



**SCALE-AIRE
ENGLER HIGH SPEED
VETERINARY DENTAL AIR UNIT
INSTRUCTION MANUAL**

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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 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, order the Scale-Aire deluxe maintenance kit which includes Lares Handpiece Conditioner from Engler Engineering Corporation.

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 for more detailed information or call us at the numbers shown below.

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

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

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

Son - Mate II, ultrasonic scaler / polisher,

Vet II – 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:

Engler Engineering Corporation

1099 East 47th Street, Hialeah, Florida 33013

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

Web site: www.englerusa.com Help site: www.engler411.com

INTRODUCTION

Thank you for selecting the Scale - Aire 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 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 18, 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.

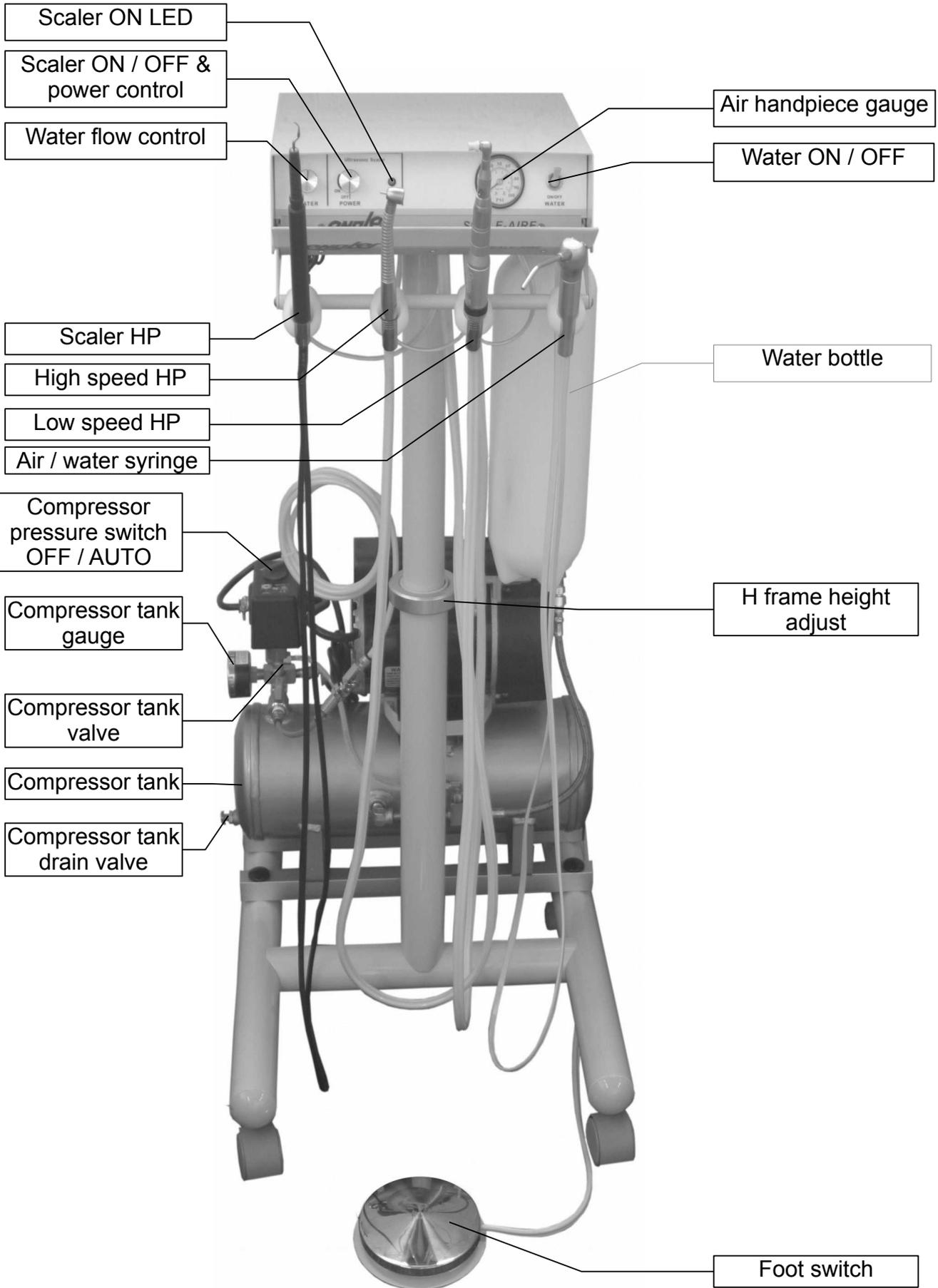
The high speed drilling handpiece allows the operator to quickly and efficiently perform the same advanced dental techniques, drilling shaping and cutting to name a few, being taught in the largest teaching hospitals and clinics around the world. The low speed handpiece is used for smoothing and polishing the tooth surface 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, Engler Engineering must be notified immediately. All claims submitted after fifteen days of receipt will not be valid.

All devices manufactured and / or sold by Engler Engineering Corporation are built and tested to approved standards. Any modification to the device, cables or hoses, initiated by others nullifies all warranty statements. Engler Engineering Corporation will not be held liable for any 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.



Scaler ON LED

Scaler ON / OFF & power control

Water flow control

Air handpiece gauge

Water ON / OFF

Scaler HP

High speed HP

Low speed HP

Air / water syringe

Water bottle

Compressor pressure switch OFF / AUTO

Compressor tank gauge

Compressor tank valve

Compressor tank

Compressor tank drain valve

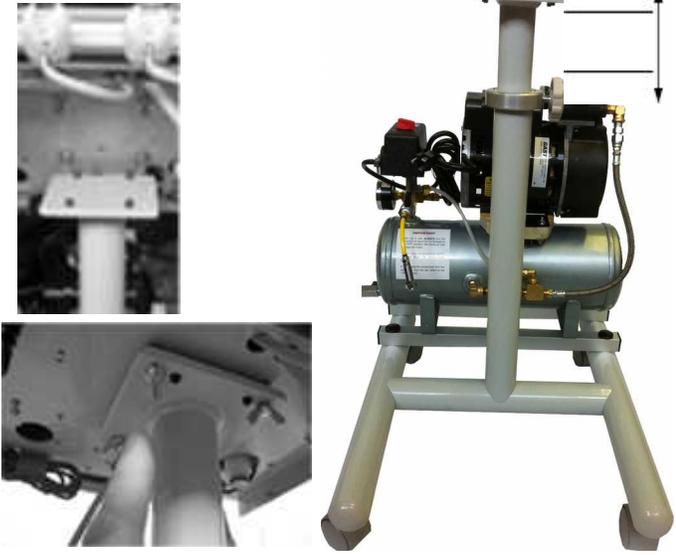
H frame height adjust

Foot switch



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

Quick start guide

	<p>The Scale-Aire is shipped partially assembled. Remove the packing materials; locate the components that make up the Scale-Aire unit.</p> <p>Remove the box containing the control unit and cut the tie wrap fasteners holding the frame.</p> <p>Locate and install the casters (wheels).</p> <p>Adjust H frame height. Unpack control unit. Position control unit on mounting bracket and fasten wing nuts.</p> <p>Note: Compressor models, appearance and mounting options may vary.</p>
	<p>Connect air quick disconnect to compressor.</p>
	<p>Verify the power plug is connected to the unit. Connect the power cord to the unit and then to the wall outlet.</p> <p>Plug the compressor into a dedicated (115 volt – 20 amp) electrical outlet.</p> <p>To allow compressor to fill the tank, open valve (parallel) as shown below.</p>
 <p>closed as shown</p>	<p>Set the compressor pressure switch to AUTO. The compressor will begin pressurizing for a few seconds then stop. The cycle may repeat a few times until water bottle is pressurized.</p> <p>Note1: Do not use extension cords.</p> <p>Note2: Make sure pressure switch is set to OFF before plugging the power cord to the outlet. Engler Engineering is not responsible for improper electrical installation or hookup. Any damage to the Scale-Aire, compressor or any components due to improper installation is customer's responsibility.</p>
	<p>This maintenance free compressor does not require oil.</p> <p>Wipe compressor unit weekly with damp cloth.</p>

Drain tank at least once per week



To enable water flow through the high speed handpiece and the scaler, set the toggle switch on the front right of unit to the UP position.

Turn water knob counterclockwise up to seven times to fully open water flow.

Lift high speed handpiece from the holder and press footswitch until water comes out. Repeat the process for the scaler handpiece making sure the scaler power is disabled. The water lines may take some time to fill as all the water lines were purged before shipping.



To enable the ultrasonic scaler, locate the power switch on the front of the control unit, (see photo) Turn the knob clockwise. The LED will illuminate indicating that the scaler is ready for use. This not only turns the unit on, it also allows the operator to precisely adjust the power setting of the scaler from minimum to maximum.



The Scale - Aire has three automatic handpiece activators. Each handpiece must go into its corresponding activator. The order from left to right is; ultrasonic scaler handpiece, high speed handpiece, and low speed handpiece. Select the desired handpiece by lifting it out of its holder, the Scale-Aire will automatically select THAT handpiece for operation.



Clean / lubricate low and high speed handpieces

Lubricate daily and after sterilizing. spray the combination cleaner / lubricant into the drive air tube. Run motor on air source for at least 30 seconds so that all excess lubricant is expelled. This ensures all internal parts of motor are completely lubricated.



INSERTING A BUR INTO THE HANDPIECE: CHANGING BURS

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.
2. To insert a bur, first be sure bur and handpiece are clean and free of debris or corrosion. Without depressing push button, gently insert bur into handpiece 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 described above 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 bent, rusted burs into chuck or damage may occur voiding warranty. Never depress push button during handpiece operation or while turbine is still rotating. Be sure to remove bur at end of day.



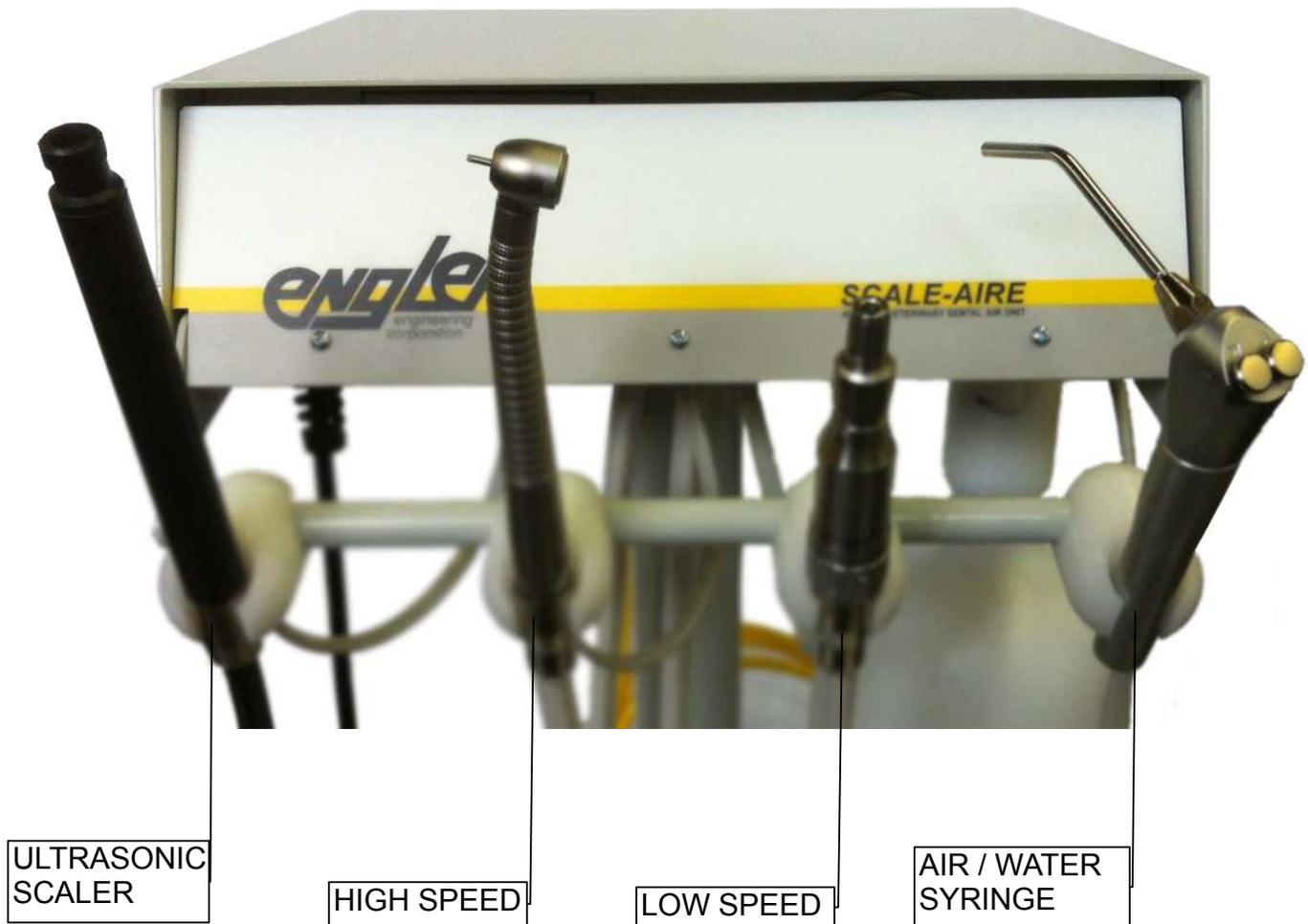
Removing attachment from Doriot Handpiece:

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 bur or attachment and remove from the chuck.

SCALE-AIRE DIAGRAM

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

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



GETTING TO KNOW YOUR HANDPIECES

ULTRASONIC SCALER HANDPIECE



Three different options are available for the ultrasonic scaler handpiece. 25K (Standard, as shown above), gray piezo handpiece (optional), and blue LED Light Ring piezo handpiece (optional).

The Scale – Aire 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.

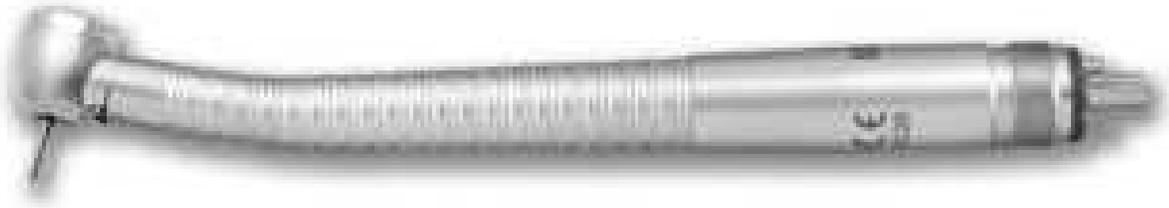
Note 2 : Do not leave insert in the handpiece for extended periods as bacteria may form.

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

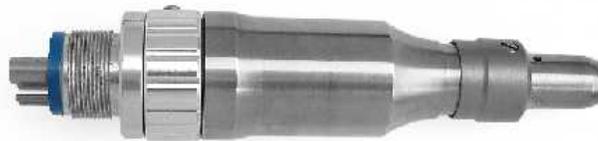
This handpiece is used for advanced dentistry, including but not limited to; cutting, sectioning, and shaping cracked or broken teeth, repairing, preparing cavities etc.



Keep well oiled

Leaving water in the high speed handpiece for more than a few days may allow bacteria to form that will cause the handpiece to clog. Flush with air to remove water when not in use.

LOW SPEED HANDPIECE



Doriot One-piece Handpiece

Maximum RPM: 20,000

Attachments: Accepts both handpiece burs and Doriot / U-type attachments.

It is used with a prophylaxis angle to polish the teeth after a scaling procedure.

Use only approved attachments and polishing compounds. Follow all manufacturers recommendations.

The high and low speed handpieces are not interchangeable.

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

Handpiece must be oiled regularly.

AIR / WATER SYRINGE



The three-way air / water syringe features

- Well balanced design, and smooth styling for comfortable use.
- Easy release for a speedy exchange of tips.
- Fully autoclavable tips.

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.

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 up. The water should always be ON when using the scaler handpiece.

WATER FLOW CONTROL

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

FLUSH SWITCH

The flush switch (located in the back of the unit), blows compressed air through the water lines and handpieces. It is critically important that the unit is flushed regularly to avoid bacteria grown that might cause a clog. To flush the unit lift the handpiece to be flushed from its holder, flip and hold the flush switch in the up position and press on the footswitch until that line runs dry, then release the footswitch and then the flush switch.

ULTRASONIC SCALER ON / OFF AND POWER CONTROL

On the control box behind the scaler handpiece are the controls for the scaler, the POWER knob and the WATER knob. The power knob turns the scaler on / off and 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.

Note 1 : Water should ALWAYS be used when operating the scaler.

Note 2 : Do not turn ULTRASONIC SCALER ON until water is flowing throughout the handpiece.

PRESSURE GAUGE (AIR HANDPIECES)

Gives a visual indication of the air pressure delivered to the high and low speed handpieces.

Note 1 : The air pressure gauge is not intended for the scaler handpiece.

FOOTSWITCH CONTROL

The foot control supplies 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.

COMPRESSOR

The compressor supplies air under pressure to operate the various handpieces and the air / water syringe. Please use extreme care when setting up and operating the compressor. For your safety and the safety of others, obey all warnings. **SERIOUS INJURY MAY RESULT FROM NOT FOLLOWING SAFETY INSTRUCTIONS.**

WARNING: THIS DEVICE MUST BE PLUGGED INTO A GROUNDED WALL OUTLET. PLUGGING THIS DEVICE INTO A POWER STRIP, UPS, OR EXTENSION CORD MAY CAUSE DAMAGE TO THE COMPRESSOR AND VOID THE WARRANTY.

TURN COMPRESSOR OFF OR UNPLUG WHEN NOT IN USE FOR EXTENDED PERIODS.

This compressor is manufactured to the highest standards. Please follow all compressor manufacturer recommended maintenance, operational and safety instructions for many years of trouble free service.

INSTRUCTIONS FOR OPERATION AND MAINTENANCE

REGULAR OPERATIONAL CONSIDERATIONS

The compressor power switch must be set to OFF before plugging in, upon power failure and at the end of the work day.

Scale - Aire units that have an air tank must be drained daily when in use.

The low speed polisher and the high speed drill must be lubricated daily when used regularly.

The straight handpiece (if available) must be lubricated daily.

Note: Short grip Dariot low speed handpiece does not use a straight handpiece.

The prophylaxis angle head must be removed, cleaned with soap and water, dried, and lubricated at the end of the day, depending on use, then reassembled.

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

Flush the high speed drill and the ultrasonic scaler daily.

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

For Piezo: Tip must be tightened with tip tool. Remove tip at the end of the day and when sterilization is performed.

For better care and maintenance order the Scale-Aire deluxe maintenance kit which includes Lares Handpiece Conditioner from Engler Engineering Corporation.

MAINTENANCE KITS

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

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

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

Kit S – A FO BAS, Basic kit for units equipped with fiber optic HP. Nozzle for Lares fiber optic HP in addition to items from Basic S – A .

Kit S – A FO DEL, Deluxe kit for units equipped with fiber optic HP. Nozzle for Lares fiber optic HP in addition to items from Deluxe S – A

START UP AND SHUT DOWN SEQUENCE FOR THE SCALE - AIRE.

Start up:

1. Add water to the water bottle and re-install it in the unit.
2. Close the drain valve on the air compressor tank (if open) closed=perpendicular.
3. After plugging in the compressor power cord, set the compressor pressure switch to auto and let the compressor fully pressurize the tank. Compressor will stop automatically.
4. Open the compressor valve, open=parallel.
5. Place a 25K insert into the handpiece or install tip for piezo. For piezo use tip tool to tighten.
6. Turn the scaler ON. Green light will turn on.
7. Install and test all handpieces to verify functionality.

Shut down:

1. Flush scaler and high speed handpieces until handpieces run dry.
To flush: Hold handpiece over sink, activate flush switch and press on footswitch until the handpiece runs dry, then release the footswitch and then release the flush switch.
2. Clean all air handpieces according to the original manufacturer instructions. Thoroughly wipe all surfaces and power cord with a mild cleaning solution or disinfectant and a damp cloth. Follow the procedures approved by your facility or use a validated infection control procedure. Do not allow fluids to enter the chassis. Do not autoclave the main unit.
3. Remove, clean and autoclave the scaler insert (or piezo tips), 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 high speed fiber optic handpiece or piezo handpiece, Do not autoclave fiber optic swivel or piezo handpiece.
4. Switch compressor OFF.
5. Turn the scaler power OFF.
6. Open drain valve slowly to release water that might have condensed in the air tank and be aware that water might come out of the drain valve.
7. Remove, empty and clean the water bottle.

SCALER HANDPIECE

Note 1 : The Scale-Aire handpiece provided might be different than shown as several options are available. If you ordered a different scaler handpiece your instructions might be different.

Note 2 : Water lines were purged prior to shipping. When activating the Scale-Aire for the first time, please follow these instructions.

With the scaler power turned OFF, turn the water regulator at least two rotations counterclockwise, lift the handpiece from the handpiece activator and press the footswitch until water begins to flow from the handpiece. Then turn the power ON by turning the power knob to start operation.

Note 3 : The ultrasonic scaler is not designed to run without water. Running the handpiece without water will damage the handpiece and void the warranty.

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

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

With the insert in the handpiece rotate the power control knob to the right, the knob will click “on” and the green LED will illuminate. This indicates that the scaler has power and is ready to be used. Adjust the **POWER CONTROL** knob to the **minimum** power setting, (counter-clockwise rotation), set the **WATER CONTROL** to its **maximum** setting by rotating it counterclockwise, (knob will rotate up to 3 and a half turns for maximum water flow) hold the handpiece over a cuspidor or sink and depress the footswitch until water comes out in a stream. This could take a few seconds. This step is done to insure proper operation of the delayed cavitation feature by removing air that may be trapped in the water lines.

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

NOTE: Inserts sent from our facility are not sterilized.

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

For 18K Sonus: Remove the, tip, stack and nosecone from the handpiece when not in use or when sterilization is performed. O-ring may be lubricated with petroleum jelly or equivalent.

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. 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 the lowest 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 the footswitch is released.

IMPORTANT: Excessive pressure on the tip is not necessary to remove calculus or tartar. Enamel on the teeth may be damaged or removed when excessive pressure is used. The enamel may be damaged if the scaling tip is left to rest in one spot for even a few seconds. Using the tip, as a pry to remove calculus or tartar is strongly discouraged as it 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 are not intended for 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 inserts should be replaced. The use of a face mask is recommended when operating the scaler, to avoid inhalation of contaminated aerosol (water mist) generated during the scaling procedure.

SCALER MAINTENANCE

SCALER FINAL PROCEDURES AT THE END OF EACH DAY

Switch the unit 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 insert / piezo tip 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

To achieve optimum performance of your equipment, we recommend that the insert be replaced every 6-12 months or as needed, the original ultrasonic insert has a 90 day warranty.

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 control unit, handpieces and cables with an antiseptic / chemical sterilization solution. Wipe dry.

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.

Place the sterilized 25K insert into handpiece for next patient.

The footswitch and power cables should be cleaned regularly by spraying a fine mist of sterilization / 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.

If you are not sure about any of the procedures listed above or you have any questions, please do not hesitate to call us at 800-445-8581.

SCALER TROUBLESHOOTING

I. "ON" L.E.D. INDICATOR DOES NOT ILLUMINATE:

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

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

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

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

1. Old or damaged insert: replace the insert.

IV WATER FROM SCALER TOO HOT:

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

1. Adjusting water flow knob higher (counter clockwise). Water regulator has multiple rotations.
2. Lower the power by adjusting the power knob counterclockwise.
3. Tip clogged. Replace or unclog 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. Foot switch 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.

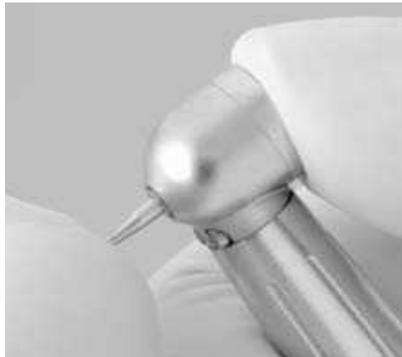


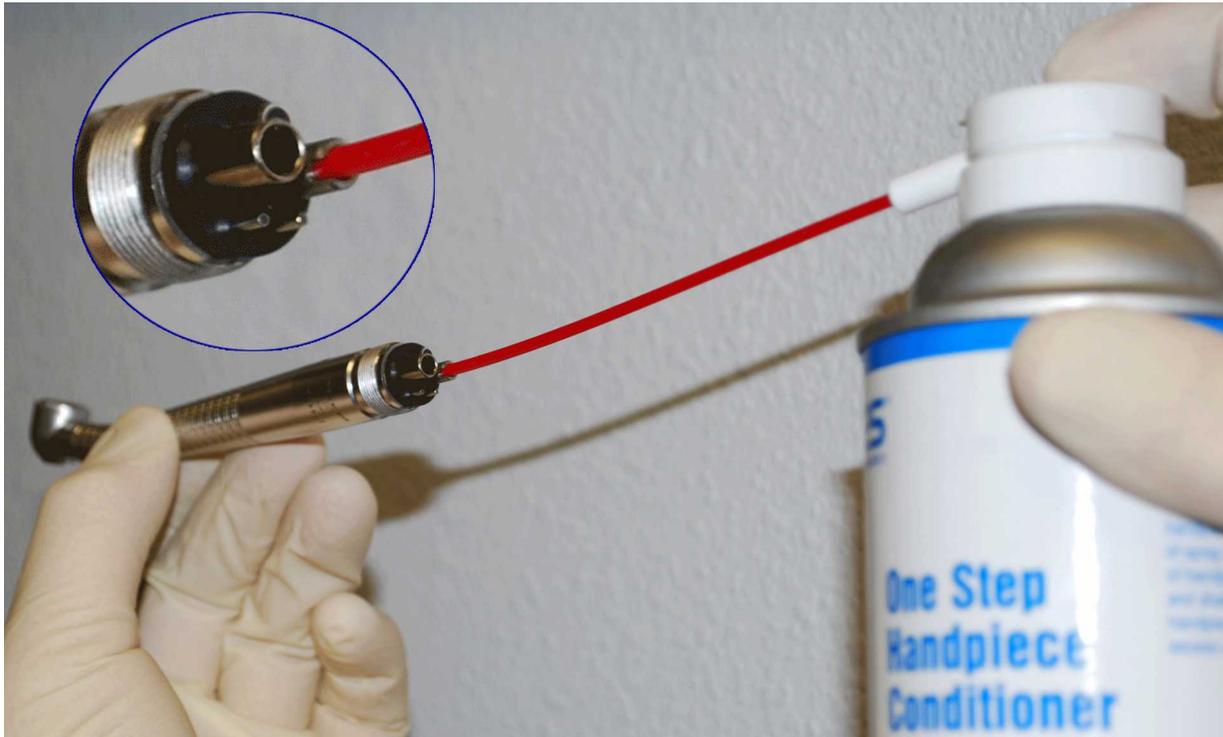
Figure 2

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 handpiece as far as possible. **Figure 2**; 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 described above 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 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.

In order to always provide the handpiece with clean air, water that has accumulated in the compressor tank should be drained DAILY.

DAILY HANDPIECE LUBRICATION IS ABSOLUTELY ESSENTIAL.

Operate the handpiece at 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. Using the air / water syringe, blow air backward from the drill head to dislodge particles. NOTE: DO NOT attempt to blow particles from the rear end of the handpiece, as larger particles could block the water tube.

STERILIZATION PROCEDURES: (Autoclave and Chemiclave Only)

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

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

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

Expel cleaner / lubricant: Reinsert bur into chuck, 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.

DO

- _ Use warm tap water to scrub the exterior of handpiece.
- _ Expel excess lubricant from handpiece by running it after cleaning and lubricating.
- _ Use separate cans of lubricant before and after sterilization to prevent 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 disinfectants / sterilants.
- _ 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 spindle with a handpiece cleaner where the bur would normally be inserted.
2. Ensure that burs are not worn or scored, less than .0625" or larger than .0630" in diameter 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 any excess lubricant with a towel or cloth.

TO EXTEND OPERATING LIFE

1. Detach swivel handpiece from swivel coupler at the end of each day and prior to other extended periods of non use to avoid water mineral deposit freeze up. Cover swivel coupler with dust cap when handpiece is detached.
2. Remember to follow all recommended maintenance and operation procedures regularly.
3. Like most ultra high performance machinery, high speed handpieces are intolerant of maintenance neglect and improper operation.

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.

Caution: 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 operate handpiece at air pressure in excess of recommended maximum settings.

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

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

Do not use this handpiece without heat sterilizing between patients to prevent cross-contamination.

MAINTENANCE AND 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 Item # 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 required nozzle hardware attached.

PROCEDURE

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

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

NEVER submerge components in any cleaning or disinfecting solution.

DO NOT submerge in ultrasonic cleaners

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

Remove bur from chuck.

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

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

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 periods of time (such as overnight).

DO NOT leave handpiece components in sterilizer after cycle is completed.

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

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, critical for 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. Clean external surface of male swivel connection with isopropyl alcohol and gauze pad. This will keep swivel rotating freely.

CHANGING 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.
2. Re-install bulb by carefully aligning bulb pins with holes in coupler bulb socket and fully insert 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.

DIFFUSER MAINTENANCE; 757 MODELS

1. Unscrew the diffuser using the wrench (Item # 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 gently.

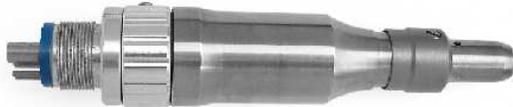


LOW SPEED HANDPIECE

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

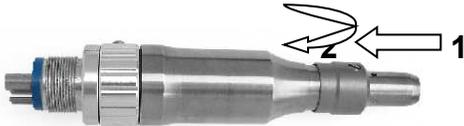
Technical Facts



SGII: Doriot One-piece Handpiece
Maximum rpm: 20,000 min⁻¹ or 5,000 min⁻¹
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

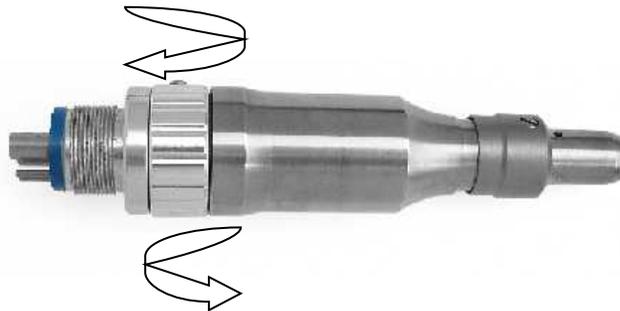


Removing handpiece bur or Doriot attachment from Doriot Handpiece:

Hold the handpiece in the left hand, depress housing ring toward the body of the handpiece while twisting ¼ 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 can shorten the life of this product. We recommend one step handpiece cleaner and conditioner spray lubricant available from Engler Engineering Corporation.

External Cleaning

Remove angle or attachment from motor and 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 handpiece

Lubricate after every sterilization. Spray combination cleaner / lubricant into the drive air tube. Run motor for at least 30 seconds to expell excess lubricant. This ensures all internal parts of motor are completed lubricated.



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 oversized, 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.

POLISHER OPERATION

1. Dampen the rubber cup and place a small amount of polishing paste on it.
2. Depress the footswitch and the rubber cup will begin to rotate. The speed of rotation may be adjusted to your desired level depending on how hard you press on the footswitch.
3. To prevent paste from flying off the cup, apply light pressure on the footswitch to maintain a low speed.

IMPORTANT: The prophylaxis angle is only rated for 5,000 RPM max - therefore, in order to prevent premature failure of the angle keep the unit set in the prophylaxis range.

4. 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.**
5. Place the end of the angle into the patient's mouth and apply the rubber cup to the surface of the tooth with a circular motion. Do not allow the rubber cup to remain stationary on one area for an extended period of time as friction will cause burns.



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 the 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

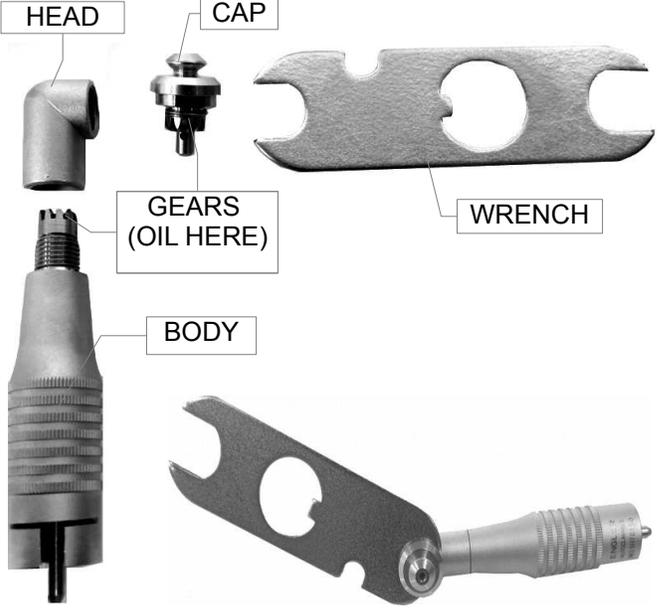
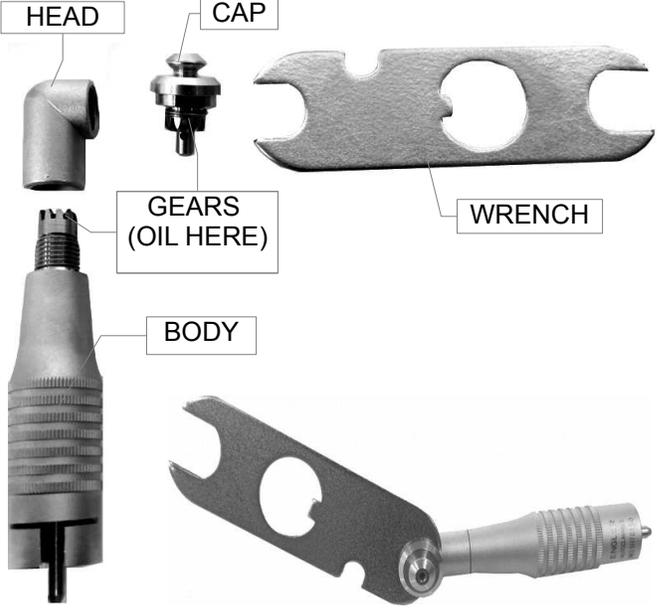
- 1) Remove contaminated syringe tip.
- 2) Remove all visible signs of contamination before autoclaving.
- 3) Autoclave tip at 132° C (270° F) for ten minutes.
- 4) Sterilize between each patient.

NOTE: Since only the tips can be autoclaved, it is recommended that the air / water syringe be used with a disposable, single-use plastic sleeve between each patient use.

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 4 - 6 months depending on use. Prophyl angles may vary. Use the following instructions accordingly.

DAILY CLEANING AND LUBRICATION:

 <ol style="list-style-type: none"> 1.) Remove prophy angle from low speed handpiece. 2.) Discard used rubber cup. 	<ol style="list-style-type: none"> 1.) Remove prophy angle from low speed handpiece. 2.) Discard used rubber cup. 
 <ol style="list-style-type: none"> 3.) Remove head cap by turning counterclockwise to unscrew the knurled nut with the wrench provided. 4.) Wash the cap and head cavity thoroughly with a toothbrush in a bowl of warm soapy water. 5.) Rinse thoroughly with running water and shake off excess water. 6.) DO NOT attempt to dry this part with paper or cotton towels, swabs, or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or a blow dryer to thoroughly dry the angle. 7.) Lubricate by placing one drop of mineral oil, (#P-O1) on the gears of the head cap and a drop inside the gear cavity. 8.) Being careful not to cross-thread, reassemble the prophy angle and wipe off all excess oil. Place a new rubber cup onto the head cap and confirm that the gears are meshing properly by rotating the cap – it should turn easily. If not, remove and try again. DO NOT use the wrench, only finger tighten. 9.) Slide the prophy angle onto the handpiece and lock the handpiece. 	 <ol style="list-style-type: none"> 3.) Use the wrench to remove the cap from the head. 4.) Turn clockwise to unscrew the head (top portion) from the body (bottom portion). 5.) Place the cap, head and body into a bowl of hot soapy water. 6.) Wash thoroughly with a toothbrush. 7.) Rinse well with running water and shake off. DO NOT attempt to dry these parts with paper or cotton towels / swabs or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or a blow drier to thoroughly dry the angle. 8.) Lubricate by placing one drop of mineral oil, (#P-O1) on each gear (see diagram). 9.) Being careful not to cross-thread, reassemble the prophy angle and wipe off all excess oil. Place a new rubber cup on the onto the cap and confirm that the gears are meshing properly by rotating the cap – it should turn easily. If not, remove the cap and try again. 10.) Slide the prophy angle onto the handpiece and lock the handpiece.

OPTIONAL ACCESORIES

MAINTENANCE FREE PROPHY ANGLE



P-MF

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 disposing

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 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.

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.

EXTENSION ARM

The Scale - Aire can be mounted on a extension arm (optional). The following are the mounting instructions:



1. Assemble arm.
Note: Arm can extend a maximum of 25 inches.
2. Attach arm wall plate to flat surface using 4 screws.



3. Connect arm to the bottom of the control unit and tighten the four wing nuts.

TECHNICAL SPECIFICATIONS:

Low speed handpiece: 20,000 RPM

High speed handpiece: 360,000 RPM

Scaling handpiece:

Piezo handpiece: 30 KHz

25K handpiece: 25 KHz

Power supply (main unit):

Input: 100 - 240 V~, 1.5A, 50 - 60 Hz

Output: 24 Vdc, 2.5 Amps

Compressor: 115 V~, 0.3 HP, 60 Hz

100% oil less operation

2 gallon capacity

Control box dimensions: 11-1/2" W X 14" D X 5-1/2" H

Base dimensions: 20" D X 19" W

Shipping box dimensions: 24" X 24" X 24"

Height (telescopic): 27" - 39"

Net weight: 70 lbs

Shipping weight: 87 lbs