

“Why is the water coming out of my Scaler, so hot?”
“Why is no water coming out of my Scaler?”

Troubleshooting guide for **Sonus II, Son-Mate II, Engler Piezo scaler**
and **Piezo-Mate** electric table top scalers

These suggestions will apply to either **hot water** or **no water** situations.

There can be a number of reasons why the water coming out of your scaler is hot or not at all. Most of the answers involve not getting enough water through the handpiece. This guide is the result of many years of troubleshooting with clients.

We have taken calls from customers who believe that the tip itself gets hot when it's vibrating. This is NOT the case. The tip FEELS hot to the touch BECAUSE it's vibrating. It vibrates at over a million cycles per minute. If you pinch the tip while it's vibrating, you can get a severe burn and your fingers will blister. But the tip itself does not get hot.

All ultrasonic units generate enough energy at the tip to burn soft tissue. That is why we stress to keep the tip moving and don't let it rest in one place. – for the same reason.

This paragraph is straight from one of our scaler manuals;

“The scaler handpiece, stack (transducer), and tip are water cooled and must always have adequate water flow to function properly. The amount of water delivered to the handpiece must be regulated according to the power level. If the power level is increased, the amount of water must also be increased. Not having enough water flow through the scaling handpiece may permanently damage the handpiece, will cause the handpiece to get hot”

The most likely answer is;

- Is the **Water Control Knob** opened enough?
- Do you use a **Faucet Adaptor**? Is the water faucet on? Is it in the coldest position?
- There is a **clog** somewhere in the system, either the **TIP** is partially clogged, or
- The **Water Tank** isn't pumped enough, (2/3 full, pumped 30 – 40 times), or
- The **Water Filter** (on the water line) is clogged, or
- There is a **kink**, either in the handpiece hose or the waterline leading up to the unit.

NOTE: Damage to the Handpiece resulting from using it with too little or no water is not covered by the warranty.

Q. Is the **WATER CONTROL KNOB** opened enough?

A. The first and easiest thing to try is to open the scaler's Water Control all the way. Rotate it (3 to 6 full revolutions depending on which unit you have) counter clockwise (CCW) till it stops. You should have more water than you need coming out of the tip.

Once opened and water begins to flow, rotate the Water Control Knob clockwise (lower) to get the necessary amount of water needed. Adjust the water high enough that the out flowing water is a lukewarm mist. If not, continue reading.

NOTE: If the unit is connected to a **Water Faucet Adaptor** (A22303), make sure only the cold water side is fully open.

NOTE: If the unit is connected directly into the facility's plumbing, make sure **that** source is open. See the last page for suggestions.

Q. Is any water coming out of the scaler tip?

A. No.

DO NOT press the footswitch!* Running the scaler without water can melt the handpiece. Until the problem is resolved, only run the scaler on the **LOWEST** power setting with the **Water Control Knob** turned all the way up (CCW) and only for a few seconds at a time.

Replace the tip. Chances are you have another tip in a drawer somewhere. Try it. If the found tip has good water flow and it runs cool compared to the one you replaced, you now know that only the tip needs to be replaced. If you don't have another tip to try, you can call us for a new one. It's always good to keep a spare just for these kinds of situations. Until that new tip arrives, try the next suggestion. *Does not apply to Piezo Handpiece. Piezo handpieces can run without water.

For new tips, please call Engler Engineering Corp. at 305-688-8581 or 800-445-8581

The following is another method we use to determine if enough water is flowing through the unit.

- **Remove the scaling tip.** Using the tip wrench, unscrew the tip (counter clockwise rotation).



- **Turn the Power Control Knob to minimum, turn the Water Control Knob CCW all the way.**
- Press the Footswitch for a few seconds, if plenty of water flows from the Stack (also known as an Insert (A47030), a **clogged tip** was the problem. See photo next page.



Next, check your water sources.

Check your Portable Water Tank (PT-1)

If you are using a Portable Water Tank, **check the water level.**

The Tank should be **half to 2/3** full using only distilled water.

If your Tank is equipped with a pressure relief valve (typically a red knob that is pulled out to relieve pressure in the Tank), give the pump **at least** 10 - 20 pumps (just to test the pressure), then pull the relief valve. There should be a hissing sound indicating that the pump is pressurizing the Tank.

If your Tank **does not** have a pressure relief valve, just unscrew the cap a bit. It will hiss as air escapes indicating that the pump is functioning.

NOTE: It normally takes 30 to 40 pumps to achieve correct operating pressure of 35 to 40 PSI.

NOTE: The Tank should hold pressure over night. If it doesn't, replace the Tank / pump.

A possible issue with older Pump Up Water Bottles is the straw can come loose where it connects to the inside of the Quick Disconnect (inside the bottle itself).

To correct this, re-insert the straw.

To order a replacement PT-1 Portable water Tank, please call Engler Engineering Corp. at 305-688-8581 or 800-445-8581

Has slime mold developed inside the Portable Water Tank?

Allowing slime mold to form inside the tank is a generally hazardous and unhealthy condition. Slime in the water tank will make it's way into the dental unit possibly causing permanent damage by clogging the small tubing inside. This will cause the unit (electronics, hoses, handpiece, Insert or stack, and tip) to overheat.

It can easily be prevented by using a few simple steps.

1. Every few weeks, dispose of water in tank. Pour ½ gallon of warm / hot water and 1 to 2 cups of vinegar into the tank and swirl the liquid thoroughly inside the tank. The vinegar solution can be left in the tank overnight.
2. The vinegar solution can be sent through the unit as well.
3. Dispose of the vinegar solution and rinse tank (and the unit) with clean water thoroughly and completely.

Clean the outside of the pump / tank according to your facilities normal cleaning procedures. The pump assembly has been pre-lubricated.

DO NOT TAKE THE PUMP ASSEMBLY APART - DO NOT IMMERSE PUMP INTO BLEACH SOLUTION



Confirm that all the connections are secure:

- For **Sonus II** and **Son-Mate II** units, confirm that the Male Q/D (A44209) on the water line is intact and inserted **all the way** into the Female Q/D (44298) at the back of the unit.



The photo on the left shows the Male Q/D is intact and is about to be inserted into the unit. The photo on the right shows the Male Q/D properly connected.

Confirm that the Male Q/D (44301) is inserted **all the way** into the Female Q/D (44308 or 44300) on the Water Faucet Adaptor / Tank / Pump / plumbing.



The photo on the left shows the male and female Q/D **NOT** connected.
The photo on the right shows the two Q/Ds properly connected.

Check the in-line water filter

Disconnect the water line from the water source. This is important, you don't want to dismantle the water filter when the waterline is still connected to a water source.

Follow the water line from the back of the unit to **locate** the metal in-line water filter.

Unscrew the two halves of the water filter housing (tools may be required).

Remove and inspect the filter. If it is clogged or dirty, it will restrict water flow to the unit. Replace the filter.



Call Engler Engineering Corp. for replacement parts, 305-688-8581 or 800-445-8581

The filter / O-ring and housing may be purchased separately

The inline water filter unit consists of the metal housing (A52030), O-ring, and the filter disc, (7/8" Disc & O-ring, A52034).

Replace every 4 months for optimal performance.

This is to determine if your water source is supplying water to the unit.

Make sure you have a sink or bucket nearby, with the water filter housing apart, connect the Male Quick Disconnect from the scaler's waterline to the Female Quick Disconnect on the pressurized tank or water source – make sure the open end of the filter housing is in a sink or bucket. Water should shoot out of the line with good pressure. If water only trickles out, the water source is the problem. (See photo below) Replace the Tank. If the unit is connected to the facility's plumbing, call a plumber to determine the problem.



To confirm that water is flowing up to the unit, disconnect the waterline from the back of the unit by pressing the stainless steel tab (shown on page 5).

Once you have the waterline off, point the end towards a sink or bucket. The end of the quick disconnect has a spring-loaded nipple;



When you push the nipple in, water should shoot out in a strong stream. If it doesn't, the pump is not pressurized enough or there is some other obstruction (clogged filter or water source?).



Is the stack (insert) in good condition (straight)?

If your stack has been dropped, bent, or twisted even slightly, that could explain the hot water. A bent stack won't work and will heat the out flowing water.

Actual stacks that were in or with dental machines returned for repair.



**To see the video, please visit engler411.com.
Click on the "Video tab" then click "Electric Dental Units Maintenance,
Lubrication, Troubleshooting & Tutorials". Next, go to video #11**

On the following pages, the cover has been left off of the unit for illustrative purposes unless otherwise indicated.

In very rare occurrences, we get a case where the scaler handpiece cable has been pulled or yanked too hard causing the hose *inside* the unit to become choked.

The following photo shows a typical Handpiece Cable assembly before the unit leaves our facility;



This photo shows the cable passing through the strain relief at the front of the unit, a 1 to 2 inch lead, then a loose knot. The knot is there to prevent the cable from detaching from the circuit board causing an unsafe electrical hazard.

The strain relief also has additional hardware built in to prevent the cable from shifting.

If the cable gets pulled / yanked hard enough the cable can slip causing the knot to tighten, thus choking off the water flow.



This photo shows that the Handpiece Cable has been pulled far enough that the knot is tightening against the inner wall of the scaler, possibly choking off the water flow.

There are three options to correcting this.

Option 1, Try to return the cable to it's original position inside the unit.



Start by loosening the Strain Relief. Once loose enough, push the cable back into the unit. It only needs to go back 1 to 2 inches.



Re-tighten the Strain Relief.

Once tight, give it a gentle pull to confirm that the cable stays in place.

After this is done, check to see if water is flowing through the handpiece.

In most situations this should correct the problem. By pushing the cable back in, the knot also loosens, releasing the choking condition. If that still doesn't correct the problem, the unit will need to be opened so the knot can be released.

Option 2, Take off the top cover. – **For Engler Trained Technicians only**

ELECTRIC SHOCK HAZARD

Before Starting ANY repair, ALWAYS remember to UNPLUG the unit.

All Engler tabletop scalers have four screws securing the top of the unit to the bottom. These screws are enclosed in plastic protective covers. To access the screw simply pop open the plastic screw covers – as shown;



Remove all four screws, then lift off the cover.

Locate the Handpiece Cable inside the unit and slightly loosen the knot. See photo below.

This is also a good opportunity to tighten the Strain Relief. Tighten it enough to make it difficult for the Handpiece cable to shift.

Return the cover to the unit then plug it back in.

Now check to see if water flow has been restored. If yes, congratulations! If not, see below.



Option 3, Return the unit to Engler.

If these suggestions don't solve the issue, the unit will need to come in for service.

Please go to engler411.com, click on the Repair tab. There you will find the Return for Evaluation form and if necessary, our Loaner form. There is no rental fee or charge for the loaner, only a charge for the shipping to and from.

There is no charge for the diagnostic evaluation.



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