

THE "BIG JANE" E3762 BRACKET RECONDITIONER POLISHER



ADDITIONAL FUNCTIONS:

- ? Reconditions bands*
- ? Cleans loose bands*
- ? Heat-treats arch wires*
- ? Reduces & polishes arch wires*
- ? Cleans fluxes after soldering*
- ? Polishes retainers (SS parts)*
- ? Mild, long lasting electrolyte*

We are offering an outstanding system for the Orthodontist. Since the introduction in 1972 it has won the enthusiastic recognition of the profession. Over 1800 offices in the USA and other countries acquired this unit.

Its main feature is reconditioning of direct bond brackets so they can be reused. This along with its other features make the Big Jane an indispensable "work horse" in the office.

Direct bond brackets are cleaned of adhesive at 850°F in automatic oven, cleaned in an ultrasonic unit* and polished in the polishing compartment.

** Ultrasonic is not part of this unit (inquire of our model E283 for an excellent ultrasonic cleaning unit)*

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Instructions for Big Jane Model E3762 and Band Reconditioner Model E279

Introduction

Units E279 and E3762 recondition direct bonding brackets, recondition bands, clean loose bands, polish retainer clasps, activate new bands, clean loose brackets, and clean soldering flux.

The BIG JANE unit has a furnace with time proportioning mode of temperature control, the BAND RECONDITIONER does not. When using these instructions, all furnace references are for the BIG JANE unit only. The furnace is used for adhesive removal from direct bond brackets and for heat-treatment of arch wires. The time proportioning controller ensures close control at selected temperatures.

The units are automated instruments, designed for rapid, reliable, and simple operation. They are equipped with an automatic timer, automatic temperature control of furnace, and electrolyte. Holding devices enable the treatment of a wide variety of items: brackets, bands, wires, retainers, etc.

The ESMA-ORTHO liquid used for polishing is not phosphoric acid but a mildly acidic proprietary formulation-the result of ESMA research. Problems of water pickup, clouds of corrosive fumes of concentrated phosphoric acid, and corrosion of clips are eliminated in our system.

PLEASE READ CAREFULLY THE INSTRUCTIONS BEFORE OPERATING.

Safety Instructions

Although the system is designed with maximum safety features, certain precautions are recommended.

- Wear safety goggles when pouring ESMA-ORTHO liquid (into and out of jar). If contacted, rinse off with plenty of water. In case of eye contact, rinse off with plenty of water and seek medical attention.
- Avoid prolonged breathing of vapor during burnoff and polishing.
- Avoid overheating of liquid (details in these instructions).
- Do not touch the hot parts of the furnace with bare hands.
- Unplug before removing the back panel. **NEVER operate with back panel off.**

Installation

Units are shipped fully preassembled. Unpack, place on counter, pour ESMA-ORTHO liquid into polishing jar and connect to 115V outlet (230V for 230 unit). Make sure that all packaging materials are removed and cathode 10L is connected to cathode binding post (see photo 1).



The polypro mesh liner is inserted **over** the cathode to eliminate the possibility of shorting the anode to the strip cathode.

Pour ESMA-ORTHO liquid into polishing jar and connect to 115V outlet (230V for 230 units). (Photo 2)



Operation

Connect unit to 115-120 V outlet (230 V for 230 V units).

Polishing—Turn switch of polishing cell ON (switch next to timer); in about 30 minutes the liquid attains the working temperature (thermostatically controlled); leave this switch in ON position if you use the polisher constantly during office hours; make sure cathode is connected as shown on photo1 and positioned in solution between the glass wall and inner polyliner basket 6L.

- Suspend parts on clip 13C of arm 8E or place in basket 14I; immerse end of holder into liquid so treated parts are fully submersed; tighten arm 8E or 14I with knob 13A at desirable depth; position arm 8G by moving through hole in 6D.
- Turn automatic timer for desired time; wait for completion of polishing; indicator light is OFF during treatment; light comes ON again when polishing is ended.

- Remove holder with polished parts and dip in water (beaker provided) should you drop a part in the liquid, pull out polyliner basket 6L and retrieve the part.
- Neutralize in baking soda solution (teaspoon of soda in a cup of water)
- Rinse under running hot water and air-dry.

THIS POLISHING PROCEDURE APPLIES TO ALL POLISHING APPLICATIONS.

NOTE: If you polish in sequence 3-4 batches, solution will overheat; allow 15-25 minutes for cool-off of liquid (leave switch in ON position).

Reconditioning of Mesh-Base Brackets -

Use of Furnace (Big Jane only): Turn furnace switch ON; set controller for designed temperature. Controlling conditions are reached in 40-50 minutes. Indicator scale shows mV-percentage (not temperature); fluctuations around "0" are possible.

Applications

1. Direct Bonding Brackets: Reconditioning

1. Heat-Treatment—Preheat furnace to 850°F by turning switch ON; set dial at 850, wait for green indicator light to energize, this light indicates that your furnace has reached it's desired temperature. Place up to 100 brackets in ceramic burnout boat and lower into furnace for 60 minutes (use pliers)--some brackets may take longer. Remove cover for shortest possible time; make sure cover is placed properly over furnace--some may require longer burnout times. During the burnoff there is a short period of rather objectionable odor-avoid breathing it. It is possible to burn off more than 100 brackets by using additional crucible boats.
2. Treatment in Cement Solvent—Use glass beaker only. When burnoff is complete, remove furnace cover and using pliers take the boat and IMMEDIATELY drop (dump) brackets into cement solvent (have 2" of cement solvent in glass beaker). Do without delay so brackets are hot. Make sure boat does not touch liquid. This step contributes to better separation of residual powder from the mesh (sometimes ESMA TARTER cleaner is more effective).
3. Ultrasonic Treatment (ultrasonics is not part of this unit)—Place beaker with brackets in ultrasonic unit for 10-15 minutes (less time if you use a VALE ultrasonic unit manufactured by ESMA Inc.). In the absence of ultrasonic-soak overnight.
4. Drying of Brackets—Pour cement solvent back into the bottle (it is reusable). Pour hot running water over brackets in beaker to rinse off the cement solvent
5. Spread rinsed brackets over a paper towel for air drying. Brackets must be dry.

NOTE: Do not polish brackets (step 5) if bonding material is still present. Repeat steps 3 & 4 or increase burnoff time.

6. Polishing of Brackets—Controlled burnoff with the BIG JANE automated furnace leaves only a minimal brown-black film. Removal of this film and simultaneous polishing of the brackets is carried out in the polishing cell. Place 10-12 brackets in attachment 14I and immerse in liquid; tighten screw 13A. Polish for 20-30 seconds (spread brackets around to avoid piling; cover of 14I slides down on brackets keeping them in position; see that brackets don't touch each other. If you polish 20-25 brackets, double the time of polishing). AVOID OVERHEATING.

NOTE: Reconditioning removes a minute amount of metal mainly from the base and sharp edges. This is due to the current distribution laws: electric charges are concentrated mainly on sharp edges; because of that the slot is hardly affected and metal removal from the slot is very minimal.

7. To ensure proper adhesion of reconditioned brackets, all traces of ESMA-ORTHO electrolyte must be removed. Dip in beaker with water, diluting traces of electrolyte.
8. Next, dip in baking soda solution to neutralize the dilute traces of electrolyte (one teaspoon per cup).
9. Rinse with running hot water (even better is an ultrasonic treatment in hot water)
10. Air-dry over a paper towel.

TARNISH ON BRACKETS—Certain brackets remain partially tarnished after reconditioning with the BIG JANE: the mesh and base may polish to a high luster, but the bracket section remains tarnished. The latter section is probably made of an alloy other than Stainless Steel 304. This tarnish can be removed by treating ultrasonically in a tarnish remover followed by neutralizing in baking soda and a hot water rinse.

NOTE: A distinction should be made between tarnish due to poor contact during polishing, when the mesh base will also be tarnished; this tarnish is more of a brownish-black appearance whereas the previously described is uniformly black and confined to a well-defined area.

- 2. Loose Brackets**—In case of a loose bracket or a bracket that has to be repositioned, the following procedure for quick cleaning is recommended. Burnoff at 900°F (if you use furnace for arch wire treatment it will be ready and operating at 900°F). Burnoff time is 15-20 minutes. Remove the loose powder (some manual cleaning may be necessary). Polish the bracket.

- 3. Loose Bands: Cleaning and Polishing**—With our units you can handle a loose band case in only 45-55 seconds.
 - Assistant 1 takes loose band.
 - Assistant 2 mixes cement.
 - Assistant 1, without any preliminary cleaning of foodstuff or calculus, attaches band to clip 13C and treats for 20 seconds in polishing cell.
 - Tooth is being prepared.
 - While assistant 1 cleans band, assistant 2 mixes cement and tooth is being prepared.
 - Assistants hand clean band and mixed cement; band is promptly re-cemented.

Two or more loose bands can be polished in attachment 14I. Do not exceed 4 bands in a single load, and increase the treatment time.

- 4. Used Bands: Reconditioning**—Bands that have been used once can be reconditioned for at least one more use. For efficiency, we recommend the reconditioning of at least 500 bands at a time.
 - Separate carefully bands from wire.

- Polish 4 at a time in attachment 14I for 25-40 seconds (be aware of overheating).
- Sort by size.

NOTE: Reconditioning removes a minute amount of metal mainly from the outside of the band.

5. New Brackets and Bands: Cleaning and Activating Prior to Cementing—A 5-10 seconds polish in the polishing cell will remove oils, dust, and thin oxidation films that accumulate during storage. This cleaning-activation is being achieved as a result of a combined electrochemical and chemical action of ESMA-ORTHO liquid (polish 6 bands or 25 brackets in holder 14I). Without proper cleaning, loose brackets or bands could result.

6. Arch Wires: Reducing (“Smoothing”)—When the arch wire does not fit easily into the slot, the reason is often the presence of burrs and irregularities, rather than mismatching gauge. A 3-7 seconds treatment in polisher will “smoothen” the wire and assure proper fit. Smoothing rather than excessive reduction will ensure close fit.

Procedure:

- Close ends of wire and cross over ends (diagram 2).
- Grip with clip 13C over wire just above the crossover point.
- Immerse in liquid so that the POINT OF CONTACT OF CLIP WITH WIRES IS IMMERSSED (immersion will prevent overheating and tarnish), tighten screw 13A.
- Polish (set timer) for 3-7 seconds and rinse off.

Full immersion treatment is depicted in diagram 2: the crossover is done at about half the length of wire and holder 8E is lowered to full immersion of wire. Treatment time for tarnished wire is 2-3 seconds; longer treatment will be required if reduction of thickness of the full length is sought.

When a short wire has to be reduced, flipping and crossover maybe undesirable. A different way can be applied: Open jaws of clip 13C and insert the upper rounded part of the arch wire (middle of wire) into the joint of welded bracket. Releasing the jaws of clip 13C will ensure a firm grip. Polish with wire fully immersed.

7. Heat-Treatment of Arch Wires—The automatic furnace enables the heat-treatment and stress relieving of arch wires under controlled temperature conditions. Although a 3 minute exposure at 900°F can be considered as optimum treatment for most commercial wires, exact temperatures and treatment times should be obtained from the manufacturer.

Procedure:

- Preheat furnace at 900°F until controlling condition are achieved.
- Place arch wire into furnace for 3 minutes (use kitchen timer); close cover.
- Remove wire, allow to air-cool.
- Tarnish, if any, can be removed in the polishing cell.

8. Flux Removal: Polishing After Soldering—A 5-8 seconds polishing of soldered work completely removes fluxes and will polish the stainless parts.

A mild dark deposit that may form on the soldered joint can be easily removed by treating ultrasonically with a tarnish remover. Shorter treatment reduces the amount of deposit.

9. Retainer Clasps Polishing--Stainless Steel clasps are usually oxidized and discolored after the curing of an acrylic retainer. Treatment in polishing cell will clean and polish the clasps and wires to a high luster so no manual polishing is required. Procedure: grip the clasp or wire with clip 13C and polish for 5-20 seconds. ESMA-ORTHO liquid will not damage the acrylics (and neither will it polish or clean the acrylics).

Maintenance

Maintain clean cabinet--Wipe off with cloth wetted with mild detergent; polish with a polish for stainless appliances (as SHEILA SHINE). Solution should not be spilled on cabinet. Shorting of post 6D may take place--Wipe off. Level of liquid to be 1 $\frac{3}{4}$ " below top; keep replenishing. Replacement of ESMA-ORTHO. During polishing metal and metal oxides are dissolved, some decomposition and drag-out take place. Replace when action gets slow, solution thick, objectionable odor, non-uniform shine and rapid overheating. Frequency of exchange: 2-3 months. Clean polishing cell once every 4-6 months: unplug unit, unscrew knob of binding post, remove cathode and arm 8G, transfer liquid into separate container, rinse and dry vessels 1K and 5K. Water in rinsing beakers: exchange daily. Temperature of liquid to read 110F-130F (measure 30 minutes after start and 20 minutes after operating). Adjust temperature if necessary. Keep polishing switch ON during office hours. If you heat-treat wires, keep oven switch ON.

Temperature Control--The polisher has an automatic built-in temperature controller, which has been preset at the factory. If however you determine that the temperature needs adjustment, use the following procedure:
Shut OFF unit and remove the back panel; two thermostats for controlling and protection are mounted side by side as viewed from the rear. CONTROLLING THERMOSTAT IS ON THE RIGHT. To increase temperature, turn knob clockwise, to decrease turn counter-clockwise (1/16 revolution corresponds to approximately 15°F).

Trouble Shooting--

Fuse Blowing

- Solution is spent and needs to be replaced.
- Cathode binding post connection is in need of cleaning and tightening.
- Polishing more parts than specified (refer to this manual).
- Frequent switching of ON/OFF switch causing overheating of solution (let unit cool or adjust).
- Liquid on cabinet top shorts post 6D (wipe off with wet and dry cloth).

No polishing

- Replace fuse, check cathode contact, clean all contact points.

FOR TECHNICAL ASSISTANCE PLEASE CALL 1-800-276-2466.

WE ALSO MANUFACTURE AN OUSTANDING HIGH POWER ULTRASONIC UNIT.

Diagram 1

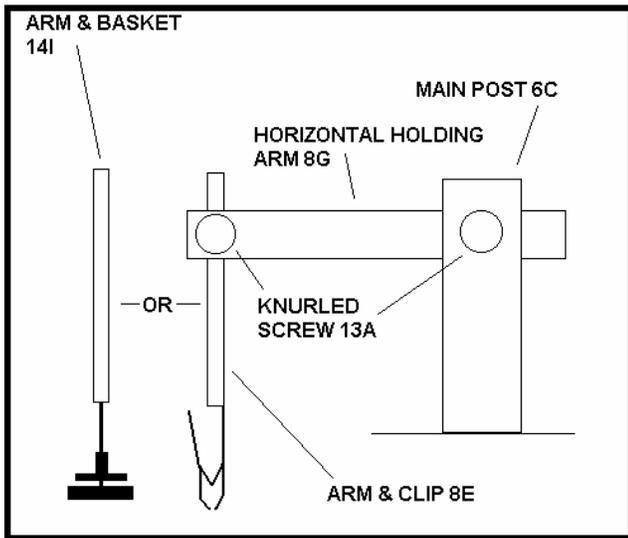


Diagram 2

