ITEMS USED FOR PROCEDURE:

1. Quick Drying Impression Tray Adhesive
2. Adhesive Brush
3. Baby Oil
4. Bowl of Warm Water
5. Bowl of Ice Water
6. Alcohol Torch
7. Matches or lighter
8. *Bite-Trays* (Panadent)
9. Soft Toothbrush
10. Compound Stick
11. Leaf Gauge (Panadent)
12. Scissors
13. Rubber Wheel on Mandrel
14. Marking Ribbon and Holder
15. Zip-lock Plastic Bags
16. Cotton Roll
17. 2x2 Gauze Pads
18. Sharp Scalpel
19. Bite Registration Material
20. Paper Mixing Pad
21. Cement Spatula
The first phase of maxillary registration is the same (generic) as all types of interocclusal records (e.g., centric relation, protrusive as well as lateral border).

Remove Panadent Bite-Trays from package.

Although Bite-Trays have been manufactured in a sanitary manner, trays should be sterilized prior to patient use. Sterilization of Bite-Trays may be by autoclave, chemclave or cold sterilizing solution.

Paint Bite-Tray to be used with fast drying impression adhesive (e.g., Impergum) on both sides in perforated areas only.

If maxillary cast of patient's teeth is available, place cast on Bite-Tray with incisors against upturned anterior flange. Cut off extending portion of tray distal to second molars. Tray should cover first and second molars and distal extension edentulous areas. Third molars should only be included if they are to be needed as bridge abutments etc.
If maxillary cast is not available at time of record making, place tray in patient’s mouth to determine length. Cut off distal end of tray extending beyond second molar areas.

Remove any sharp edges of *Bite-Tray* with sandpaper disc, round stone, or abrasive rubber wheel.

Hold *Bite-Tray* with thumb and index finger at serrated areas on lateral edges of tray for placing tray in patient’s mouth (arrows).

Center tray laterally against patient’s maxillary teeth with anterior up-turned flange resting against labial surface of incisors. Align midline mark on up-turned flange with midsagittal of maxilla. With mandible retruded, have patient "bite down hard" on tray to adapt it to occlusal surface of teeth (arrows).
10

Mix bite registration paste. Spread about 1mm thick on maxillary side of tray in perforated areas only.

Note: For patients with deep anterior vertical overlap, (for example, class II div. 2), cut completely across perforated occlusal areas of tray on both sides just anterior to serrated gripping areas (arrow). Have patient "bite down" hard on tray to adapt it to teeth. This will cause metal to overlap in canine areas, thus allowing posterior teeth to come closer together.

11

After removing crushed tray from patients mouth, dry tray with compressed air.

12

Mix bite registration paste. Spread about 1mm thick on maxillary side of tray in perforated areas only.

13

Wipe off excess registration paste that flows through perforations onto mandibular side of tray with gauze pad.
OPTIONAL: Dip entire bite tray briefly in bowl of cold water before placing in the mouth.

Have patient use tongue to quickly lubricate teeth with saliva. Place loaded Bite-Tray in mouth and hold lightly against maxillary teeth (arrows). Instruct patient to tap mandibular teeth (in retruded position) against tray to assure tray is properly repositioned.

While continuing to hold Bite-Tray in contact with maxillary teeth (arrows) have patient open mouth slightly to separate mandibular teeth from tray. Hold tray against maxillary teeth in steady passive manner until registration-paste hardens.

It is okay if maxillary occlusal and incisal contacts are made with the tray because tray is being held in passive fashion against maxillary teeth.

To remove Bite-Tray from patient’s mouth without warping it, grasp tray with thumbs and index fingers firmly on right and left flanges at premolar area; then shake tray vertically to break seal to teeth (arrows). Spraying mouth with cold water may also be helpful in separating registration tray from teeth.
**INTEROCCCLUSAL RECORD INSTRUCTIONS**

18. Place *Bite-Tray* in cold water (e.g. ice water) a few minutes to increase hardness of registration material.

19. Trim excess material on maxillary side of *Bite-Tray* with sharp scalpel. Leave impressions of cusp tips approximately 1mm deep. Also, remove any hardened material that may have oozed out onto lower surface of tray.

**Note:** If proper amount of registration paste was used, above procedure is seldom necessary.

**Caution:** Extreme care must be used when trimming registration material to avoid warping record.

20. Remove all loose registration material from occlusal areas with soft toothbrush under cold running tap water and dry record with compressed air.

**Note:** Magnification should be used to be sure all loose particles of material have been removed from record before proceeding.

21. Clean all registration paste from patient's teeth and face. Replace occlusal registration in patient's mouth to assure proper fit to maxillary teeth. If registration does not fit perfectly to teeth, reline record with thin layer of registration material or repeat total procedure using new *Bite-Tray*. 
INTEROCLUSAL RECORD (CENTRIC RELATION)

Dry both sides of Bite-Tray thoroughly with compressed air syringe. Especially dry lower anterior area of tray where hot compound is to be added.

While rotating compound stick heat 3cm end until stick begins to slump.

Spread hot compound about 2cm long and 1cm wide in anterior-posterior direction on Bite-Tray in area of mandibular incisors.

If compound should harden too quickly, reheat with alcohol torch pressurized air stream.
INTEROCCLUSAL RECORD (CENTRIC RELATION)

Dip compound end of Bite-Tray about 3-5 seconds in warm water (125°F / 40°C) to temper before placing in patient's mouth.

Note: The following procedure is shown for right handed operators. This should be considered when done by left handed operators.

While compound is still warm and pliable fit registration to maxillary teeth. Hold tray against maxillary teeth with thumb and index finger of one hand at lateral serrated areas of tray (bilateral arrows). Use thumb of other hand to hold lower lip away from teeth. Place end of same thumb against labial surface of mandibular teeth. “Shake” mandible quickly two or three times while pushing distally on lower anterior teeth to “break” muscle tension.

Have patient “relax jaw.” Continue to push distally with forearm aligned in midsagittal plane of patient (this procedure may not be applicable for patients with TMJ pain). Tell patient, “Do not bite, I will close your teeth for you”. Gradually occlude teeth until mandibular incisors contact soft compound (center vertical arrow) without posterior teeth touching tray.

As soon as mandibular incisors make proper impression in soft compound, instruct patient to “open your mouth quickly” (center arrow). Carefully remove tray from mouth without disturbing soft compound.

(If mandibular posterior teeth touching tray before anterior teeth touch compound, add more compound to increase vertical dimension. However, keep vertical dimension to a minimum for most accurate results.)
Quickly harden compound by dipping *Bite-Tray* in bowl of *cold* water (e.g. ice water) for several seconds.

It is recommended that a cotton roll, leaf gauge or CR occlusal splint be placed between incisors to keep posterior teeth separated to avoid neuromuscular reprogramming when record is not in mouth.

Cut back excess cold compound with *sharp* straight edged scalpel leaving mandibular incisor impression no more than 1 mm deep (retruded incisor registration).

Remove loose particles of compound from retruded incisor registration with soft toothbrush and/or compressed air.
Replace Bite-Tray in mouth to verify that mandibular incisors were in most retruded position. If incisors can be made to touch behind original indentions, warm compound with alcohol torch and repeat procedure.

**Note:** There should only be mandibular incisal edge contact in compound (no labial or lingual contacts).

Check right and left sides of bite-tray with thick occlusal ribbon (e.g. .5mm) for absence of mandibular posterior tooth contacts. If there is contact, add more compound to increase vertical dimension and repeat procedure.

**Note:** If patient has unstable TM Joints, condyles may go to higher position in fossae during brief time patient is biting on hardened compound registration, thus causing lower posterior teeth to come into contact with Bite-Tray.

Hold record firmly against maxillary teeth and have patient tap mandibular incisors into retruded compound registration without assistance from operator to be sure index is comfortable, repeatable position for patient.

**Note:** Effects of head posture may be tested at this time by having patient tip their head far backward and far forward while tapping into incisor registration to see if there are any differences.

Remove Bite-Tray from mouth and replace with cotton roll between incisors.
Add sufficient amount of bite registration paste (depending upon space between mandibular teeth and tray) to mandibular side of Bite-Tray to make contact with mandibular posterior teeth.

**OPTIONAL:** Pending bite registration material instructions, dip entire tray 1-2 seconds in water before placing in patient’s mouth.

Stand or sit behind patient (patient may be in a sitting, straight up, 45°, or supine position). Place Bite-Tray in patient's mouth and hold against maxillary teeth with index fingers at serrated flange areas (arrows). Have patient retract mandible and place anterior teeth in retruded compound record. Instruct patient to hold teeth in compound record with firm pressure, without clenching, until registration material hardens. (It is important that patients do not clench while registration paste is setting in order to avoid flexing mandible and/or intruding lower anterior teeth.) Do Not manipulate the mandible.

**Note:** The hardened anterior compound record (small horizontal arrow) represents apex of lateral border movements and acts as a fulcrum. Large vertical arrows represent muscle forces which seat condyles in superior anterior direction (small curved arrow). Normal physiologic centric relation position may be defined as anywhere on the arc of closure with the condyles bilaterally seated against the thin central bearing areas of their respective bi-concave discs in their most superior, anterior, medial position.
To release mandibular teeth from registration material without warping tray; hold tray firmly against maxillary teeth with fingers of both hands along flanges (bilateral upward arrows); then instruct patient to open mouth (downward arrow). In this way the chances of the teeth sticking in the registration material and warping the Bite-Tray are greatly reduced.

Place cotton roll between teeth to keep posterior teeth separated until record accuracy has been verified.

Place record in a bowl of cold water (e.g. ice water) a few minutes to produce maximum hardness. Record can also be placed in refrigerator to maximize hardness.

With sharp straight edge scalpel, cut back excess registration material on mandibular side of tray until only cusp tip imprints about 1 mm deep remain.

Warning: must be used when cutting off excess registration material to avoid warping or distorting the record. (Handle record as though it were as fragile as an egg shell.)
INTEROCCLUSAL RECORD (CENTRIC RELATION)

Remove loose registration particles from record with soft toothbrush under cold running tap water.

Dry centric relation record with compressed air and inspect finished product.

Note: Use magnification to be sure all loose material has been removed.

Replace finished record in patient's mouth and verify its accuracy.

Remove any artifacts from casts such as cusp or incisal edge impression perforations and bubbles. Fit previously made stone casts of patients teeth into impressions in centric relation record. If casts do not fit registration impression in centric relation record, it is usually due to faulty casts rather than inaccuracies in record, since record fit to teeth was verified.
INTEROCCLUSAL RECORD (CENTRIC RELATION)

29

If centric relation record is acceptable, place in air tight, zip-lock plastic bag with moist 2 x 2 gauze pads soaked in sterilizing solution. Store record in protective cool place until ready for use.

30

Clean residual material from patient’s face and lips with baby oil on a gauze pad.
INTEROCCLUSAL RECORD (PROTRUSIVE)

To make protrusive interocclusal record, first repeat figures 2-20 of interocclusal record instructions on a separate Bite-Tray to obtain registration of maxillary teeth.

Verify fit of registration to maxillary teeth. If registration does not fit perfectly, reline with thin layer of fresh registration paste or discard record. Have patient practice retruding and protruding his/her “lower jaw” on command “forward” and “backward” so patient will understand the commands when the anterior compound record is made.

Note: Remove tray from mouth. Be sure to dry lower side of tray with compressed air.

While rotating compound stick, heat about 3cm until stick begins to slump.

Spread hot compound approximately 1cm wide and 3cm long (on thoroughly dried Bite-Tray) in anterior posterior direction. Bring compound anteriorly completely to flange.
Temper hot compound about 3 - 5 seconds in warm water (125°F / 40°C) before placing in patient’s mouth.

Note: The following procedure is shown for right handed operators, which should be considered when done by left handed operators.

Place upper-side impression carefully onto maxillary teeth. Hold Bite-Tray firmly against maxillary teeth with thumb and index finger of left hand at second pre-molar flange areas (bilateral arrows). Place thumb of right hand against mandibular incisors to hold mandible in most retruded position (vertical arrow).

Have patient close slowly in most retruded position enough to make slight contact of mandibular incisors with soft compound (arrow).

As soon as mandibular incisors contact soft compound, have patient immediately open mouth (vertical arrow). Note retruded impression of teeth.

With teeth separated a few millimeters (arrow 1), have patient protrude mandible approximately 5-7mm (arrow 2).
With mandible protruded (avoid lateral deviation), instruct patient to bring teeth slowly together until mandibular incisors make impression in soft compound (vertical arrow).

Have patient open mouth immediately (arrow). Note two impressions in compound (retruded and protruded).

Remove tray carefully from patient's mouth to avoid touching pliable compound and distorting it.

Dip anterior end of tray immediately into bowl of cold water (e.g. ice water) to harden compound quickly.

Inspect protrusive compound record to see that it is approximately 5 - 7mm anterior to retruded impression. If record is unsatisfactory, warm compound with alcohol torch and repeat recording procedure.
With sharp straight edge scalpel, cut back excess compound, leaving rather deep (3mm) protrusive impression of anterior teeth. (The reason for leaving the protrusive imprint deep is to help the patient quickly relocate the recorded position with their mandibular incisors when the final stage of the recording is being done.)

Remove loose compound particles with soft toothbrush or air syringe.

Replace record in patient's mouth to be sure it fits teeth. Make sure there are no mandibular posterior tooth contacts with Bite-Tray. Also determine amount of registration paste needed to make contact between mandibular posterior teeth and tray.

Check right and left sides with thick ribbon (e.g. .5mm) for absence of mandibular posterior tooth contacts with Bite-Tray. If there is contact, add more compound to increase vertical dimension of record and repeat procedures.
Mix an adequate amount of registration paste. Apply to right and left mandibular posterior areas of Bite-Tray. (Add excess amounts for distal edentulous areas in order to contact ridge.)

Dip tray briefly in cold water before placing in mouth.

Hold tray firmly against maxillary teeth bi-laterally at pre-molar areas (arrows). Have patient place mandibular anterior teeth in protrusive index. Instruct patient to bite firmly in index until registration material hardens. Continue to hold tray against maxillary teeth while registration material is setting to prevent posterior end of tray from separating from maxillary posterior teeth.

To release mandibular teeth from registration material without warping tray; hold tray firmly against maxillary teeth with fingers of both hands along flanges (bilateral upward arrows); then instruct patient to open mouth (downward arrow). In this way the chances of the teeth sticking in the registration material and warping the Bite-Tray are greatly reduced.
21 Cut back excess registration material with sharp scalpel, leaving impression of cusp tips approximately 1mm deep.

22 Remove loose registration particles with soft toothbrush under cold running tap water. Dry with compressed air. Inspect with magnification to be sure all loose particles have been removed.

23 Place record in cold sterilizing solution. Seal record in Zip-lock bag with moist 2x2 gauze pad soaked in sterilizing solution. Store record in protected cool place until ready to use.

24 Clean residual material from patient's face and lips with Baby Oil on gauze pad.
To make left lateral interocclusal record, first repeat figures 2-20 of interocclusal record procedure on a separate Bite-Tray to obtain registration of maxillary teeth.

Verify fit of impression to maxillary teeth. If impression does not fit teeth, impression must be relined or redone. If impression is acceptable, dry lower side of tray thoroughly with compressed air.

While rotating compound stick, heat 3cm end until stick slumps.

Spread 3cm portion of hot compound on mandibular side of dry Bite-Tray at left canine area just anterior to serrated finger grips on edge of tray.
Temper compound two or three seconds in warm water before placing in patient's mouth.

Seat Bite-Tray registration completely against maxillary teeth and hold in place with thumb and index finger of one hand at pre-molar flange areas. Place thumb of other hand against mandibular incisors and hold patient in retruded position with teeth separated. Instruct patient to move mandible slowly to the left (arrow).

Stop lateral jaw movement about 3mm (canine tip to tip). Have patient close slowly until mandibular canine makes imprint 2-3mm deep in soft compound (vertical arrow).

As soon as mandibular canine has made approximately a 3mm imprint in soft compound, have patient "open mouth" immediately (vertical arrow).
Carefully remove tray from mouth. Harden compound quickly by dipping registration in bowl of ice water. With sharp straight edge scalpel, remove all tooth imprints except canine cusp tip. Shave back canine imprints so it is between 2-3mm deep.

Remove loose compound material with soft toothbrush under cold running water. Dry compound index with compressed air.

Clean all loose material from patient's teeth. Replace tray in mouth to make sure there are no mandibular posterior tooth contacts with tray. Have patient close into left lateral compound index to check fit of index to canine cusp tip.

Check both right and left sides to be sure there is interocclusal space. A thick marking ribbon may be used between mandibular teeth and tray to see that there are no posterior contacts on either side. Also determine amount of registration material needed to make contact between tray and mandibular teeth.
Place adequate amount of bite registration paste on mixing pad.

Be sure to add more paste to Bite-Tray on contralateral (non-working) side and position paste somewhat lingually to register molars on contralateral side (arrows). Add more than usual amount of material to register any distal edentulous ridge areas.

OPTIONAL, depending on operating time needed. Dip Bite-Tray briefly in cold water before placing in patient's mouth to accelerate setting time of bite registration paste in mouth.

Fit upper side registration carefully to maxillary teeth and hold tray firmly against teeth with thumb and index finger at pre-molar areas. Place wrist and forearm against patient's forehead (arrows) to stabilize head against head-rest on dental chair. Instruct patient to move mandible to the left and place mandibular canine in compound index.
While patient holds mandibular left canine in compound index (fulcrum), the operator's index finger is placed under the angle of the mandible to keep the condyle from subluxating while the thumb is placed against the lateral side of the mandibular angle. The vector of force is in line toward the ipsilateral (working) condyle. Operator pushes with firm pressure upward and inward against angle of mandible (small arrow) to induce maximum Bennett shift. Hold with constant pressure against angle of mandible until paste hardens.

Dotted lines illustrate Bennett shift of condyles. Compound index prevents anterior teeth from moving beyond 3mm and also acts as fulcrum point so that full Bennett path of condyles can be achieved without posterior tooth interferences.

**Note:** The contralateral (non-working) condyle moves downward and forward while it moves medially. While the ipsilateral (working) condyle basically shifts laterally.

Remove hardened record from mouth. Clean all residual bite-registration paste from patient's face, lips and teeth with baby oil.

With sharp straight edge scalpel (Bard-Parker), cut back all excess material, leaving approximately 1mm deep impressions of cusp tips and/or edentulous ridge areas on both right and left sides.
21 Remove loose registration particles with soft toothbrush under cold running water.

22 Dry completed registration with compressed air and make final inspection.

23 Wrap finished record in sterilizing solution soaked 2x2 gauze. Place in sealed plastic bag. Store bag in sturdy plastic box for protection until ready to use.
To make right lateral interocclusal record, first repeat figures 2-20 of interocclusal record procedure on a separate Bite-Tray to obtain registration of the maxillary teeth.

Verify fit of upper impression to maxillary teeth. If impression does not fit teeth, impression must be relined or redone. If impression is acceptable, dry lower side of tray thoroughly with compressed air.

While rotating compound stick, heat 3cm end until stick slumps.

Spread 3cm portion of hot compound on mandibular side of dry Bite-Tray at right canine area just anterior to serrated finger grips on edge of tray.
Temper compound two or three seconds in warm water before placing in patient's mouth.

Seat Bite-Tray registration completely against maxillary teeth and hold in place with thumb and index finger of one hand at pre-molar flange areas. Place thumb of other hand against mandibular incisors and hold patient in retruded position with teeth separated. Instruct patient to move mandible slowly to the right (arrow).

Stop lateral jaw movement about 3mm (canines tip to tip). Have patient close slowly until mandibular canine makes imprint 2-3mm deep in soft compound (vertical arrow).

As soon as mandibular canine has made approximately a 3mm imprint in soft compound, have patient "open mouth" immediately (vertical arrow).
INTEROCCLUSAL RECORD (RIGHT LATERAL)

Carefully remove tray from mouth. Harden compound quickly by dipping registration in bowl of ice water. With sharp straight edge scalpel, remove all tooth imprints except canine cusp tip. Shave back canine imprints so it is between 2-3mm deep.

Remove loose compound material with soft toothbrush under cold running water. Dry compound index with compressed air.

Clean all loose material from patient's teeth. Replace tray in mouth to make sure there are no mandibular posterior tooth contacts with tray. Have patient close into right lateral compound index to check fit of index to canine cusp tip.

Check both right and left sides to be sure there is interocclusal space. A thick marking ribbon may be used between mandibular teeth and tray to see that there are no posterior contacts on either side. Also determine amount of registration material needed to make contact between tray and mandibular teeth.
Place adequate amount of bite registration paste on mixing pad.

Be sure to add more paste to Bite-Tray on contralateral (non-working) side and position paste somewhat lingually to register molars on contralateral side (arrows). Add more than usual amount of material to register any distal edentulous ridge areas.

OPTIONAL, depending on operating time needed. Dip Bite-Tray briefly in cold water before placing in patient's mouth to accelerate setting time of bite registration paste in mouth.

Fit upper side registration carefully to maxillary teeth and hold tray firmly against teeth with thumb and index finger at pre-molar areas. Place wrist and forearm against patient's forehead (arrows) to stabilize head against head-rest on dental chair. Instruct patient to move mandible to the right and place mandibular canine in compound index.
The operator’s index finger is placed under the angle of the mandible (pointing anteriorly) to keep the condyle from subluxating while the thumb is placed against the lateral side of the mandibular angle. The vector for inducing the Bennett shift is in a line toward the ipsilateral (working) condyle. While patient holds mandibular right canine in index, push medially with firm steady pressure against angle of mandible on contralateral (non-working) side to induce maximum amount of Bennett shift. Hold constant pressure against mandible until paste is hard.

Dotted lines illustrate Bennett shift of condyles. Compound index prevents anterior teeth from moving beyond 3mm and also acts as fulcrum point so that full Bennett path of condyles can be achieved without posterior tooth interferences.

**Note:** The contralateral (non-working) condyle moves downward, forward and medially while the ipsilateral (working) condyle basically shifts laterally.

Remove hardened record from mouth. Clean all residual bite-registration paste from patient’s face, lips and teeth with baby oil.

With **sharp straight edge** scalpel (Bard-Parker), cut back all excess material leaving approximately 1mm deep impressions of cusp tips and/or edentulous ridge areas on both right and left sides.
21. Remove loose registration particles with soft toothbrush under cold running water.

22. Dry completed registration with compressed air and make final inspection.

23. Wrap finished record in sterilizing solution soaked 2x2 gauze. Place in sealed plastic bag. Store bag in sturdy plastic box for protection until ready to use.