

DVAS' MODEL SYSTEM TECHNIQUES AND INSTRUCTIONS

Note: The DVA Model System is supplied with clear base plates; if desired, Full Arch Base Plates are available in white.

I. TRIMMING OF IMPRESSION (Establishing Thickness of Arch)

Trim the IMPRESSION to within $\frac{1}{4}$ inch (7 mm) of the gingival margin areas using the 'Impression Trimming Knife' provided (Figure 1). Attempt to trim the impression such that the peripheral border is equal distance (the same height) from the occlusal plane in both anterior and posterior areas as well as right and left sides. Doing so provides a model which is equal in height throughout the arch.

On UPPER IMPRESSIONS, trim the palate to a height level with the labial and buccal border. The height of the poured arch will be a result of the depth left in the impression from the rimmed border and lingual, palatal areas to the occlusal surface. Care should be taken that pontic areas are not to thin.

II. MOUNTING OF IMPRESSION ON 'ALIGNMENT FIXTURE'

After placing a quantity of 'Sealing Silicone' (provided with the System) on the center of the 'Alignment Fixtures' Base, place the impression over and onto the silicone mass. NOTE: While normally not necessary, any large 'open' or 'end' areas of the impression can be pre-sealed with small amounts of the 'Sealing Silicone'. Attempts should be made to 'center' the impression with respect to the 'outlines' on the Base (Figure 2).

Place a 'Base Plate' into the appropriate 'Alignment Fixture Top' (either Full or Quadrant) and position over the 'rods' of the Base portion of the 'Alignment Fixture' (Figure 3). Note: The flat side of the 'Base Plate' should face the impression (feet facing up). Adjust the impression on the silicone mass to position the 'working parts' (preparations, etc.) of the impression $\frac{1}{4}$ inches (10 mm?) inside the borders of the 'Base Plate' outline.

Care should also be taken to align the occlusal surfaces of the impression parallel to the floor of the 'Base'. Again, such an alignment insures an attractive model, which is equal in height throughout the arch.

Move the 'Adjusting Nuts' on the rods to level the top in a desired position parallel to the occlusal surface. While the 'Top', containing the 'Base Plate' should be relatively close to the impression, it is not necessary to be flush against the trimmed borders of the impression. The final height of the 'Alignment Fixture Top' with respect to the impression determines the poured arch's final thickness. Any excess stone caused by the slight opening between the impression and the top is easily broken or trimmed away after pouring.

III. DETERMINING PIN LOCATIONS: TWO TECHNIQUES

TECHNIQUE ONE: A design change in the DVA Model System 'Alignment Fixture Base' offers the technician an alternative technique to marking the dowel pin locations with a marking pen.

1. Center the impression within the opening of the 'Alignment Fixture Top' (Figure 3).
2. Insert the DVA 'Base Plate' into the 'Alignment Fixture Top' (Figure 4).
3. Position the 'Alignment Fixture Top' the underside of the 'Alignment Fixture Base'. The post extensions are inserted into the holes of the 'Top'. The smooth side of the 'Base Plate' should be facing down with the feet side of the 'Base Plate' facing up toward the underside of the 'Fixture Base' (Figure 5).
4. Place entire 'Alignment Fixture Assembly' on the drilling machine. Lower the pointer into the impression to the desired pin location. Drill the 'Base Plate' by firmly holding the sides of the 'Alignment Fixture Base' to the drilling table, using the thumb and index finger as a clamp (Figure 6).
5. Insert pins in drilled holes and pour impression in the normal manner.

TECHNIQUE TWO: Pre-marking Pin Locations on 'Base Plate'.

1. Once the 'Base Plate' is in position over the impression, use the water-soluble 'Marking Pen' (Figure 7) provided in the assortment to mark the desired pin locations following the instructions outlined in 'Section IV' below. *Note: Placing the marks too close together could result in a 'figure 8' drilled hole configuration and preclude the seating of the two pins.*

IMPORTANT NOTE: During marking procedures, position the 'Alignment Fixture' impression configuration such that the 'Base Plate' is perpendicular to the 'plane of sight'. Attempts should be made to maintain this 'perpendicular' relationship with each pin placement marked.

IV: DRILLING & PIN PLACEMENT PROCEDURE

The holes can now be drilled into the 'Base Plate' using the 'DVA Pinner'.
REMEMBER, THE DEPTH OF 'DRILL' HAS BEEN PRESET. (See 'Adjusting Pin Depth' to change.)

Remove the 'Alignment Fixture Top' with 'Base Plate' and with the flat side positioned downward against the drilling table (articulating keys pointed 'up'), align a marked dot directly under the 'Pointer tip' (or align by direct sight).

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DRILLING TECHNIQUE:

Holding the 'Top' or Complete 'Alignment Fixture' securely against the table with your thumbs, press the drilling table down against the stops, thus drilling completely through the 'Base Plate' from the bottom.

Still holding the **assembly** firmly against the table top, allow the table to return to its' upper-most position. Without moving, quickly drill a second time, thus clearing the previously drilled hole of any possible debris. *NOTE: Drilling should be done briskly, without any pause at the bottom of the stroke. Rather than pausing at the bottom of the stroke, immediately return the table to the 'top of the stroke' and quickly 're-drill'.* Repeat for each marked pin location.

If necessary, use the supplied 'Reamer' to further clean any remaining debris from the holes (**Figure**).

After all holes have been drilled and cleaned, and *without using glue* insert a 'DVA Dowel Pin' into each drilled hole (**Figure**). After all pins have been positioned, the flat edge of the 'Rubber Pusher' should be utilized to seat each individual pin snugly into the drilled holes. A little experience will quickly teach the pressure necessary for proper seating. Remember, firm but not tight – a slight push on each pin is all that is necessary!!! Do NOT FORCE the pins into position by pressing onto a table top, etc!!! Doing so will render the final poured die segments difficult to replace accurately down onto the 'Base Plate'. Repositioning the 'Base Plate' back to the 'Fixture Base' before mixing and pouring the die material is an excellent method of verifying proper dowel pin alignment. NOTE; Both the 'Bases' and the 'Tops of the Alignment Fixture' are color-coded (5 colors) to assist with easy relating of the appropriate impression and drilled tops.

V. POURING THE MODEL

Mix the die material of choice and pour into the impression. Pouring is accomplished by placing the 'Alignment Fixture' and impression configuration onto the vibrator. Note: Setting the edge of the 'Fixture Base' in the center of the vibrator works best. Fill only the 'teeth area' on the vibrator. Then remove and use the spatula to build up the remaining stone to the necessary thickness of the arch. Insure that enough model

material is added to the impression to 'join' with the 'Base Plate' after its' repositioning on the 'Alignment Fixture'. Flow a small amount of die material around the pins and reposition the 'Base Plate' onto the 'Alignment Fixture' (Figure). Keeping the stone used to a minimum allows easier separation of the model from the 'Base Plate'. Care should be especially taken to keep the amount of stone in the lingual to a minimum, thus allowing easier separation with the tapping of the 'Hammer'.

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VI. SEPARATION FROM 'ALIGNMENT FIXTURE'

It is not necessary to wait until the die material attains its final hardness to separate the model (still intact with the impression) from the 'Alignment Fixture'. First, while pressing (or holding) the 'Base Plate Fixture' down with your thumb without touching any dowel pins, then gently pull up on the top lifting it off and away from the vertical rods. Then, ONLY grasping the impression tray, carefully remove the impression from the silicone mass. The 'Alignment Fixture' is now free to be reused.

VII. MODEL SEPARATION FROM IMPRESSION AND 'BASE PLATE'

After the die material has sufficiently set (between 35 – 45 minutes), and without allowing any separation between the 'Base Plate' and the poured arch, remove the impression from the arch. The model can now be easily separated from the DVA 'Base Plate' by holding the plate in your hand and, using the 'Hammer' provided with the system, gently tap as close to the center of the lingual area of the 'Base Plate' (Figure) as possible. NOTE: To prevent undesired breakage, thin pontic areas which might break during separation of the model should be sawed prior to attempting to separate the model from the 'Base Plate'. If the model was allowed to remain on the 'Base Plate' for an extended period of time, for example overnight, saw cut as described to relieve stress and prevent breakage BEFORE removal from the 'Base Plate'.

VIII. TRIMMING OF THE MODEL

With reasonable attention during the impression centering, vertical alignment and pouring procedures, very little trimming should be necessary. The 'DVA Trimmer' with its built-in evacuation is ideal for shaping purposes (Figure).

After trimming, the arch may be returned to the 'Base Plate' for sawing into segments. Place a small 1/16 inch article (such as a bur, etc.) between the arch and the 'Base Plate' to allow sawing through the arch without damaging the 'Base Plate' surface. (Figure)

shows the use of the DVA 'Sawing Helper' (Also provided) which stabilizes the 'Base Plate' and arch during sawing procedures. If desired, the arch may be mounted on the 'Sawing Helper' in an 'upside-down' position to allow sawing from the bottom, down, through the arch – thus remaining away from the margins (Figure).

Remove, clean thoroughly and reposition each segment of the arch onto the 'Base Plate'. Your 'DVA MODEL' is now complete and ready for use (Figure).

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IX. ARTICULATION ALTERNATIVES

The DVA Model System offers two 'Split-Cast', as well as 'Glue-On' Methods for Articulation.

1. SPLIT-CAST METHOD WITH THE USE OF 'DVA MAGNETS'.
(The 'Magnets' are provided in the system.)

Using cyanoacrylate adhesive, glue a 'disc' provided to the 'back' of the 'Base Plate'. NOTE: Use ZAPIT 'Accelerator' to harden all excess glue. Place a 'DVA Model System Magnet' against the metal Disc and articulate with plaster (Figure).

2. SPLIT-CAST METHOD WITH THE USE OF 3 'DVA DOWEL PINS'.

Drill 3 holes in the 'back side' of the 'Base Plate' and insert 'DVA Dowel Pins (Figure). The dowel pins will remain in the plaster upon articulation.

Prior to mounting with plaster, it is advisable that all pins be covered/protected with an application of DVA 'Hotstikz Wax' or 'Silicone Seal. Either of these products, while protecting the pins from plaster, will separate easily after the mounting plaster has hardened.

3. USE OF 'GLUE-ON, PLASTER-LESS ARTICULATORS'.

The chemistry of the DVA 'Base Plate' allows a very positive adhesion with cyanoacrylate glues. DVA 'Aqhesive' and 'Zapit Accelerator' are ideal for attaching 'Glue-on' Articulators to the bases. (Figure) shows the use of the DVA 'ArtiQuick' Articulators. As well as being attractive, the final configuration is light weight and its tenacious bond makes it durable and inexpensive to ship.

X. ADJUSTING THE PIN DEPTH

The ideal drilling depth should result with the dowel pins shoulder being even with or slightly above the surface of the 'Base Plate'. The end of the pin should protrude just beyond the bottom of the Base (Figure).

To Adjust Drilling Depth: Locate the 2 'stop bolts' located under the drilling table. Using a ½ inch or 13 mm wrench loosen the 'stop nut; by turning counter clockwise to the right. To increase the drilling depth, turn the 'stop bolts' clockwise to the left. To decrease the drilling depth, turn the 'stop bolt' counter clockwise to the right. Test drill several holes and adjust 'stop bolts; as necessary. To secure the desired position tighten each of the 'stop nuts'.

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XI. HELPFUL TECHNICAL GUIDANCE.

1. QUADRANT IMPRESSIONS should be positioned to the extreme right or left of the 'Base Plate'.
2. TRIPLE-TRAY IMPRESSIONS should be positioned on the 'Alignment Fixture Base' with the poured opposing model still intact in the impression. In other words, pour the opposing first, fabricate the DVA Model segment next, and then, only after all is completely articulated, separate the impression.
3. TIGHT DIES that are difficult to re-seat are caused by inserting the pins in too firmly during the initial seating procedures.
4. BREAKS IN ARCHES DURING SEPARATION FROM 'BASE PLATE' can be prevented by making one, single saw cut through a thin portion of the of the arch prior to tapping with the 'Hammer'. If possible, do NOT permit arches to set in 'Base Plate' overnight prior to separation.
5. PREPARATIONS TOO SMALL FOR TWO PINS. If small anterior preparations do not offer enough room for two pins, drill only one hole (for the most labial pin) and then drill a slight, distinct depression into the model just lingual to the pin for anti-rotational stability (Figure).
6. LOOSE OR WOBBLY DIES. Dies demonstrating 'movement' are a result of excessive thickness in the poured arch or improperly seated dowel pins. Care should be taken that the impression is trimmed as specified in Section I. Also, care should be taken that each dowel pin is individually pressed into the 'Base Plate' as outlined in 'Section IV'. (See the DVA Die Stabilization Technique' with Rocket or Zapit.)

XII. AUXILLIARY DVA PRODUCTS

The following products have proven of great benefit to those using the 'DVA MODEL SYSTEM'. For further information on any of these products, please call (800) 228 – 6696 or visit our website at www.dentalventures.com.

DVA REFRACTORY DUPLICATING SYSTEM

A helpful adjunct to the 'DVA Model System' is the 'DVA Refractory System' (Figure). This system greatly reduces duplicating and refractory material costs, while perfectly replacing articulation and occlusion by duplicating selected master model segments in 'refractory material' upon the original master 'Base Plate'. It's simple to use and reasonably priced.

ZAPIT

HOTSTIKZ

ARTIQUICK

HI-TEMPERATURE DOWEL PINS

ADD A FEW BENEFITS HERE