Sequence
Incisal Table

Manual

GAMMA
Medizinisch-wissenschaftliche
Fortbildungs-GmbH

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Incisal Table

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1 Content

2 Preface

In the classic articulator, joint-oriented posterior guidance elements have been designed in various ways. The wide spectrum of equipment ranges from fixed programmed averages to semi-adjustable and fully adjustable articulators. Anterior guidance was, and still is, a topic of scientific discussion. According to the diagnostic concept employed and, above all, with regard to the implementation of the prosthetics, the functional (dynamic) design in the articulator is dependent upon three guidance elements, which help to create controlled spatial movements and the morphological artificial occlusal surfaces contingent upon them.

In the area of the maxillary lateral teeth, the morphology of human dentition indicates a natural sequence in the length and inclination of the buccal cusps, from the upper first molar to the canine. This sequence also corresponds to the time flow of tooth eruption during the transitional phase from deciduous- to primary dentition.

Several models of adjustable incisal tables of various products were developed in the past, to create a practicable and more easily manageable solution for the diagnostic and reconstruction fields. However, utilization was often difficult and the concept was not always plausible, thus scientifically questionable.

Based on its flexible concept of interchangeable inclination, the geometry and mathematics of the new sequence table are clear and straightforward. The sequence table allows for the definition of occlusion concepts by means of establishing a planned angle of disocclusion. The basic principle here is always the natural morphological sequence in human dentition. Determining the quantity of the opening rotation with the sequence table opens a wide range of possibilities, from a balanced concept, to group function, or to an occlusion concept of pure canine guidance. The basis is always the natural sequence in the human masticatory organ.

It is now possible to design the anterior and posterior controls through the front tooth part and, if necessary, with a retrusive, controlling additional part.

Personal practical application has shown that the table is simple and extremely easy to use in all combinations, in diagnostics as well as in reconstruction, i.e., in various waxing-up techniques.

This is a great step towards bringing the universal application of programmable articulators closer to the everyday practice.

Prof. Dr. Rudolf Slavicek
Vienna

3 Scope of Delivery

The scope of delivery for the GAMMA Sequence Incisal Table includes the following::

- Carrier plate with guide tracks
- Protrusive guidance element blue
- Lateral guidance element blue (for right and left)
- Protrusive guidance element green
- Lateral guidance element green (for right and left)
- Protrusive guidance element orange
- Lateral guidance element orange (for right and left)
- Allen wrench (3 mm)
- CD-ROM with software for selection of guidance elements and manual.

Optionally available are:

- Protrusive guidance element yellow
- Lateral guidance element yellow (for right and left)

4 Selection of Guidance Elements

Basically, the selection of the protrusive and lateral guidance elements depends on the requirements of the specific patient's situation. The choice of individual elements determines the reconstruction waxing-up concept. Dependent upon which occlusal surface is being worked on, the table is shifted towards the front or back to the appropriate marking, found on the side of the carrier plate.

Important note: The results computed by the incisal table calculation software are based on statistical evaluations and clinical experience values. Therefore the values must be checked before applied on the individual patient case. The final decision for the treatment lies in the responsibility of the dentist or dental technician. In case of doubt do not use this product.

The guidance elements are manufactured with the following inclined guidance planes relative to the axis-orbital plane

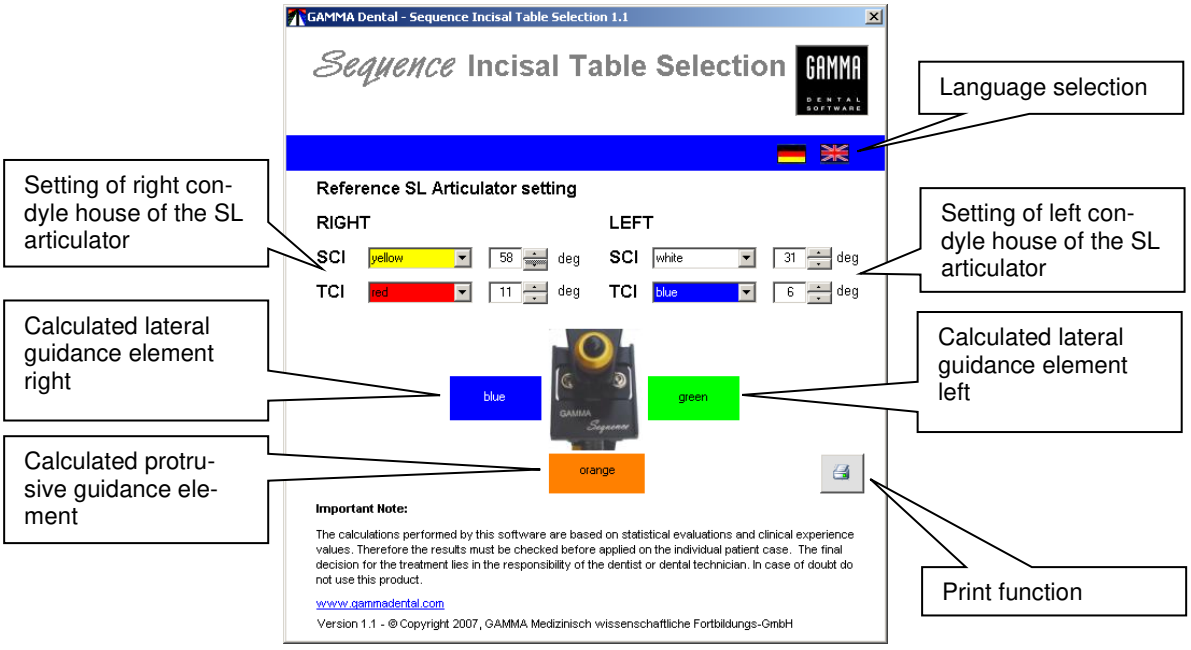
Inclinations of the protrusive guidance elements (in degree)				
	Blue	Green	Orange	Yellow*
Front F	46°	49°	53°	60°

Inclinations of the lateral guidance elements (in degree)				
	Blue	Green	Orange	Yellow*
Tooth 3	51°	55°	58°	65°
Tooth 4	41°	44°	47°	52°
Tooth 5	33°	37°	40°	46°
Tooth 6	25°	29°	33	39°

The different guidance elements may be mixed within one single patient case (e.g. blue left lateral, green right lateral, orange protrusive).

With the Sequence Table calculation software, it is possible to get a proposed setting for the guidance elements according to the posterior adjustments of the SL articulator. It is important to note, that this recommendations are based on statistical values. Therefore the usability must be confirmed for the specific patient case.

The calculations of the software are based on the correlation of posterior and anterior guidance postulated by Prof. R. Slavicek.



The calculations of the software are based on the correlation of posterior and anterior guidance postulated by Prof. R. Slavicek.

Here, the slope of the joint track to the articulator reference plane and the selected Bennett element are shown as parameters. In simplified form, it is assumed that the spatial positions of the lower front teeth (and therefore the spatial positions of the lower buccal cusps) lie within the range of a statistical median.

The Sagittal Condylar track Inclination (SCI) and the Transversal Condylar track Inclination (TCI) are the input parameters to the software and must be entered by the user according to the true setting parameters of the SL articulator.

In a statistical simplification the 3d-coordinates of the cusps of the anterior teeth and the canine are replaced with statistically evaluated mean values of such coordinates. In case the user wants to have a precise calculation based on the true cusp position of the individual patient's case, it is possible to use the GAMMA DENTAL SOFTWARE. This software is not included within the delivery scope of this product.

The input parameters are:

- SCI insert (white, yellow, red, blue, black)
- Angulations value of the SCI setting on the articulator
- TCI insert (white, yellow, red, blue)
- Angulations value of the TCI setting on the articulator

The calculations of the lateral guidance elements of the sequential table are always based on the condylar settings (SCI, TCI) of the opposite side of the articulator.

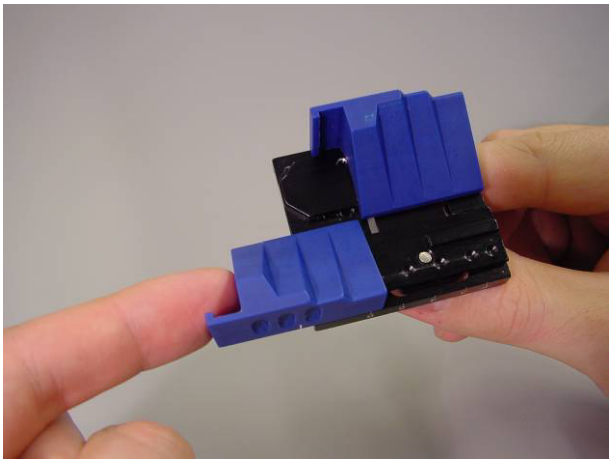
Upon any change of the SCI and TCI value in the software, the program recalculates the guidance elements of the sequential table based on statistically determined calculation parameters.

With add of the small printer symbol on the right side of the calculation window it is possible to create a simple printout of the window's contents.

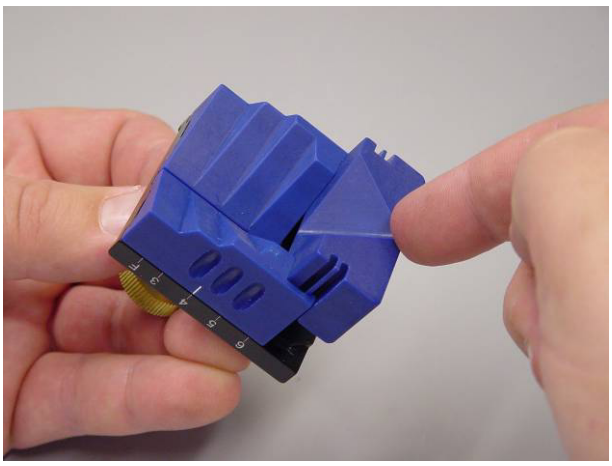
Important: In case of major deviations from these parameters, underlying the individual patient's situation, these should be taken into consideration in the selection of the guidance elements. The final decision, as to which occlusion concept to implement, rests with the doctor in attendance or the dental technician, respectively.

5 Attaching the Guidance Elements to the Incisal Table

For simple mounting, the first step is to remove (dismantle) the carrier plate from the articulator.



The selected lateral guidance elements are slid onto the beveled end of the T-nut grooves from the front of the corresponding side, up to the value of 4 on the scale.

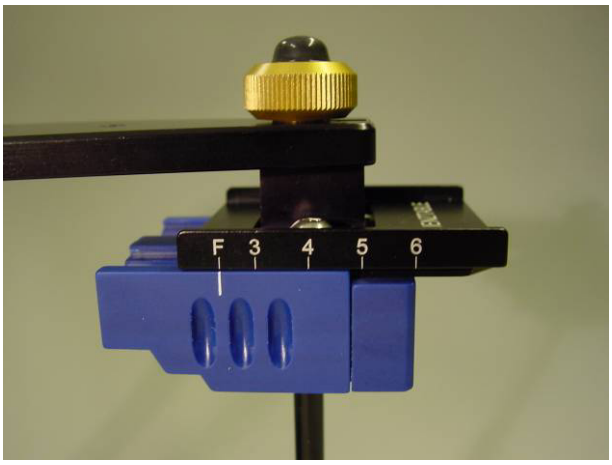


With the beveled lead-in, the protrusive element is slid up to its limit, towards the carrier plate

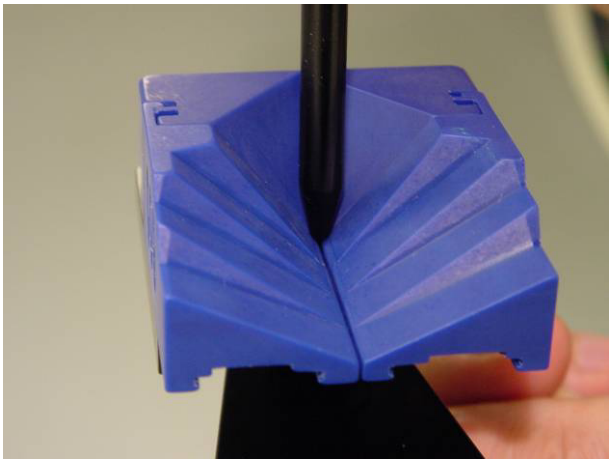
6 Mounting the Table on the Articulator

To mount the incisal table, carry out the following steps:

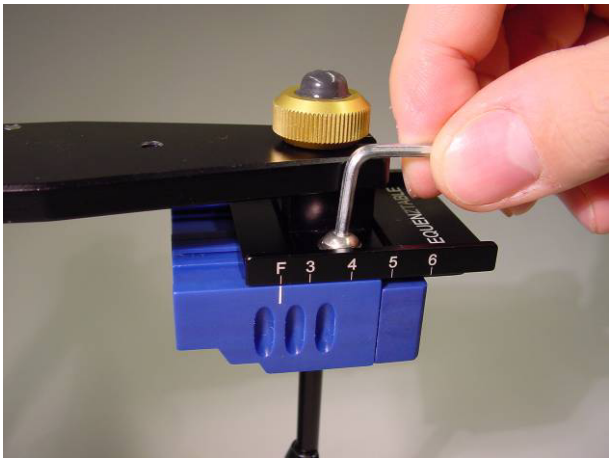
Set the incisal pin of the articulator to 0, and screw in tight. Fix the condylar elements of the articulator in the centric position.



Move the incisal table to the F position and, with the elements mounted in the appropriate retainers, push the table onto the upper part of the articulator. The inscription on the upper surface of the table (“Gamma Sequence”) is in front.



Slide the table so that the tip of the incisal pin reaches into the lead groove on the protrusive element. Screw the table tight in this position.
Check the adjustment of the table by opening and closing the articulator lightly, making sure that the incisal pin remains in the middle of the groove and does not slide over one of the adjacent guide surfaces into the 0 position when the articulator is closed.



If the latter does occur, the table must be adjusted. Use the screwdriver provided in the delivery package to loosen the two mounting screws on the upper side of the carrier plate; then move the carrier plate to the null position in sagittal and transversal direction and fix the plate by screwing in tight.

When moving the table through all of its settings, the incisal pin must slide in the lead groove without deviation.

7 Sequential (Dis)Occlusion Concept

The so-called “disocclusion concept” dictates the functional interplay of the maxilla and mandible in laterotrusion movement on the laterotrusion side.

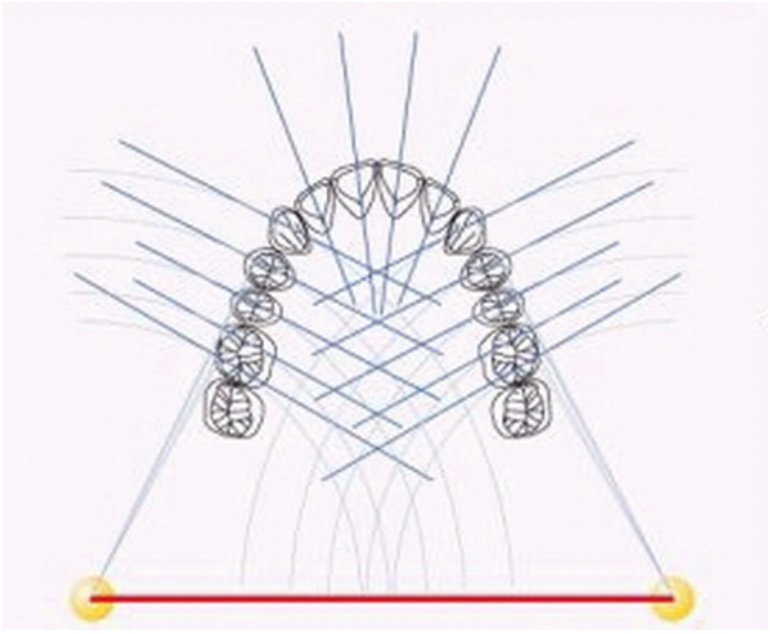
In a simplified view, the buccal cusp tip of a mandible lateral tooth represents the anatomical point of the mandibular tooth in motion which, in laterotrusion movement, is the point of departure for the guidance track followed by its antagonist in the maxilla. It is therefore defined as Functional Point 1. Since all teeth in the jaw are anchored in the same bone and have a fixed spatial allocation, and mandibular movement is defined by the border movements of the mandibular joint, a so-called “disocclusion schema” can be created, by means of various configurations of the tooth guidance surfaces in the upper jaw (Angulation).

Therefore, this disocclusion concept describes how the mandibular cusp moves, relative to the maxillary guidance track: whether it glides onto it or whether it deviates from the guidance track and, if so, at which angle it deviates (=Angle of Disocclusion).

Teeth which make contact with their antagonists along the guidance track during laterotrusion movement are designated as *guiding teeth*. In the geometric nature of every disocclusion concept, at least one tooth must be a “guiding” tooth. A tooth which departs from the designated guidance track is considered to be “disoccluding”, whereby the relative angle of departure from the track is designated as ranging from slight- to strong disocclusion.

The Functional Morphology of naturally developed maxillary lateral dentition:

In his professorial dissertation published in 1984, Prof. Slavicek sectioned, measured and worked out statistically the morphological-functional slopes of the buccal cusps of the upper front- and lateral tooth regions, relative to a joint-oriented reference plane.

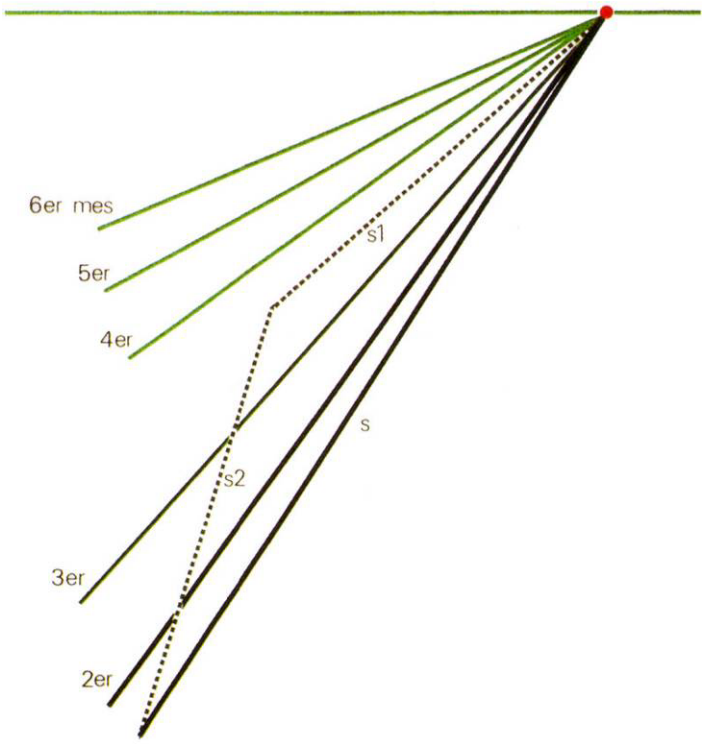


Morphological section

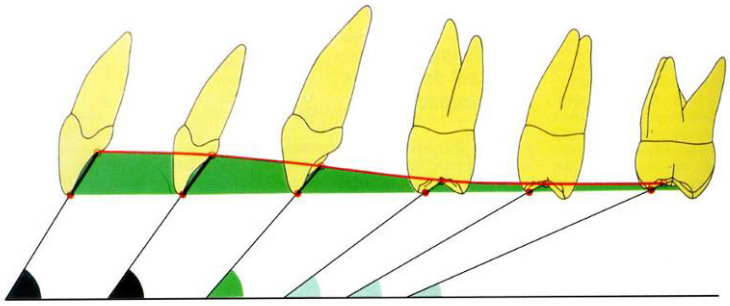
The graphic shows the schematic illustration of a maxillary row of teeth in the articulator. The blue lines represent the lines of intersection which were applied in order to measure the cusp flanks. The intersecting lines were determined in such a way that a tangent of a circle could be drawn, having its

origin in the articulator joint of the same side and passing through a point of the central fossa on which, in intercuspation, the cusp of its mandibular antagonist lies.

The following graphic illustrates the average values of each individual teeth guidance to the hinge-axis-orbital plane:



For clarification, the graphic can also be displayed in a lateral projection, as follows:



The graphic representation of the functional chords, relative to the reference planes (hinge-axis-orbital plane), indicates a definite dominance of the front-canine group in comparison with the lateral teeth, as well as, posteriorly, a sequentially decreasing slope of the cusp inclination to a functional reference plane.

8 Using the Table in the Articulator

Based on its flexible concept of interchangeable inclination, the geometry and mathematics of the new sequence table are clear and straightforward. The sequence table allows for the definition of occlusion concepts by means of establishing a planned angle of disocclusion. The basic principle here is always the natural morphological sequence in human dentition. Determining the quantity of the opening rotation with the sequence table opens a wide range of possibilities, from a balanced concept, to group function, or to an occlusion concept of pure canine guidance. The basis is always the natural sequence in the human masticatory organ.

The Incisal Table's scaling makes it easy to adjust the table to a guidance track, which forces the articulator into an opening rotation during lateral movement, thereby creating the inclination of the guidance track on the tooth.

The fan-like guidance surfaces of the sequence table facilitate a direct assignation to the tooth and, among other things, allow for the simple implementation of the natural occlusion concept of sequential occlusion.

9 Cleaning and Storage

The storage location should be clean and dry. Contamination from foreign substances should be avoided.

The incisal table may be cleaned with compressed air or may be wiped clean. Make sure that the grooves and springs of the carrier plate and the guidance elements do not become soiled, as this would make the guidance elements difficult or even impossible to move. After cleaning the table, the grooves of the carrier plate should be lightly lubricated. (Vaseline, NO OIL)

10 Literature

Multimedia course:

Prof. Slavicek and team
"Wax Up Class I Occlusion"

German: ISBN 978-3-9501261-3-6
English: ISBN 978-3-9501261-4-3
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Diether Reusch, Paul-Gerd Lenze, Herbert Fischer
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