SCALE-AIRE
ENGLER HIGH SPEED
VETERINARY DENTAL AIR UNIT

INSTRUCTION MANUAL

REV. C 11/4/2013

Table of Contents

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 to vibrational friction. The tip is not hot but the ultrasonic vibration will cause burns if touched, this is due to the friction between the skin and the vibrating tip. This is normal for all ultrasonic scalers. Never let the scaling tip touch soft tissue or skin, Engler Engineering Corporation is not responsible for any damage caused by improper use of this device and / or its accessories.

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 level and keep its optimum frequency. Deforming (sharpening, bending) the tip will cause the handpiece to get hot, degrade vibration power and void the warranty.

Dropping the scaler handpiece with the ultrasonic insert / tip may alter or damage the insert / tip causing the handpiece to get hot, degrade vibration power and void your warranty.

Remove the ultrasonic insert / tip and clean / disinfect after every use.
Ultrasonic insert, tips, water filter, prophy angle, straight handpiece and accessories are normal wear and tear items. In order to achieve optimum performance they should be replaced regularly.

The water regulator has multiple turns. Turn the water regulator knob counterclockwise to open and clockwise to close.

The typical life of an insert is six months to a year. To achieve optimum performance replace it 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 which may cause overheating / damage 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. Turn off scaler power, remove the ultrasonic insert, turn the water regulator counterclockwise 3 to 4 turns. Press on the footswitch until water flows, then reduce water to proper water level. Reinstall the ultrasonic insert. Warning the handpiece is water cooled and with normal operation, will get hot when running with no water.

Read the manufacturer instructions located on the product packaging for lubrication and bur installation for the high and low speed handpieces.

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

Make sure the compressor pressure switch is OFF before plugging the compressor power cord into a dedicated electrical outlet.

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, and other products. We also acquired the Alpha-Sonic, Ora-Sonic, and Pro-Sonic line of piezo scalers.

Engler Engineering Corporation's brand name products proudly include: Son-Mate II ultrasonic scaler / polisher, Sonus II dental ultrasonic scaler, Poli-X variable speed polisher, Scale-Aire Mini high speed veterinary dental air unit with ultrasonic scaler / low speed / high speed / air / water syringe, Excelsior high speed veterinary dental air unit with vacuum / electrosurgery / ultrasonic scaler / low speed / high speed / air / water syringe, Tri- Mate scaler / polisher / electro surge (for veterinary use only), A.D.S. 2000 Anesthesia Delivery System / ventilator, and the Sentinel V.R.M. veterinary respiratory monitor, (both for veterinary use only)

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, and 25K frequency range.

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

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

If you have any questions or comments, please contact:

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

INTRODUCTION

Thank you for selecting the Scale-Aire High Speed Veterinary 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 line voltage to an operating frequency of approximately 18K, 25K, or 30K. (depending on the type of unit) 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 Sonus 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 through the tip effectively cools the area and assists in removing any debris from the operative site.

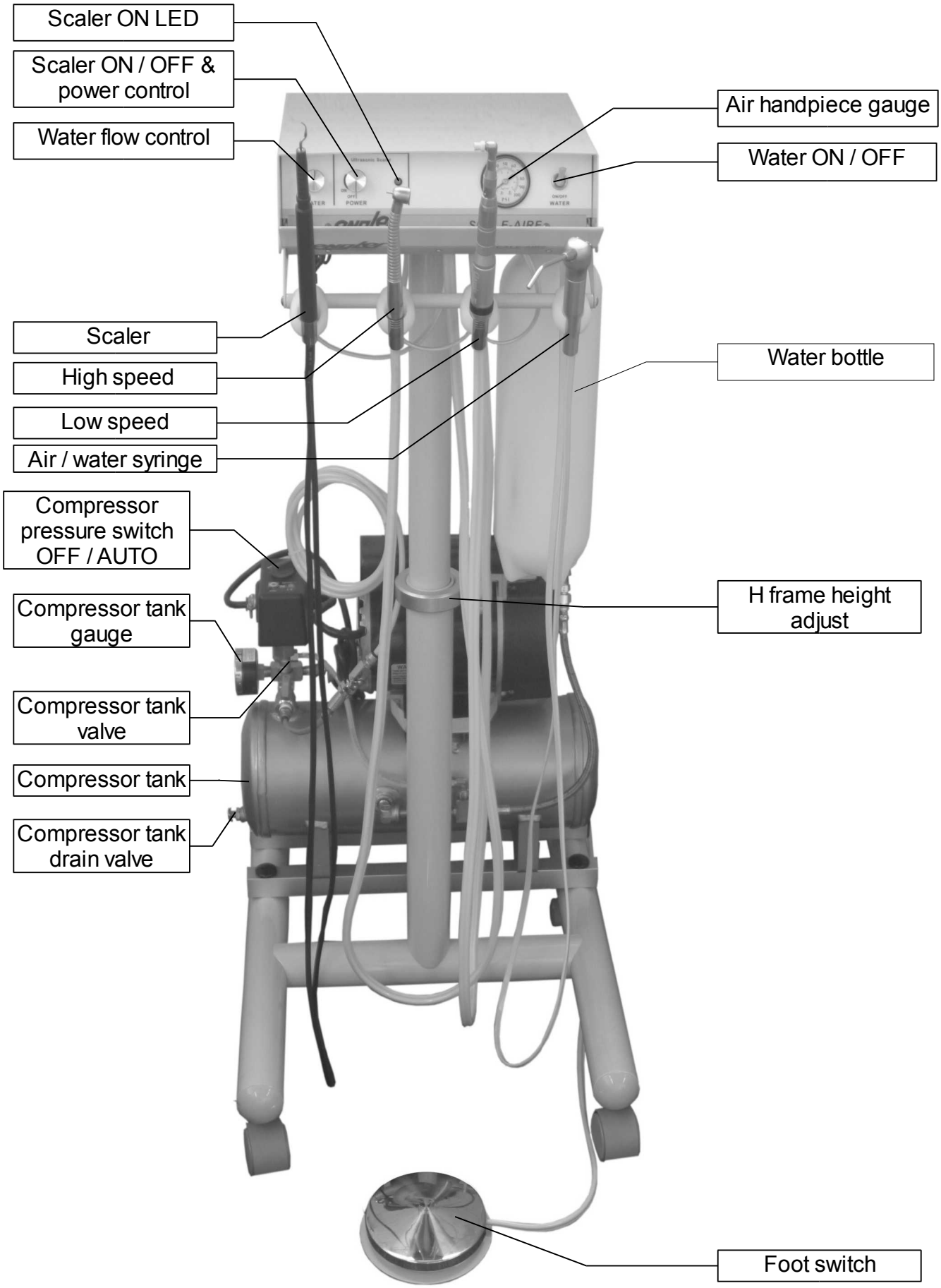
The high speed drilling handpiece allows the operator to quickly and efficiently perform the same advanced dental techniques, drilling shaping and cutting to name a few, being taught in the largest teaching hospitals and clinics around the world. The low speed handpiece is used for smoothing and polishing 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. It is imperative that you inspect the contents and if you find any parts missing or damaged, you must notify us immediately. All claims submitted after fifteen days of receipt will not be valid.

All devices manufactured / sold by Engler Engineering Corporation are built and tested to approved standards. Any modification to the device, cables or hoses, alterations or repairs 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 unauthorized service, improper installation, 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
High speed
Low speed
Air / water syringe
Water bottle
Compressor pressure switch OFF / AUTO
H frame height adjust
Compressor tank gauge
Compressor tank valve
Compressor tank
Compressor tank drain valve
Foot switch

SCALE-AIRE – REAR VIEW

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

QUICK START GUIDE



Step 1: The Scale-Aire is shipped partially assembled. Remove the packing materials; locate the components that make up the Scale-Aire unit.
Remove the box containing the control unit and cut the tie wrap fasteners holding the frame.

Locate and install the casters (wheels). Adjust the height of the frame. Control unit should be mounted / positioned with the back of the unit over the compressor, fasten wing nuts.
Note: Compressor models, appearance and mountings may vary.

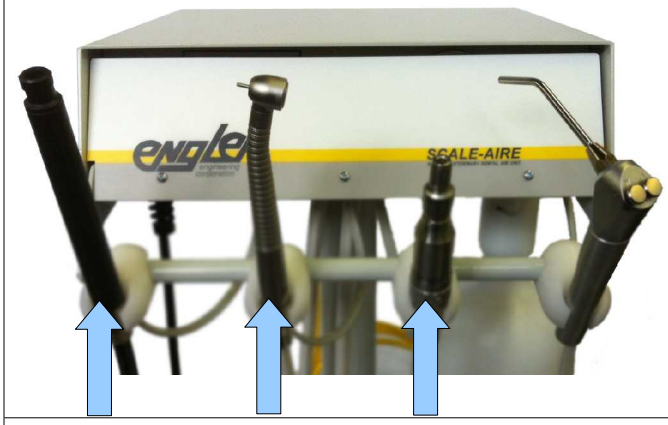
Step 2: Connect air quick disconnect to compressor.

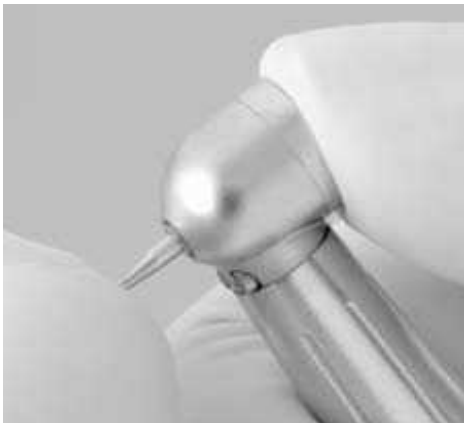
Step 3: Verify the power plug is connected to the unit.
Connect the power cord to the unit and then to the wall outlet.

Closed as shown

Step 4: Make sure drain valve is closed, make sure pressure switch is OFF, then plug in the compressor power cord into a **dedicated** electrical outlet (115 Volt, 20 Amp, 60 Hz) and set the compressor pressure switch to auto. The compressor will begin pressurizing the tank and will shut off when maximum pressure is reached.
Note 1: Do not use extension cords.
Note 2: Make sure pressure switch is OFF before plugging the power cord to the outlet.

Step 5: Open compressor valve by turning black knob to the left as shown.

	Step 6: To enable water flow through the high speed handpiece and the scaler, set the toggle switch on the front right side of unit to the UP position. Step 7: Turn water knob counterclockwise up to seven times to fully open water flow. Step 8: 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 turned off. The water lines may take some time to fill as all the water lines in the unit have been purged dry.
	Step 9: To enable the ultrasonic scaler, locate the power switch on the front of the control unit, (see picture). 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 adjust the power setting of the scaler from minimum to maximum.
	Step 10: The Scale-Aire has three automatic handpiece activators. Each handpiece must go into its corresponding activator. The order from left to right is; the 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.
	Step 11: Clean / lubricate low and high speed handpieces. Lubricate daily and after every sterilization. Using a combination cleaner / lubricant into the drive air tube. Run motor for 30 seconds to expell excess lubricant. This ensures all internal parts of motor are completed lubricated.



INSERTING A BUR / INTO THE HANDPIECE: CHANGING BURS

1. Hold handpiece handle as shown and position thumb tip on push button with index finger wrapped around underside of handpiece neck for support.
2. To insert a bur, first be sure bur is clean and free of external debris or corrosion. Without depressing push button, gently insert bur into handpiece as far as possible. Then fully depress push button 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 while simultaneously pulling bur until removed from chuck.
Push button may then be released until next bur is inserted.
Caution: Never force bent, rusted or oversize bur 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.

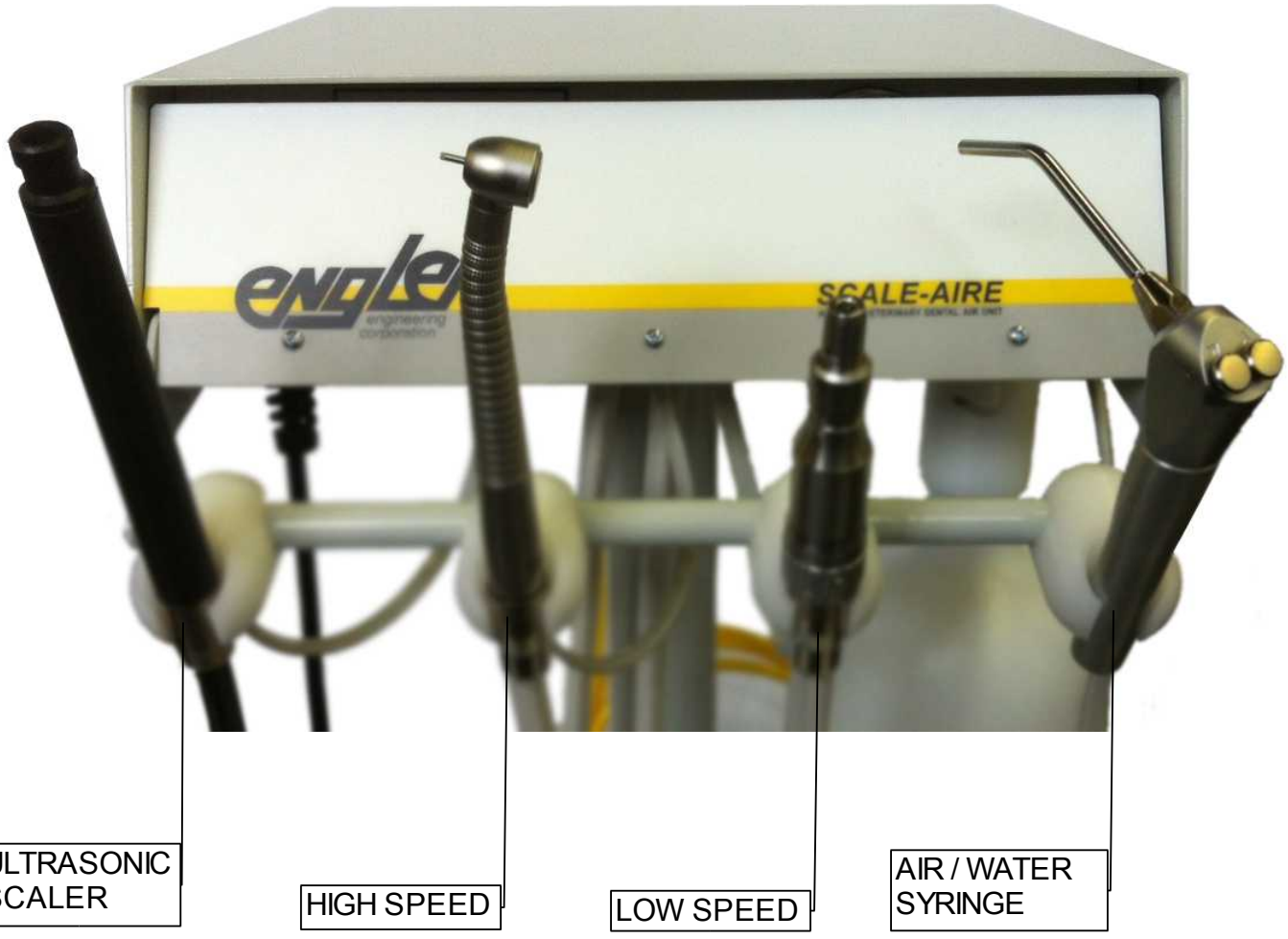
Removing attachment from Doriot handpiece:

1)Hold the handpiece in the left hand, depress housing ring toward the body of the handpiece while 2) twisting ¼ turn counter clockwise with small end of handpiece facing operator to open the chuck. Push then pull the bur or attachment and remove from the chuck.

HANDPIECE LOCATIONS

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



ULTRASONIC SCALER

HIGH SPEED

LOW SPEED

AIR / WATER SYRINGE

GETTING TO KNOW YOUR HANDPIECES

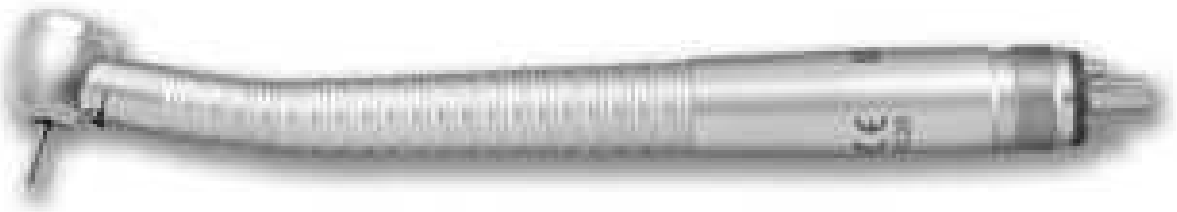
ULTRASONIC SCALER HANDPIECE

Three different options are available for the ultrasonic scaler handpiece. 25K Standard, as shown above, Piezo with and without LED lighting, and 18K Sonus handpiece.

18K Sonus handpiece / Piezo with / without LED lighting are optional.

The ultrasonic scaler portion of the device utilizes an ultrasonic principle of operation. The internal circuitry converts line voltage to an operating ultrasonic frequency. This frequency is then amplified and delivered to the scaling tip. As a result, the tip vibrates at this ultrasonic frequency.
Note: All dental machines are purged of water before shipping. To get water into the ultrasonic scaler handpiece, please follow this procedure: With the scaler power turned OFF, open the water regulator at least two rotations counterclockwise, lift the handpiece from the cradle, the handpiece activator will automatically select that handpiece. Press the footswitch until water comes out. Place insert into the handpiece. When ready to use the scaler, turn the power ON and press the footswitch.
Activating the handpiece without water will void the warranty and damage the handpiece.
Do not leave insert in the handpiece indefinitely as it will become difficult to remove, O-rings may dry out and slime mold may develop.
Piezo scaler tip must be tightened with tip tool.

HIGH SPEED HANDPIECE

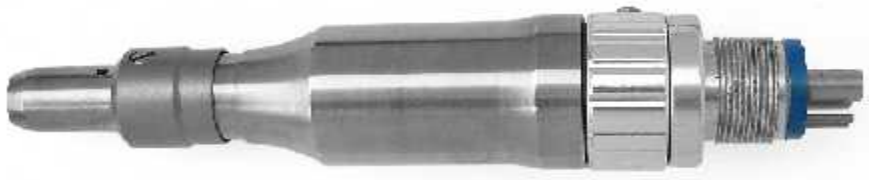


Two different options are available for the high speed handpiece, one without fiber optics (standard, as shown above) and with fiber optics (optional).

This handpiece is used for advanced dentistry, including but not limited to; cutting, sectioning, and shaping cracked or broken teeth, preparing cavities etc.
 To install bur, Insert bur in handpiece then press button while pressing on the bur until the burr is all the way in.

Air handpieces must be oiled regularly.
Air handpiece left unused for extended periods may develop slime mold which will cause the handpiece to clog. Flush handpiece with air to remove water, when not in use.

LOW SPEED HANDPIECE



Doriot one-piece Handpiece (no straight handpiece needed)

Speed range: 0-20,000 min. RPM
Attachments: Accepts both handpiece burs and Doriot / U-type attachments
It is used with a prophy angle to polish the teeth after a scaling procedure. Use only approved 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).

Handpieces 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 the ability to rinse the operative site with a stream of water or mist or dry / blow debris with a stream of air.

Must be cleaned regularly.

GETTING TO KNOW YOUR CONTROLS

WATER ON / OFF

The control is equipped with a Wet / Dry Toggle to activate the water flow, located on the right front of the control unit. Move the toggle up to turn water on. The water should always be ON when using the scaler handpiece.

WATER FLOW CONTROL

This control, located on the left front of the control unit, 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. It removes water from the water lines and handpieces. It is critically important that the handpieces are flushed regularly to avoid slime mold growth which may cause handpieces and waterlines to clog.
To flush: Hold handpiece over water drain, flip on the flush switch (on rear of unit) and press the footswitch until all water is blown out, then release the footswitch, then flip off the flush switch.

ULTRASONIC SCALER ON / OFF AND POWER CONTROL

The controls for the scaler are behind the scaler handpiece on the control box.
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.

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

AIR HANDPIECE PRESSURE GAUGE

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

The pressure gauge does not apply to the scaler handpiece.

FOOTSWITCH CONTROL

The foot control supplies air pressure to a selected handpiece. The footswitch is a responsive, high volume, 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, read and familiarize yourself with the operation and maintenance of the compressor and obey all warnings to avoid serious injury. The compressor should only be plugged into a **dedicated electrical outlet ,115 Volt, 20 Amp, 60 Hz.**

WARNING: THIS DEVICE MUST BE PLUGGED INTO A GROUNDED, DEDICATED WALL OUTLET. PLUGGING THIS DEVICE INTO ANY POWER SRTIP, U.P.S., OR EXTENSION CORD MAY CAUSE DAMAGE TO THE COMPRESSOR AND VOID THE WARRANTY.

Unplug unit or turn system off when not in use.

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.

OPERATION AND MAINTENANCE INSTRUCTIONS

The compressor power switch must be set to OFF before plugging in, upon power failure, and at the end of the work day.
Compressors which have an air tank must be drained daily when used regularly.
The high and low speed handpieces must be lubricated daily. Remove the hose quick disconnect at the back of the handpiece and spray lubricant in the smaller side of the two larger ports. See photo on page 12.
The straight handpiece (if available) must be lubricated daily. Note: The Dariot low speed handpiece does not use a straight handpiece. Attachments connect directly to the handpiece.
All auto holders and the three way syringe must be kept clean.
Flush (pg. 14) the high speed handpiece and the ultrasonic scaler when not in use for extended periods.
25K handpiece: Remove the insert from the handpiece when not in use or when sterilizations is performed. O-ring may be lubricated with mineral oil or petroleum jelly.
Piezo: Tip must be tightened with tip tool, remove tip at the end of the day or when sterilization is performed.

MAINTENANCE KITS

There are maintenance kits available for the Scale-Aire (purchased separately). Fiber optic and non fiber optic, basic or deluxe. These kits are essential to keep your unit working properly. The kits include lubrication spray designed specifically for air handpieces, water filter, and port cleaning tools. Some kits also include burs, inserts, and prophy angles. The kits can vary, make sure you specify your systems configuration when ordering the kit.

Kits are available for these Scale-Aire units:

25K scaler
25K scaler with high speed fiber optic / non fiber optic handpiece,

18K (Sonus) scaler
18K scaler with high speed fiber optic / non fiber optic handpiece,

Piezo scaler
Piezo scaler with / without LED lighting and high speed fiber optic / non fiber optic handpiece.

Please call Engler Engineering Corp. for more information.

START UP AND SHUT DOWN SEQUENCE FOR THE SCALE-AIRE

Start up:

- Fill water bottle and reinstall it in the unit.
- Close the drain valve on the air compressor tank (if open), closed = perpendicular.
- After plugging in the compressor power cord (if disconnected), set the compressor pressure switch to auto and let the tank fully pressurize until the compressor stops.

Note: Always make sure compressor pressure switch is OFF when plugging in the compressor.

- Open the compressor valve (if closed), open = parallel.
- Place insert into scaling handpiece or install scaler tip for piezo depending on model.
- Turn the Scaler ON. Green light will turn on.
- Install and test all handpieces and verify functionality.

Shut down:

- Flush scaler and high speed handpieces.
  To flush: Hold handpiece over water drain, flip on the flush switch (on rear of unit) and press footswitch until all water is blown out, then release the footswitch, then flip off the flush switch.
- Clean all air handpieces according to manufacturer instructions. Thoroughly wipe all surfaces and power cord with a mild cleaning solution or disinfectant and a damp cloth. Do not allow fluids to enter the handpieces or the Scale-Aire chassis.
- Remove, clean and autoclave the scaler insert (or piezo tips), three way syringe tip (tip only), prophy angle, burs, low and high speed handpieces. **Prophy angle, low and high speed handpieces must be lubricated regularly and after autoclave.** Do not autoclave fiber optic swivel or piezo handpiece (if you have fiber optics or piezo handpieces).
- Set the compressor pressure switch to OFF.
- Turn the scaler power OFF.
- Open drain valve slowly to eject any water that might have condensed in the air tank, be aware that water might come out of the drain valve.
- Remove, empty and clean the water bottle.

SCALER

The ultrasonic handpiece provided with your Scale-Aire might be different than shown as several options are available.

All dental machines are purged of water before shipping. To get water into the ultrasonic scaler handpiece, please follow this procedure: With the scaler power turned OFF, open the water regulator at least two rotations counterclockwise, lift the handpiece from the cradle, the handpiece activator will automatically select that handpiece. Press the footswitch until water comes out. Place insert into the handpiece. When ready to use the scaler, turn the power ON and press the footswitch.

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

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. O-ring may be lubricated with mineral oil or petroleum jelly.

To install a 25K 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.

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 sterilizations is performed. O-ring may be lubricated with mineral oil or petroleum jelly.

Installing a Sonus insert into the handpiece.
Locate (water) hole in the side of the insert.
Locate the white dot at the top of the Sonus handpiece.
Place insert into handpiece by lining up the hole with the white dot.
Gently push the insert into the handpiece until it stops.
Push the white nosecone onto handpiece.
Drop scaling tip onto the nosecone, turn clockwise (tip facing operator) tightly by hand. Do not use the tip wrench. If you have questions or difficulty with these instructions, please call Engler Engineering Corp. at **305-688-8581**.

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 should 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.

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.

SCALER USE CONT.

Place the tip into the patient's mouth and depress the footswitch in order to activate the scaler. Bring the tip lightly 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.

This device features delayed cavitation. This feature prevents back flow by forcing clean water through the lines causing droplets to form and fall from the tip after 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 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, altering it's performance. 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 ultrasonic instruments due to excessive force or by being dropped, should be replaced.

SCALER MAINTENANCE

FINAL PROCEDURES AT THE END OF EACH DAY

Switch the unit to the off position.
Remove insert, 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 should be thoroughly cleaned and free of blood, tissue, or any other debris before sterilization by rinsing with water.
The insert 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 and handpiece.

CLEANING CHASSIS, HANDPIECES, FOOTSWITCH AND POWER CABLES

. The chassis of your unit should be cleaned at the end of every operating day. Remove ultrasonic insert, spray 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.

Clean the outer surface of the handpieces and cables with an antiseptic soap, rinse with water and sterilize with a chemical sterilization solution.
If any chemicals are allowed to get into the handpiece you must flush it out 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

"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 is not connected to the device.

"ON" L.E.D. INDICATOR ILLUMINATES, NO WATER FLOW:

1. Verify that water source is connected and bottle is full.
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.

"ON" L.E.D. INDICATOR ILLUMINATES, LITTLE OR NO VIBRATION / CAVITATION AT THE TIP:

1. Old or damaged ultrasonic insert: replace the insert.

WATER FROM SCALER TOO HOT:
The insert requires a constant cool water flow in order to 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.
4. Water restriction in unit.
5. Clogged water filter. Clean or replace filter.
6. Old or damaged ultrasonic insert: replace the insert.

SCALER TROUBLESHOOTING CONT.

INTERMITTENT OPERATION:

Tip vibrates then stops:

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

Tip stops vibrating during operating procedure.

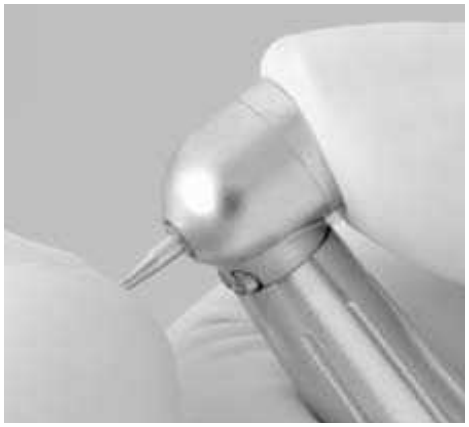
1. Insert broken / damaged: replace.
2. Scaler handpiece / cable damaged
3. Foot switch / cable damaged

HIGH SPEED HANDPIECE

INSERTING A BUR INTO THE HANDPIECE: CHANGING BURS

Lares high speed handpieces may 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



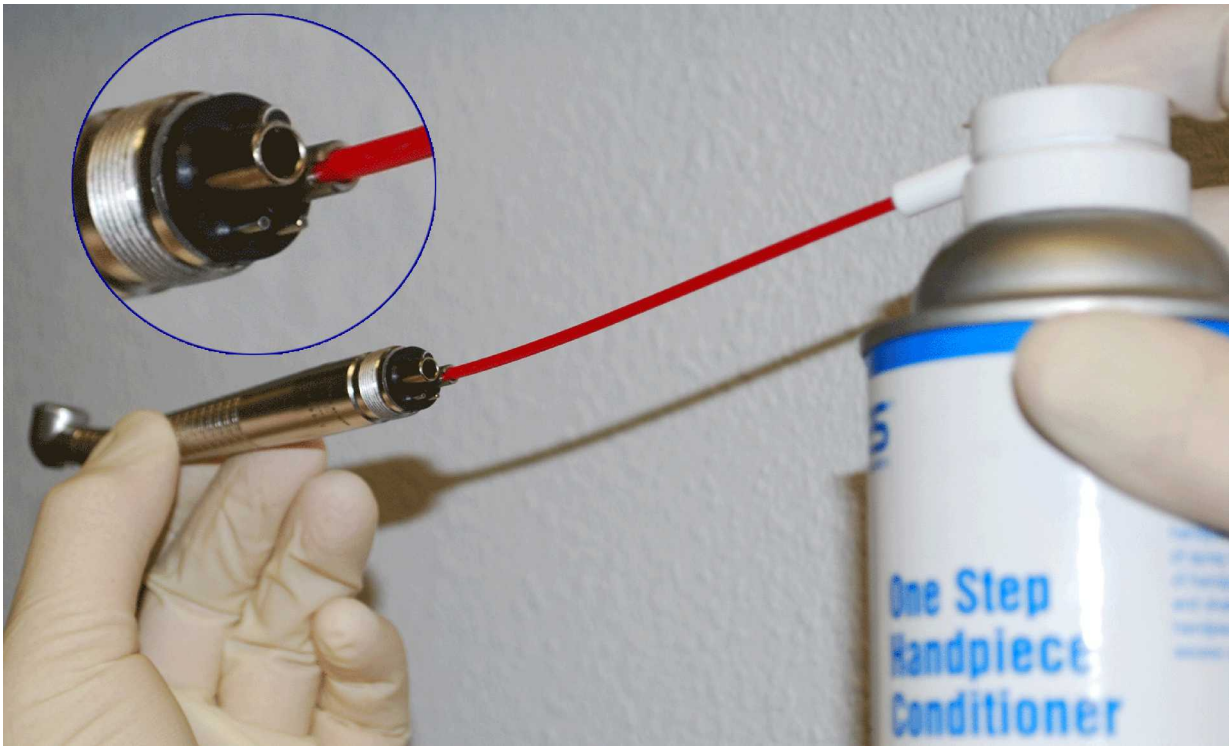
INSERTING A BUR INTO THE HANDPIECE: CHANGING BURS

1. Hold hand piece handle as shown and position thumb tip on push button with index finger wrapped around underside of handpiece neck for support.
2. To insert a bur, first be sure bur is clean and free of external debris or corrosion. Without depressing push button, gently insert bur into handpiece as far as possible. Then fully depress push button 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.

INSERTING / REMOVING BUR CONT.

3. To remove a bur, fully depress push button while simultaneously pulling bur until removed from chuck. Push button may then be released until next bur is inserted.



CLEANING AND MAINTAINING THE HIGH SPEED HANDPIECE:

Remove the bur
Unscrew the high-speed handpiece from the air - hose coupler.
Use the water port cleaning tool part # 10541 to clean the small water spray holes.
Use the spray lube (with red tube) to spray into the chuck and into the air drive hole (the smaller of the two large holes). Please call for ordering information. 305-688-8581
Re-connect the air-hose coupler.
Re-insert a bur or bur blank – NEVER run the handpiece without a bur in place.
With water toggle switch OFF, depress the foot-switch pedal for 5 seconds to remove excess lube from the handpiece.

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

Operate high speed handpiece at pressures of 25 to 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 from the head can dislodge particles. NOTE: DO NOT attempt to blow particles from the rear end of the handpiece, as larger particles will block the water tube.

CLEANING AND MAINTAINING THE HIGH SPEED HANDPIECE CONT.

Sterilization Procedures: (autoclave and chemiclave Only)

Clean External Surfaces:
Remove bur from handpiece and scrub with brush or gauze using warm tap water.
DO NOT IMMERSE HANDPIECE.
Thoroughly dry handpiece using gauze, paper towel or air syringe.
Clean / lubricate Internal Surface: Using lubricant or DCL 90, spray handpiece in drive air hole and in chuck.
Expel 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, clean optic light elements surfaces at both ends of handpiece and ends of swivel coupler.

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).
Allow handpiece to return to room temperature. Lubricate handpiece as per instructions listed above. Expel excess lubricant.

DO

_ Use warm tap water to clean the exterior of handpiece.
_ Use separate cans of lubricant before and after sterilization to prevent cross contamination.
_ Use autoclave bags and pouches with indicators to protect handpiece.

DON'T

_ DON'T immerse handpiece in water or chemical disinfectants.
_ 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.

TROUBLESHOOTING THE HIGH SPEED HANDPIECE

Handpiece has low torque or power

1. Possible lack of lubrication or clogged ports. Saturate drive air tube with cleaner / lubricant, part #10083. Run handpiece to ensure proper operation.

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 less than .0625" or greater than .0630" in diameter or are worn, which can damage spindle.

Water spray is weak or completely stopped

1. Insert water port cleaning tool part # 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.

Contact Engler Engineering Corporation, 305-688-8581

FIBER OPTIC HIGH SPEED HAND PIECE

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

- Lubricate the handpiece.
- Align pins on the coupler with the tubing.
- Attach the coupler to the dental unit hose securely.
- Thread the hose nut onto the coupler
- Fit the coupler wrench to the flats and tighten the hose nut. Holding the swivel coupler in straight alignment with the back of the handpiece, gently 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.
- With bur engaged, operate handpiece to expel excess lubricant. Wipe off any 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 to extended periods of non use to avoid water mineral deposit 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.
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 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.
Do not use this handpiece without heat sterilizing between patients to prevent cross-contamination.

MAINTENANCE AND INFECTION CONTROL

NEVER Submerge Components In Any Cleaning Or Disinfecting Solution
DO NOT Use Ultrasonic Cleaners

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 hand pieces may be steam autoclaved or chemiclaved.
How you treat your high speed handpieces before and after autoclaving / chemiclaving will have a dramatic impact on how well they withstand repeated cycles.
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, or other organic soil. Scrub handpiece with small brush or gauze under running water. Rinse and dry thoroughly.

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 fiber optic light output deterioration and handpiece cosmetic damage.
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).

DO NOT autoclave or chemiclave For extended periods of time (such as overnight).
DO NOT leave handpiece components in sterilizer after cycle is completed.

MAINTENANCE AND INFECTION CONTROL cont.

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 and the fiber optic bundle: Using a cotton swab with isopropyl alcohol, clean optic light elements surfaces at both ends of handpiece and ends of swivel coupler

WEEKLY CLEANING OF SWIVEL COUPLER ROTATING SURFACE

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

CHANGING FIBER OPTIC BULB

Electrical Shock and Burn Hazard. Before removing bulb, be sure swivel coupler is detached from hose until cool.

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. Reinstall 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

Unscrew the diffuser using the wrench (part # 10109) by aligning the posts on the wrench with the holes on the diffuser.
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.

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.

Technical Facts

SGII: Doriot One-piece Handpiece
Maximum rpm: 0-20,000 min^{-1} or 0-5,000 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 20 psi. **Do not exceed 60 psi**.

Operation

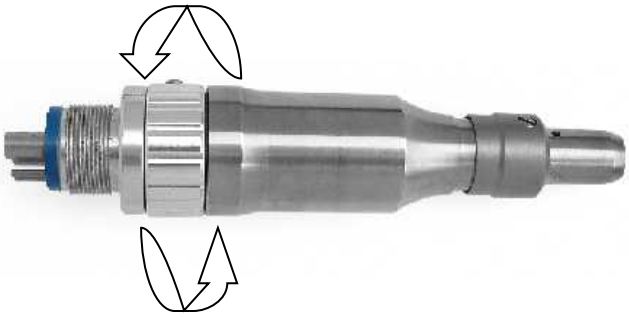
Removing bur or Doriot attachment from Doriot Handpiece:

1) Hold the handpiece in the left hand, depress housing ring toward the body of the handpiece.
2) While twisting ¼ turn counter clockwise to open the chuck. (Small end of handpiece facing you)

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

To change the direction of the handpiece:

Forward: Twist change ring fully clockwise
Reverse: Twist change ring fully conter-clockwise
Neutral: In mid position, handpiece will not operate



Cleaning and Care

Your Doriot One-piece Handpiece slow speed motor is a high quality precision instrument. Correct maintenance and care can lengthen the life of this product. To purchase lubricant or for more information, please call 305-688-8581

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 Internal Surface
Lubricate after every sterilization. Using a combination cleaner / lubricant into the drive air tube. Run motor for 30 seconds so that all excess lubricant is expelled. This ensures all internal parts of motor are completely lubricated.

Weekly: Lubrication should also be applied inside the nose of the handpiece.

Sterilization:

Place motor into autoclave bag or pouch. Cycle per autoclave / chemiclave manufacturers' instructions.

CAUTION

DON'T use oversized, bent, or grooved burs.
DON'T immerse hand piece 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 exceed 275° F / 135°C in autoclave.
DON'T dry heat or heat transfer sterilize.

POLISHER OPERATION

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

Dampen the rubber cup and place a small amount of polishing paste on it.
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.
To keep the paste from flying off the cup, bring the cup up to the tooth and then maintain low footswitch pressure to maintain a low speed.

High speed settings will cause the polishing paste to fly off of the rubber cup. Always start with a low speed and then adjust to a higher speed as required.

1. Place the end of the angle into the patients' mouth and gently apply the rubber cup to the surface of the tooth with a circular motion. Do not allow the rubber cup to remain stationary on one area for an extended period of time as friction will generate heat and remove enamel.

THREE-WAY AIR / WATER SYRINGE

This handpiece allows the operator the ability to rinse the operative site with a stream of water, 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 socket as far as it will go. Release the collar and gently tug on tip before using to ensure that tip is securely locked into socket.

SYRINGE TIP STERILIZATION

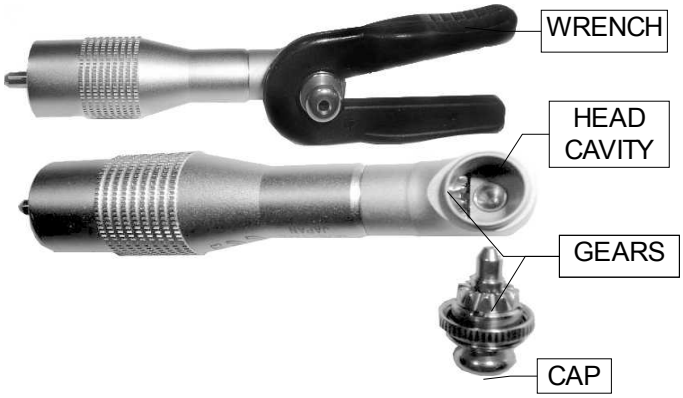
Remove contaminated syringe tip.
Remove all visible signs of contamination before autoclaving.
Autoclave tip at 132° C (270° F) for ten minutes.
Sterilize between each patient use.

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 it will provide long, trouble-free service. The manufacturer recommends replacing prophy angles at least every 3 to 4 months depending on use. Prophy angles may vary. Use the following instructions accordingly.

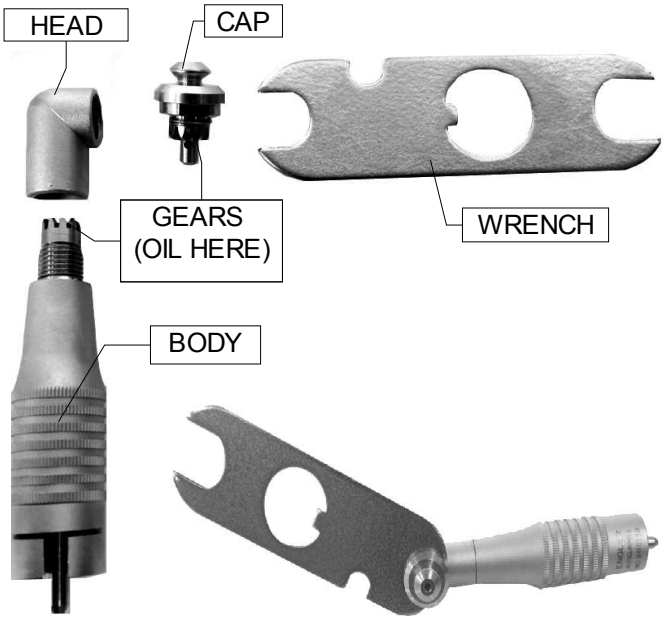
DAILY CLEANING AND LUBRICATION:

1.) Remove prophy angle from low speed hand piece.
2.) Discard used rubber cup.



3.) Remove head cap by unscrewing the knurled nut with the wrench provided.
4.) Clean 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, Q-tips or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or the air syringe to thoroughly dry the angle.
7.) Lubricate by placing one drop of oil (included with Scale-Aire) on the gears of the head cap and a drop inside the gear cavity. Oil is available from Engler, part # P-01.
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 low speed handpiece and lock it.

1.) Remove prophy angle from low speed hand piece.
2.) Discard used rubber cup.



3.) Use the wrench to remove the cap from the head.
4.) Unscrew the head (top portion) from the body (bottom portion).
5.) Place the cap, head and body into a bowl of hot soapy water.
6.) Clean thoroughly with a toothbrush.
7.) Rinse well with clear running water and shake off. DO NOT attempt to dry these parts with paper or cotton towels, Q-tips or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and / or the air syringe to thoroughly dry the angle.
8.) Lubricate by placing one drop of oil (included with Scale-Aire) on each gear (see diagram).Oil is available from Engler, part # P-01.
9.) Being careful not to cross-thread, reassemble the prophy angle and wipe off all excess oil. Place a new rubber cup on the onto the cap and confirm that the gears are meshing properly by rotating the cap – it should turn easily. If not, remove the cap and try again.
10.) Slide the prophy angle onto the low speed handpiece and lock it.

OPTIONAL ACCESORIES

MAINTENANCE FREE PROPHY ANGLE

P-MF Maintenance free prophy angle

P-106 screw on rubber cups 144/pkt

CARE and STERILIZATION PROCEDURES

After each prophy:
Remove rubber cup, rinse abrasive paste from head and cup area with water.
Thoroughly clean the outside of angle with disinfectant.
Place angle into a sterilization bag
Follow sterilizer manufacturer's recommendations.
Do not exceed 275 º F(135 ºC).
Keep angle in bag until ready for use.

CAUTIONS AND WARNINGS:

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 screw-in 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 oil.
Use only Engler, Care Free Prophy Rubber Cups. Other brands will not properly seal the angle, causing premature wear and voiding the warranty.
Average life of maintenance free prophy angle is approximately 1 year.

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.

FREQUENTLY ASKED QUESTIONS

What is the average life of a scaling insert?

The ultrasonic inserts will last, on average, six months to a year.

What happens if I sharpen or bend the tip?

The way inserts work is dependent on the exact length, shape and bend of the tip. Changing any of these will degrade the performance and longevity of the insert. This is one reason the inserts need to be changed once they get worn or bent from being dropped or used as a pry / pick.

What is the RPM and operating pressure of a low speed handpiece?

The speed depends upon the pressure (PSI) of the air supply reduction handpieces (if any) and load. Typical low speed motors, without gear reductions, running at 40 PSI (recommended) should spin at approximately 20,000 rpm.
Speed reducing gears allow the handpiece to generate significantly more torque.
Low speeds used for prophylaxis (prophy) generally operate between 3,000 and 5,000 RPM.

Use attachments to reduce the speed to 1,500 rpm or less and generate very high levels of torque for optimal control for specialized procedures. Contact Engler Engineering Corporation for more information, 305-688-8581

What is the average life of a low speed handpiece?

Slow speed handpieces can have long life spans due to the low operating speeds and design differences (compared with high speed handpieces.)
The handpieces can be repeatedly overhauled but should have professional maintenance conducted every 6-12 months.

What Type of Handpiece Connections and Tubing Compatibility Does a Low Speed Handpiece Have?

Similar to high speed handpieces, low speed handpieces can be either fixed back or quick disconnect style, with 2 different tubing configurations: 2 hole and 4 hole.
Because low speed handpieces operate at significantly lower speeds than high speed handpieces, there is less need for cooling with air and water spray.

What is the RPM and operating pressure of a high speed hand piece?

The RPM and operating pressure (PSI) of a high speed handpiece is 360,000 RPM at 32 PSI.

What is the average life of a high speed hand piece?

The average life of a high speed handpiece is one year.

TECHNICAL SPECIFICATIONS:

Low speed handpiece: 0 - 20,000 rpm

High speed handpiece: 0 - 360,000 rpm

Fiber Optics high speed handpiece: Optional

Scaling handpiece:

Piezo handpiece: 30 Khz

25K handpiece: 25 KHz

Sonus handpiece: 18 KHz

Your unit will be equipped with one of these scaler handpieces.

Scaler Switching Power supply - (main unit and scaler):

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

Output: 24 V dc, 2.5 Amps

Your unit will be equipped with one of these 100% oil less (operation) compressors.

Compressor Options: 115 V, 60 Hz, 1/3 HP, 2-gallon capacity

115 V, 60 Hz, ¾ HP On Demand

220 V, 50 Hz. ¾ HP, On Demand

Control Unit dimensions: 11-1/2” W x 14” L (front to back) x 5-1/2” H

Base dimensions: 20” Front to back X 19” Wide

Height (telescopic): 27” - 39”.

Shipping box dimensions: 4” X 24” x 24"

Net weight: 70 lbs.

Shipping weight: 87 lbs.