

Face Bow Transfer Technique for Hanau Wide Vue Articulator

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ABSTRACT

Background: Face-bow register in three planes (antero-posteriorly, laterally, and vertically) the position of the maxillae in relation to two points on the cranium, namely, the glenoid fossae. Since the maxillae constitute an asymmetrical body rather than a finite point, the cast must also have an intraorientation. This intraorientation entails stabilization of the casts on three axes, namely, the vertical axis, the horizontal axis parallel to the condylar axis, and the horizontal axis perpendicular to the condylar axis. This intraorientation is automatically achieved by the bite-fork of the face-bow through the rigid attachment of the fork to the maxillary occlusion rim.

Keywords: Hanau Wide Vue Articulator, Hanau Spring Bow, Complete Denture.

INTRODUCTION

Orientation Jaw relation is the first jaw relation to be recorded. It establishes the relationship of the maxilla to the base of the skull or cranium. It establishes the angle or tilt of the maxilla in the three reference planes. The mandible moves in against a fixed maxilla and to accurately reproduce mandibular movements, it is necessary to establish and record the tilt of the maxilla. To record the angulation of the maxilla, a plane should be formed with at least two posterior references and one anterior reference. As the mouth opens and closes in centric relation, the movement of the condyles in the initial stages upto about 12 mm of opening and final stages of closing is a rotational movement in the horizontal axis, following an arc of circle. The axis of the rotation or arc passes through the center of the both of the condyles. The condyles are centered in the glenoid fossa during this rotational movement. If the centre of condylar rotation can be determined, it will correspond to the two posterior reference points necessary to form a plane for the maxilla, as the glenoid fossa is

located just above the centre. This is a repeatable border position and can be located consistently.² A third reference point located interiorly in the maxilla-infraorbital notch or nasion, will complete the plane.

In this article the procedure of using a Hanau spring bow arbitrary face bow (ear piece type) transfer is shown using a spring bow, a bite fork, transfer clamp assembly, a transfer jig (mounting platform) and Hanau Wide Vue articulator. (Fig. 1, 2, 3, 4, 10)

Facebow: Is a caliper-like instrument used to record the spatial relationship of the maxillary arch to some anatomic reference point or points and then transfer this relationship to an articulator; it orients the dental cast in the same relationship to the opening axis of the articulator. (GPT 8)³

Arbitrary Facebow: Orients maxilla to an arbitrary hinge axis and transfers it to the articulator. This face bow locates the true Hinge axis within a range of 5 mm. This instrument is designed to orient the

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Fig 1: Spring bow.



Fig 2: Bite fork.



Fig 3: Transfer clamp assembly with transfer rod, transverse clamp and No. 1,2,3 thumbscrews.



Fig 4: Mounting platform.

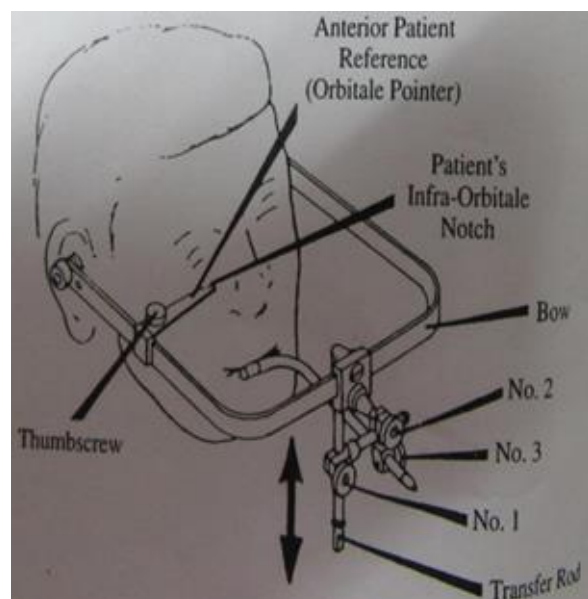


Fig 6: Face bow set up diagram

occlusal plane to the Frankfort horizontal plane by means for a third point of reference.

Plane of Orientation: The maxillary cast in the articulator is the baseline from which all occlusal relationships start. Therefore it should be positioned in space by identifying three points of which two points are located posterior to the maxillae and one point located anterior to it. The posterior points are referred to as the posterior



Bite fork placed in
Maxillary rim
(Fig. 7)⁷



Bite fork placed in
patients mouth
(Fig. 8)⁷



Stem of fork
should be parallel to
ala tragus line (Fig. 9)⁷



spring bow assembly
completed
(Fig. 10)⁷

points of reference and the anterior one is known as the anterior point of reference. The spatial plane formed by joining the anterior and posterior reference points is called plane of orientation. Prior to aligning the face bow on the face, the posterior reference points and the anterior reference point must be located and marked.^{4,5}

BOW PREPERATION⁶

1. Earpieces are attached to Bow.
2. Finger tight thumbscrew to retain the Anterior Patient Reference.
3. Transfer rod is inserted into the bow socket.

Loosen the thumbscrews at No. 3 and 2 on the bite-fork clamp and then thumbscrew No.1 on the Transverse clamp. Light application of petroleum jelly on the transfer rod will assist clamp positioning during patient application.

The maxillary and mandibular rims are properly contoured at an established vertical dimension.

1. The bite fork is heated and placed into the maxillary rim. The bite fork should be placed parallel to the plane of the maxillary occlusal rim. The fork is placed 3mm above the occlusal plane of the rim. The midline of the maxillary rim is placed on the center of the bite fork which is aligned parallel to the mid-sagittal plane of the patient. Now we accurately seat the prepared bite fork. The stem of the fork when viewed from the side should be parallel to ala tragal line (Fig. 7,8,9)

2. The transfer clamp assembly is now fixed to the spring bow. There are 3 clamps on the transfer clamp assembly. The vertical clamp 1 is tightened first. Then tighten clamp 3 which locks the stem of the bite fork. Finally clamp 2 is tightened. The assembly of spring bow with the rod is now placed on to the face. The face bow is held by both the hands and the bite fork stem is passed through the clamp and auditory plugs are slowly inserted. The orbitale indicator should now be kept at the level of the orbitale. The spring bow assembly is now completed. (Fig. 10)

The relationship registered between the maxilla and the spring bow is now transferred to the semi-adjustable articulator.

It can either be achieved by directly transferring the spring bow to the articulator or through a transfer jig. The transfer jig was used in this case.

During to the transfer process, mandibular hinge axis is made to coincide with the articulator hinge axis.

The maxillary base with the cast is now three dimensionally related to the axis of the articulator.



Fig 10: Facebow Transfer to Hanau Wide Vue Articulator

DISCUSSION

The value of the face bow has been the topic of considerable discussion and controversy in prosthetic dentistry for many years. Logan considered it indispensable; Craddock and Symmons⁸ also considered it as futile exercise.

Lazzari⁹ set forth the advantages of using a facebow as it permits a more accurate use of lateral rotational points for arrangement of teeth. It aids in securing antero-posterior positioning of the cast in relation to the condyles. A correct horizontal plane is established. Therefore the incisal plane is also properly established and finally it helps in vertical positioning of the cast in articulators. Face bow transfer is not required in following conditions -the articulators developed not to receive facebow transfer. When monoplane teeth are arranged in a occlusal balance.¹⁰ No alteration of occluding surfaces of the teeth that necessitates the changes in vertical dimension. No interocclusion check reports that would be of different thickness. But when we analyze the above said facts it is very clear that by simply stating that the articulator is not designed to accept the face bow, we cannot forget the step of facebow transfer and incorporate the errors due to blind orientation of the casts on the articulator and we cannot have single predetermined scheme of occlusal for all patients and we cannot use mono plane teeth for all cases in fact when we are cusped form of teeth facebow transfer becomes a must to achieve balance in entire positions. Changes do occur in vertical dimensions in complete dentures

due to processing and dimensional changes and if remounting in such cases shows change is there in occlusal records then, it needs a facebow transfer, as vertical dimension desired and planned on articulator require facebow transfer. Since, cuspal inclination varies when the casts are placed at different levels in articulators of course the changes may not be so great in positions but changes do occur.¹¹ The overall opinion to which majority of the prosthodontics agree in put forward by the academy of denture prosthodontics favoring the use facebow and concluded that "a facebow should be used for mounting the upper cast on any articulator that has a fixed axis of opening". As correct orientation of the occlusal plane and the inclination of the plane that we develop had effect on the masticatory performance.^{12, 13}

CONCLUSION

The need to use a facebow in complete dentures has been debated with many dentists preferring not to use the same. It is seen that not using the facebow only leads to minor errors in occlusion, which can be corrected intraoral during the delivery of the denture. In fact, studies comparing the patient response to complete dentures with or without facebow transfer failed to show any significant clinical advantage with facebow use. In this context facebow may be indicated when:

1. Balanced occlusion is desired.
2. Vertical dimension is subject to change.

If a facebow is not used, the maxillary cast is mounted arbitrarily on the articulator using the occlusal plane as a guide.²

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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