Reference Denture

This is an impression utilizing the patient's existing denture. A heavy body / light body technique should be used with border molding movements at both steps. If upper and lower are done, capture occlusal bite with a fast set bite registration material.

When scanning reference denture impression with an I/O scanner, only the intaglio, borders, and buccal surfaces are needed in the capture. Do not scan the occlusal/palatal (tongue side) of the dentures. Hold the dentures together with the bite registration (or place back into the patients mouth, having them close lightly into the bite registration), then scan the left and right sides to capture the occlusal alignment. The scans of the 2 impressions within the dentures and the bite scan are what is sent to the laboratory.

Lab steps – 3Shape

Set up the case with the desired denture base (denture base or base with designed teeth) and tooth materials. Select "Digital Impression" as your entry info. Click "Next"
Refine Options: Select all 3 items, check "Impression" scan type, click "Refine"
Mark the borders of the impression with the spline marking tool taking care that this line does not "fold over" itself or cross over open areas of the captured impression. Do the same for the other arch. This step will invert the digital impression into models aligned to the bite registration scanned by the Dentist.

Copy Denture

This is an exact replica of patient's existing denture – although it can be accomplished with an impression wash for an updated intaglio fit.

When scanning for a Copy Denture with an I/O scanner, all of the denture surfaces must be captured. Intaglio, borders, buccal, occlusal, and lingual surfaces. Dentures that are very smooth will be more difficult to scan – scan spray can be used.

Lab Steps – 3Shape

Set up the case as a "Copy Denture", with desired denture base and tooth materials. Select "Model" as scan type. Identify denture teeth and then confirm border of teeth with spline – in desired segments or full arch.

If impression wash was utilized, smooth/adjust areas on buccal border surfaces where excess impression material exists. Otherwise this excess will be replicated in the copy. Generate STLs of teeth and base, print/mill, assemble, cure.

Jimmy Stegall   jimmy.stegal@dentsplysirona.com   803.367.6157

Scanning Denture Strategy – REFERENCE DENTURE
- Set up case in Primescan as "Arch Scan", and "Impression" – Go to acquisition screen
- Select arch/catalog

(With "Impression" selected, you can scan opposing or bite, but it isn't required – ie Single arch dentures)
- Start scan on buccal surface of molar, moving steadily around arch capturing all buccal surfaces of teeth *(For Reference Denture, you do not need to capture occlusal surface of denture*)*
- Extend to buccal border and circle back around, capturing all border areas
- Examine thickest area of border and begin intaglio capture by rolling over thick border area into intaglio surface – Once an area of the intaglio is captured, extend scanning to aquire entire intaglio surface by zig-zagging scanner across palate.

*Note – Lab software requires a "non-watertight" scan for this workflow

Scanning Denture Strategy – COPY DENTURE
- Set up case in Primescan as "Arch Scan", and "Impression" – Go to acquisition screen
- Select arch/catalog
  (With "Impression" selected, you can scan opposing or bite, but it isn't required – ie Single arch dentures)
- Start scan on occlusal buccal surface of one of the molars, moving steadily around arch capturing all occlusal* and some of the lingual surfaces of teeth.
- Continue back around linguals of teeth, capturing some of the palatal surface
- Capture remaining palatal surface *(May need scan spray for reflective/deep areas)*
- Go back to occlusal surface of molar and roll over to buccal, capturing all buccal surfaces and extending to buccal border areas
- Extend to buccal border and circle back around, capturing all border areas
- Examine thickest area of border and begin intaglio capture by rolling over thick border area into intaglio surface – Once an area of the intaglio is captured, extend scanning to acquire entire intaglio surface by zig-zagging scanner across palate.

*Note: Lab software requires a watertight scan for the Copy Denture workflow (3Shape)

Primescan Exporting
- Once scans are accomplished, they must be exported from the Primescan as STL filetype (if their lab does not have Case Connect Center InBox), in order for lab to utilize in digital denture creation *(Until Case Connect Center / 3Shape Communicate integration has mapping to recognize the denture scan as a digital impression)*
- CCCIB users won't need this export as they can download scans in STL format.

Other Comments
- Copy Denture scans are typically a little tougher. Primarily due to the smoothness and/or reflectivity of the palatal or intaglio surfaces.
- I am a fan of scan spray, and use it almost always. Just makes both workflows scan easier. *(We have some potential big clients (Dandy) that want to have a scanner and workflow that doesn't use scan spray…)*
- Some tricks I have used when scan spray isn't enough –
  - Place small dots of a non-reflective wax randomly on the smooth areas to give the scanner some "reference points". Labs will have no problem adjusting their virtual models for this. Don't recommend doing this on intaglio surfaces… but I have never needed to add wax when using scan spray on intaglio.
  - There is also a product that Docs use – Liquid Dam – to seal around the edges of rubber dam placements. It typically comes in small syringes with fine tips. It is a light cured or

fast setting silicone that is easy to peel off the denture after using.   I will express small dots, squiggles, etc across the smooth surfaces for the same reason as listed above.

- Check the tip on the Primescan – if it's dirty or old, clean or replace it. I actually like to use the disposable tips if I can get one to insure the PS is happy with the data it is capturing.
- Seems to be less problematic if PS is rebooted before attempting denture scans – if it has been on for a bit, I always shut it completely down first.

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