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Articulation

Creating a lingual contact occlusal scheme in dentures using set-up templates and the Stratos 100, 200, or 300 articulator

By Robert Kreyer, CDT. Information provided by Ivoclar Vivadent Inc.

Following are step-by-step procedures for creating a lingual contact occlusal scheme using set-up templates and the Stratos 100, 200, or 300 articulator.

Set-up templates

The 2-D set-up template for posterior tooth positioning may be used when the casts have been mounted according to the average value technique recommended for the Stratos system. It takes into account the curves of Spee and Wilson.

The 3-D set-up template is recommended when casts have been mounted using a facebow record, since it has the ability to be adjusted in three planes. It provides the correct setup when using personalized model mounting and also takes the curves of Spee and Wilson into consideration.

Significance of templates

Use of the 2-D or 3-D set-up templates aids the technician in achieving predictable and consistent success in the development of a lingual contact occlusal scheme because they automatically contain the compensating curves of Wilson and Spee. Additionally, they also allow the prosthetic dental technician to compensate for Christensen's phenomenon during the set-up against the template.

Using the set-up templates

Use the 2-D set-up template for the setup of the posterior teeth in models oriented in the Stratos 100, 200 or 300 semi-adjustable articulator according to *average* values. For registrations or models oriented according to *individual* values from the use of a transferbow, the 3-D set-up template is indicated, since such cases require consideration of the occlusal plane, curve of the alveolar ridge of the mandible, and centric adjustment in the transversal. Both templates are adjusted according to the same parameters.

1. After the set-up of the maxillary anterior teeth, complete an instrument check using the Stratos 100 articulator by removing the mandibular model and mounting the instrument carrier

with the set-up template instead.

2. Affix the set-up template below and behind the maxillary anterior teeth (Fig. 1). *Note:* The symmetrical lines on the 2-D template allow the technician to verify harmony in the maxillary anterior tooth arrangement, such as bilateral symmetry, horizontal alignment, and midline.
3. To adjust the set-up template for the arrangement of the posterior teeth, align the bottom edge of the anterior part of the template with the distal incisal line angles of the lower canines (Fig. 2). *Note:* In the posterior area, the bottom side of the template ends in the region of the distal thirds of the retromolar triangular pads (Pound's Triangle) (Fig. 3).
4. Place the first bicuspid in its proper location according to the inferior surface of the template (Fig. 4). *Note:* The line system on the template facilitates symmetrical setup of the posterior teeth and helps establish bilateral symmetry, which is decisive for the equilibrium of the denture (i.e., bilateral balance).
5. After the first bicuspid is set in place, arrange the remaining posterior teeth according to the template and in relation to anatomical landmarks established by Pound's Line (Figs. 5, 6, and 7).
6. When all mandibular posterior teeth have been arranged according to the Stratos set-up template (Fig. 8), remove the template and re-affix the maxillary model to the articulator. *Note:* When using the 2-D and 3-D templates, maxillary posterior tooth position is dictated by the mandibular posterior tooth placement, which is now established.
7. Following arrangement of all posterior teeth in a lingual contact occlusal scheme, verify the contact points with articulating paper. *Note:* The only points of contact in centric occlusion are the maxillary lingual cusp tips and their opposing contact points in the central grooves of the mandibular teeth (i.e., 24 total contact points). **DLP**

Standardizing set-up procedures

When designing and fabricating complete dentures, the prosthetic dental team must understand the biomechanical principles of statics and dynamics. *Statics* relates to those areas involved in denture stabilization, while *dynamics* involves those areas associated with various jaw movements and their imitation on the dental articulator.

The semi-adjustable articulator assimilates movements of the mandible as they relate to the maxillae. The occlusal scheme must therefore be created in centric relation on a semi-adjustable articulator. After centric occlusion has been re-established, the principles of statics and dynamics begin converging, making accurate reproduction critical to the functional and esthetic success of the removable prosthesis.

Curve of Spee

The bow-shaped plane of occlusion in the sagittal compensating curve is described as the curve of Spee. Using set-up templates, to automatically account for this curve helps the technician position denture teeth so that they remain in contact when the mandible moves forward (protrusion) as the condyle moves down the articular eminence.

Curve of Wilson

The transversal compensating curve runs frontally, touching the cusp tips of the posterior teeth. In the lower arch, it is produced by an even inclination of the right and left molars toward the lingual, corresponding to an inclination toward the buccal in the maxilla. In complete dentures, teeth should be positioned along this curve.

Christensen's Phenomenon

In his time, Christensen used bite plates with a wax occlusal rim surface aligned parallel to Camper's plane. It could be noted that the wax rims had only anterior contact during protrusive movement, with a gap developing in the posterior region. The steeper the inclination of the condylar pathway, the wider the gap, proving that

the inclination of the condylar pathway influences movements of the mandible.

If the prosthetic goal is to provide the patient with bilateral balanced occlusion, then using set-up templates to set the teeth with compensating curves facilitates this procedure. If teeth are set without a curve, it is probable that Christensen's Phenomena will occur.



Fig. 1 Affix set-up template below and behind maxillary anterior teeth.



Fig. 2 Align bottom edge of anterior part of template with distal incisal line angles of lower canines.



Fig. 3 Bottom side of template ends in Pound's Triangle.

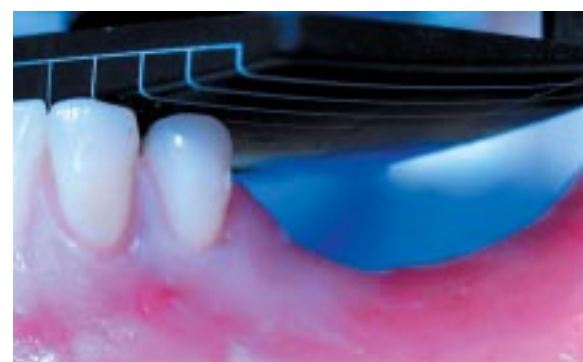


Fig. 4 Place first bicuspid in proper location according to the inferior surface of the template.



Fig. 5 Set first bicuspid in place.



Fig. 6 Use template to arrange remaining posterior teeth.



Fig. 7 Template lines up landmarks established by Pound's Line.



Fig. 8 Mandibular posterior teeth arranged according to set-up template.

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