AD2 ARTICULATOR COMPONENTS
The AD2 articulator, designed by Dr. Robert Williams, like other articulators, reproduces the border mandibular movements and closing arcs, but it also presents the following advantages:

a) A standard pattern of construction which is responsible for it being interchangeable, an important characteristic of this system. This allows us to evaluate our patient’s occlusion in any AD2 articulator with great precision. This apparently insignificant trait acquires importance when we have more than one articulator in our practice or if we want to send our casts to another professional.

b) Three dimensional curved path analogs of motion that include lateral border, protrusive and curved path Bennett pathways.

c) “Side shift activators” that maintain the upper and lower frames together at all times so handling the articulator is much easier. Incorporates the immediate side shift in lateral movements.

d) The addition of two elements: a specially designed incisal table and the bite-fork stem which does not require sending the facebow to the lab when mounting the upper cast.

e) A device called MCD (Measures Condyle Displacement) that measures the three dimensional position the condyle adopts at the moment of maximum dental intercuspal occlusion. It measures the condylar position change from centric relation to centric occlusion.

f) A centric lock that centers the upper frame over the lower one.

g) A security system (centric latch) that locks the upper frame to the lower one during the cast mounting procedure. This latch secures the “hinge axis” in place.

h) A test column that allows us to periodically check the articulator’s calibration for accuracy.

For a better understanding of the AD2 articulator, what follows is a brief explanation of some of its basic design characteristics as well as its different components.

AD2 Articulator Design

In Figures 1 and 2, we show the main components of the AD2 articulator.
Figure 1. Main components of the AD2 Articulator:

Figure 2. Other components used for mounting the upper cast:
(1) Bite-fork, (2) Bite-fork stem, (3) Mounting fixture

To summarize and for practical reasons, the AD2 system components will be classified in two types:
1. Basic components
2. Accessories
Basic Components

Upper frame
Lower frame
Incisal table (green)
Mounting fixture for the upper cast (black)
Bite-fork stem for the upper cast
Bite-fork
Facebow
Mandibular mounting stand
Mounting plates

Accessories

Instrument to register condylar position three dimensionally (MCD)
Test column

Upper frame

It is comprised of various structures such as (Figure 3):

Figure 3. Upper frame components – upper view:
Lower Frame

The AD2 is an Arcon type articulator since the condyle spheres that represent the mandibular condyles and are on the lower frame (Fig. 4).

![Diagram of lower frame elements]

Figure 4. Elements of the lower frame – upper view
(1) Condyle spheres, (2) Centric lock which centers upper frame over lower, (4) Side shift activator lower support, (5) Mounting fixture for the upper cast, (6) Mounting plate screw.

The incisal table (green) and the mounting table for the upper cast (black) are inserted in the anteroinferior part of the lower frame, through a slot and fixed in position by a manual screw (Figure 5).
Figure 5. Mounting fixture for the upper cast

To maintain the upper and lower frames together, the side shift activators (black) are inserted on both sides of the articulator. The side shift activators are fixed and loosened by manually rotating clockwise or counter-clockwise the screws located in the upper part of the articulator (Figure 6).

Figure 6. Union of the articulator frames with the side shift activators
Observe the lines and numbers on the lateral part of the upper frame; they represent the angle of eminence of mandibular fossa inclination in different degrees (Figure 7).

![Figure 7. Articular eminence inclination](image)

To change the inclination of the articular eminence, loosen the two screws located at the upper back part of the upper frame. Use the specially designed wrench (Fig.8).

![Figure 8. To change the articular eminence inclination.](image)

In the center of the lower frame is located the metallic (gray) centric lock and plastic (green) centric latch, which once activated centers the upper frame over the lower and locks the upper frame so that only vertical (opening and closing) movements are possible.
To activate the metallic centric lock it must be lifted manually and then pushed up and forward completely into the upper frame slot (Figure 9).

![Figure 9: Activation of the centric lock.](image)

The centric latch locking screw found in the central part of the lower frame is used to lock the centric latch down. When the centric lock is pulled down, this will allow movement of the top of the articulator. To activate the centric latch locking screw, turn it ¼ turn. To deactivate the screw, turn it back ¼ turn (Figure 10). To release and seat the centric latch, push down gently on the latch and then pull down on the locking screw. The spring will start to seat the latch. Finish seating the latch by pushing up and forward.

![Figure 10: Activation of the plastic centric latch](image)
Figure 11: Metallic centric lock and Plastic centric latch in position

The other basic components of the AD2 articulator are:

- Mounting fixture for the upper cast (in black) (Figure 12)
- Bite-fork stem (Figure 13)
- Bite-fork (Figure 14)
- Facebow (Figure 15)
- Mandibular mounting stand (Figure 16)
- Mounting plates (Figure 17)
Accessories of the AD2 articulator

- Instrument to register condylar position three dimensionally (MCD)
- Test column

MCD (Measures Condyle Displacement) instrument

The MCD (Figure 18) is an instrument that records in all three planes of space the position of the condyle in Centric Relation (CR) and when the teeth are in maximum intercuspal position (MIP) or centric occlusion (CO).

The MCD consists of two lateral recording tables (Figure 19) that are used to measure the sagittal (anterior–posterior) and vertical condylar distraction. It also has a
third recording table in the center of the lower frame (Figure 20) that measures the transverse condylar displacement.

To measure the condylar displacement use articulating paper (red) and recording graphs (Figure 21) that are placed on the recording tables. The vertical and horizontal lines on these tables aid correct placement of the graphs.

The procedure called “condylar position recording” with the MCD will be explained in detail further on.
Test Column

The test column (Fig. 22) is used to periodically check the accuracy of the articulator. A detailed explanation of how to check this in the lab will be presented.

Figure 22. Test column