

## An Improved Method of Altered-Cast Impression

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### INTRODUCTION

The altered-cast impression technique is a necessary and important procedure<sup>1-8)</sup> to make a success in a free-end partial denture. In the traditional altered-cast impression technique, dentists have to use two to four types of impression material<sup>1-4,6-8)</sup>. Some require border molding, and others involve wash impression. Consequently, the traditional technique requires longer treatment time, and additionally, finger pressure is used for making the impression<sup>1-4,6,7)</sup>. The ridge form made using finger pressure differs from the functional ridge form<sup>8)</sup>.

In the improved method of altered-cast impression described here, the master cast is made in advance by functional impression using an individual tray, modeling compounds and a silicone impression material, so that a preliminary functional impression is made. In the next step, the final functional impression can thus be made using only one wax impression. In addition, light tapping is used as the impression pressure, and thus a functional ridge form can be made more accurately.

### ADVANTAGES OF THE NEW TECHNIQUE

1. Increased simplicity.
2. A functional ridge form can be made more easily and reliably.

### DISADVANTAGE OF THE NEW TECHNIQUE

1. In patients who have no vertical stop, skill is

required to control the light tapping pressure.

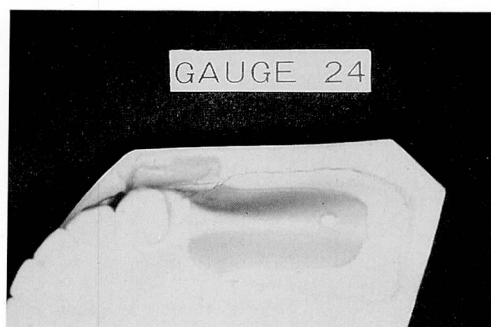
### TECHNIQUE

1. Making a preliminary functional impression using an individual tray, modeling compounds and a silicone impression material. In this technique, the master cast is not made with a hydrocolloid impression.

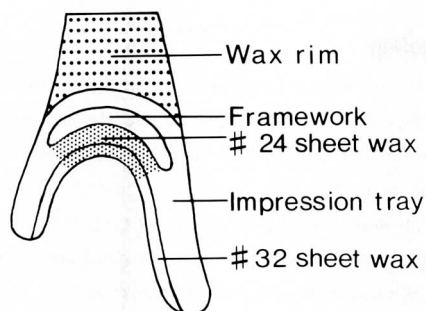
2. Fabrication of the denture framework and occlusion rims. The space between the framework (skeleton) in the edentulous area and the ridge of the master cast is the same thickness as a #24 sheet wax (0.55 mm thick) (Figs. 1, 2). Individual acrylic resin impression trays are attached to the framework. On the tissue sides of the impression trays, #32 sheet wax (0.23 mm thick) is placed as a spacer (Fig. 2). On the occlusal sides of the impression trays, wax rims are placed.

3. Interocclusal relation registration. The interocclusal relation is recorded with recording wax, wax rims and the impression trays (Fig. 3). The wax spacer is still retained in place inside the impression tray.

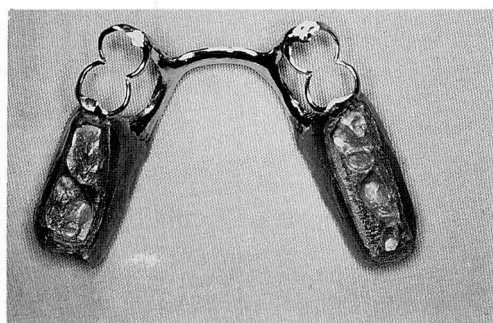
4. After obtained the jaw relation record, a #32 sheet wax on only one side is removed from the tray using a



**Fig. 1** Over the edentulous area of the master cast, #24 sheet wax is placed as a spacer for the acrylic resin retentive section of the framework.



**Fig. 2** Schema of the relationship between the two types of the spacer and the framework.



**Fig. 3** Interocclusal relation is recorded with recording wax, wax rims and impression trays. The wax spacers are still in place inside the impression trays.



**Fig. 4** After obtaining the jaw relation record, #32 sheet wax on one side only is removed from the tray by a instrument.

special instrument (Fig. 4).

5. Korecta wax No. 4 is painted evenly over the impression base (Fig. 5). With use of the altered-cast technique, partial dentures made from Korecta wax No. 4 impressions show the least amount of denture base movement in comparison with irreversible hydrocolloid, metallic oxide impression paste and injection-type rubber base



**Fig. 5** Korecta wax No. 4 is painted evenly over the impression base.

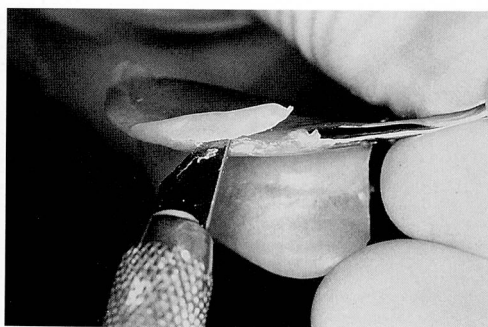
impression material<sup>9</sup>).

6. The denture framework is placed in the mouth, and the patient is asked to perform the light tapping movement. At this time, the impression trays must not be moved by the tapping.

7. Posteriorly, the buccal flange is border-molded by lifting the cheek outward, upward and inward.

8. Posteriorly, the lingual flange is border-molded by pushing the tongue forcefully outward against the cheeks.

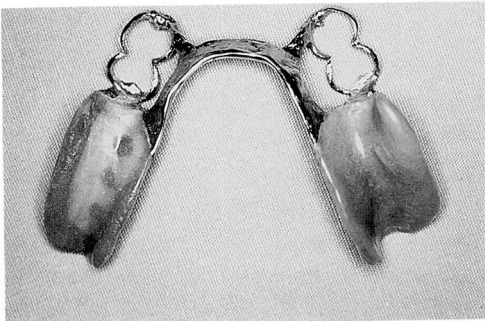
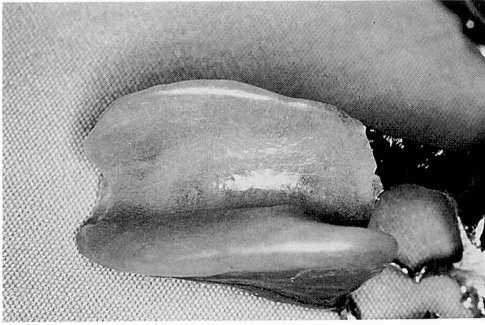
9. The impression is removed and examined for a glossy surface, which is evidence of tissue contact. Any impression wax extending incorrectly beyond the impression base is cut off with a sharp instrument (Fig. 6).



**Fig. 6** The impression is removed and examined for a glossy surface, which is evidence of tissue contact. Any impression wax extending incorrectly beyond the impression base is cut off with a sharp instrument.

10. In the areas, lacking the impression wax, No. 4 wax once more is brushed on, and the same impression procedure (from 6 to 9) is repeated.

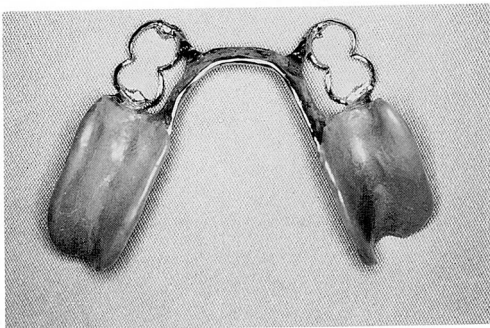
11. The completed functional impression is made only on the left side of the edentulous areas (Figs. 7, 8).



**Fig. 7, 8** The completed functional impression on the left side only of the edentulous areas.

12. Also on the right side of the edentulous areas, the same functional impression procedure (from 4 to 9) is repeated.

13. The functional impression is completed (Fig. 9).



**Fig. 9** The completed functional impression.

## SUMMARY

In order to make a success in a free-end partial denture, it is necessary and important to use the altered-cast impression technique. This article has presented a step-by-step procedure for making a functional impression using an improved altered-cast impression method. In this technique, only one wax impression and light tapping force as a functional pressure are used, making it simpler and more reliable for dentists to make a functional impression.

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