



STANDARD OPERATING PROCEDURE

LB.010.xx

Q Lab
1500 W 38th Street, Ste 46
Austin, Texas 78731

TITLE:	MODEL POUR-UP ON ARTIMAX® QUADRANT ARTICULATOR TRAY
CATEGORY:	Model Room

1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe how to pour a dental impression using the Artimax® Quadrant articulator tray for die-trims.

2. Scope

This SOP applies to the pour-up of quadrant dental impressions in the Model room at QLab, a division of Highland Dental Laboratory, LLC in Austin, Texas.

3. Personnel and Training

Before they can perform the procedure outlined in this SOP, personnel must be adequately trained by a senior dental laboratory technician.

All personnel who perform this procedure must have received, at minimum, introductory level training in model processing.

4. Roles and Responsibilities

4.1. Technician

It is the responsibility of the technician to perform the following steps:

- Follow this SOP and report any deviations to the laboratory manager or designee
- Ensure that models are completed in a timely manner.
- Ensure that models are bubble-free and have intact margins.
- Notify management of delays that may occur

4.2. Laboratory Manager

It is the responsibility of the laboratory manager or designee to perform the following steps:

- Answers the technicians questions about whether to proceed with poor impressions, if the bite does not come together properly (does not occlude), or if a model has any tiny bubbles that may affect the rest of the die-trimming process.
- Ensure that procedures are carried out in accordance with this SOP

5. Procedures

5.1. Equipment

- Artimax® Quadrant articulator tray (articulator)
- Husky® Pro Cast Iron air compressor
- Handler Red-Wing® 16B Dental Lathe
- Saw frame
- Bench knife
- Foster® Lab Master Model Trimmer
- Rubber-maid® Pelouze Scale
- Buffalo Vibrator 200
- Whip Mix® VPM2 Programmable Vacuum Mixing Unit
- Vacuum hood
- Hand-held butane torch
- 10X Optivisor®

5.2. Materials

- 3M N95 Filter mask
- Apron
- #25 scalpel blade with handle
- Tap water and filtered water
- Permanent marker
- Artimax® medium brass pins
- Kitchen knife, spoon
- Small spatula
- Talladium® Ziroc Honey Blonde Die-Stone
- Kerr® Debubbler

5.3. General Considerations and Precautions

- Wear personal protective equipment (PPE), as needed to perform this procedure.
- Keep long hair tied back at all times.
- Exercise caution when using power tools.

5.4. Specific Procedures

5.4.1 Receive the Impression

Review and compare the work ticket to the doctor's prescription.

- Ensure the case ID number on the impression matches the number on the pan, the work order, and the prescription.
- Ensure that all of the doctor's orders have been marked on the work ticket.

5.4.2 Rinse and Dry the Impression

1. Take the impression to the Model room sink and rinse with tap water to remove the Cavicide (previously applied by the administrative assistants for decontamination).
2. Dry the impression using the Husky® Pro Cast Iron air compressor.

5.4.3 Trim the Impression

1. Use a #25 scalpel to trim the excess impression material from the impression, taking care not to cut into the dentition.

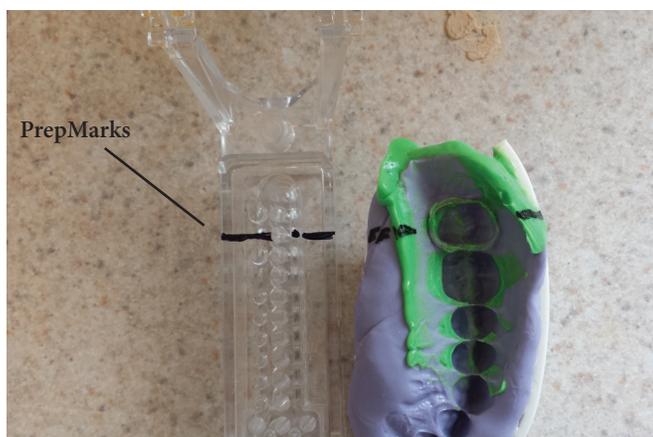


Figure 1. Prep marks

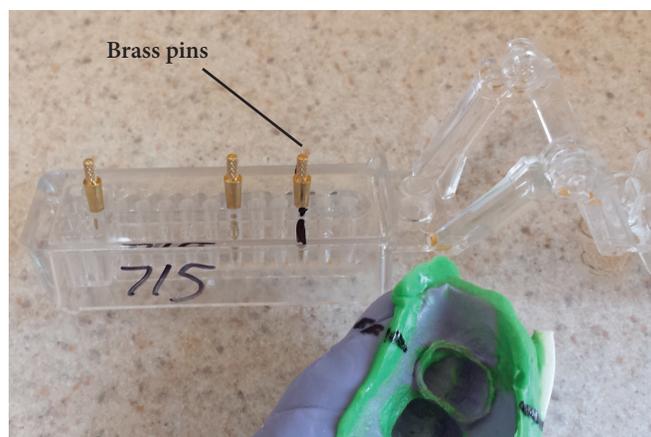


Figure 2. Placing the pins

5.4.4. Line up the Impression

1. Write the case ID number on the articulator with a permanent marker.
2. Take the impression and line it up next to the articulator.
3. Find the center of the "preps" and mark them on the impression and articulator with a permanent marker. (See Figure 1)

5.4.5 Place the Pins

1. Place a Artimax Medium Brass pin in the articulator where the prep tooth was marked. Remember that 5 or more teeth need 2 pins. (See Figure 2)
2. Depending on the position of the prep tooth, place pins on either side of the prep.
 - a. Use a kitchen knife, spatula, or back of a spoon in order to push down and firmly seat the pins into the articulator.
 - b. Flip over the articulator and use the knife, spatula or spoon to push the pins back out.
 - c. Flip the articulator over once more and push the pins back in, finger-tight.

5.4.6 Pour Up

1. Mix the Talladium Honey Blonde die-stone with filtered water according to the ratios provided in ATTACHMENT 1: DIE-STONE RATIOS in the Whip Mix bowl.
2. Place the bowl into the Whip Mix VPM2 Programmable Vacuum Mixing Unit and push mix for 30 seconds on the Gypsum setting.
3. Use 3-4 sprits from the Kerr Debubbler spray bottle onto the impression.
4. Holding the impression on the vibratory table, use a small spatula and add a small dab of the die-stone mix to the impression at least roughly 3 teeth away from the prep.
5. Continue to hold the impression on the vibratory table and watch as the stone mix slowly flows into the prep and around the margin. Make sure the stone mix gets down into all the tips of the prep. (See Figure 3)
6. Once the prep and margins are filled with the die-stone, continue dabbing additional stone mix until the impression is completely full.
7. Continue adding stone to build up upon the full impression. (Approx. 3/4 of an inch depending on the impression—see Figure 4)



Figure 3. Pouring the die-stone



Figure 4. Building up the impression

8. Matching up the marks made previously, place the impression full of die-stone mix onto the articulator.
9. Let the impression set for approximately 15 minutes.
10. Repeat 5.4.6 steps 1-9 to complete the opposing side if the impression.

5.4.7 Open and Inspect the Model

1. Separate the articulator with the now hardened die-stone from the impression.
2. Look for bubbles in the margins, anywhere on the preps, and on the contact teeth.
NOTE: If any bubbles are seen, perform a second pour up by following section 5.4.6 (steps 1–9) for the side that has the prep.
3. If after the second pour up bubbles are seen, take the case pan to the laboratory manager or designee and have the model checked for quality before proceeding. It is possible that bubbles are inherent in the impression and not an issue caused by the model-making process.

5.4.8 Pour up the Solid Model

Repeat sections 5.4.6–5.4.7 to make the solid model (will not be sawed out later). It is not necessary to pour up the entire quadrant, only the prep tooth and the necessary contact teeth.

5.4.9 Trim the Model

1. Use the bench knife to carefully remove the die-stone model from the articulator.
2. Take the model to the Foster® Lab Master model trimmer and trim the excess stone away from the model. (See Figure 5 and 6 below)
3. Place the model back into the articulator.
4. Let the model sit a few minutes to let dry (the trimmer is a wet-cut machine).



Figure 5. Pretrim model



Figure 6. Posttrim model

5.4.10. Cut the Model

1. Place the articulator into the saw-jig attached to the bench top.

CAUTION:

It is very important not to touch the margins or the pins when cutting. If this happens, the entire process up to this point must be repeated.

2. Use a saw frame with a stone-cutting blade to saw between the margin of the prep and the contact tooth/teeth.

5.4.11 Grind the Preps

1. Remove the model from the articulator.
2. Take the model to the Handler Red-Wing® 16B Dental Lathe and set the lathe to high.
3. Turn on the vacuum hood.
4. Use the lathe to soften the base of the model, taking care not to touch the contact tooth/teeth. (See Figure 7)
5. Grind around the circumference of the prep tooth until the desired shape is obtained. (See Figure 8)

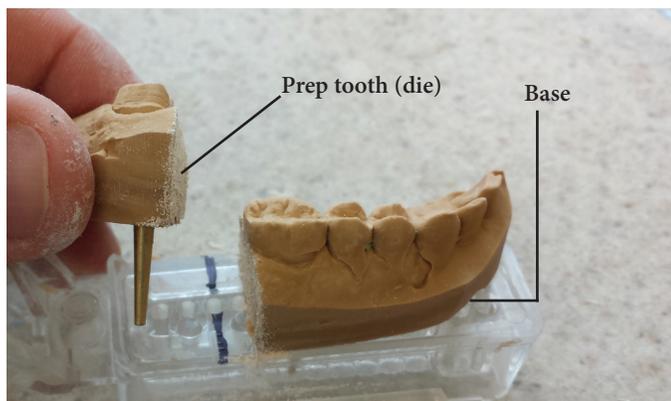


Figure 7. Prep tooth before grinding, base after grinding

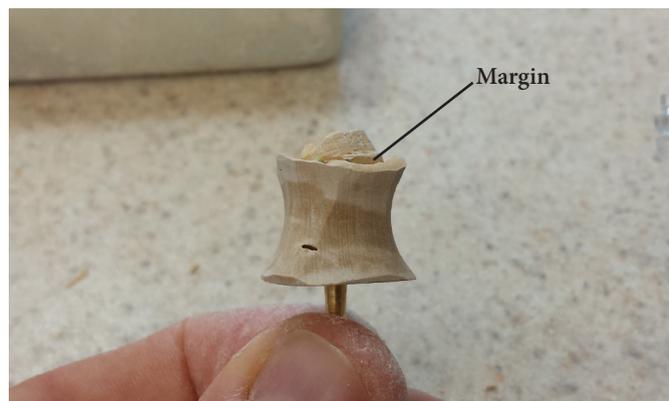


Figure 8. Die after grinding

5.4.12 Re-articulate the model and check the bite.

1. Place the prep tooth (die) and the rest of the model back into the articulator.
2. Close the articulator and check the occlusion.
3. Adjust the articulator arm as necessary to align the bite.

NOTE: Use the hand-held butane torch to slightly melt and bend the articulator arm as needed.



Figure 9. Closed articulator

5.4.13 Perform Final Checks and Release

1. Perform a final quality check on the model using the 10X Optimisor®.
2. Place the model in the articulator assembly into the case pan and give to the administrative assistants for distribution.

6. References

Burke, John T.

Ness, John C. *The PTC TechBook Series: Simplifying Posterior Dental Anatomy*. Morgan Hill: Productivity Training Corporation, 2009-11.