



INDIRECT BONDING SIMPLIFIED

Indirect Bonding Simplified



TERRY A. SELLKE, DDS, MS

Co-Clinic Director, Master Clinician, Professor (Ret.)

University of Illinois at Chicago 30+ Years

Private Practice 1974 to Present in Northern Illinois



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The Tray Fabrication System (IDB: Part 1)

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*Indirect Bonding is
difficult to learn and
do because it is very
Technique Sensitive*





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- ☀ *Quality IDB trays begin with Quality Impressions*
- ☀ *Distortions in impressions will lead to distortions in models and ultimately to improperly fitting IDB trays...bond failure*






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Some Keys to Good Impressions:

- ↓ Use Orthoprint® alginate from Zermack®.
 - ↓ Use DCA disposable trays.
 - ↓ Apply Waterpik™ adhesive to the tray to ensure the alginate does not pull away from the tray.
- 



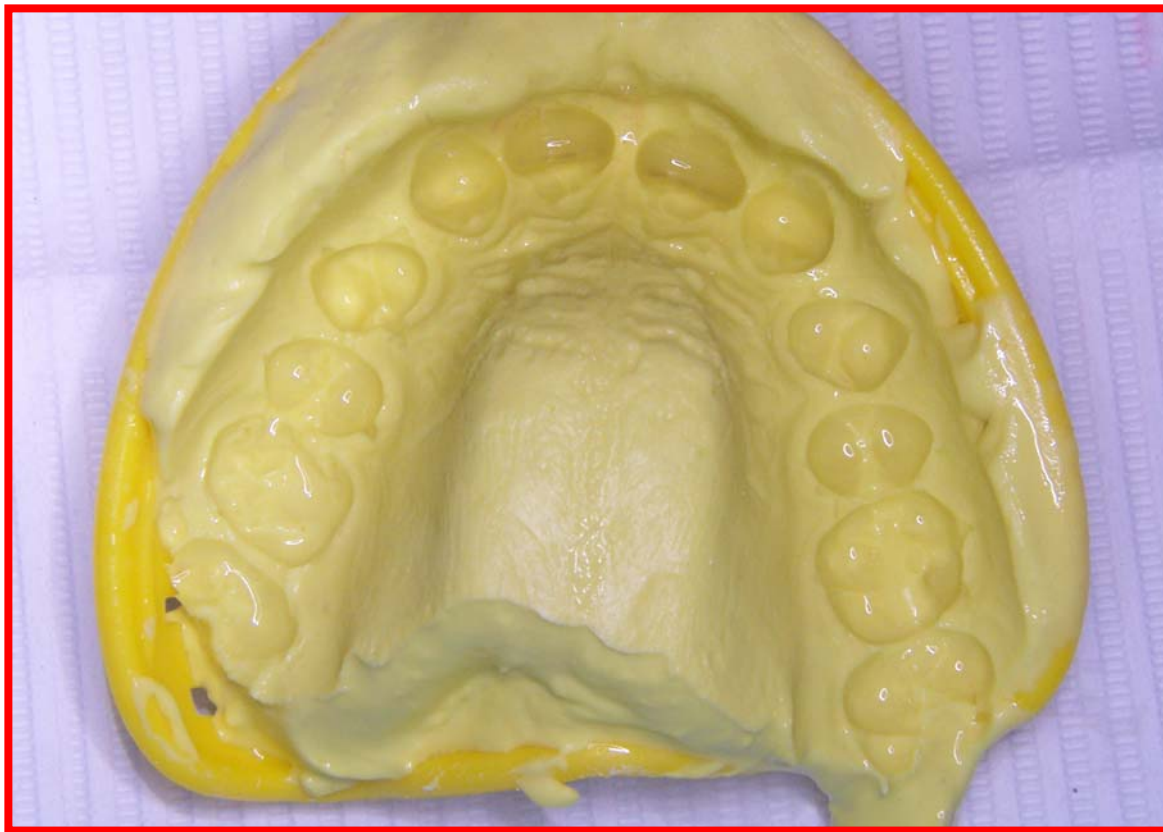
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*Think "crown and bridge"...not ortho.
Forget the "roll";
we need sharp
impressions of the
teeth and gingival
tissue.*



This is a Poor Impression:

Second molars could not be indirect bonded.





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Pour Up Technique:

- ↓ *Pour up immediately.*
- ↓ *Use Whipmix® Jadestone die material
(crown and bridge stone).*
- ↓ *Vacuum mix!!!*



Fight the Urge to Flick Off Positive Bubbles:

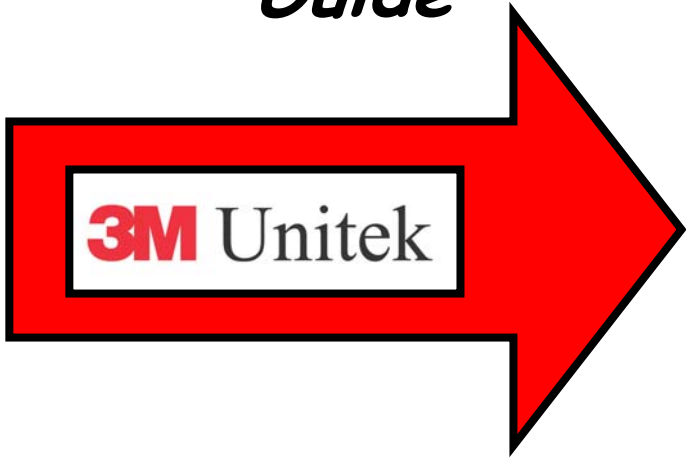
This can create a "negative" crater. The resulting "bump" in the custom tray will displace the IBD tray from the teeth at bonding i.e. bond failure.





Mark Bracket Position on the Model

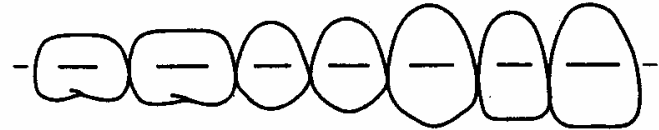
Use a positioning Guide



3M Unitek

Individualize as Needed

MBT™ Versatile+ Appliance Bracket Placement Guide



	U7	U6	U5	U4	U3	U2	U1	Upper Arch
A	2.0	4.0	5.0	5.5	6.0	5.5	6.0	+1.0 mm
B	2.0	3.5	4.5	5.0	5.5	5.0	5.5	+0.5 mm
C	2.0	3.0	4.0	4.5	5.0	4.5	5.0	Average
D	2.0	2.5	3.5	4.0	4.5	4.0	4.5	-0.5 mm
E	2.0	2.0	3.0	3.5	4.0	3.5	4.0	-1.0 mm

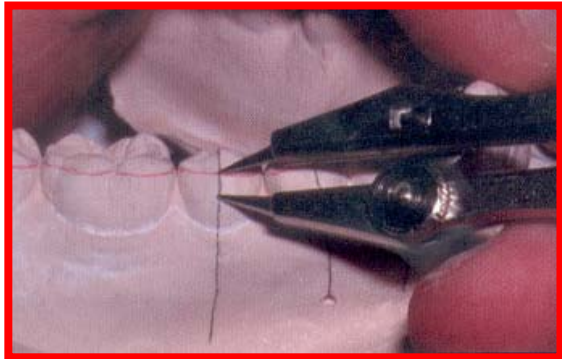
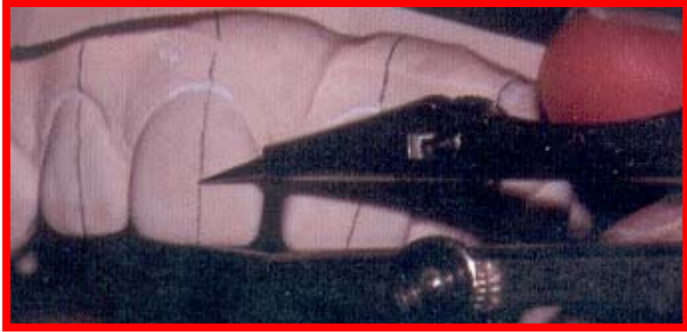
A	3.5	3.5	4.5	5.0	5.5	5.0	5.0	+1.0 mm
B	3.0	3.0	4.0	4.5	5.0	4.5	4.5	+0.5 mm
C	2.5	2.5	3.5	4.0	4.5	4.0	4.0	Average
D	2.0	2.0	3.0	3.5	4.0	3.5	3.5	-0.5 mm
E	2.0	2.0	2.5	3.0	3.5	3.0	3.0	-1.0 mm

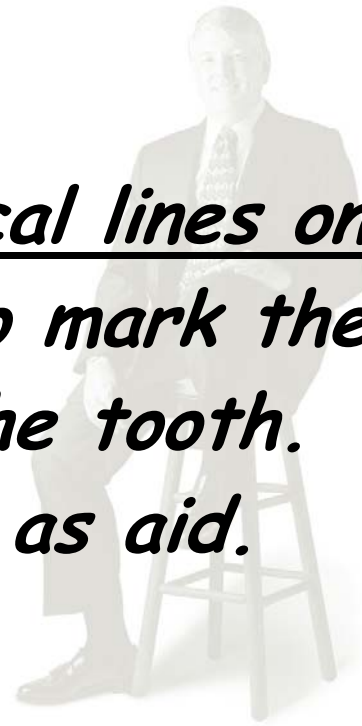
L7 L6 L5 L4 L3 L2 L1 Lower Arch





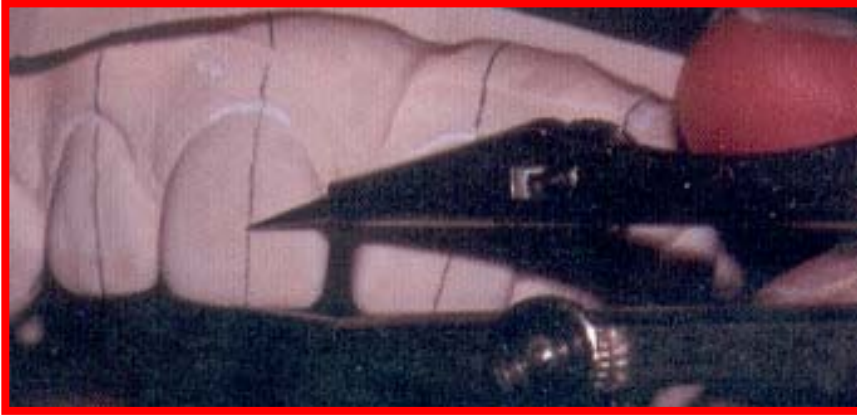
Mark Bracket Position on the Model



- 
- ☀ Scribe vertical lines on ALL TEETH to mark the long axis of the tooth.
 - ☀ Use panorex as aid.



Mark Bracket Position on the Model



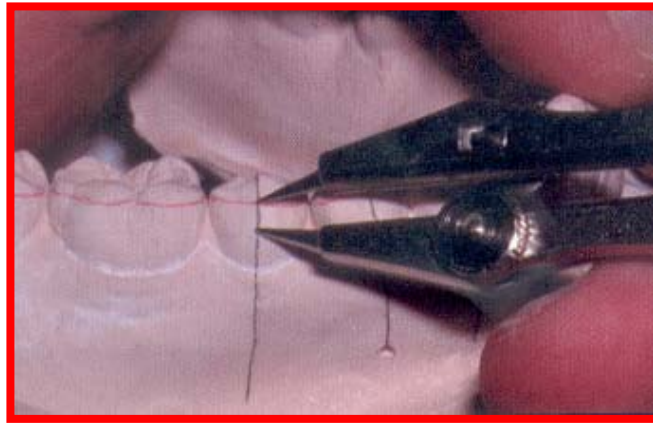
Anterior Teeth:

- *Place relative to incisal edge*
- *Consider future needs for enamelplasty*





Mark Bracket Position on the Model Posterior Teeth:



- ☀ *Place relative to marginal ridges.*
- ☀ *Mark horizontal lines and place brackets and tubes relative to them.*



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Bracket Heights:


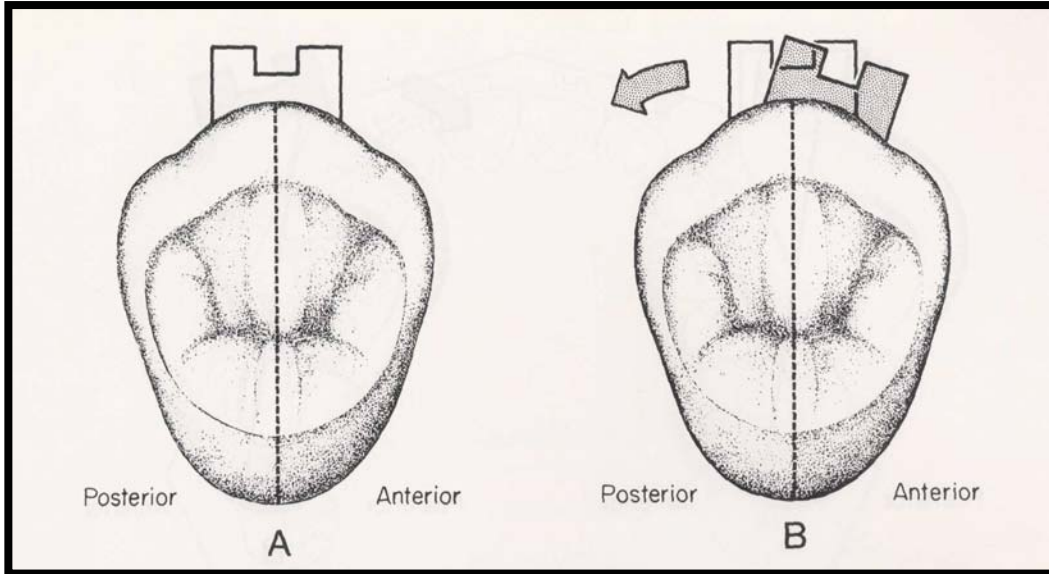
- ↓ *Use MBT™ or Sondhi™ bracket positioning guide.*
 - ↓ *Use Sondhi's A). Open Bite/Deep Bite compensation and B). occlusal plane cant concepts in bracket positioning.*
 - ↓ *I like Dr. John Kalange's approach to position the bracket/tube to "level" the marginal ridges (versus using cusp tips to set bracket height).*
- 

Illustration of Model with Lines Scribed to Guide Bracket Placement



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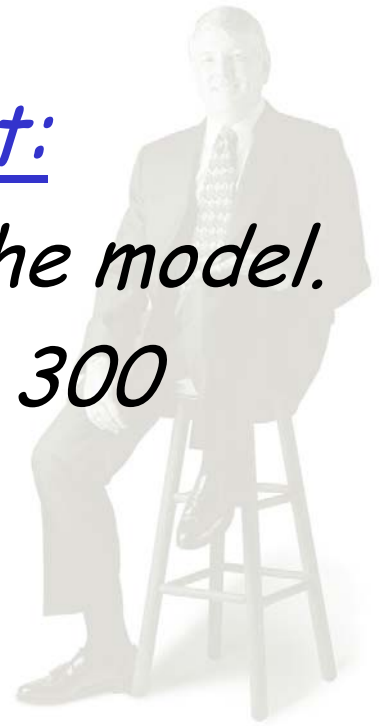


*Center the Bracket for Rotations or
Off Center to Overcorrect Severe Rotations.*



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 *If you can't air dry overnight:*

- ↓ *Use a toaster oven to dry the model.*
 - ↓ *We dry them 20 minutes at 300 degrees.*
 - ↓ *Cool for 30 minutes*
- 



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Place Separating Agent:

✦ We use Foil Cote - 1:4 dil.

✦ Air dry the model



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Lab technician places brackets on the model using a "Wick Stick" (fromOrmco) to initially determine the height of each bracket.




Illustration of a "Wick Stick"





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The Dr. finalizes bracket positioning and removes excess flash.





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We ONLY Use APC™ Brackets.

- ↓ *Ambient light will begin curing the Transbond™ resin.*
- ↓ *Store the models (after brackets initially placed by lab technician) in a Sondhi light proof box to prevent curing prior to final check by the doctor.*



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Illustration of Sondhi Light Proof Box™



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After the Dr. does final check, the brackets are cured in a Triad® Machine.

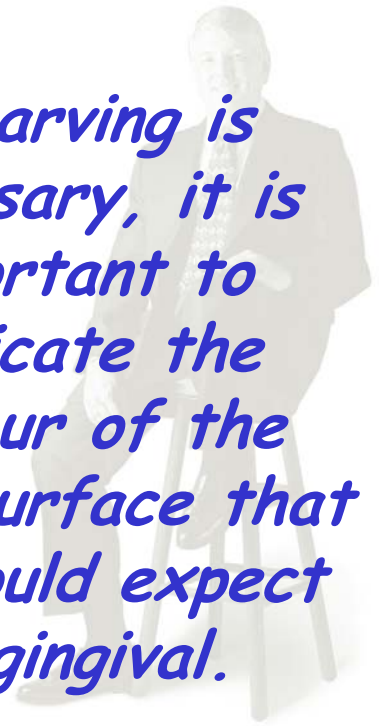
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Short clinical crowns or partially erupted teeth may require a small amount of carving of the "soft tissue" on the model for better bracket placement.



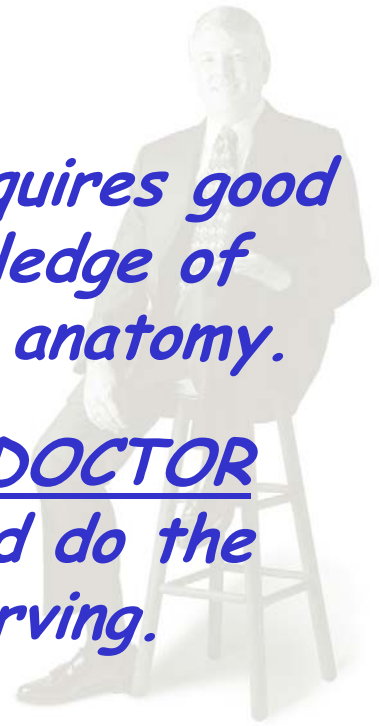
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If carving is necessary, it is important to duplicate the contour of the tooth surface that you would expect subgingival.



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This requires good knowledge of dental anatomy.

The DOCTOR should do the carving.



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Cure 5 Minutes in Triad®





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The Steps of IDB Tray Construction






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*Block out undercuts
of bracket hooks
(only) with PVS
impression material*





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Block Out Undercuts:

↓ *This is sufficient with all APC™ and other brackets from 3M Unitek.*





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Block Out Undercuts:

↓ *Other manufacturer's brackets, such as Damon™ and In-Ovation™ have more undercuts and cause a "blow out" of the 1.5mm soft tray (poor bracket retention, brackets displaced).*



We Use Disposable Cartridges



- ✦ Use Aquasil Ultra LV® by Densply (same as used for Invisalign®).
- ✦ Set up an assembly line to block out undercuts on multiple sets of trays from a single cartridge.



Placement is UNDER the hooks,
NOT enclosing them!



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Making the Soft Tray

A 1.5mm (soft) mouth guard tray is made using a Biostar®





Important!



The brackets are out of the beads several mm.

This is to ensure that the soft tray material completely envelopes the brackets and adapts to the model gingival to the brackets and hooks.



We Use 1.5mm Bioplast® Material for the Soft Tray



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Trim excess soft tray material using scissors



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- ☀️ *Spray the soft tray with silicone spray.*
- ☀️ *The silicone is a separating medium.*
- ☀️ *If you forget, the hard tray will stick to the soft tray and tray removal will be challenging!*





**DON'T
FORGET
THE
SILICONE
SPRAY!!!**



(Otherwise, you will have a "ruff" day!)



Making the Hard Tray

Cover the model (with the soft tray and embedded brackets) with lead pellets to the gingival margin of each bracket or tube.





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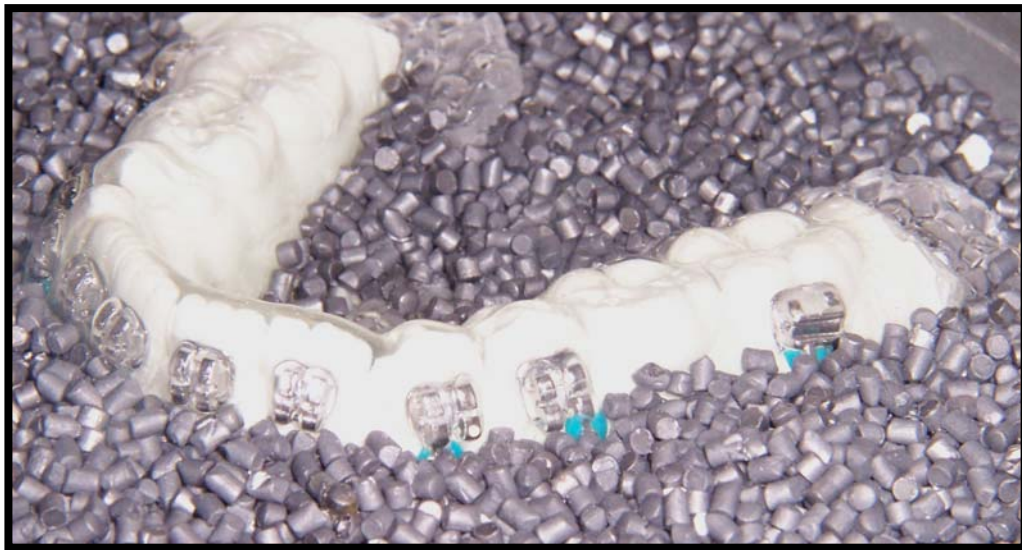
*Remember, IDB is
Technique Sensitive!!!*





Making the Hard Tray

If you cover MORE of the bracket with beads, the hard tray will “float” and not ensure good adaptation of the soft tray (and brackets) when bonding. This reduces bond strength!





Making the Hard Tray

If you don't COVER ENOUGH of the bracket with pellets, the hard tray will engage undercuts and be difficult to remove.



Using the Biostar®, Make a .75mm Biocryl (Hard) Tray



Hard Tray after "Suck Down" in Biostar®





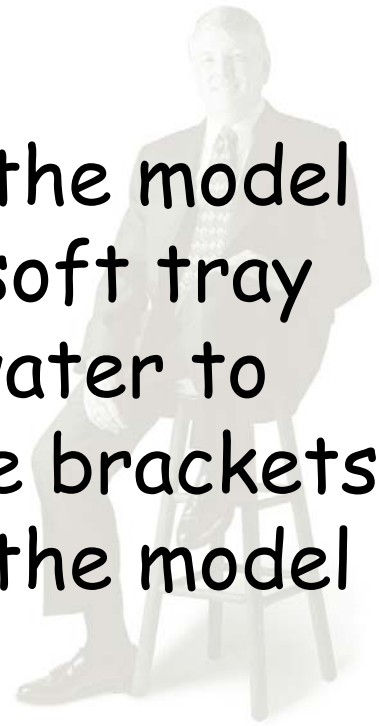
Remove hard tray from soft tray & model.



Cut out
hard tray
with
straight
handpiece



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Soak the model
and soft tray
in water to
release brackets
from the model



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Ease the soft tray off of the model

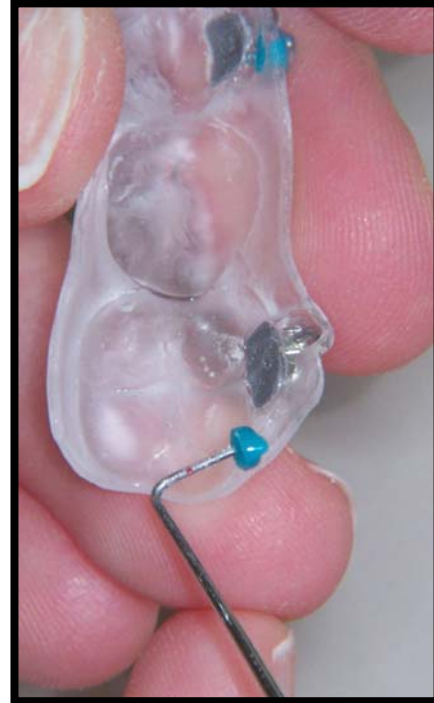
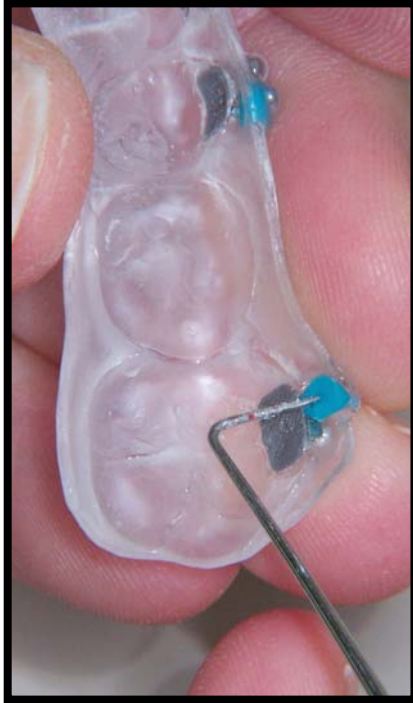


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Trim any excess
soft tray
(mouth guard)
material with
scissors

The PVS Undercut Relief is Removed Now



KEY: Make Vertical Slices on the Lingual of the Incisors and Canines of Upper and Lower Soft Tray.



This facilitates soft tray removal after brackets are bonded.



Mark the midline with a permanent marker (Sharpie®). This facilitates tray seating at the bonding appointment.



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Occasionally we will need to microetch a "custom pad" to remove loose plaster from the composite.

If you need to do this, use a very short burst. Then aggressively blow off all silica dust from the tray (which can lead to a poor bond).

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Clean bracket pads with denatured alcohol to remove separating medium



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If you observe the "custom pad" made of Transbond adhesive seems "soft" as you apply denatured alcohol, light cure the pads with your plasma light/LED light to final cure the resin.

This is should be VERY rare. It indicates you are not adequately curing the custom pads in the Triad machine.



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The Finished IDB Tray

Ready for the Bonding Appointment





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The trays are now ready for placement. We store in a retainer case until the patient's bonding appointment.





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The Tray Fabrication Protocol (IDB: Part 1)

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