

THE BEARING PRESS

Official Publication of the National Dental Handpiece Repair Association

Volume 1 – Issue 2

Extreme Handpiece Makeover – Part 2 of 5

The history, rationale, and effects of handpiece sterilization will be covered in this five-part series.

Anatomy of a Handpiece

A typical air-driven handpiece consists of three main components: the body or shell including fiber optics, air and water delivery, and the turbine. Each of these elements are affected differently by repeated heat sterilization.

The Outer Shell

The most common material used in handpiece manufacturing is brass, which is usually covered with protective plating. However, cosmetic plating tends to discolor or come off over time as a result of sterilization. Stainless steel is another material used for handpiece bodies. Steel is lighter and stronger than brass, but its use results in higher manufacturing costs, so the prices are generally higher. The most current

state of the art in handpiece construction is titanium. Titanium is 40% lighter than stainless steel, but stronger and more resistant to the corrosive effects of the autoclave.

The outer body of most handpieces is comprised of two parts: the head containing the turbine, and an outer sheath. If the joint between the head and body loosens, or the head becomes too dented for proper turbine operation; the dentist has the option of returning the handpiece to the original manufacturer for refurbishment. Most manufacturers will not actually repair the handpiece at this stage; instead they offer replacement of the entire body shell. Costs can range from \$169 for non-fiber optic models, up to \$450 for the latest body styles. When compared to the cost of a new handpiece, this option can be more economically attractive to the dentist than purchasing a new handpiece.

Fiber Optics

Fiber optic technology has been around since the 1970s. There are two types of fiber optic technology: bundle and cellular. Older generation handpieces contain bundles of tiny glass fibers held together with adhesive. Sterilization causes bundle optics to degrade and darken over time. Cellular optics use a solid glass rod to transmit light. Most new handpiece models employ this design. Manufacturers claim that virtually no degradation occurs with cellular optics and back their claims with a five-year warranty.



Before: This handpiece is showing the effects of repeated sterilization—note the rust and corrosion build-up, internally and externally.

Fiber optic replacement costs around \$200 for most handpieces.

Air and Water Delivery

Air and water travels through tubes inside every handpiece. This includes drive air (used to rotate the turbine), coolant water (a spray used to cool the tooth structure), and chip air (often used to atomize the water spray). After the drive air is passed through the turbine it is exhausted through the hollow body of the handpiece and out the handpiece tubing.

Air and water lines are more prone to clogging as a result of buildup in the re-circulated water of older sterilizers. Newer sterilizer designs provide fresh water for every cycle, greatly reducing the propensity for clogging. The latest handpiece models feature a three or four port water spray that disperses water evenly around the bur, preventing blockage when the cutting area lies on the distal side of the tooth. Multi port spray systems incorporate tiny o-rings that break down from sterilization.

Continued on page 2



WHAT'S INSIDE...

- Dental Facts
- Tips From Your Tech
- Industry News

Our Mission

To improve our client's ability to deliver patient care by maintaining their powered instruments with exceptional service and integrity.

DENTAL FACTS

- Sports drinks cause from 3 to 11 times more damage to tooth enamel than regular cola drinks... according to an article in the January/February issue of General Dentistry, the journal of the Academy of General Dentistry.
- 15% of all teenagers in the United States receive full orthodontic treatment.
- 2005 marks the 60th anniversary of community water fluoridation in the US. The ADA estimates that for every \$1.00 spent on water fluoridation, consumers save \$38.00 in dental expenses. Around 67% of the U.S. population has fluoridated water.
- The National Institute of Dental & Craniofacial Research have been able to distinguish 4 cancer-associated molecules in saliva with a 91% accuracy. The complete findings of this study may be found in the Journal of Dental Research.
- 74% of Americans think that an unattractive smile can hurt their career; 50% of Americans do not like their own smile... per a survey conducted by the American Academy of Cosmetic Dentistry.

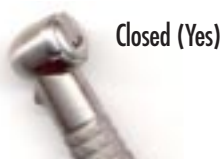
—Courtesy of The Anaheim Group

TIPS FROM YOUR TECH

If you use Midwest Lever Style handpieces in your practice, this tip will help prolong the life of your turbines. When putting your lever handpieces through the sterilizer, it is imperative that you process the handpiece with the lever in the *closed* position. Leaving the lever open creates pressure on the critical lower support O ring and the chuck mechanism during the entire high temperature cycle. This will lead to premature O ring breakdown and accelerated turbine/chuck failure.



Open (No)



Closed (Yes)

Extreme Makeover...

Continued from front page



After: Rust and corrosion are eliminated following an "extreme" professional cleaning by a manufacturer's or independent repair technician.

Turbines

The most common item that fails on a high-speed handpiece is the turbine. When the turbine degrades, the handpiece begins to exhibit signs of impending failure that are all too familiar to the dental team.

Turbines rotate at speeds ranging from 380,000 rpm to 450,000 rpm, faster than anything on planet Earth. As the turbine bearings wear, speed decreases. Clinically, this results in longer chair-side time with slower cutting and rougher margins.



Power is the measure of the handpiece's ability to remove tooth structure. Power is expressed in watts of energy. Handpieces of the past generated 10 to 13 watts of power. New handpiece models produce 15 to 18 watts of power while retaining smaller head sizes. The greater the power available to operate the cutting instrument, the less physical demand is placed on the practitioner's hand and wrist, which means less fatigue and chance for long-term injury.

Bur Efficiency

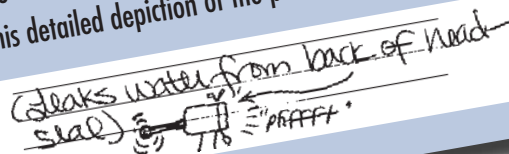
Concentricity of the bur is critical for smooth margins. Concentricity can be defined as the ability of the handpiece to produce a cut line consistent with the diameter of the bur. The more concentric a handpiece runs, the smoother the operation, with less vibration to the tooth. The International Standards Organization (ISO) specifications allow up to .03 mm of eccentricity, commonly referred to as "run out" or "bur wobble." Concentricity is one of the most critical features of handpiece performance and is the most visible to the eye. Concentricity decreases as the turbine deteriorates through heat processing.

—By Glenn Williams

In The Next Issue—We will explore how the handpiece turbine works, why it fails, and what to do when your turbine needs repair.

A Picture is worth a thousand words

This is the best filled out form we've ever seen! Thanks to Chieko Redmer at Dr. Lisa Grosso's office in Concord, CA for this detailed depiction of the problem.



INDUSTRY NEWS



Handpiece Headquarters, based in Orange, California surprised the repair industry by announcing they will cease all handpiece repair services for dentists this June. Handpiece Headquarters is owned by Sullivan-Schein, all future handpiece repairs will be shifted to their facility in New York. We know a good local repair service....

"How To Love Dentistry, Have Fun, And Get Rich!"

Drs. Rich and Dave Madow are back in San Francisco for 1 day only!

August 4, 2005

With their typical irreverent style, Rich and Dave tell it like it is without worrying about whose toes they step on or which industry icons they upset.

For more information, or to register, call or visit us online:

1-800-258-0060
www.madow.com

If you say it loud enough...

Mahatma Gandhi, as you may know, walked barefoot most of the time, which produced an impressive set of calluses on his feet. He also ate very little, which made him rather frail and with his odd diet, he suffered from bad breath. This made him...

A super calloused fragile mystic hexed by halitosis.

Family News

During spring break week this year we finally did something we have talked about for years—we took a train to Chicago! We planned to spend the week in Chicago, and decided to "go Amtrak." The trip lasted three days and two nights. We slept in a "family room" compartment, but spent most of our time in the observation car. The scenery was spectacular through Colorado, we traveled through a blizzard that shut down the airport and the highway! We saw bald eagles, elk, and deer along the way. The kids did really well, but after three days we were all ready to get off. We would definitely recommend this mode of travel if you have a little extra time (we flew home).

Handpiece Repair

If you have a handpiece you need us to repair, simply cut out this convenient postage paid label. Tape the label securely to the outside of any box, enclose your handpiece with a business card, and give it to your mail carrier. We will receive your handpiece the next day and call you with an estimate.

Questions? Call 800-895-7111

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Rapid Handpiece Repair

HANDPIECE EXPRESS

Handpiece Express is a family owned and operated business that repairs all brands of highspeed and lowspeed handpieces. We have been providing fast, personal handpiece repair to dentists throughout the Bay Area since 1994.

Glenn and Lori Williams started Handpiece Express after Glenn's experience as a manufacturer's representative for Star Dental. Over the last ten years we have serviced over 30,000 handpieces for hundreds of satisfied Bay Area dentists. We are dedicated to the concept of a convenient, local repair service with one day turnaround.

Handpiece Express maintains Honor Roll Member status in the Golden Gate Better Business Bureau. We are founding members of the National Dental Handpiece Repair Association, an organization of independent repair centers dedicated to ensuring quality standards for the industry to protect dental professionals. We subscribe to the NDHRA Code of Ethics and offer some of the longest warranties in the business.

We hope you enjoy our newsletter. We tried to provide some valuable information along with a little fun!

Thank you for the opportunity to earn your business...



One Day Turnaround

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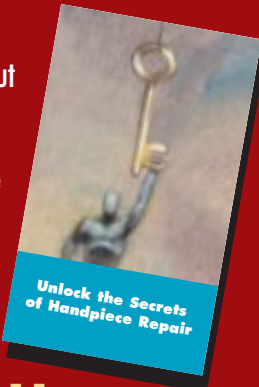
Complete Lowspeed Service

FREE Maintenance Seminars in Your Office

FREE Booklet

Confused by all the misinformation about handpiece repair?

Call us for your free copy of *Unlock the Secrets of Handpiece Repair*.



800-895-7111

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