Completely Digitalized Treatment, Part 1

Digital Approach Based on Analog Fundamentals: Peter Hölldampf Describes a Prosthetic Treatment with a Zeramex XT Ceramic Implant, Custom Abutment, and Monolithic Zirconium Crown.

1 Zeramex XT16510

"A patient came to the practice with the request to provide a solution for tooth 37 to stop the ongoing elongation of the antagonist. She rejected a metallic solution. The practitioner had already successfully treated several patients with zirconium implants. Therefore, it was suggested to the patient to use a Zeramex XT ceramic implant, a custom abutment, and a crown made of monolithic zirconium dioxide."

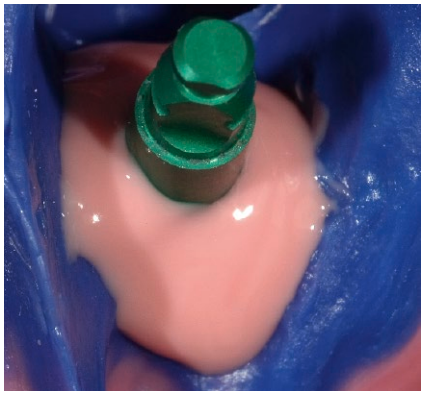
Implantation

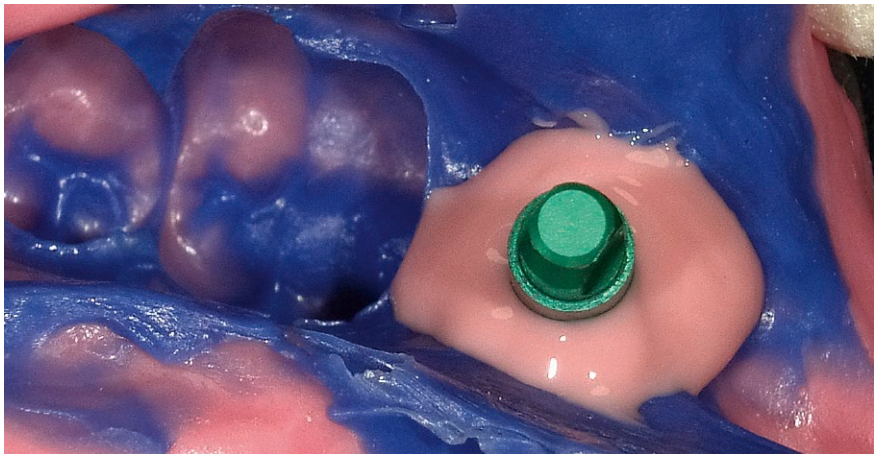
The implantation was carried out following the classical protocol. A Zeramex XT16510 (Fig. 1) was placed supra-crestally. The opening was done after a three-month healing phase, using the Gingiva formers.

Everything went smoothly. The patient had no complaints. The impression was taken using a closed tray technique.

Prosthodontics

Dental and digital competence pays off more than ever today: to proceed from the impression to the final





2 and 3 Impression with the Digital Implant Replica RB

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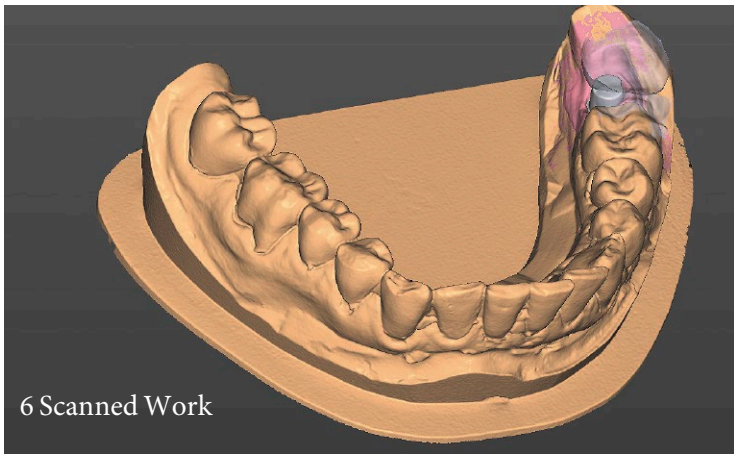
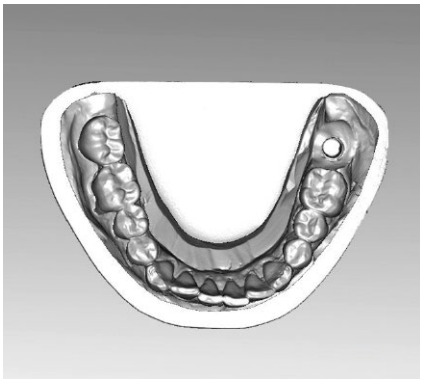
"4 Master Model with Abutment XT ZERABASE RB16530 | 5 Master Model with Scan-Body RB36514"



6 Scanned Work

7 Bite Scan



8 Jaw Scan

To ensure a smart supply chain for both the practitioner and the patients, this case was sent to Geiger Dentaltechnik, the competence center for Zeramex in Germany, with a request to create the reconstruction. This approach leverages both laboratory expertise and years of digital experience. Geiger is one of the pioneers of dental CAD/CAM technology.

Model Production

The model production is not explained in detail – the work processes are known to every dental technician. The removable gum mask is mandatory to assess the abutment fit during later checks.

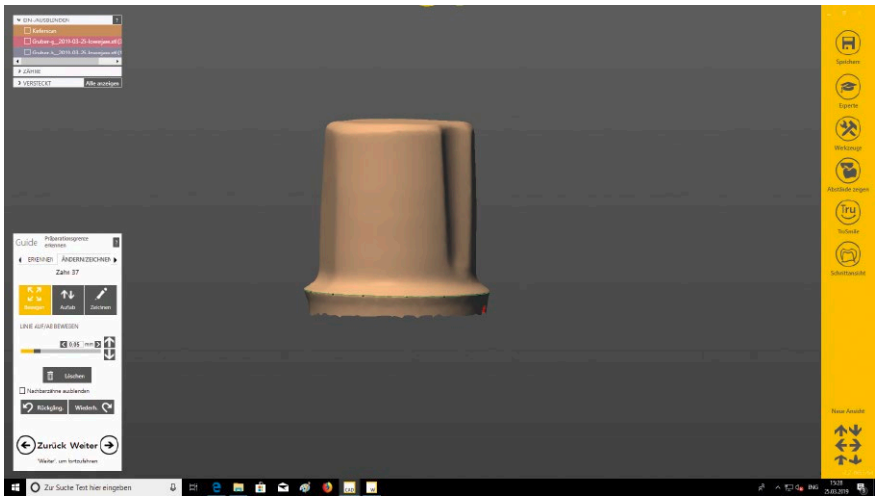
To control the fit of the abutment and the dental prosthetic restoration, a removable gum mask is used. For this purpose, the new Digital Implant-Replica RB is chosen, which encompasses all the advantages for digital and analog steps (Fig. 2 and 3). The master model is intentionally created without any saw cuts to simulate the same situation as in the mouth for the later contact point. The placement of the XT Abutment ZERABASE RB16530 into the master model is carefully checked for height and can be trimmed if necessary (Fig. 4)

Digital Workflow

The created master model serves as the basis for scanning. The essential scan body RB36514 is part of it (Fig. 5).

The Sequence

After scanning the model (Fig. 6), the next steps are the bite scan (Fig. 7) and the jaw scan (Fig. 8). The next step is defining the margin (Fig. 9) as well as scanning the gingiva. (Fig. 10)

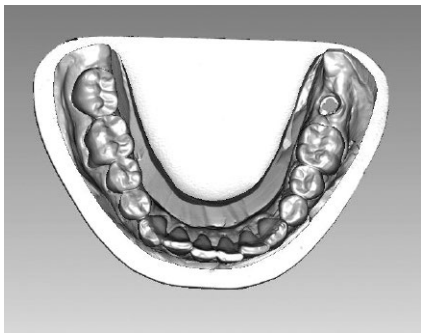


9 Margin Configuration

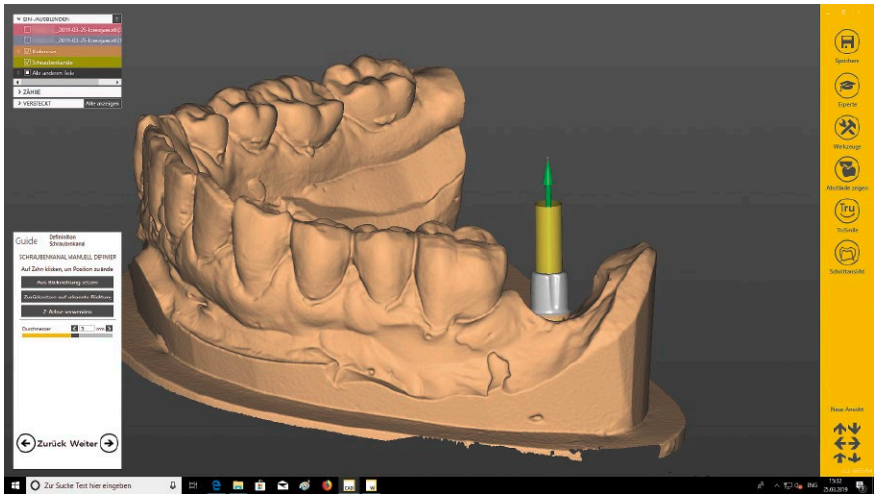
The orientation of the screw channel is crucial. It should run parallel to the contact point (Fig. 11). After that, the model is equipped with the scan body RB36514 (Fig. 12). Digitalization continues with the establishment of the cement gap, according to the needs and preferences of the practitioner (Fig. 13).

Custom Abutment

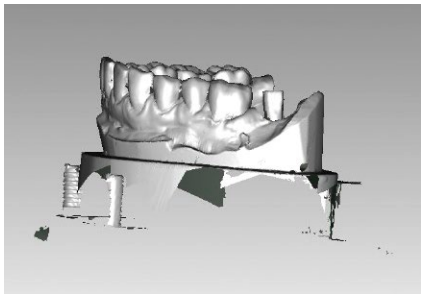
Another important step is designing the emergence profile (Fig. 14) so that the custom abutment precisely emerges from the implant within the gingiva.



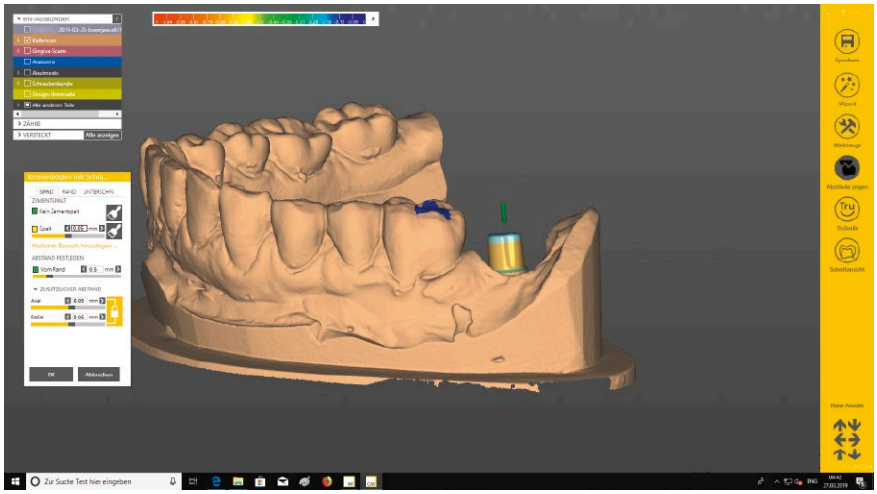
10 Gingiva-Scan



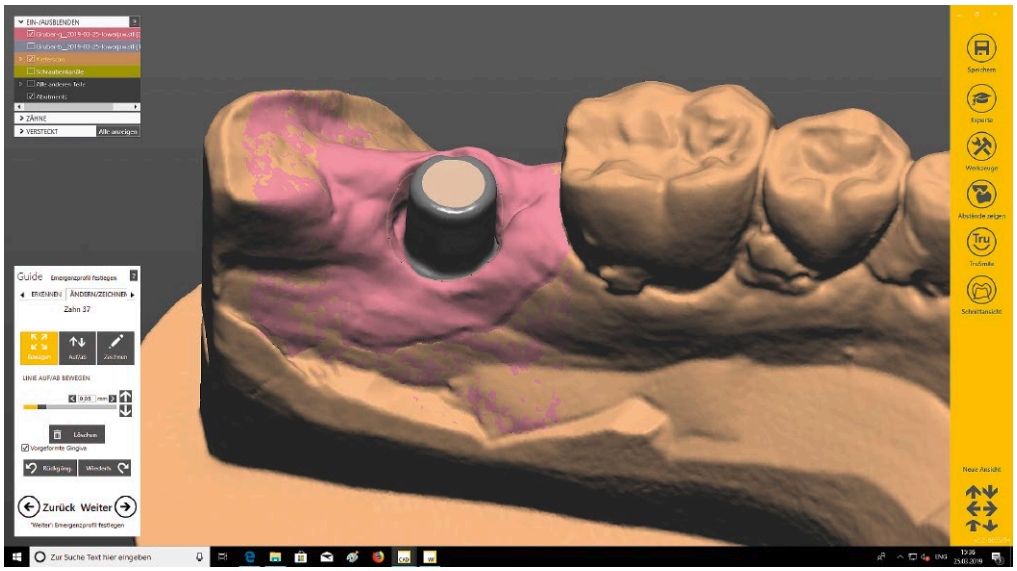
11 Screw Channel



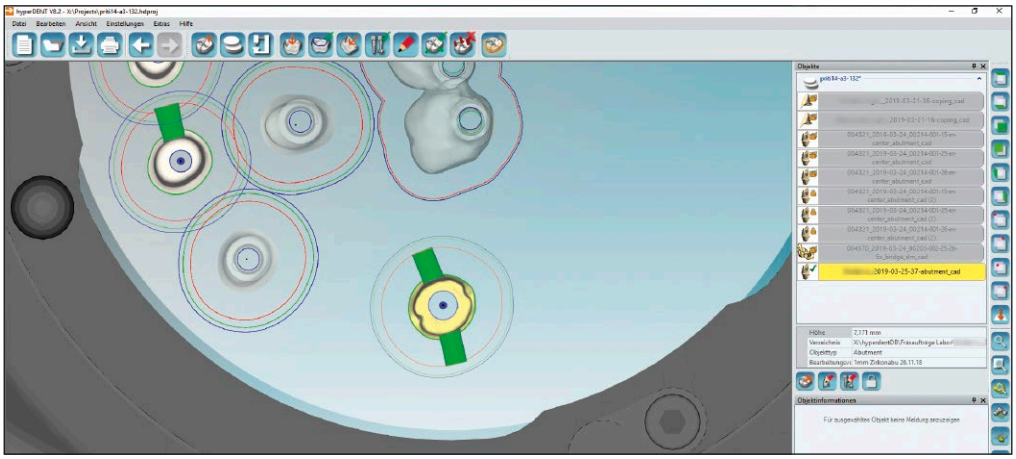
12 Scanbody-Scan

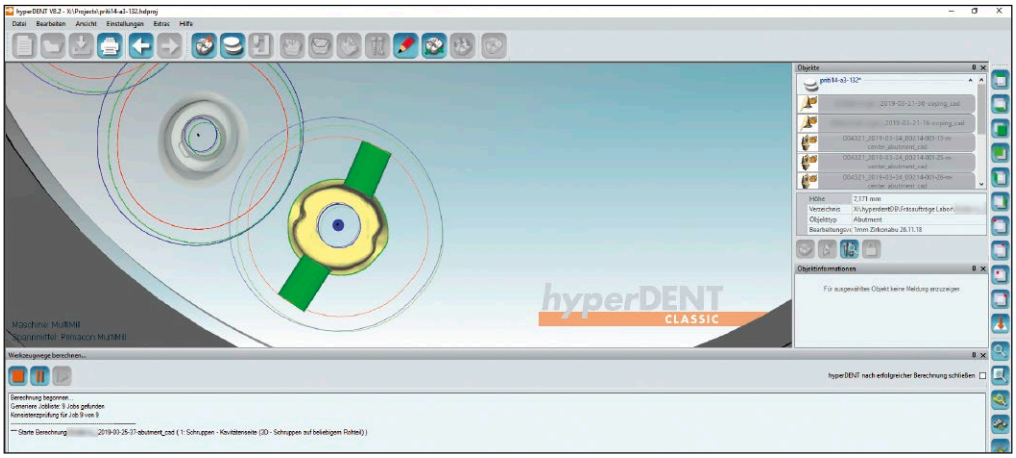


13 Cement Gap



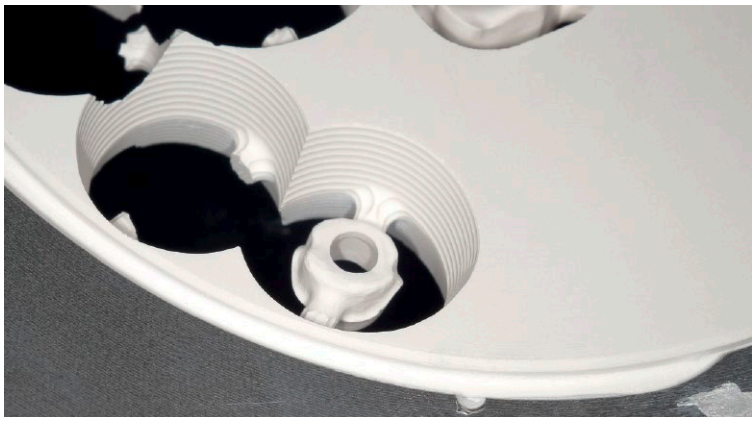
14 Establish Emergence Profile

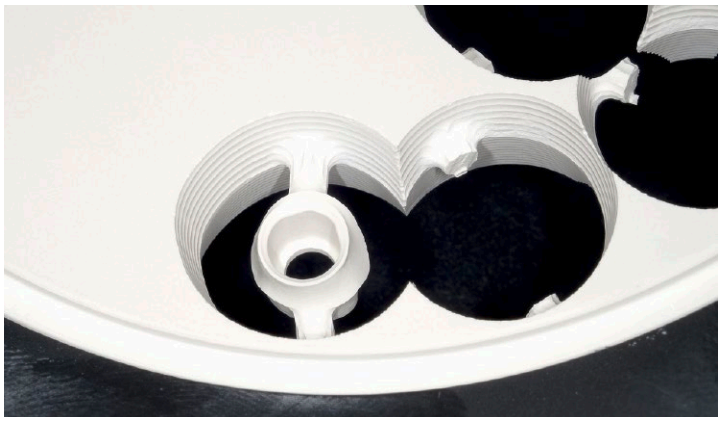




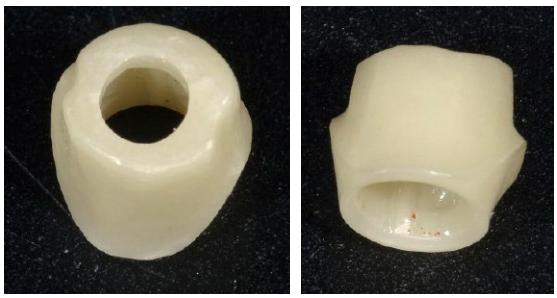
15 und 16 Nesting

Extending out. Nesting completes this step (Fig. 15 and 16). The milled custom abutments - priti multidisc ZrO2, monochromatically Opaque - are sintered according to the manufacturer's instructions (Fig. 17 and 18). The finished abutment is once again checked for fit.





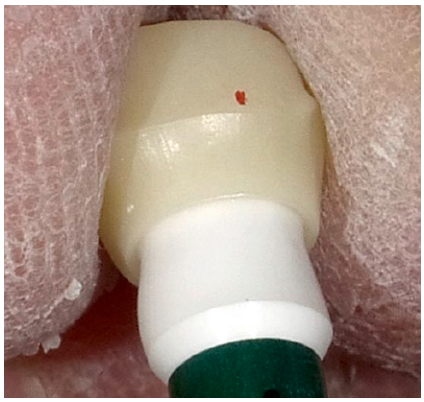
17 and 18 Milled Abutment

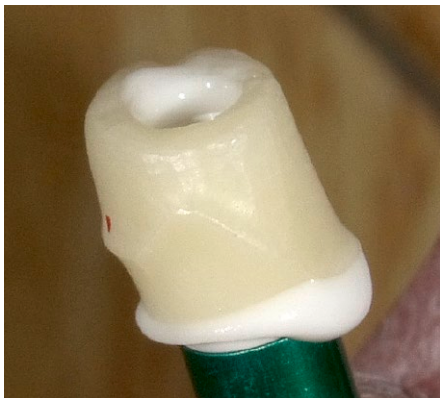


19 und 20 Finished Abutment

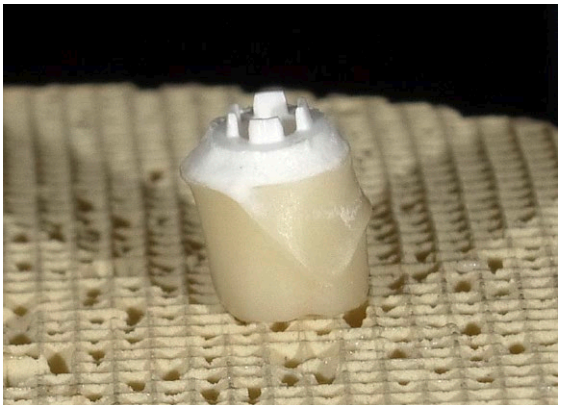
21 Abutment Check

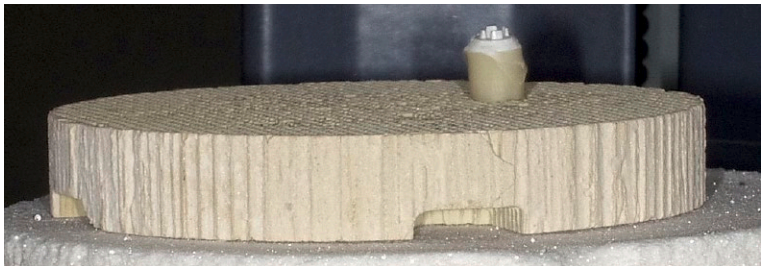
The fit of the solution is checked (Fig. 19 and 21), and then it is processed according to the manufacturer's instructions using glass solder DCM hotbond zircon (Fig. 22 to 28). The work demonstrates a perfect connection between XT Abutment ZERABASE WB RB16530 and the custom abutment (Fig. 29). This bonding option offers clear advantages and is also preferable from a biological perspective compared to cementation.

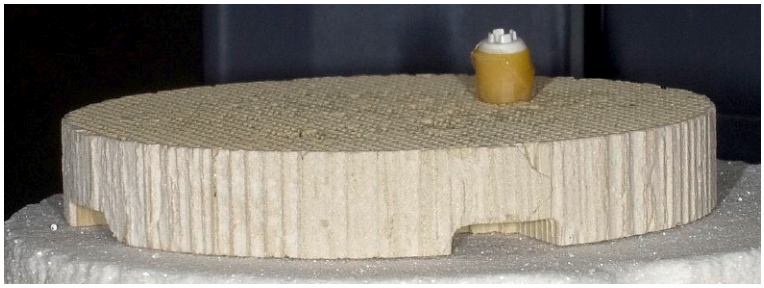




22 bis 25 Steps for Glass Solder



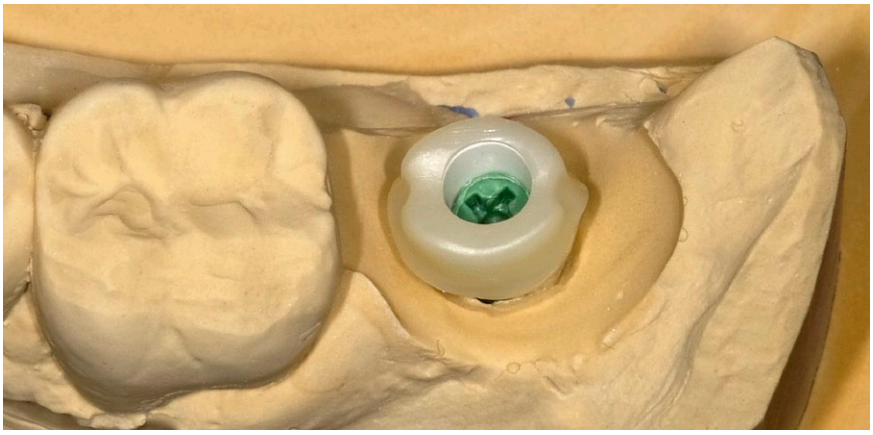




26 bis 28 Glass Soldering

29 Completed Soldering

The inspection on the master model reveals a homogeneous, harmonious connection (Fig. 30 and 31). ■



30 and 31 Finished Abutment on the Model