

# Mounting Partially Edentulous Casts

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Accurately mounting partially edentulous casts can frequently prove to be difficult. Hand articulation is sometimes inaccurate, and often an approximation, at best. Stabilized record bases, which must be fabricated from the casts to be mounted, usually require additional appointment time.<sup>1</sup>

Same day interocclusal records can be made using one of many different techniques. These techniques might include “mush bite” records, solid “horseshoe” bite registrations or contra lateral “bites,” all use a variety of materials.<sup>1,2</sup>

This article presents a technique using base plate wax (Trubyte, Dentsply, York, PA, USA) and Exabite (polyvinyl siloxane, GC America Inc, Chicago, IL, USA) to produce a highly accurate, partially edentulous bite registration. Exabite is an ideal material, as it is dead soft (will not distort soft tissue) and sets rapidly.

The patient featured in this article has no maxillary posterior teeth and casts could obviously not be hand-articulated accurately (Figure 1).

First, acquire acceptable impressions and pour casts for both arches. Accurate, well-trimmed casts are

mandatory; they should contain no blebs, voids or over extended areas that could keep the interocclusal record from seating with a precise fit on the casts (Figures 2-3).

## FACEBOW RECORD

The maxillary cast should be mounted with the use of a facebow record. Since there are no posterior maxillary teeth in occlusion, it is necessary to use a bite registration material on the posterior edentulous area to stabilize the cast during mounting. This can be accomplished by using a wax base with holes to retain the Exabite material on the facebow fork (Figure 4).

Using a sharp Bard-Parker blade, the Exabite on the facebow record is trimmed so that only the crest of the



Figure 1. Partially edentulous patient.

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DOI: 10.2341/10-136-T



Figure 2. Upper cast to be mounted.



Figure 3. Lower cast to be mounted.



Figure 4. Stabilized facebow—note indentations of the teeth in the wax and indentations of the edentulous ridge in the Exabite material.



Figure 5. Trimming Exabite material back to crest of ridge (right side trimmed).

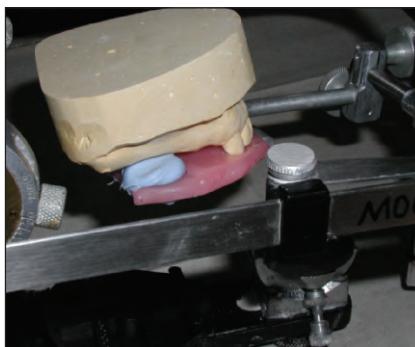


Figure 6. Mounting maxillary cast.



Figure 7. Properly trimmed base plate wax wafer.

ridge touches the maxillary cast during mounting (Figure 5).

Place the maxillary cast on the facebow record in the articulator and mount in the normal manner. Be sure to soak the bottom of the cast prior to mounting (Figure 6).

### CONSTRUCTING THE INTEROCCLUSAL RECORD

Cut the base plate wax into a rounded triangular shape, which will extend approximately one-quarter inch past the periphery of the entire maxillary arch (Figure 7). Warm the wax wafer over a Bunsen burner flame or under hot running water. Place the warm wafer into the mouth and instruct the patient to bite firmly. Tooth-to-tooth contact in the patient's centric occlusion position is important. Cool the wafer completely with air and/or cool water spray before removing from the patient's mouth. Large retention holes are created in the posterior area to allow capture of any remaining unoccluded teeth and edentulous ridges with the bite registration material (Exabite) (Figure 8). Syringe the Exabite bite registration material onto both sides of the wax wafer

(left and right sides in the posterior over the holes). The holes will allow the bite registration material to be locked to the wax wafer when it sets fully, as the Exabite material will bond to itself through the holes made in the wax. With the wax wafer returned to the mouth and centered over the indentations in the patient's remaining teeth, have the patient close as before and allow the Exabite to set fully before removal (Figure 9).

After removal, inspect the record to make sure the patient has bitten completely through the wax in the anterior area and also check that the crests of the edentulous ridges and remaining teeth have been accurately recorded (Figures 10-11). You may dismiss the patient at this point.

Using a sharp Bard-Parker blade (a dull blade will tend to tear the material rather than cut it cleanly and crisply), trim the Exabite in the edentulous areas so that only the crest of the ridge remains on both sides (Figure 12). Trim the Exabite back from any tooth until only the cusp tips remain (Figure 13). If too much Exabite is left, the cast will not seat fully, resulting in a final mounting that is "open" in the posterior. Finally,





Figure 8. Base plate wax wafer with retention holes and indentations of teeth.



Figure 9. Patient fully occluded into wax wafer and Exabite.

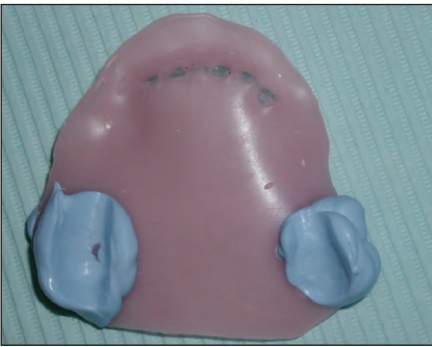


Figure 10. Intaglio side for upper arch.



Figure 11. Intaglio side for lower arch.

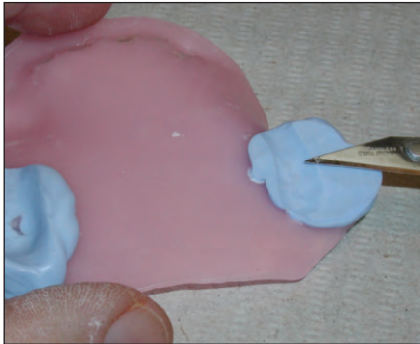


Figure 12. Independent trimming so that only the crest of the ridge is in contact with the upper cast.

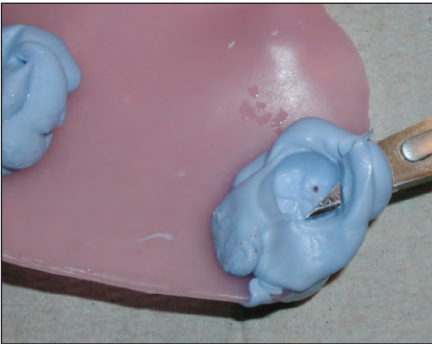


Figure 13. Independent trimming so that only the cusp tips will be in contact with the lower cast.

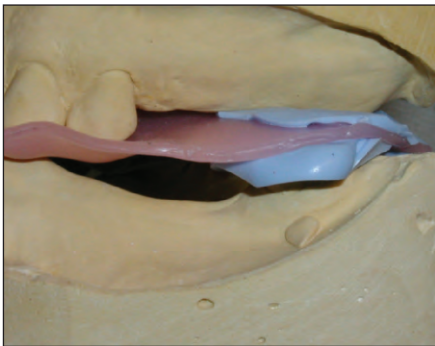


Figure 14. Casts fitted together with record after independently fitting to casts.



Figure 15. Posterior areas should exhibit an accurate amount of separation.



Figure 16. Anterior teeth in direct contact.

trim the wax registration so that the wax does not touch any other soft tissue areas of the casts. The Exabite should only contact the soft tissue areas of the crest of the ridge on the casts and the unopposed teeth.

The fitting process should be done independently on each cast, making sure the record goes fully into place and fits precisely.

Do not try to occlude the casts together until you are satisfied that they fit the interocclusal record separately.

Now that you are sure that the casts independently fit the record accurately, you can place the two together (Figure 14).

It is important to use your fingers on the side of the mandibular cast to place a small amount of “positive pressure,” while the mounting plaster sets. The articulator is upside down at this point. (Pieces of a tongue blade tacked down with sticky wax could be used to maintain this positive pressure, as could rubber bands.) This pressure prevents any resiliency or misfit in the

wax or bite registration material from “propping apart” the casts. The anterior teeth should be in contact (the patient having bitten totally through the wax). This union of casts and interocclusal record should be stable, with no tipping movements, and, if done properly, it will be.

When the mounting plaster sets from mounting the mandibular cast, the wax and Exabite registration is removed. The anterior teeth should be in direct contact and the posterior areas should exhibit an accurate amount of separation (Figure 15-16).

There are several techniques that can produce workable mounted casts. The use of record bases is one option, but it carries the disadvantage of addi-

tional time and laboratory expense. Stabilization of the bases intraorally can also be problematic. The authors have found the technique described here to be quick, simple and economical. The technique produces consistent, predictable and accurate mountings of partially edentulous casts.

(Received 29 April 2010; Accepted 27 May 2010)

## References

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