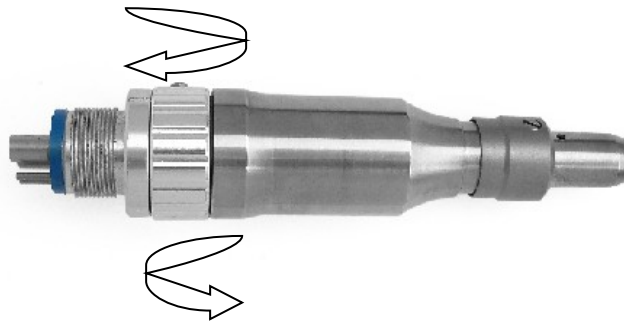
### **Operation**



**Removing handpiece bur or Doriot attachment from Doriot Handpiece:** Hold the handpiece in the left hand, depress housing ring toward the body of the handpiece while twisting  $\frac{1}{4}$  turn to the right to open the chuck.

**\*\*Push then Pull the handpiece bur or attachment and remove from the chuck.**

**Forward / Reverse Speed:**



Forward:

Twist change ring fully clockwise

Reverse:

Twist change ring fully counter-clockwise

*–In mid position, handpiece will not operate*



## Cleaning and Care

**Your Doriot One-piece Handpiece slow speed motor is a high quality precision instrument. Incorrect maintenance and care will shorten the life of this product.**

We recommend One Step Handpiece Cleaner and Conditioner for daily cleaning and lubrication, available from Engler Engineering Corporation.

### External Cleaning

Remove angle or attachment from motor. Disconnect from hose and clean the external surface thoroughly with a sponge or gauze using warm tap water. **DO NOT IMMERSE INSTRUMENT.** Wipe dry with a clean cloth.

### Clean / Lubricate Internally

Lubricate after every sterilization. Using the combination cleaner / lubricant available from Engler Engineering Corporation. Spray the cleaner / lube into the drive air tube. Run motor to expell excess lubricant. This ensures all internal parts of motor are completed lubricated. Wipe off handpiece.



**Weekly:** Additional lubrication should be applied to inside nose of motor.

### Sterilization:



Place motor into autoclave bag or pouch. Cycle per autoclave / chemiclave manufacturers' instructions. **DO NOT EXCEED 275° F (29 psi) / 135°C (2 bar).**



### CAUTION

DON'T use over-sized, bent, or scored burs.

DON'T immerse instrument in water or use ultrasonic cleaner.

DON'T use any type of disinfectant, chemical or soap on instrument. Use of chlorine products, aldehydes, etc. will damage handpiece and void all warranties.

DON'T operate motor while changing speed range, changing direction or inserting / removing attachments

DON'T exceed 275° F (29 psi) / 135°C (2 bar) in autoclave.

DON'T dry heat or heat transfer sterilize.

DON'T operate instrument without bur or bur blank inserted into chuck.



### **THREE-WAY AIR / WATER SYRINGE**

This handpiece allows the operator to rinse the operative site with a stream of water or mist or dry / blow debris with a stream of air. The button on the left controls water flow. The button on the right controls airflow. Pressing both buttons at the same time provides mist. The air / water syringe works independently of the other handpieces and can be used alone or with the other handpieces.

The syringe features quick-change autoclavable tips: To remove a tip, press on the locking collar surrounding the tip socket and pull the used tip straight out of the socket. To insert a new tip, press locking collar and push tip into the socket as far as it will go. Release collar and gently tug on tip before using to ensure that tip is securely locked into socket.

### **SYRINGE TIP STERILIZATION**

- 1) Remove contaminated syringe tip.
- 2) Remove all visible signs of contamination before autoclaving.
- 3) Autoclave tip at 132° C (270° F) for ten minutes.
- 4) Sterilize between patients.

**NOTE:** Since only the tips can be autoclaved, It is recommended that the air / water syringe be bagged with a disposable, single-use plastic sleeve between patients.

## SEAL-TIGHT PROPHY ANGLE



The Seal-Tight prophy angle comes standard with every unit.

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

General Cautions;

When operating the prophy head always consider the safety of the patient.

Should the prophy head function abnormally, cease operation immediately. See below for maintenance instructions. If you need further assistance contact Engler Engineering Corporation for instructions.

Before use, always confirm that the brush or rubber cup is correctly seated in place.

If end cap unscrews by itself during a procedure; Switch the direction of the motor

Check that head and end cap are screwed together firmly. A poor fit between the head and end cap requires replacement of the entire prophy angle.

**IMPORTANT:** The prophy angle is rated for no more 3,000 R.P.M. – High speeds will result in the polished surface heating up, spattered polish, and shorter prophy angle life. Keep the unit set in the prophy range whenever using the prophy angle. **Always start with a low speed and then adjust to a higher speed as required.**

### PROPHY ANGLE INSTRUCTIONS FOR USE

Dampen rubber cup.

Dab a small amount of polishing paste onto the rubber cup.

Place the prophy angle into the patients' mouth and lightly apply the rubber cup to the surface of the tooth with a circular motion.

Always begin the procedure using the lowest possible RPM, increase speed as necessary.

Do not allow the rubber cup to remain stationary on one area for an extended period of time. Keep the cup moving, so as to not overheat one area.


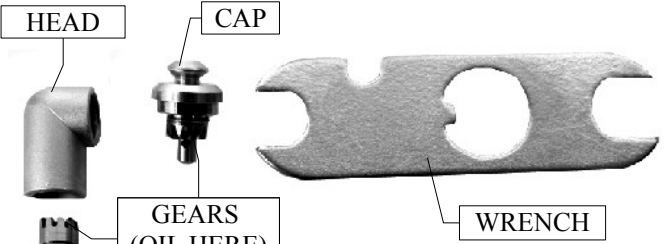
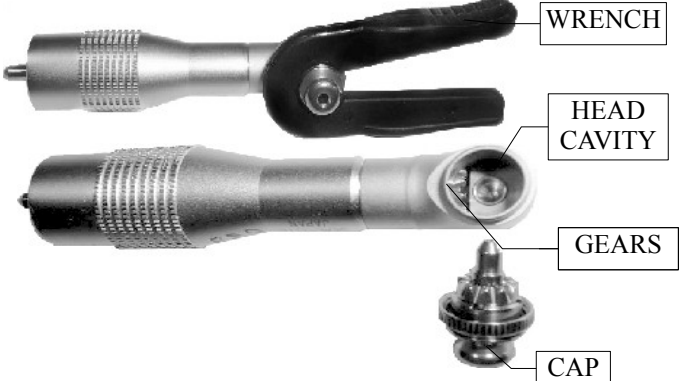

Add polish as needed. Move over all tooth surfaces and between teeth.

When finished, rinse the patient's mouth thoroughly with plenty of water.

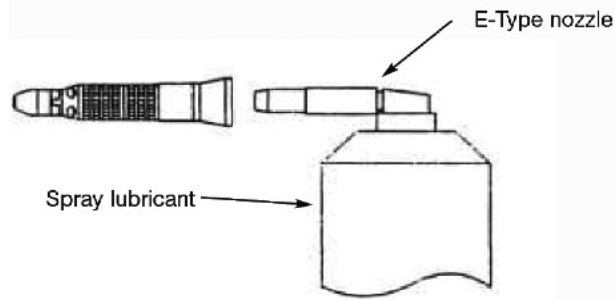
## PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS

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

### DAILY CLEANING AND LUBRICATION:

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

## CLEANING and STERILIZATION



### Cleaning:

1. Wipe the handpiece clean with an alcohol-soaked soft tissue.
2. Never clean the handpiece in boiling water, chemical solutions, in an 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 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 for no more than 20 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 by removing any screws. Doing so will shift the internal springs and may cause permanent damage to the unit and will void your warranty.



## OPTIONAL ACCESORIES

### MAINTENANCE FREE PROPHY ANGLE



P-MF Maintenance free prophy angle



P-106

P-106 screw on rubber cups 144/pkt

### CARE and STERILIZATION PROCEDURES

After each prophy:

Rinse abrasive paste from head and cup area with water. Then remove cup.

Thoroughly clean the outside of angle with disinfectant.

Place angle into a sterilization bag

Follow sterilizer manufacturer's recommendations.

Do not exceed 275 ° F(135 °C).

Keep angle in bag until ready for use.

You are now ready for your next prophy.

#### CAUTIONS AND WARNINGS:

Sterilize prior to disposal

Do not attempt to disassemble.

DO NOT submerge in liquids, including ultrasonic solutions.

Operate handpiece in the forward direction (counterclockwise when facing you) to prevent threaded prophy cups from unscrewing during the procedure.

Not recommended for use above 3000 R.P.M.

If the head of the angle becomes hot during use, lubricate the rim of the cup / screw hole with mineral oil.

Do not heat over 275 °F (135 °C).

Use only Engler Care Free Prophy Rubber Cups. Other brands will not properly seal the angle, causing premature wear and voiding the warranty.

Use 1 year, sterilize, then dispose of properly.

YOUR CAREFREE 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.

#### CAREFREE ANGLE WARRANTY IS VOID IF

Engler Care-Free rubber cups are not used exclusively.

Sterilization procedure is not followed properly.

The angle has been submerged in any liquid.

The angle has been damaged or abused.

Damaged due to use at high speed.

## WATER TANK INSTRUCTIONS



PT-1 Water Tank with pressure  
Release valve



PT-1 no pressure release valve

### DIRECTIONS:

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

Note: Some pump bottles are not equipped with a pressure relief valve. In that case, relieve pressure by unscrewing cap / pump assy. until a hissing sound can be heard. Wait till hissing stops to safely remove cap / pump assy..

## WATER TANK CARE & MAINTENANCE

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

### TROUBLESHOOTING:

#### PROBLEM: TANK FAILS TO PRESSURIZE.

- Be sure cap is tight.
- Check to see if pressure relief valve is closed.
- Remove the pump from the tank. Turn pump handle counterclockwise and lift handle to unlock. At the top of the pump cap there is an opening that indicates "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.
- Black particles found in water bottle indicates that the pump assembly is deteriorating. Order new pump assembly from Engler Engineering.Corp.

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 .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 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 and swirl the liquid thoroughly inside the tank.
2. **Dispose of bleach mixture and rinse tank with clean water thoroughly and completely.**
3. Clean the outside of the pump / tank according to your facilities normal cleaning procedures.
4. The pump assembly has been pre-lubricated. DO NOT TAKE THIS ASSEMBLY APART.

**WARNING: TAKE CARE TO RINSE TANK THOROUGHLY AND COMPLETELY AFTER CLEANING. ANY CLEANERS REMAINING IN THE TANK COULD DAMAGE INTERNAL COMPONENTS OF THE SCALE-AIRE MINI AND VOID THE WARRANTY.**

## **TECHNICAL SPECIFICATIONS:**

### **Input gas pressure (air or nitrogen):**

Operating 75 psi  
Maximum 80 psi  
Minimum 40 psi

### **Low speed handpiece:**

20,000 RPM (5000 RPM for prophylaxis)

### **High speed handpiece:**

360,000 RPM

### **Scaling handpiece:**

25 KHz magnetostrictive

### **Power supply:**

Input: 100-240 V ~, 1.5A, 50 - 60Hz  
Output: 24 VDC, 2.5 Amps

### **Control box dimensions:**

9" X 4" X 6"

### **Net weight:**

8 lbs.

### **Shipping weight:**

14 lbs.

### **Shipping box dimensions:**

14" X 14" X 14"

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