

A Technique For Orienting Models

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Orthodontists generally criticize cephalometric roentgenograms and photographs which are not oriented in the Frankfort plane. These same orthodontists, however, trim their models parallel to the table top. Model analysis is the important part of case analysis which links other oriented records with the clinical examination. This is a step from a two-dimensional analysis to one of three dimensions. The advantages of models oriented to some cranial reference plane are not only academic but obvious.

Having such an oriented model might not change the treatment plan, but it would aid in the case analysis if the occlusal plane were correlated to that of the patient, the head plates, and the photographs. An oriented model, available for quick reference throughout treatment, would serve as an immediate reminder of some limitations and objectives. The oriented model also serves as a comparison with the final models (also oriented) in the evaluation of the treatment results. Until now, it has been impractical to orient models. Current methods such as gnathostatics or other complex techniques involve considerable chair and laboratory time, as well as the additional cost of the necessary equipment.

Here is a simple technique for orienting models in the Frankfort plane. It requires no more time than regular trimming.

1. Pour the impressions in plaster or stone in the usual manner. Be sure that there is an ample thickness of the base for the artistic portion of the model.
2. On the lateral cephalometric roent-

genogram or its tracing draw a line tangent to the lowest cusps on the maxillary arch. This line will correspond to the plane contacting the cusps if the model were resting on a table top. This is called the C line and is in the C plane. If in doubt, set the model on a table and simply observe the cusps upon which it rests. Since there must be at least three points of contact, the difference between the right and left sides is bisected on the roentgenogram.

3. Extend this C line to the Frankfort plane. Either anatomic or machine portion may be used in describing the Frankfort plane, providing all records are consistent.
4. Record the angle between the C line and the Frankfort plane (described as the C' angle). On the new attachment for the model trimmer set the C' angle attachment by adjusting the lock screws. This new attachment is shown in Figure 1 and is designed to fit conventional model trimming tables.
5. Place the occlusal plane of the

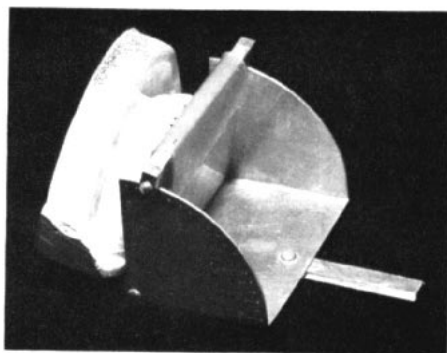


Fig. 1

maxillary model on the attachment with the anterior teeth up. (A piece of beeswax may be placed on the C plane to protect the cusps of the teeth). Now the C plane on the model corresponds to the flat surface described as the C plane on the new attachment. That is, the cusps tips that were touching the table top are now resting on the C plane on the new attachment. Keep the median raphe of the model as close to vertical as possible.

6. Trim the maxillary base to the proper thickness in the Frankfort plane.

7. Readjust the attachment to 90° and, with the teeth in occlusion, trim the lower base parallel to the upper base.

8. The sides of the artistic portion of the models are now trimmed symmetrically in the usual manner. This procedure is a simple and convenient technique by which the practitioner can accurately orient models to a cranial reference plane or the Frankfort plane.

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