

# THE PERMANENT FIX: ONE APPROACH TO FIXED LOWER RETAINERS

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**H**ow many times have your debonded patients departed for college, only to have them back in your office over winter break with an ill-fitting retainer?

A sporadically worn and poorly fitting retainer can allow the cuspids to shift, permitting crowding of the lower anterior teeth, thereby undoing your good work and of course, costing the patient (or the orthodontist) additional re-treatment expense.

What better time for a fixed cuspid-to-cuspid (i.e., lower 3-3) retainer, bonded for as long as it can be maintained? In fact, with the advent of light forces and lower-friction appliances, orthodontists are treating a higher percentage of cases without extraction and pushing the envelope of expansion and proclination.

During the last five years, we have developed a process to transfer a carefully bent 0.027-inch TMA wire from the stone cast to the mouth, with a transfer jig made easily from a hydroplastic material that softens in hot water and re-hardens in 5 to 10 minutes. TMA is a sturdy material that is strong enough to hold the teeth firmly in place, but also flexible enough to withstand the forces of eating most foods. The slight flex of a TMA wire prevents the breakage we often see in stainless steel lingual retainers.

Steps for making and placing a lower 3-3 wire:

1. During the appointment before fixed appliance removal (assuming no lower anterior adjustments have been made), wax out the braces on the facial side of the teeth, leaving the incisal edge exposed and visible.
2. Take an impression with a sectional anterior impression tray (*Fig. 1*).
3. Pour up the impression in stone and trim it.

The assistant or doctor may bend the TMA wire. The wire used is a large-diameter TMA (0.027-inch) which comes in 14-inch straight lengths. The ends of the wire are micro-etched after fabrication. (We useOrmco, Orange, CA.)

4. Place the bent wire on the model and wax the wire into place at the position of the lateral incisors (*Fig. 2*).

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FIG. 1. SECTIONAL ANTERIOR IMPRESSION

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FIG. 2. BENT 3-3 WIRE WAXED INTO PLACE ON THE MODEL

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FIG. 3. HYDROPLASTIC JIG FORMED AND PLACED



**FIG. 4. TRANSFER JIG FITS PERFECTLY ON PATIENT'S TEETH ON THE DAY OF APPLIANCE REMOVAL, BONDED ONLY TO THE CUSPIDS.**

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The transfer jig is made of a non-toxic hydroplastic material (TAK, Wareham, MA). The beads of acrylic are placed in water and microwaved. The material then becomes moldable for accurate placement over the incisal edges and the retainer wire.

5. Mold the TAK material at the midline, carrying it over the incisal surface and around the waxed-in wire. Let it harden, and then remove the wax from the model and 3-3 wire. Take the 3-3 and attached transfer jig off of the model and inspect to see that it is free of plaster or stone then save it for bonding (*Fig. 3*).

On the day of appliance removal, prepare the teeth by using a fine rounded diamond bur, roughing the cingulum of the two teeth where you will bond the appliance.

6. Isolate with cotton rolls, etch and bond the tooth as normal. We use Assure bonding resin and Flow-Tain flowable light cured composite (both from Reliance, Itasca, IL) to secure the 3-3 wires (*Fig. 4*).
7. Carefully remove the hydroplastic jig, using a scaler to hold the wire in place as you peel the jig away. Be careful to avoid debonding the wire from the cusps (*Fig. 5*).

Show the patient how to floss:

For all teeth except for the four lower incisors, floss as normal.

For the lower incisors, "lasso" each tooth individually with the floss and pull it down below the wire (remember it is only bonded to the cusps) to floss subgingivally. (*Fig. 6*).

Advise the patient to call to rebond the 3-3 immediately if the bond breaks on one or both sides in the future.

An added bonus of a well-fitting fixed retainer is evidenced if the maxillary retainer is lost or not worn and the patient does not immediately return to the orthodontist. The maintained arch form of the lower anteriors acts as a stable model to engage the lingual surfaces of the maxillary anterior teeth, greatly minimizing any resulting relapse and making it easier to correct.

The accurate transfer of the fixed cuspid-to-cuspid wire has reduced breakage, loss and incidents of anterior relapse in our practice. We hope you find the method as easy and as useful as we have.



**FIG. 5. LOWER 3-3 RETAINER IN PLACE**

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**FIG. 6 "LASSO" EACH INCISOR WITH FLOSS TO AVOID THREADING THE FLOSS UNDER THE 3-3**

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