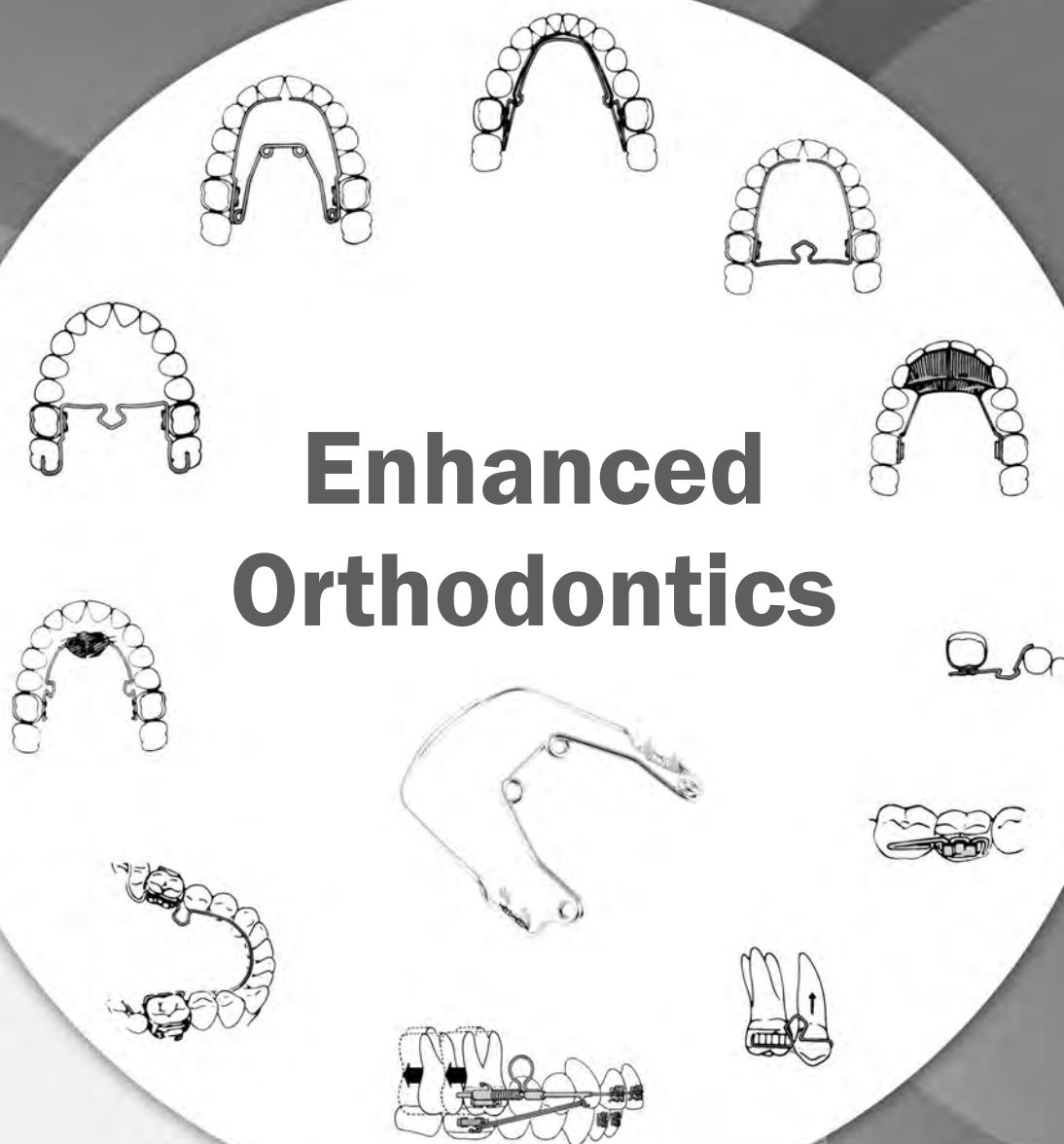


Book 2

Force Systems Mechanotherapy Manual

with 3D® Modular 1st Phase Fixed/Removables™

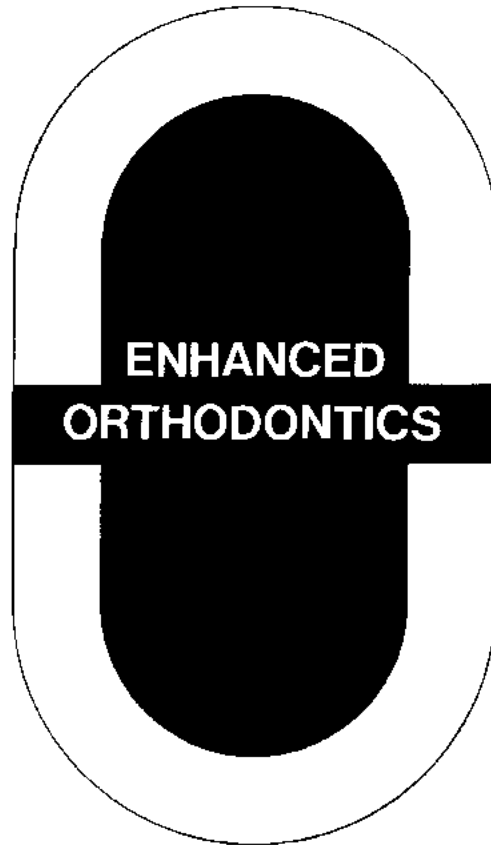
Enhanced Orthodontics



**Robert C. Wilson,
D.D.S**

**William L. Wilson,
D.M.D.**

Book 2 | Force Systems Mechanotherapy Manual



with 3D[®] Modular ... 1st Phase Fixed / Removables[™]

Robert C. Wilson,
D.D.S.

William L. Wilson,
D.M.D.

Printed and Distributed by

RMO

rocky mountain orthodontics

RMO®

Patent Number 4354834

**Copyright © 1989 RMO, Inc. All rights reserved.
Third Printing**

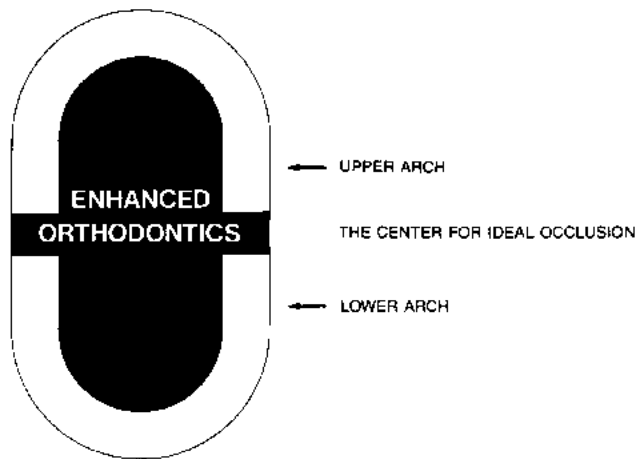
This book is fully protected by copyrights. No part of it may be reproduced in any form, including photocopy, microfilm or by any other means, for internal use or for sale, without the written permission of RMO, Inc.

Printed in the United States of America

CONTENTS

AUTHORS	5
INTRODUCTION	6
PART 1	
3D® APPLIANCE FABRICATION	
Treatment Success	11
Recommended Instruments	12
3D® APPLIANCES	
3D® Maxillary Bimetric Distalizing Arch	13
3D® Lingual Tubes (Welding and Polishing)	25
3D® Lingual Arch	31
3D® Lingual Sectional	43
3D® Nance Holding Arch	49
3D® Quad-Action Mandibular Appliance I	53
3D® Quad-Action Mandibular Appliance II	62
3D® Space Maintainer	63
3D® Multi-Purpose Adapter	69
3D® Quad Helix Appliance	77
3D® Multi-Action Palatal Appliance	87
3D® Palatal Appliance	97
Summary	106
PART 2	
AUXILIARY ASSISTANCE	
How to Select and Fit RM® Molar Bands	111
Impression Taking and Making Working Models for 3D® Appliances	123
PART 3	
LABORATORY ASSISTANCE	
RM® Certified 3D® Laboratories	135
Commonly Used 3D® Appliances by Practice Type	136
3D® Transfer System	137
3D® D.Y.S. Module	143
PART 4	
3D® CONTINUING EDUCATION/RMO MATERIAL LIST/ RMO DIAGNOSTIC SERVICES	
3D® CONTINUING EDUCATION	
3D® Lecture / Workshop Seminars	151
3D® Literature	151
3D® Cost-Saving Hints	152
RMO Material List	155
RMO Diagnostic Services	169
Vishay Photocclusion™ Occlusal Diagnostic System	173

THE ORTHODONTIC WORLD OF SYMBOLS



TWO OPPOSING FORCES DESIGNED TO MAKE
CONTACT FOR A FUNCTIONING RELATIONSHIP

FRONT COVER SYMBOL DESIGN

This abstract symbol of the two "U" orthodontic forms represents the continuing objective in orthodontics for an ideal occlusion for patients. It is a design of the upper and lower arches moved into positive forms, whose opposite forces will occlude as nature intended.

The center of activity is 3D® Modular Orthodontics™ in the first phase of treatment, with fixed/removables.

3D® enhances all orthodontic techniques to achieve their orthodontic objectives with new three dimensional functional options. Treatment ease and high patient acceptance are true hallmarks of Modular Orthodontics™.

AUTHORS



ROBERT C. WILSON, D.D.S.



WILLIAM L. WILSON, D.M.D.

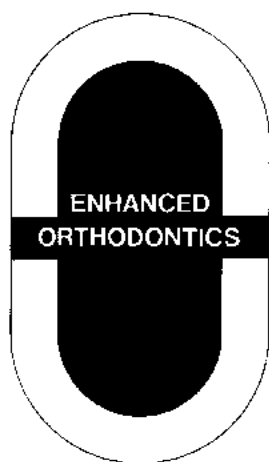
Dr. Robert C. Wilson and Dr. William L. Wilson bring to **3D® Enhanced Fixed/Removable™ Orthodontics™** a broad background of clinical experiences and investigative examination of different orthodontic appliance systems. For many years, "comparative orthodontics" has been a prime interest to this father and son team.

As a result of their studies, they became well aware of the strengths of different appliances. . . and also of problem areas. Over a period of time, they developed a series of interrelated Fixed/Removable™ modules to simplify and improve 1st phase treatment. The Modules reflect orthodontic movement principles used and proven many years ago. The unique features of their development is the way these principles have been incorporated into a simple Fixed/Removable™ System that can be used to supplement all existing orthodontic techniques.

As lecturers, Drs. Wilson are widely known for the practical content, careful organization and distinctive clarity of their presentations. Dr. Robert Wilson is a clinical instructor of the Edgewise Technique at the Tufts School of Dental Medicine. Dr. William Wilson has served as a post-doctoral lecturer on orthodontics at the Harvard School of Dental Medicine. They are much sought-after visiting lecturers, presenting comprehensive seminar/workshops at numerous dental schools in the U.S.A. and abroad.

As President of Rocky Mountain Orthodontics, I am proud of the close friendship that has developed with Drs. Wilson, personally and business-wise. We, of RMO, have the highest respect and admiration for both men and their contributions to the orthodontic profession.

Martin Brusse,
President RMO, Inc.



INTRODUCTION

with 3D® Modular...1st Phase Fixed/Removables™

Book 1 | ENHANCED ORTHODONTICS™: CONCEPT, TREATMENT AND CASE HISTORIES

In the first book of *Enhanced Orthodontics™*, 100 plus treatment options are described in detail. These are essential parts of orthodontic treatment. First Phase Modular Treatment interfaces with 2nd phase multiband appliances to reduce both treatment time and chairtime with remarkable cost-savings, while controlling counter moments, reducing friction factors, and significantly reducing headgear use.

A whole spectrum of treatment cases is shown with explicit treatment details. The 3D® Fixed/Removable™ appliances produce a complete and advanced internal arch system in which all appliances are removable, interchangeable, adjustable and convertible. This is unique in orthodontics.

It quickly becomes obvious to the reader that the orthodontist using Modular 1st Phase Treatment with his own multiband appliance, can now attain quality treatment results with greater ease and reduced complexity. It also quickly becomes obvious why, with less headgear, reduced complexity, and greater comfort, there is such unusually great acceptance by patients.

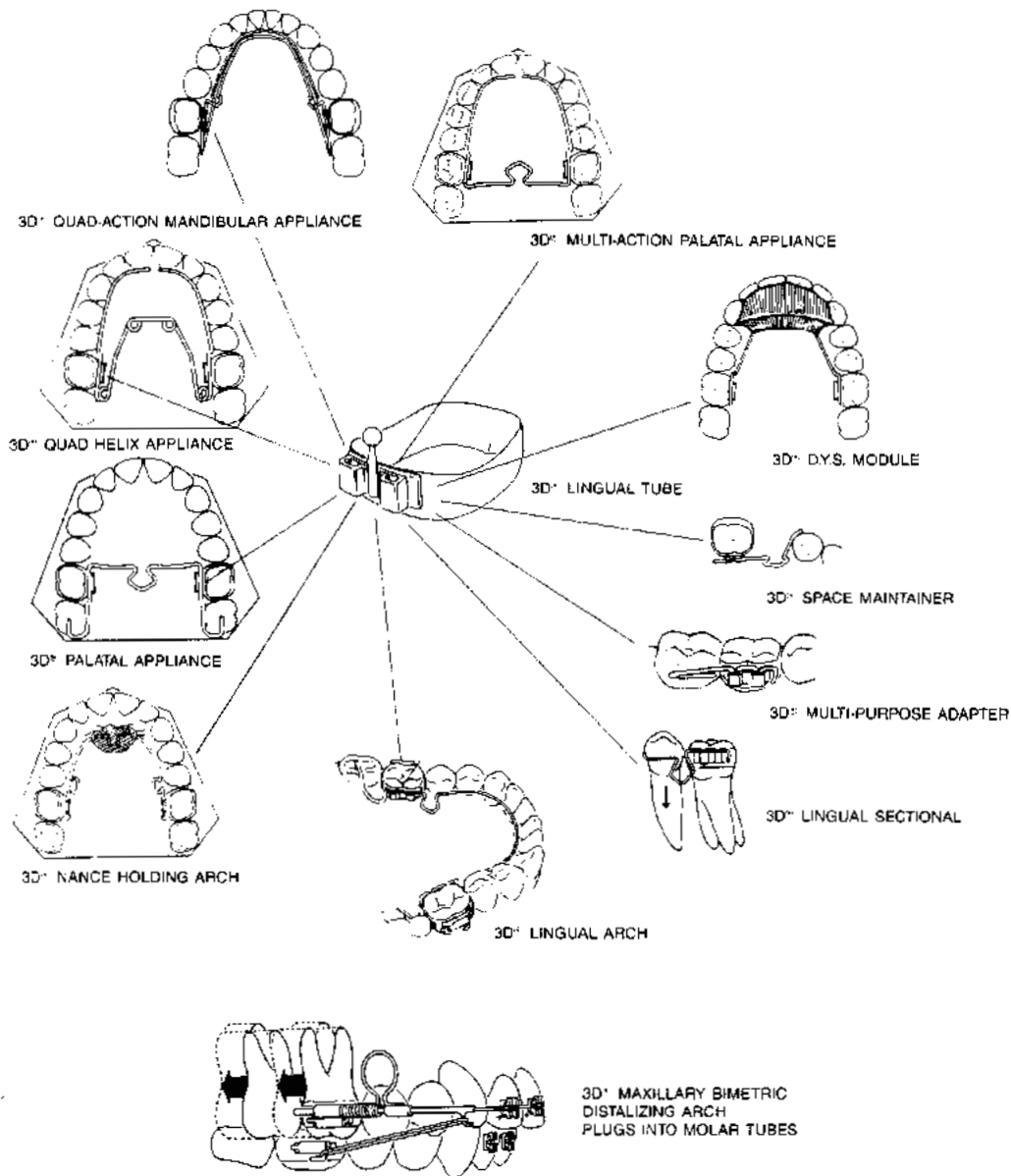
Book 2 | ENHANCED ORTHODONTICS™: FORCE SYSTEMS MECHANOTHERAPY MANUAL

The second book of *Enhanced Orthodontics™* deals with 3D® appliance fabrication in advanced Modular Orthodontics™. Appliance description is clarified. Step-by-step adaptation to variable individual cases is described. Adjustments for activation and helpful hints for the most efficient treatment are discussed. Clinical know-how to control or avoid undesirable counter moments is nothing more than an expression of Newton's third law of motion. This, expressed orthodontically, means "every action has an equal and opposite reaction." Friction factors necessitate heavy forces and unwanted tooth movements. These are merely two of several counter moments which unnecessarily complicate and delay treatment results that may fall short of desired standards.

In the interest of clarity and brevity, the authors have presented a step-by-step description of appliances with numerous diagrams of the force system involved. Excess verbiage has been limited in order to avoid clouding the salient facts and their understanding.

Many experienced orthodontists prefer to fabricate 3D® appliances at chairside. Others enjoy the time/cost benefits of indirect appliance adaptation to the model, which can be done in the office. Many others elect to use a 3D® Certified Laboratory for quality appliances, also with chairtime and cost benefits. Both the inexperienced orthodontic student and the experienced orthodontist can produce quality treatment results when the step-by-step instructions are followed. The quality of these results speaks for itself.

THE FOLLOWING 3D® APPLIANCES PLUG INTO THE 3D® LINGUAL TUBES



Note: The 3D® Quad-Action Mandibular Appliance and the 3D® Multi-Action Palatal Appliance are used as superior alternatives to sagittal and transverse removables.

All 3D® appliances are part of the 3D® interchangeable Fixed/Removable™ system. They all plug into the same 3D® Lingual Tube. Utilizing the 3D® Transfer System, starting with the space maintainers, then mixed dentition treatment to full or adult treatment, variable appliances for more than 100 functions can be interchangeably plugged in. No removal of bands, resoldering, or re-cementing is needed. These costly, time-consuming and troublesome procedures are now obsolete.

The complete 3D® internal treatment system is non-interfering with all appliances on the labial. Its use in the first phase of treatment significantly reduces headgear use, extraction and treatment chairtime.

PART 1

3D® APPLIANCE FABRICATION

Treatment Success	11
Recommended Instruments	12

3D® APPLIANCES

3D® Maxillary Bimetric Distalizing Arch	13
3D® Lingual Tubes	25
3D® Lingual Arch	31
3D® Lingual Sectional	43
3D® Nance Holding Arch	49
3D® Quad-Action Mandibular Appliance I	53
3D® Quad-Action Mandibular Appliance II	62
3D® Space Maintainer	63
3D® Multi-Purpose Adapter	69
3D® Quad Helix Appliance	77
3D® Multi-Action Palatal Appliance	87
3D® Palatal Appliance	97
Summary	106

TREATMENT SUCCESS

R & D PLUS QUALITY

The new 3D® geometric wire forms, which simplify orthodontic handling, indeed result from the RMO development of new engineering and metallurgical technologies, an advanced state-of-the-art. Special wire bending concepts reduce the ever-present work-hardening of the strong base wires used for high force movement. These same wires are reduced in size to .025" extenders by another special technology for flexibility-producing, heretofore unequalled, action.

It is obvious that RMO is indeed at the cutting edge of advanced technology in producing these 3D® Modular Appliances, with unexcelled strength, flexibility and action.

Yet, there can be an isolated breakage. RMO is well-known for its quality control and will continue to monitor any defect in the manufacturing process.

BREAKAGE

Successful treatment should be free of interruptions from appliance breakage. The common cause of breakage lies in the selection of non-recommended wire bending pliers and the improper manner of bending wires.

Another source of breakage relates to the patient. 3D® appliances are designed for light forces for comfort and have a *high* patient acceptance. They withstand normal use, but can be abused. Chewing ice in cold drinks, hard or chewy candy, or hard apples can break or distort any orthodontic appliance. A few such dietary restrictions are in order.

The wire handling that is required to fabricate the 3D® components to their precise specifications tends to subject them to a significant amount of stress during manufacture. Additional stress is placed on the arch wires as the appliances are adjusted for customized adaptation to each patient. A third set of stresses occurs intraorally with mastication and tongue play. With each successive stress placed on the arch wires, they become increasingly work-hardened. Arch wires in such a work-hardened condition should be handled with special care in order to prevent their distortion or breakage.

3D® appliances are designed and produced to maximize balanced strength, flexibility and action. *Heat treating* is not necessary and would reduce appliance effectiveness.

CAUTION: Soldering variable wire extensions on 3D® Tru-Chrome® stainless steel wire appliances entertains the risk of softening the wire, resulting in reduced actions.

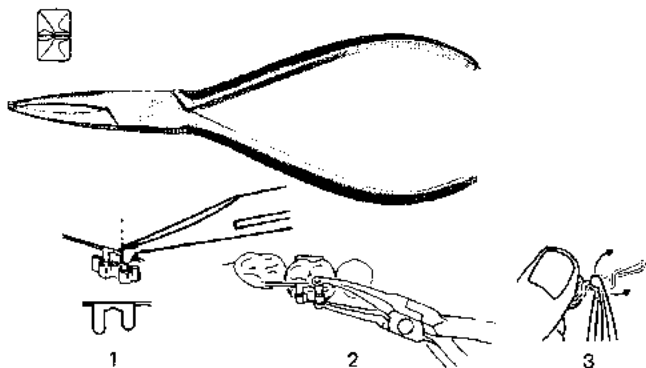
By following 3D® instructions closely, treatment success will be assured.

INSTRUMENTS USED WITH THE 3D® MODULAR ORTHODONTICS™ COMPONENTS

The following RMO instruments are recommended for use with the 3D® components, in order to obtain the maximum treatment response and to avoid any unnecessary distortion or breakage of the appliances.

How Plier...i-110 or i-111 or i-1110 (ETM 110)

1. For carrying all 3D Appliances to the arch.
2. For final seating of precision-solid posts of the 3D Action Appliances into the 3D Lingual Tube.
3. For rotating, tipping and torquing of the 3D Lingual Arch and 3D Quad-Action Mandibular Appliance.



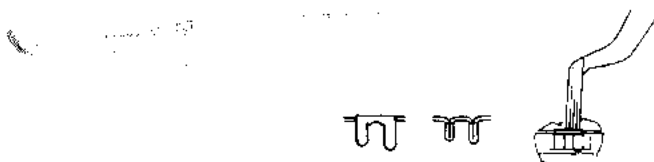
Belzer Wire Cutter...i-267 or i-266

1. To crimp Omega Stop and Tandem Yoke onto arch.
2. For cutting excess wire from appliances.



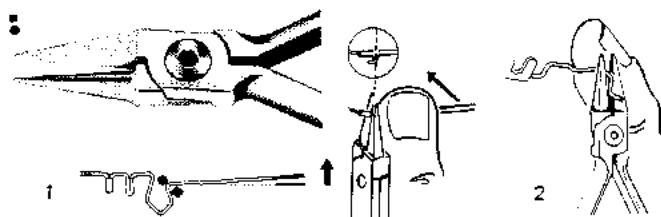
Band Director...i-67 or i-300

1. For seating of 3D Posts in 3D Lingual Tubes.



Light Wire Plier...i-1140 (ETM 140) or i-1141 (ETM 141)

1. For adjusting and activating 3D Appliances.
2. For adjusting the .025" extenders on all 3D Appliances.



Band Pusher/Scaler...i-358

1. For removing 3D Appliances from 3D Lingual Tubes.



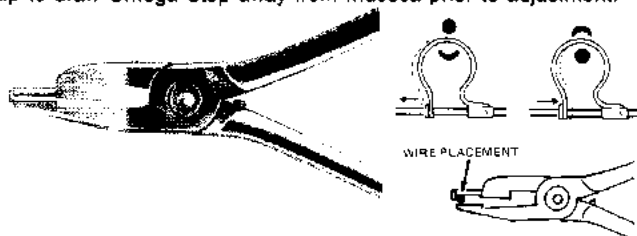
Angle Wire Bending Plier...i-139 or i-1139 (ETM 139) or i-539

1. For adjusting and activating 3D Appliances. (Optional plier.)



Modular Omega Plier...i-548W or i-351 or i-1352 (ETM 352QT)

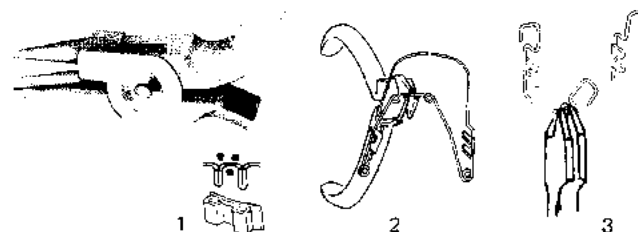
1. For adjusting the expansion or contraction of the omega loop on the 3D Maxillary Bimetric Distalizing Arch.
- Use tip to draw Omega Stop away from mucosa prior to adjustment.



3 Jaw Plier...i-1200 (ETM 200) or i-200

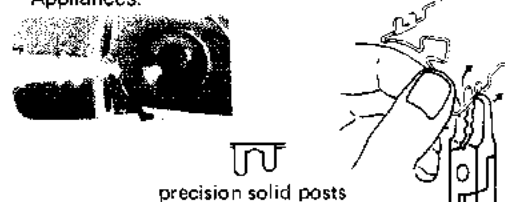
1. For tightening wire-formed 3D posts for any loose fit.
2. For adjusting the .036" wire in the 3D Quad Helix Appliance.
3. For adjusting the 3D Activator of the two 3D Palatal Appliances.

Note: Not to be used with .025" wire.



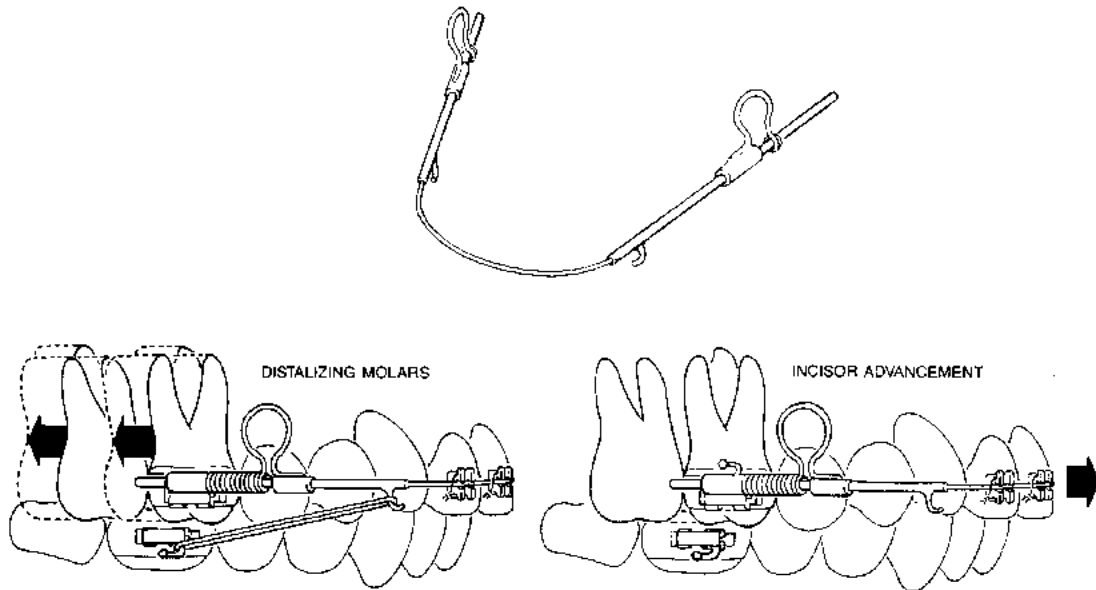
Lingual Arch Forming Plier (Post adaptation)...i-1410

1. For holding the 3D Appliances with precision-solid posts during fabrication.
2. For rotation and torquing of 3D Quad Helix and the two 3D Palatal Appliances.



3D[®] MAXILLARY BIMETRIC DISTALIZING ARCH

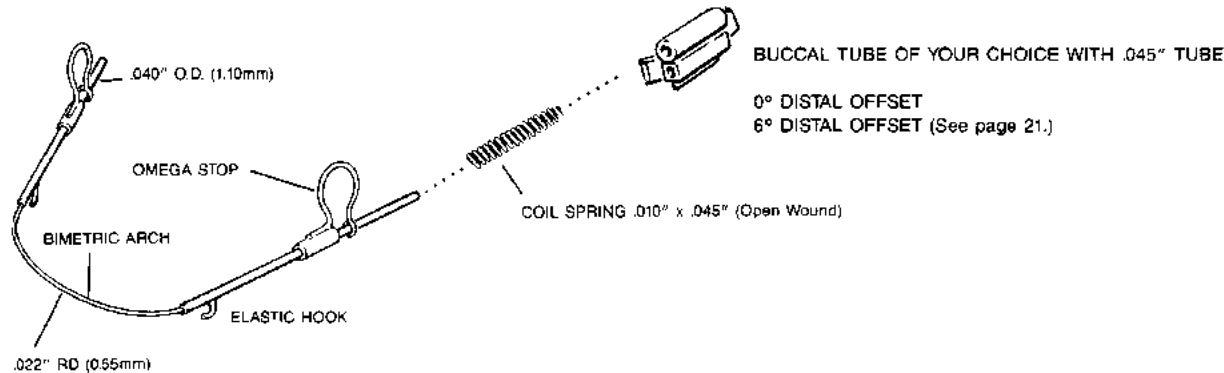
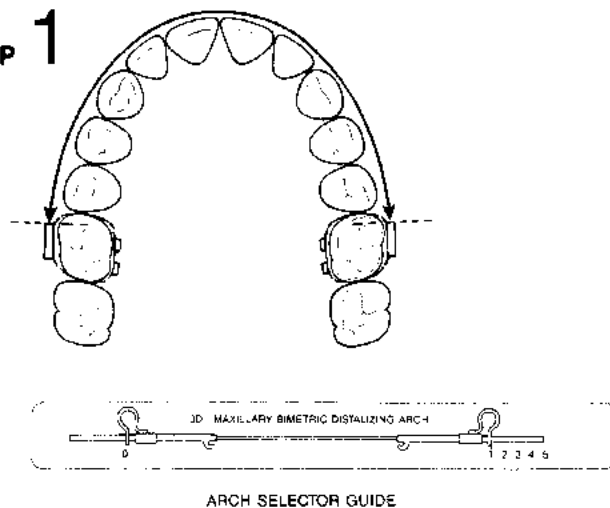
In Combination with the 3D[®] Lingual Arch



- **Rapid Molar Distalizing** (No headgear required)
- **Rapid Bicuspid Distalizing** (No headgear required)
- **Palatal Expansion**
 - Bilateral, Unilateral, Sutural**
- **Rapid Maxillary Anterior Retraction** (No headgear required)
- **Rapid Anterior Intrusion** (No headgear required)
- **Rapid Anterior Advancement**
- **Arch Length Modification** (No headgear required)
- **Functional Arch Increase**
- **Release of Post-Lock Mandible to Allow Forward Growth**

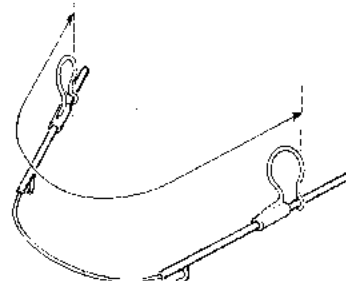
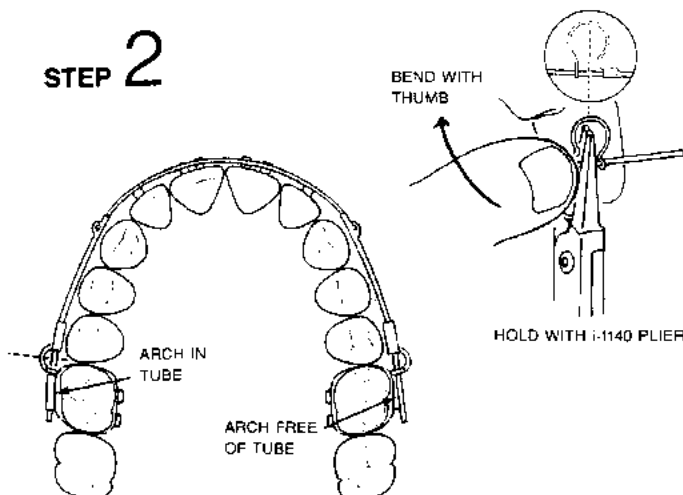
In 3D[®] Modular first phase treatment, bypass mechanics of the 3D[®] Maxillary Bimetric Distalizing Arch produce bilateral or unilateral, rapid, friction-free distalization without headgear, following which, progressive banding will permit full Edgewise or multibanded treatment. Such past problems of Class II mechanics such as molar extrusion, incisor tipping and mandibular plane alterations, are no longer a consideration, when the mandibular anchorage is properly used.

WORKSHOP GUIDE

3D® MAXILLARY BIMETRIC DISTALIZING ARCH**3D® MAXILLARY BIMETRIC DISTALIZING ARCH
NOMENCLATURE****STEP 1****ARCH SELECTION**

Arch size is selected by measuring around arch with a brass wire between mesial of buccal tubes while in position on molars of working model, or it may be estimated on original study models.

After arch selection is made, check size directly on the model. In practice, this may be done directly on the patient.

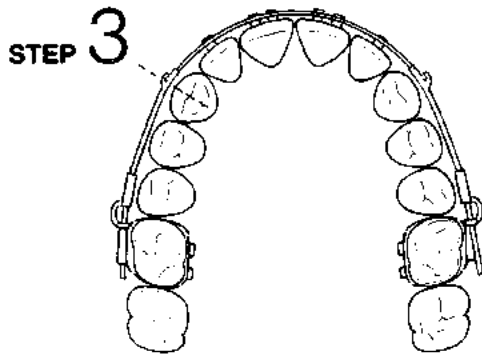
**STEP 2****ADAPT THE POSTERIOR SECTION ON LEFT SIDE**

In adapting the arch, it is best to work around the arch, starting from the posterior section to the anterior section, and then to the posterior section of the opposite side.

All adaptation is performed when arch is removed from the tubes. After adaptation to each anterior tooth, the arch is reinserted into the tube to confirm correctness of adaptation.

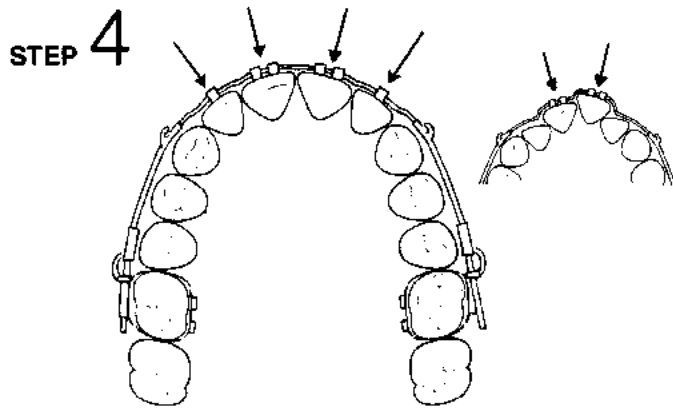
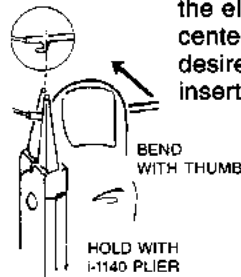
First insert the arch wire in the headgear tube on left side. Visually check the arch for any need for adjustment to form the arch along, but free of, the bicusps to the area of the cuspid.

Now, remove the arch and adapt the posterior section. Using an i-1140 plier, hold the arch wire at the center of the Omega Stop Loop and finger-pressure bend the mesial segment as desired. Do not bend the distal segment. The posterior segment of the arch must slide freely through the tube.



ADAPT TO CURVE OF CUSPID ON LEFT SIDE

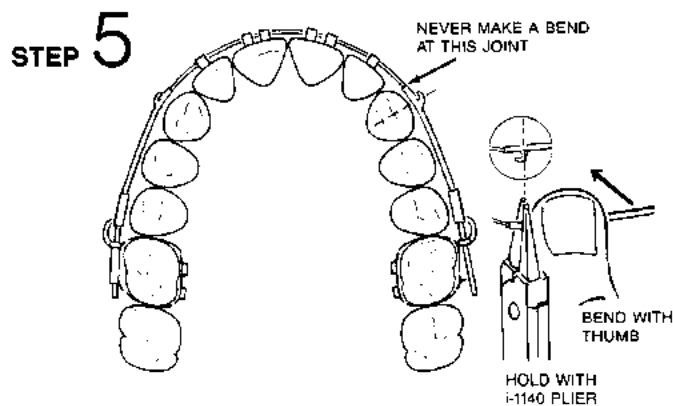
If necessary, adapt the curve of the cuspid at the center of the elastic hook. Using the i-1140 plier, hold the arch at the center of the hook with the arch wire horizontal. Bend as desired with finger pressure on the posterior segment. Re-insert arch for a visual check.



ADAPT THE ANTERIOR SECTION

Contour the arch wire to the laterals and centrals with step-ins or step-outs so arch is passive to the final position with the brackets.

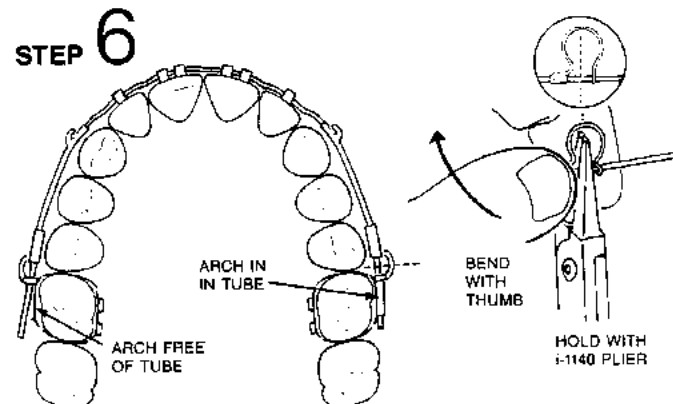
When there is extreme anterior irregularity, there should be no attempt to adapt to all anterior teeth... just to be conveniently placed. The ligation of the 3D® Maxillary Bimetric Arch is purely for stabilizing and not for correction of rotation at this point.



ADAPT TO CURVE OF CUSPID ON RIGHT SIDE

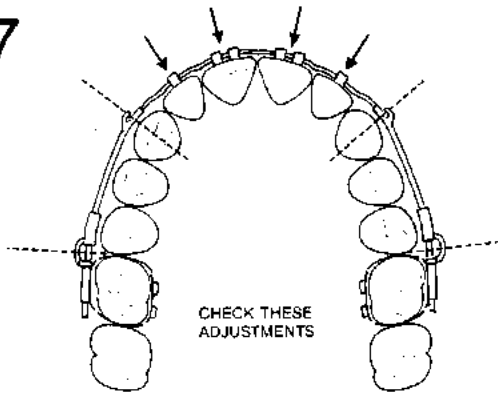
Adapt the curve of the cuspid at the center of the elastic hook on the arch. With the i-1140 plier, hold the arch at the center of the hook with the arch wire horizontal. Bend as desired with finger pressure on the posterior segment.

After checking the adaptation, the arch wire is removed from the left tube and the posterior segment of the right side is inserted in the right headgear tube. You are now ready to proceed with the adaptation of the right bicuspid and molar areas.

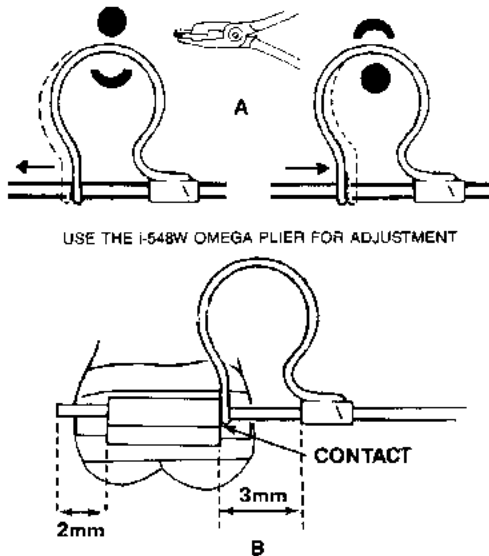


ADAPT POSTERIOR SECTION OF RIGHT SIDE

With the arch wire in the right headgear tube, visually check the arch for any need for adjustment to form the arch along, but free of, the bicuspid. Using an i-1140 plier, hold the arch wire at the center of the Omega Loop and finger-pressure bend the mesial segment as desired. Do not bend the distal segment. The posterior segment of the arch must slide freely through the tube.

STEP 7**FINE TUNING**

For fine tuning, take arch out of the right tube and re-insert the left posterior segment of the arch in the left headgear tube. Visually check back around the arch for any minute adjustment. This gives you double assurance of your arch adaptation.

STEP 8**VISUALLY CHECK BOTH SIDES OF ARCH FOR ADAPTATION**

Remove the arch from the tubes and place the arch over the model to confirm fit and to confirm that it is passive.

A. If there is any divergence of the posterior section as related to the buccal tube, minor adjustment can be made at the loop of the Omega Stop to allow the posterior segment to be visually aligned (and passive) to the buccal tube.

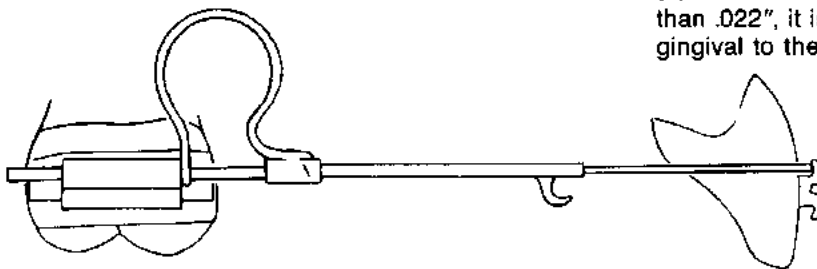
B. The Omega Stop should rest against the molar without any spring action and there should be 3 mm space in the loop area. Any action that is in the arch will cause undesirable tooth movements.

The distal extension of the arch should extend 2 mm from the molar tube to compensate for molar distalization movement.

STEP 9**FINAL TEST AND LIGATION TO ANTERIORS**

Arch wire should lie passively above the brackets or in the arch slot in the anterior segment. Any protrusion indicates: (1) excess Omega pressure which is correctable as in Step 8, or (2) arch rejection because posterior section is not aligned with tube.

The anterior section of the arch is ligated above the wings of the brackets of the selected anterior teeth or in the arch slot. This will engage in .022" slots. If the slot size is other than .022", it is then ligated under the gingival wing or just gingival to the selected bracket.

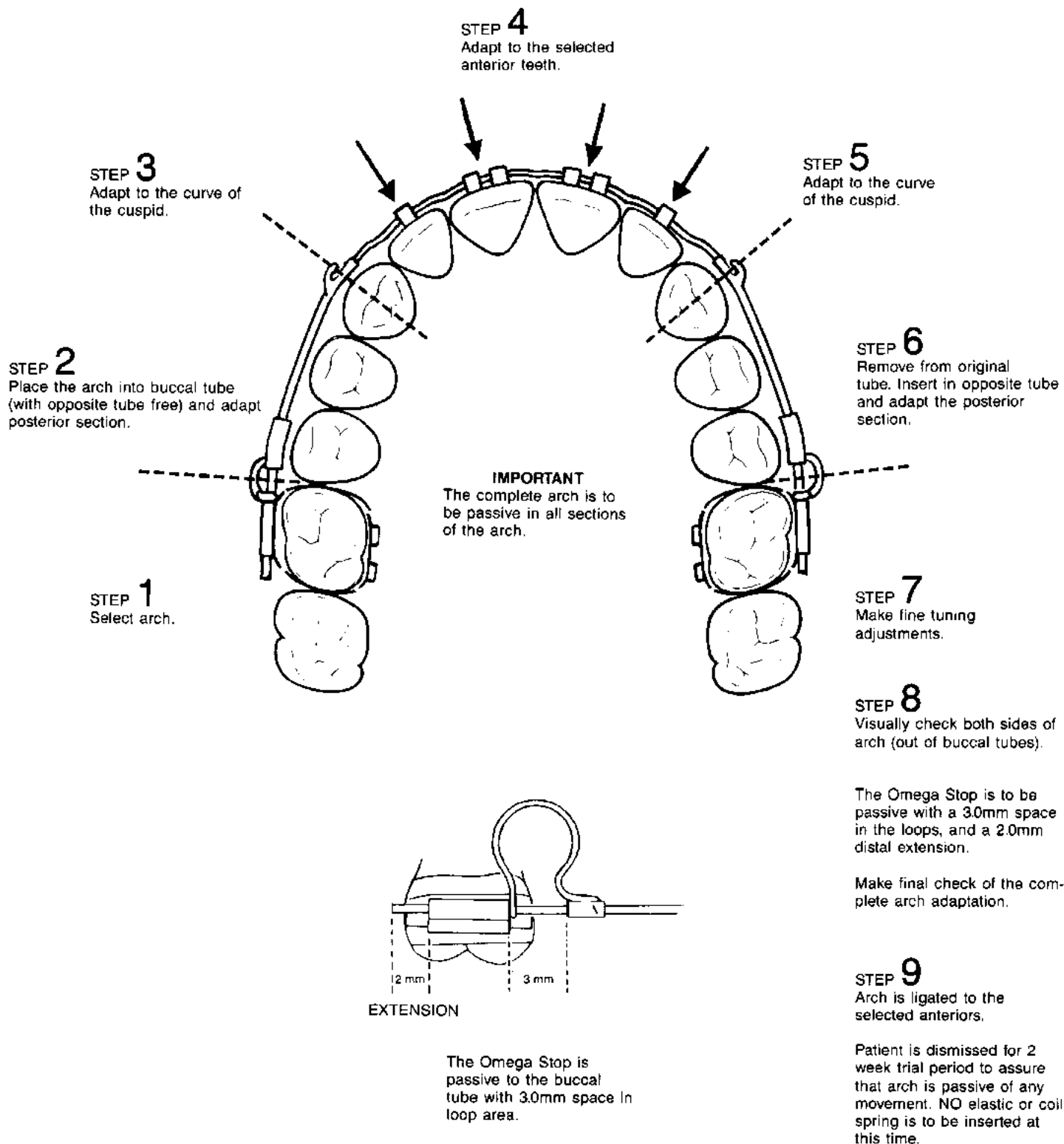


The patient is then dismissed. The patient returns in 2 weeks. The 2-week trial period is to make certain that the arch is passive. When the arch is fully passive, there will be no tooth movement, mobility or discomfort.

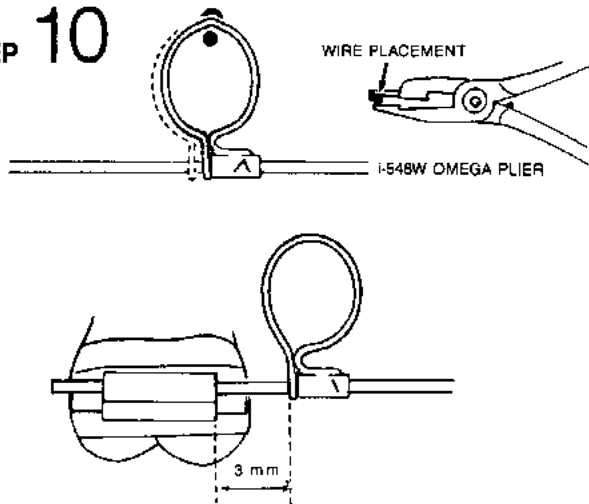
NO elastic or coil spring is to be inserted at this time.

Note: See information on 2nd visit for molar distalization procedures.

SUMMARY OF FABRICATION STEPS

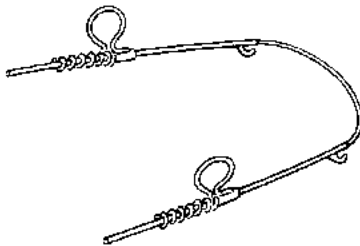


First, check the arch to see if it is passive. If there is any sign of movement, correct the arch so it will be passive. Now, move to Step 10.

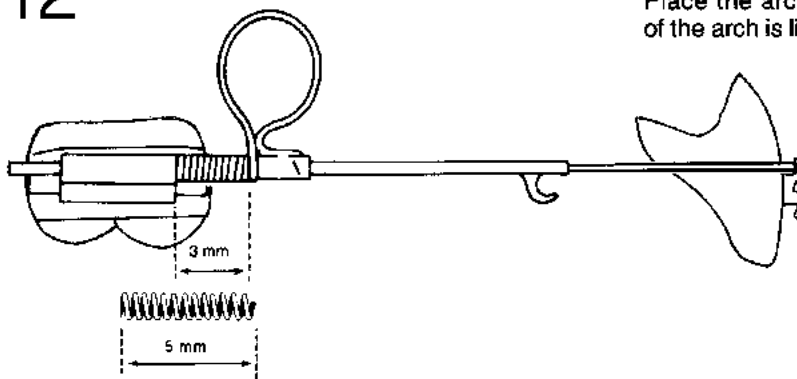
STEP 10**CLOSING THE OMEGA STOP**

Take out the arch, and with an i-548W Omega Plier, close the loops of the Omega Stop until the Omega helix is in contact with the distal end of the Omega Stop tube.

Note: It is important that there be 3 mm of free space from the Omega Stop to the buccal tube before inserting the coil spring.

STEP 11**APPLY COIL SPRINGS**

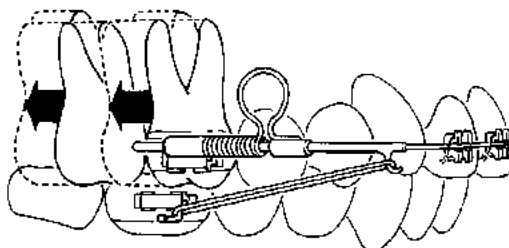
Insert an .010" x .045" open coil spring, 5.0 mm in length, distal to the Omega Stop and pinch a small piece of wax in the coil spring to secure it while testing. (The wax will quickly dissolve in the warmth of the mouth.)

STEP 12**INSERT ARCH INTO TUBES**

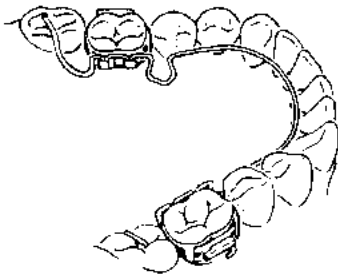
Place the arch back in the buccal tubes. The anterior section of the arch is ligated to the brackets of the selected anterior teeth.

5 MM COIL SPRINGS

.010" x .045" x 5 mm open Elgiloy® coil spring does not require heat treatment.

**PATIENT APPLICATION**

Place three 2 oz. or two 3 oz. elastics as a supplemental force for distal molar movement. The anterior segment remains passive and will control any anterior countermoments.



MANDIBULAR ANCHORAGE

Good stable anchorage is accomplished with the 3D® Lingual Arch system.

NOTE: The 3D® Maxillary Bimetric Distalizing Arch is designed to function in combination with the superior anchorage functions of the 3D® Lingual Arch. Other types of lingual arches do not provide all of the multiple possibilities and should not be substituted! If you do compromise the system, instead of problem-free treatment, you risk the possibility of anchorage failure.

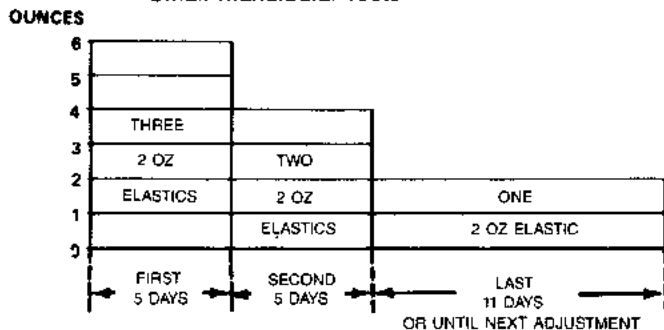
ELASTIC LOAD REDUCTION PRINCIPLE

THE IMPORTANCE OF CORRECT ELASTIC USE...

It is important that the Elastic Load Reduction Principle be incorporated in the treatment plan, in order to have continuous forces while controlling countermoments and to preserve anchorage. Other elastic principles should not be substituted.

SCHEDULE #1 (2 oz. elastics) Used with:

- Flaring lower incisors
- Small mandibular roots



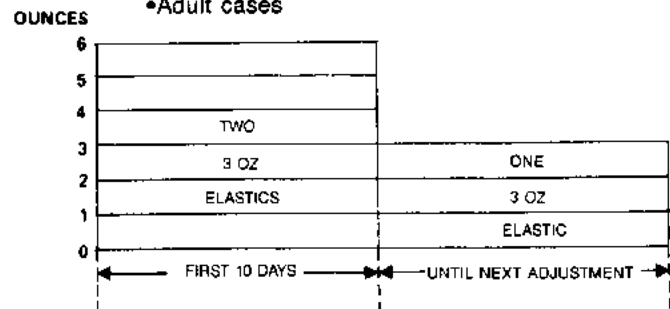
Using 2 oz. elastics, three elastics should be used during the first five days, two during the second five days and one during the final eleven days of the treatment plan. Fresh elastics are applied daily. Elastics must be worn 24 hours each day between appointments, including during meals.

Use RMO 5/16" 2 oz. elastics for non-extraction cases. Order No. J-1103.

Use RMO 1/4" 2 oz. elastics for extraction cases. Order No. J-1102.

SCHEDULE #2 (3 oz. elastics) Most Common Usage:

- Class II Div. 2
- Class II Div. 1 with close bite
- Cases with steep cusps
- Adult cases



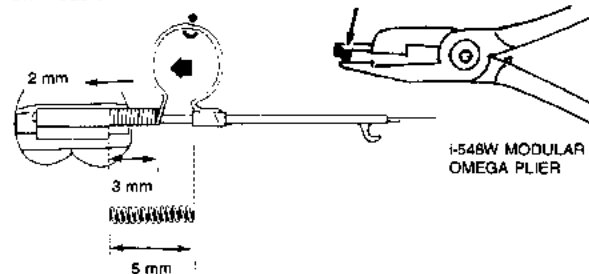
Two RMO 3 oz. elastics used during the first 10 days. Then, one 3 oz. elastic is worn until next adjustment. Fresh elastics are applied each 12 hours and are worn 24 hours daily, including during meals.

Use RMO 5/16" 3 oz. elastics for non-extraction cases. Order No. J-1113.

Use RMO 1/4" 3 oz. elastics for extraction cases. Order No. J-1112.

ELASTICS ARE CHANGED DAILY

WIRE PLACEMENT

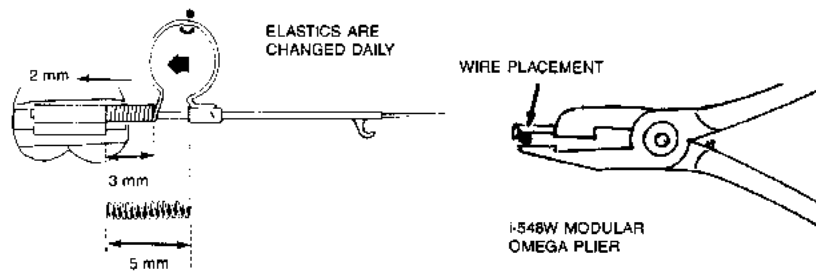


THIRD VISIT

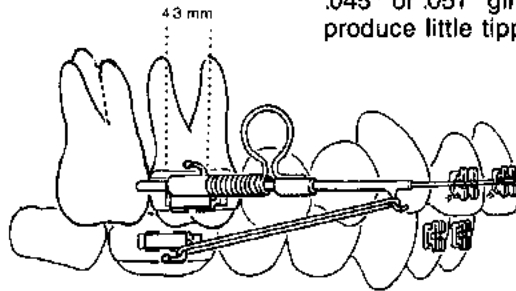
Without removing the 3D® Maxillary Bimetric Distalizing Arch, if further distalization is needed, re-activate the coil spring 2.0 mm by adjusting the Omega Stop with a Tweed Omega plier. Again, place 6 ounces of elastics as in the beginning and continue the Elastic Load Reduction Principle (see chart above and follow the recommended sequence).

FOURTH VISIT

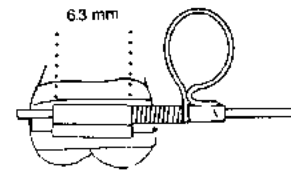
Repeat as needed.

**BUCCAL TUBES FOR 3D® MAXILLARY BIMETRIC DISTALIZING ARCHES**



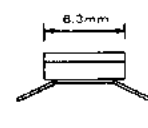
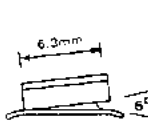
The 3D® Maxillary Bimetric Distalizing Arch will utilize the headgear tubes of your chosen 2nd Phase appliance, .045" or .051" gingival or occlusal. The gingival tube will produce little tipping.



A conventional 4.3 mm width tube may allow the molars to be distalized off the wire, requiring a second larger 3D® Maxillary Bimetric Distalizing Arch.



The RMO combination tubes .018" + .045" or .022" + .045" are 6.3 mm wide, which allows complete distalizing with one 3D® Bimetric Distalizing Arch. Except in the case of unusual molar rotations, the 6° offset tube is recommended, depending on the 2nd Phase appliance.

MODULAR ORTHODONTICS BUCCAL TUBES (WILSON)	CONTOUR
MAXILLARY DOUBLE BUCCAL TUBES   ROUND TUBE GINGIVAL 6° Offset	 8.3 mm
RIGHT LEFT	 6.3 mm 6°

SUMMARY OF KEY MULTIPLE FUNCTION USES FOR THE 3D® MAXILLARY BIMETRIC DISTALIZING ARCH

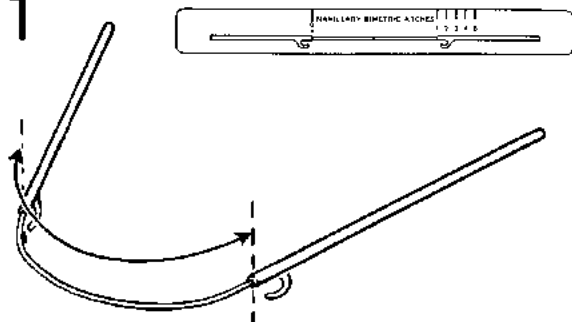
- Rapid molar distalizing
- Rapid bicuspid distalizing
- Palatal expansion
 - Bilateral
 - Unilateral
 - Sutural
- Rapid maxillary anterior retraction
- Rapid anterior intrusion
- Rapid anterior advancement
- Arch length modification

FABRICATING THE 3D® MAXILLARY BIMETRIC DISTALIZING ARCH

FOR WORKSHOP AND OFFICE REFERENCE

RMO assortments provide a time- and cost-saving selection of sizes for all average cases. For unusual sizes or special needs, 3D® Bimetric Distalizing Arches are quickly fabricated with instructions below.

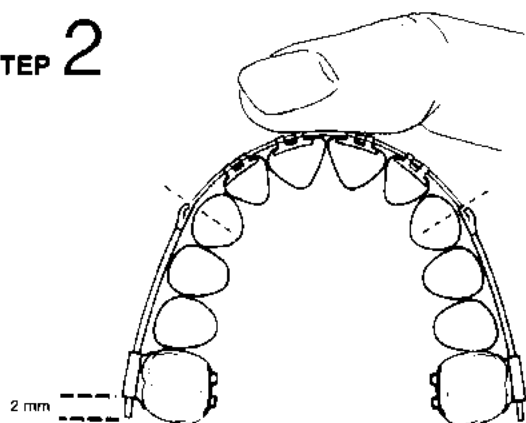
STEP 1



ARCH SELECTION

Select your arch size from one of the 7 sizes by measuring with the 3D® Bimetric Arch Selector, from the midline of one cuspid to the midline of the other cuspid.

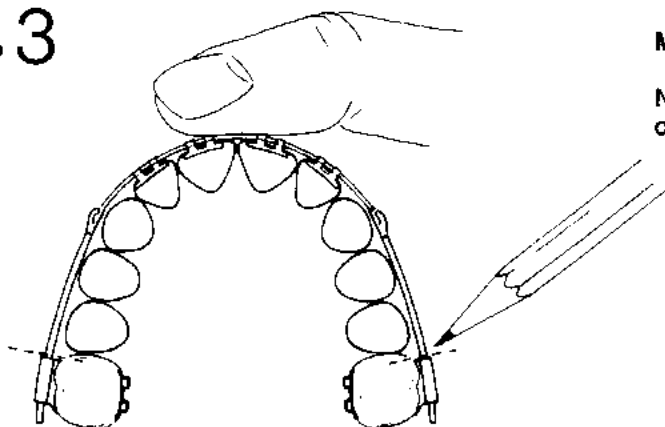
STEP 2



TRIAL FITTING

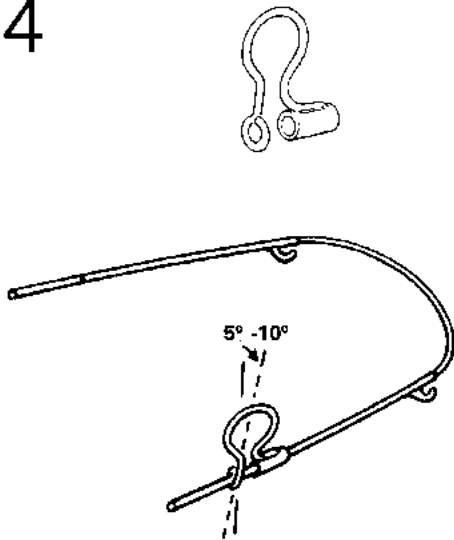
For trial fit, take the arch you selected and insert it in both buccal tubes. Make sure the arch is making contact with the anterior teeth. The distal end of the arch should extend past the buccal tube at least 2 mm. A slight anterior contouring may be required for individual fit.

STEP 3



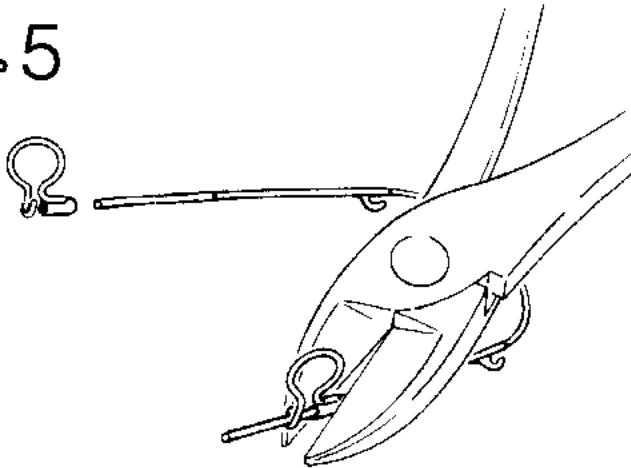
MARKING ARCH

Now mark the arch with an arch marking pencil, on both sides of the mouth mesial to the buccal tube.

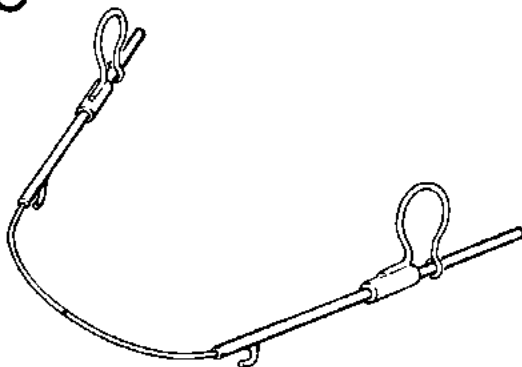
STEP 4**APPLYING THE OMEGA ADJUSTABLE STOPS**

The arch is now taken out of the mouth. An Omega Adjustable Stop is inserted on one end with the wire eyelet distal, even with the pencil mark.

The Omega Adjustable Stop is rotated toward the gingival and is angulated buccally approximately 5° – 10° for mucosal clearance. The elastic hook on the 3D® Bimetric Arch is always on the occlusal.

STEP 5**CRIMPING**

When in position, crimp the tube of the stop at a 45° angle with an i-267 wire cutter to prevent any rotation of the stop. Now go to the opposite side of the arch and complete step 4.

STEP 6**READY FOR APPLICATION**

Once more, test it on the patient for size.

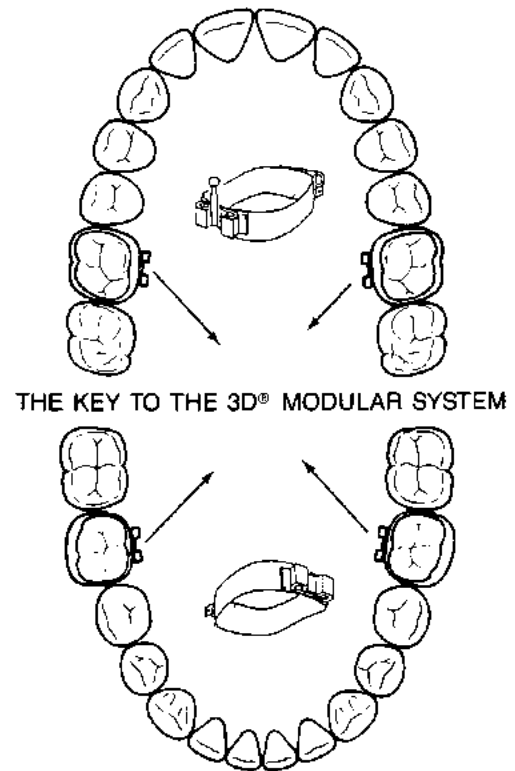
Note: At this stage you now have fabricated a 3D® Maxillary Bimetric Distalizing Arch. Arches are provided prefabricated by RMO in 7 sizes to save time.

- Arches are used as formed for intrusion, expansion and arch modification.
- Insertion of coil springs produces controlled distalizing or anterior advancement.

- Refer to the 3D® Maxillary Bimetric Distalizing Arch Workshop Guide pages 15 - 21 for recommended steps for adaptation. Begin with Step 2 and continue through the final step.

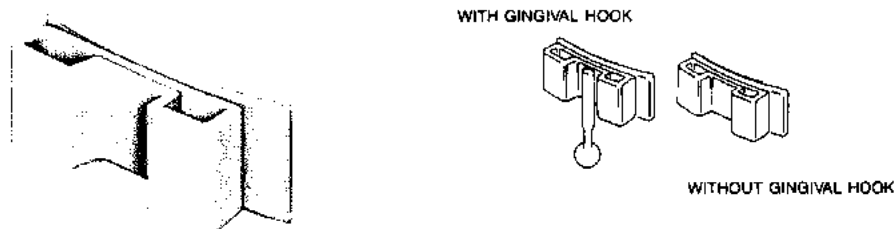
3D® LINGUAL TUBE

WELDING AND POLISHING



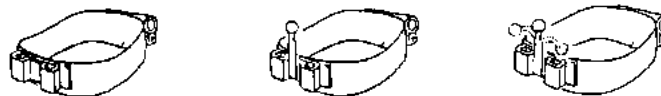
GENERAL FACTS ABOUT THE 3D® LINGUAL TUBE

The 3D® Lingual Tube is the key element of Modular Orthodontics™



3D® LINGUAL TUBE

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.



RM® molar bands can be furnished with RMO buccal tubes and 3D® Lingual Tubes, with or without special gingival hooks. The hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bites when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity for any other soldered or welded lingual attachments, brackets, hooks or buttons.

FRICTION LOCK DESIGN

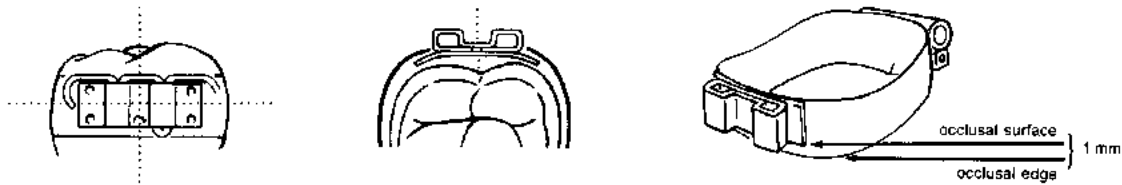
The 3D® Lingual Tube is designed with a wide base, which provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement, and also eliminates the necessity for any extension lock. Fits all first molars, uppers or lowers.

CAUTION . . . for wire formed post only.



As with all chairside orthodontic treatment, care should be exercised to eliminate the possibility of a patient aspirating a 3D® appliance. At each patient visit, check to assure that the friction lock-fit of the 3D® posts into the 3D® Lingual Tube is secure. Loss of friction is very rare, but, if detected, is quickly restored with a slight mesial/distal tipping adjustment to the posts. Use a 3 jaw plier as shown.

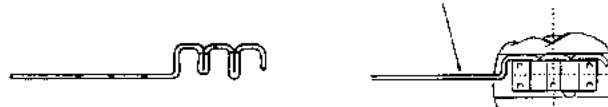
WELDING 3D® LINGUAL TUBES



TUBE IS WELDED MIDLINE OF BAND 1MM BELOW OCCLUSAL EDGE

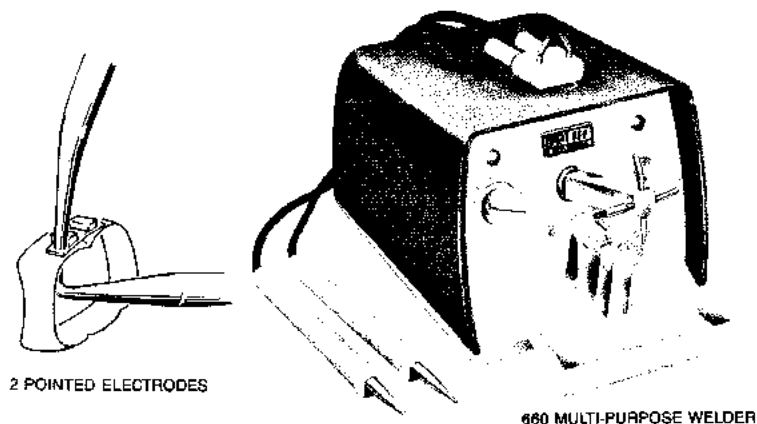
1. After you have selected the proper molar band size, position the 3D® Lingual Tube on the lingual side of the molar band. The 3D® Lingual Tube is welded at the midline of the molar band and positioned 1.0 mm below the occlusal edge of the band, so that when the 3D® Appliance is inserted into the twin tubes, the friction lock will be level with the occlusal edge of the band.

THE 3D® MULTI-PURPOSE ADAPTER MAKES A HANDY HOLDER FOR 3D® LINGUAL TUBE DURING SPOT WELDING.



If the 3D® Lingual Tube is welded too high, the 3D® Appliance, when seated in the tube will position the wire too high and come in contact with the occlusion. This will cause pressure, a very nervous patient, and possible loss of tooth control, if not corrected.

To assure consistency of welding position and quality welds, we highly recommend that users purchase RMO's prefabricated molar bands with prewelded 3D® Lingual Tubes and buccal tubes of their choice.

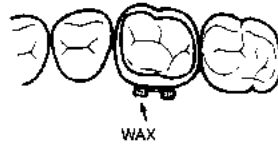


2. Select the pointed electrodes on the upper and lower turret. Tack weld the 3D® Lingual Tube in position, using number 2 or 3 heat on the heat selector. Be certain that the two electrodes have good pressure points between the tube and the band. Tack welding enables you to position the tube for final placing. It is possible to twist the tube using pliers to achieve exact positioning.

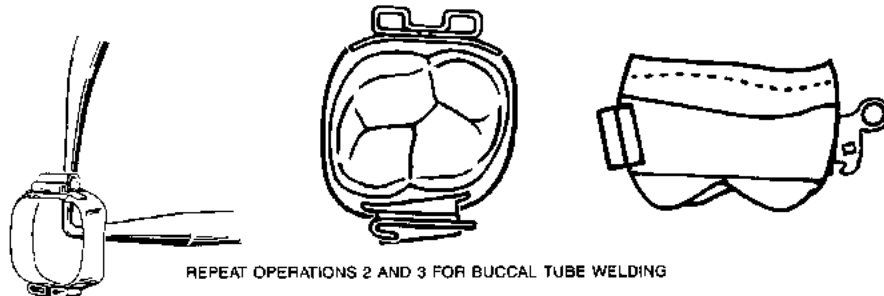


SPOT WELDED IN 5 PLACES

3. Then set the dial at No. 4 heat and activate the switch. The tube is welded in five places only, avoiding the central occlusal position.



4. Note: When molar bands with 3D® Lingual Tubes are initially seated on the tooth, the twin tubes should be filled with wax. Wax prevents cement from entering the tube's openings which will allow easier insertion of the 3D® posts and help eliminate post distortion and breakage.



REPEAT OPERATIONS 2 AND 3 FOR BUCCAL TUBE WELDING

5. Repeat steps 2 and 3 for welding the buccal tube on the buccal side of the molar band.

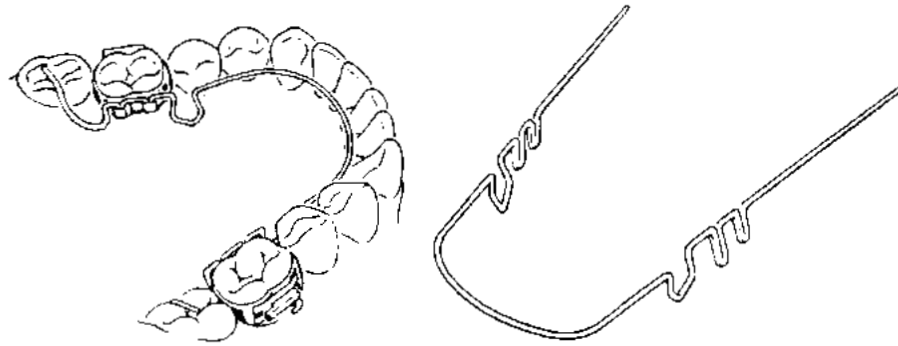
PASSIVATING—POLISHING

Spot welding may destroy the chrome film covering the molecules of iron, and it is necessary to restore this film since that area will oxidize if not protected. The band and the attached tubes are cleaned using orthophosphoric acid in a polisher. After passivating and polishing, the appliance is now cleaned and ready for placement in the mouth.

The resistance of chrome alloy is believed due to the presence of a very thin, continuous, transparent chrome film which forms naturally on surfaces exposed to oxidizing conditions. Theoretically, all working (mechanical polishing, etc.) tends to destroy the continuity of this layer. To ensure against this, the material is restored to its original condition by "passivation." The fastest, most efficient method of passivation-polishing is with a polisher. This restores the natural corrosion-resistant film and produces a permanent, brilliant, lasting finish in seconds.

3D® Lingual Tubes and your choice of buccal tubes are provided prewelded to your specifications in individual packages or in 10-case loads. Kits come in attractive walnut chairside dispensers, designed to save you money, time and inventory.

3D® LINGUAL ARCH

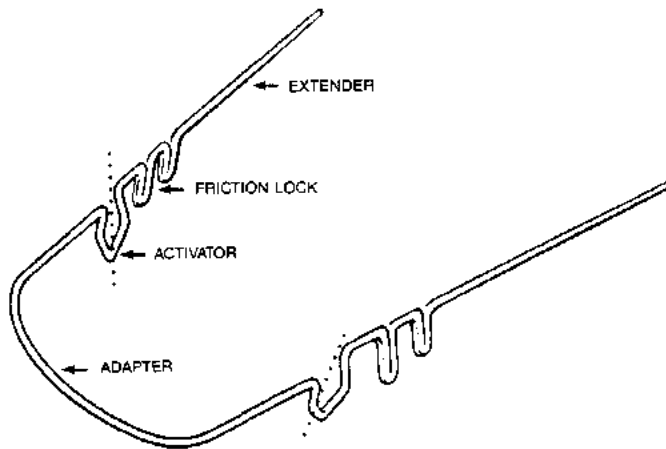


- Mandibular Anchorage for Rapidly Distalizing Molars
- Holding Arch for Extraction Cases
- Holding Arch for Non-extraction Cases
- Incisor Advancement
- Bilateral Expansion
- Lower Molar Distal Uprighting
- Lower Second Molar Distal Uprighting
- Lower Third Molar Distal Uprighting
- Intrusion Anti-tipback Control
- First Molar Rotations
- First Molar Expansion
- First Molar Contraction
- First Molar Buccal Crown Tip
- First Molar Lingual Crown Tip
- First Molar Buccal Root Torque
- Lingual Arch Retainer
- Nance Holding Arch
- Anterior Root Torque Assister
- Arch Length Modifier
- Impacted Bicuspid Corrector Unilateral
- Impacted Bicuspid Corrector Bilateral

The 3D® Lingual Arch is the key to First Phase rapid molar distalizing with the 3D® Maxillary Bimetric Distalizing Arch without headgear. It is effective both in the mixed dentition and with adults. Utilizing the 3D® modules in the First Phase of multibanded treatment permits broad spectrum mixed dentition treatment.

Certain cases require waiting for full eruption. However, many deteriorate into much worse malocclusions during the mixed dentition, particularly in the late mixed dentition when the E spaces are lost. Teeth drift into uncontrolled spaces producing aberrant eruptions. Premature loss of deciduous cuspids permits the lower laterals to drift into cuspid spaces, and lingual tipping and excessive extrusion of these teeth cause a deepening of bite and loss of arch length. Interceptive treatment with lower 3D® holding appliances, upper 3D® Nance Holding Arches and 3D® Space Maintainers and regainers can reduce these problems without interfering with full appliances later.

WORKSHOP GUIDE

3D® LINGUAL ARCH**NOMENCLATURE AND FEATURES**

Note: The 3D® Lingual Arch should not be regarded, nor used, in the same manner as traditional forms of Lingual Arches.

The 3D® Lingual Arch is made of lighter resilient wire, enabling the clinician to set up more positive anchorage for a greater variety of treatment applications than earlier lingual arches.

ADAPTER

The Adapter is an .028" round wire which allows predictable adaptation to the cingulum of the anteriors to avoid loss of control or tipping in anchorage.

ACTIVATOR

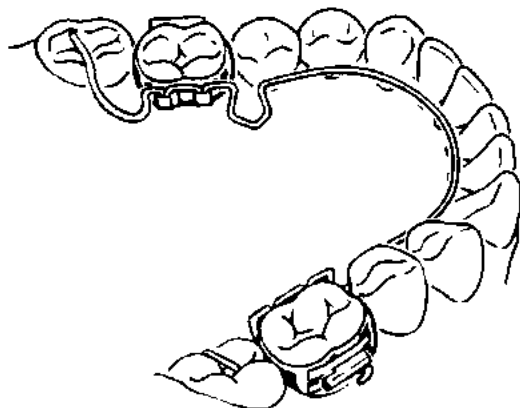
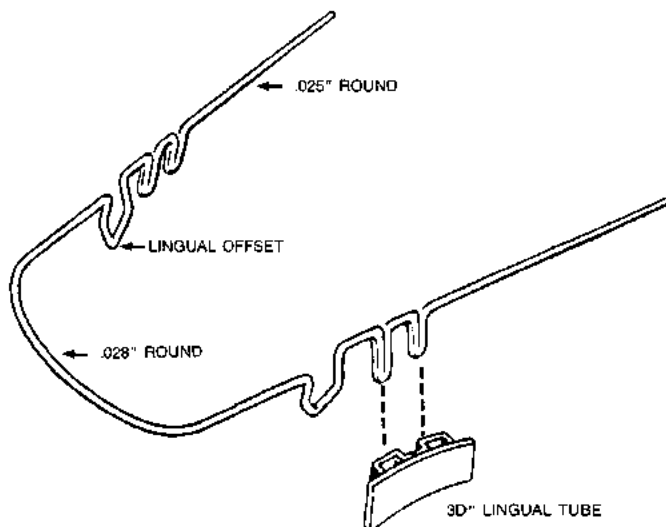
The diamond-shaped .028" loop permits multiple programmed movements for arch length adjustments.

FRICTION LOCK

The twin vertical posts and companion 3D® Lingual Tubes provide a friction lock for greater stability and anchorage to the molars.

EXTENDER

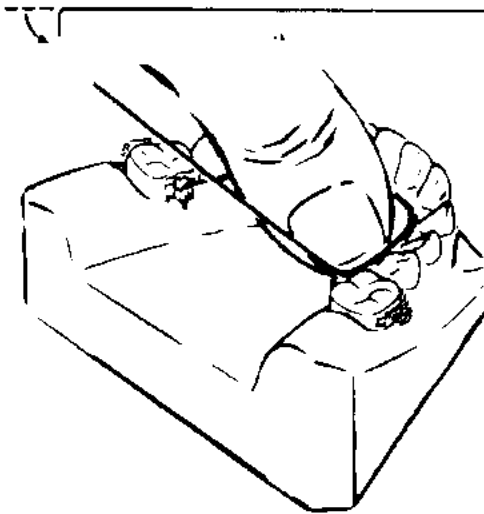
The Extender is .025" round wire, to be formed into many configurations for multiple treatment functions.



This is a representation of a fabricated 3D® Lingual Arch on the workshop model.

METHODS OF SELECTING THE 3D® LINGUAL ARCH USING A WORKSHOP MODEL

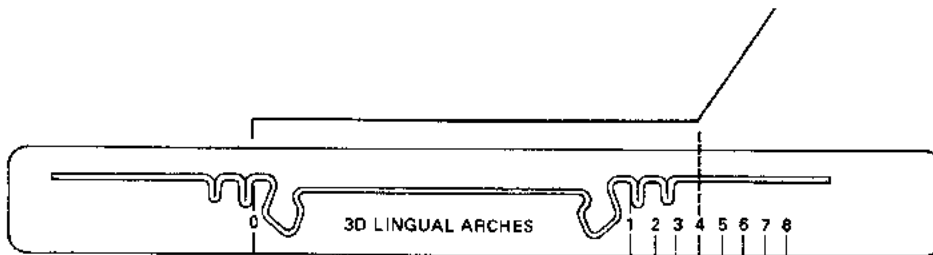
STEP 1



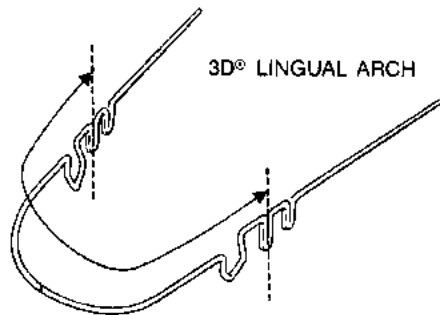
Size selection is simplified by using an .020" brass wire inserted in the mesial tube on one side and formed around the arch with thumb pressure at the gingival borders of the teeth, to the mesial tube on the opposite side, and bent to measure.

STEP 2

You find the proper size by laying the brass wire over the 3D® Lingual Arch Selector.



STEP 3



Select the correct size 3D® Lingual Arch from your dispensing system.

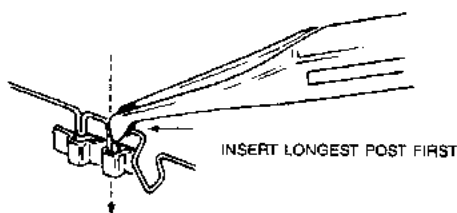
Note: If prefabricated arches are in between patient size, always select a smaller size lingual arch. It is easier to enlarge an arch than to reduce dimension.



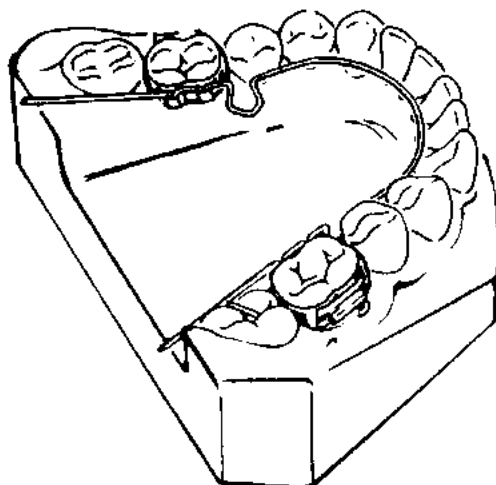
INSERT POSTS INTO TUBES

Test the 3D® Lingual Arch for fitting on the model by picking it up with a How plier (i-110) on the top part of the mesial post. The mesial post is designed longer than the distal post to allow for easier insertion of both posts. Once the mesial post is inserted partially in the mesial tube, the distal post will insert easily, since both tubes are lined up with each other and are not contoured to the tooth. Initially these may require a band seater for seating.

THE HOW PLIER IS USED TO CARRY THE 3D® LINGUAL ARCH TO THE ARCH

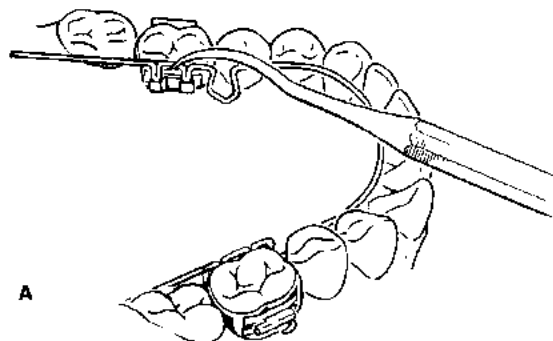


HOLD THE HOW PLIER OVER THE MESIAL POST

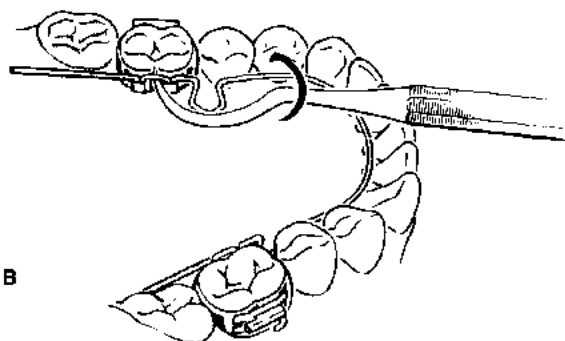


REMOVING THE 3D® LINGUAL ARCH

(A) The 3D® Lingual Arch is removed by inserting a dental scaler between the friction lock, with the tip of the scaler resting on the edge of the band. (B) A quick occlusal rotation of the scaler will lift the arch out of the tube.



A

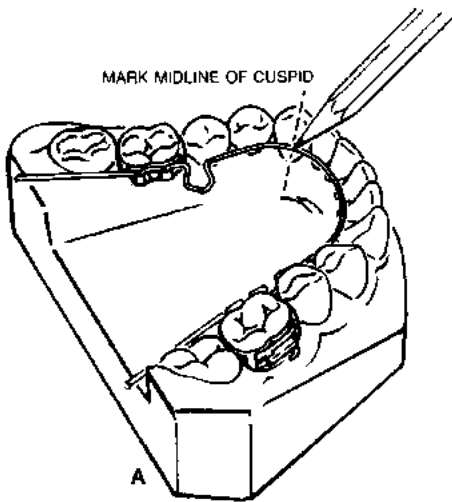


B

A DENTAL SCALER LIFTS THE 3D® LINGUAL ARCH OUT OF THE 3D® TUBE

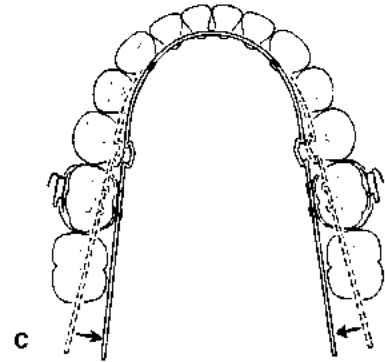
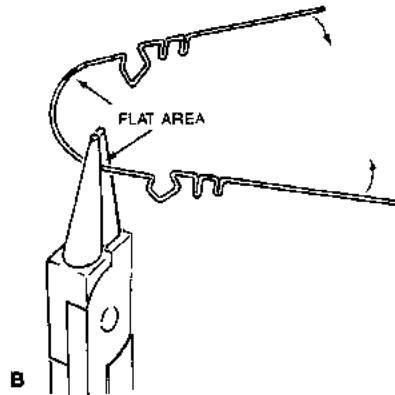
FORMING THE 3D® LINGUAL ARCH

STEP 1

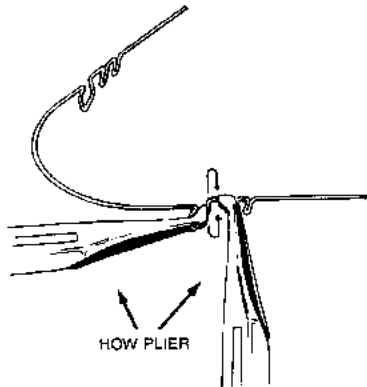


MARKING THE MIDLINE OF THE CUSPID AS AN INDEX POINT

(A) Mark the midline of each cuspid on the arch as an index point. Using the i-1140 plier, place the round tip on the outside of the arch at the index point (flat side inside the arch). (B) Hold with the plier and, (C) With the fingers, bend the wire to contour the posterior area of the arch to the approximate shape of the arch form and for passive position over the 3D® Lingual Tubes. With a marking pencil, record mesial post positions on the record card for reference to assure molar position after any future adjustments.

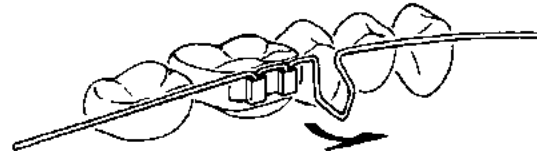


STEP 2

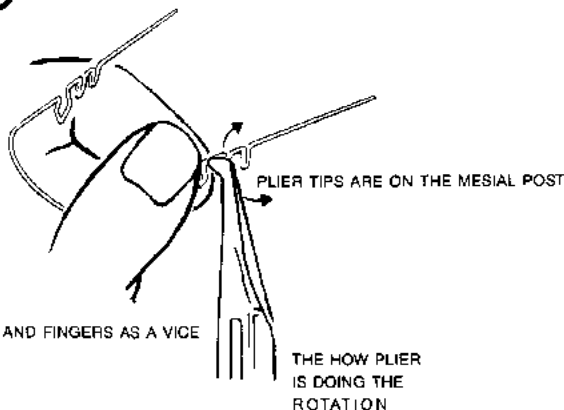


ADJUSTING ACTIVATOR TO AVOID TISSUE IMPINGEMENT

Initial adjustment of the activator is necessary to be certain there is no tissue impingement. This is done by holding the mesial post with a How plier and adjusting the Activator with a second How plier (or with finger pressure).

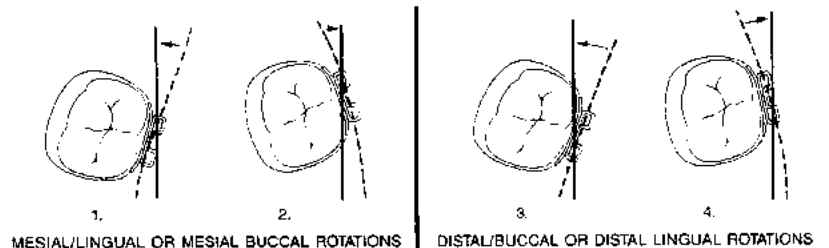


STEP 3

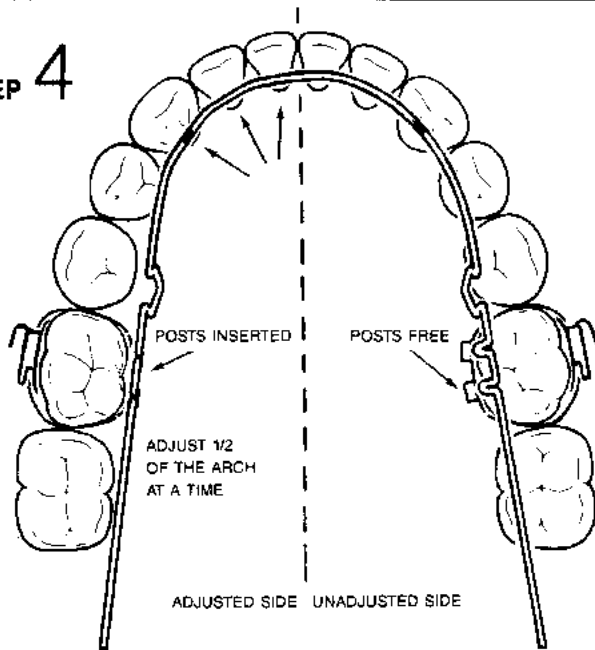


ADJUSTMENT TO REMOVE UNWANTED MOLAR ROTATIONS

Insert the 3D® posts into the 3D® Lingual Tubes on one side. If the opposite side posts lie mesial or distal to the 3D® Lingual Tube, it indicates a rotation moment on the inserted side. Removal of the appliance will permit rotation of the posts with a How plier until reinsertion will cause the opposite side to lie passively against the tube. Repeat on the opposite side to assure no molar rotations.



STEP 4

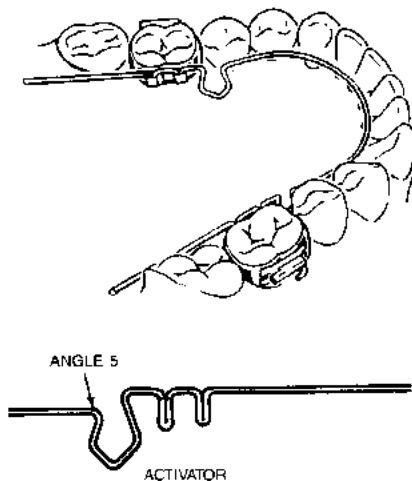
**ADAPTING THE ARCH TO THE ANTERIOR SECTION FOR CONTACT WITH THE CUSPID, LATERAL AND CENTRAL****NOTICE:**

You will find that in each step of fabrication, if you make your adjustment on only one side of the arch at a time, it will save you time and speed up fabrication. Form one side, then the other side — then check both sides for accuracy.

Continue to position the arch wire to the cingulum on the cuspid, lateral and central. Once this is accomplished, that side is fully positioned.

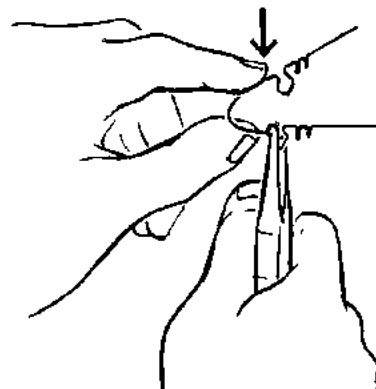
Now, remove the twin posts. Insert the other twin posts in the other lingual tube and repeat the adaptation of the other side of the arch.

STEP 5

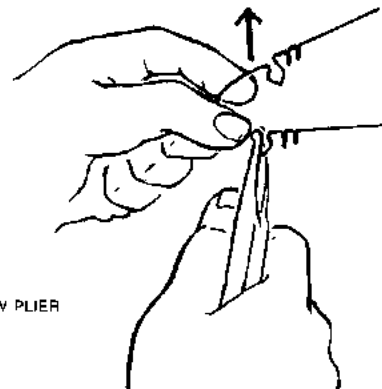
**LEVELING THE ARCH**

Testing for any tip or torque in the vertical posts is a simple procedure. The posts are inserted on the left side only and the height of the right side is tested. It can be raised or lowered. Remove the arch wire; then, holding the left activator at angle 5 with the How plier, make a simple finger bend of the arch wire to elevate or lower the right side.

Repeat this procedure on the right side until the arch is level and passive in the tubes on both sides.

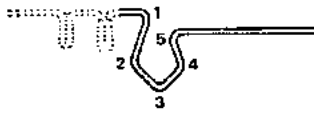


LOWERING THE RIGHT POSTS

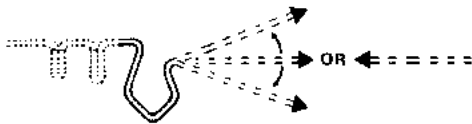


RAISING THE RIGHT POSTS

STEP 6 3D® ACTIVATOR

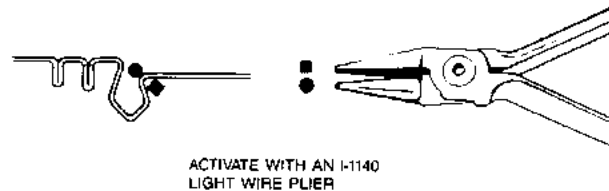


The activator is designed in a diamond-loop shape, .028" in size. Its three-dimensional force mechanics have multiple directional movement possibilities with predictable forces. There are five angles in the Activator that can be adjusted slightly to produce geometrically predictable force vectors.

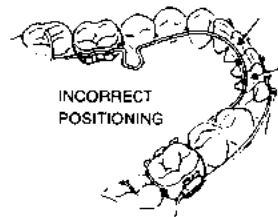
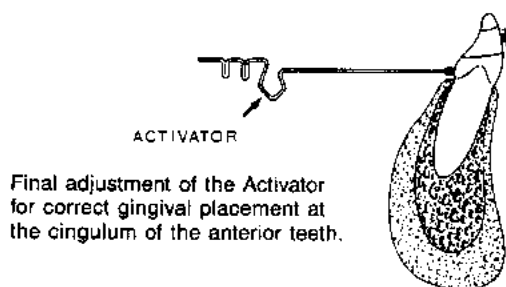


PLIER TIP POSITIONING	SLIGHT ADJUSTMENTS → ACTIVATE → 1.0mm OR LESS

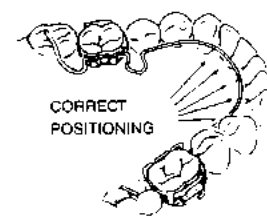
Avoid overbending, which may require unbending. Rather, increase minimal bending to degree needed.



ADJUSTMENT OF THE ACTIVATOR FOR CORRECT GINGIVAL PLACEMENT AT THE CINGULUM OF THE ANTERIOR TEETH



Arch is riding too high... The tongue will play with the wire. This may cause breakage mesial to the posts.



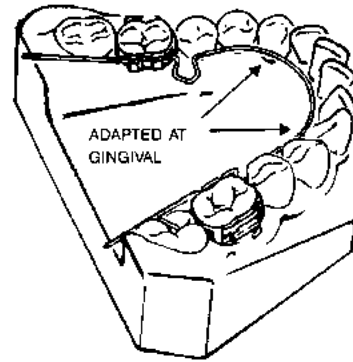
Arch is directly placed at the cingulum of the anteriors.

- Test for cingulum adaptation for anchorage.
- The 3D® Multi-Purpose Adapter is a .028" round wire that is usually conformed to the gingival placement at each cingulum, avoiding undue gingival compression. This is to avoid loss of control or tipping in anchorage.
- Once adapted, the arch is not altered during Class II traction.

IRREGULAR TEETH

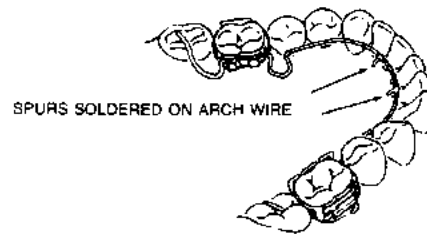
With irregular lower anterior teeth, the 3D® Lingual Arch should be adapted at the gingival border of the lingually instanding anterior teeth only. This provides a buttress of maximum anchorage. After Class II treatment, the incisors are unraveled by simply opening the Activator bilaterally or unilaterally as indicated in the chart.

Rectangular brackets are now placed for 2nd Phase alignment for reducing treatment time.

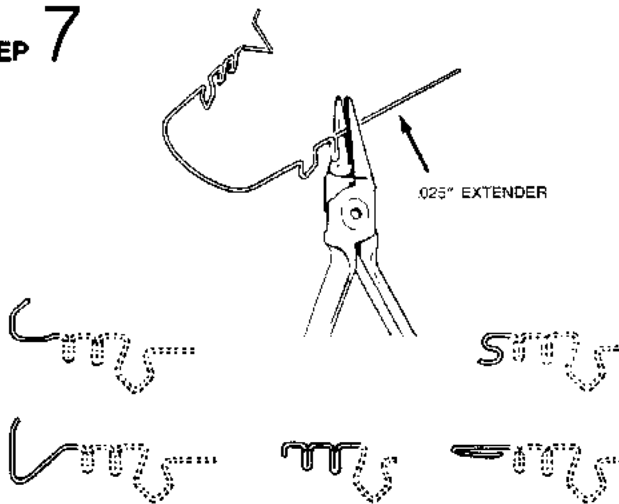


CONTROLLING THE TONGUE MOVEMENT UNDER THE ARCH WIRE

When there is evidence of tongue movements under the wire, solder .018" spurs behind the incisors, lying slightly over the lingual tissues. The tongue will be "reminded" only when there is a deliberate attempt to displace the wire.



STEP 7



FABRICATING THE EXTENDER

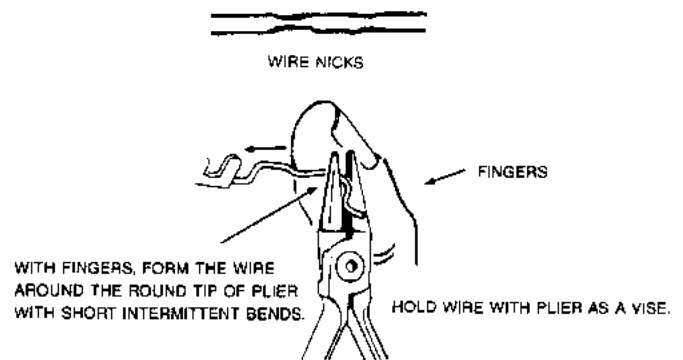
Fabricate the Extender according to your treatment objectives. The Extender is .025" round. It forms easily into many configurations for multiple treatment functions, unlike any other lingual arch.

Light Wire Plier, . . . I-1140 used for .025" extender adjustments.

Adjustment of appliances with wire-formed posts requires a How plier to hold the post nearest any bending. This assures that there will be no opening of the post with breakage and no distortion of the parallel relationship. At the same time, this assures positive insertion without difficulty.

HELPFUL HINTS IN WIRE BENDING 3D® APPLIANCES

Wires should always be bent or formed with the fingers, using pliers to hold the wire as a vise. Hold wire firmly but not too tightly, applying only enough pressure to hold wire securely without slipping. Avoid nicking the wire, by using the round tip of the plier. Nicking will occur if the wire is bent against the sharp edge of the plier beak. All bending should be done gradually, or the wire may become work-hardened and brittle. With 3D® wire adjustments, minimal adjustments produce the best action. Excessive adjustments, requiring unbending and rebending, can be abusive to any wire and breakage can result. The 3D® components will work-harden with use, just as any other wire appliances.



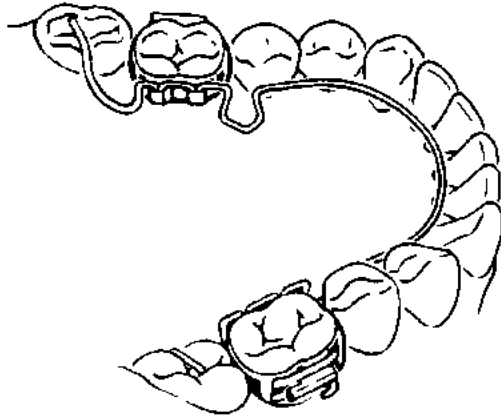
UNILATERAL MOLAR EXPANSION

Buccal crown-tip of posts on the action side and root torque on the resistance side, will produce rapid unilateral correction, supported by cross elastic hooks on molar 6 with elastics.

3D® Lingual Tubes with cross elastic hooks produce rapid cross-bite correction. After the function is completed, tip and torque are removed and appliance is inserted in a passive state.

Note: This adjustment for unilateral correction is identical in all bilateral appliances.

STEP 8

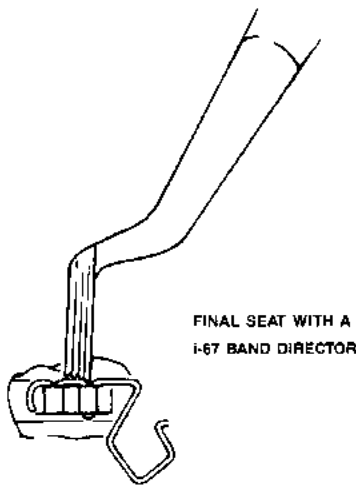


TRIAL TEST

You are now ready for the trial test.

- A. Replace arch on the model.
- B. Check for the need for further adjustments and mark with pencil.
- C. Remove the arch and make adjustments.
- D. Replace completed arch.

Note: Unlike other lingual arches, the 3D® Lingual Arch is uniquely designed to function as a 3D® Mandibular Class II Anchor.



FRICTION LOCK

Once both posts are in position, they are further seated by an i-67 Band Director. The insertion of the twin posts produces a spring-loaded friction lock that is anchored and does not dislodge. Note: Avoid any distorting bending to the posts of the friction lock. Distortion will cause unwanted torque on the tooth.

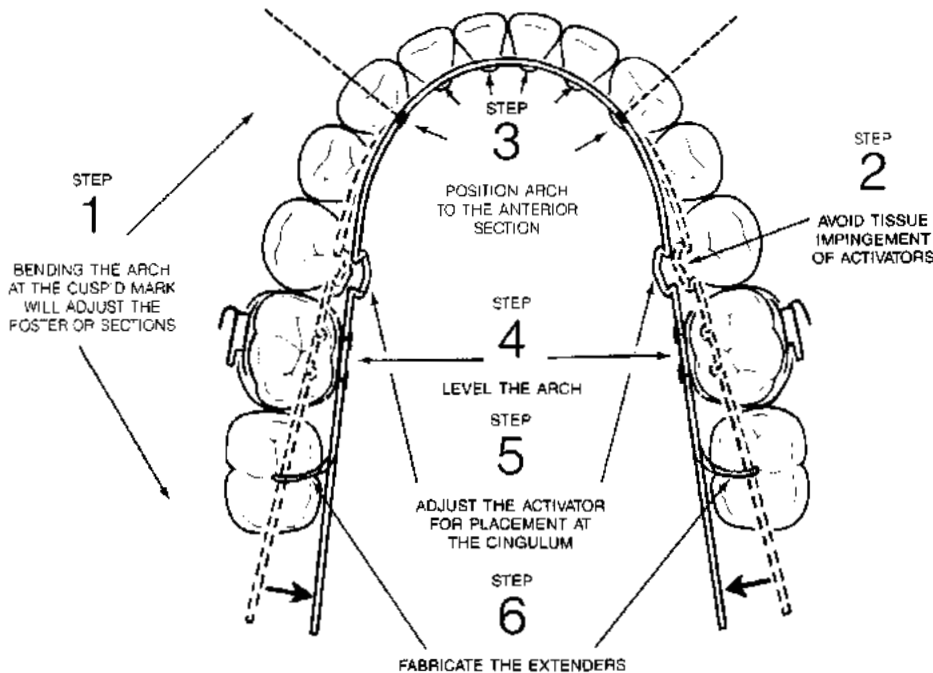
The friction lock consists of twin posts engineered for precision fit within the 3D® Lingual Tube to provide greater stability and anchorage to the molars, for better functional control.

As with all chairside orthodontic treatment, care should be exercised to eliminate the possibility of a patient aspirating a 3D® Appliance. At each patient visit, check to assure that the friction lock-fit of the 3D® posts into the 3D® Lingual Tubes is secure. Loss of friction is very rare, but, if detected, is quickly restored with a slight mesial/distal tipping adjustment to the posts. Use a 3 Jaw Plier as shown.



Note: If it is ever necessary to adjust the friction lock, use a 3 Jaw Plier to adjust the posts. Place the plier above the area between the posts and gently squeeze to very slightly compress the posts to tighten the friction lock.

SUMMARY OF ARCH FABRICATION STEPS FOR 3D® LINGUAL ARCH



AFTER THE FIRST APPOINTMENT

When used as an invisible anchorage unit for molar distalization, there should be no activation of Class II elastic traction. Both the 3D® Maxillary Bimetric Distalizing Arch and the 3D® Lingual Arch should lie passive.

SECOND APPOINTMENT

If the instructions are followed, there will be absolutely no tooth mobility...and there will be complete patient comfort and a positive attitude for the active treatment to be initiated at this point.

INDIRECT WORKING MODEL AND DIRECT CHAIRSIDE LINGUAL ARCH FABRICATION

Use the practice models to gain confidence in fitting the components, following the step-by-step instructions presented in the workshop guides. After you have gained skill and confidence by practicing, begin applying Modular Orthodontics™ in actual treatment. It is best to begin by pouring work models for 3D® Lingual Arch fabrication as explained on pages 123-132 in the Auxiliary Aids Section.

After you have gained proficiency in making your treatment arches with working models, proceed to a direct technique. Use a study model to estimate sizes and the necessary minor bending adjustments. With repeated chairside experience, component adjustment to individual patient needs will become a satisfying, creative part of your appliance fabricating procedure.

SUMMARY OF KEY INVISIBLE 3D® LINGUAL ARCH APPLICATIONS

MANDIBULAR ARCH MANAGEMENT

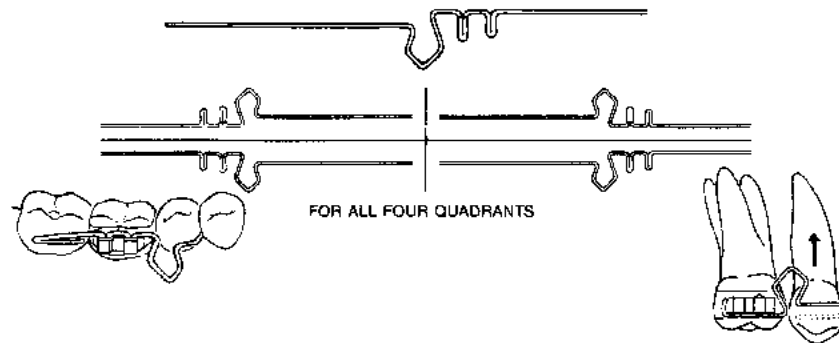
The 3D® Lingual Arch is used most often in the mandibular arch for the following:

1. For positive, multi-point mandibular anchorage.
2. As an adjustable mandibular holding arch for both extraction and non-extraction cases.
3. As a post-treatment mandibular retainer.
4. As a first, second or third mandibular molar distalizer and impaction corrector.
5. As a mandibular anterior advancer and primary alignment controller.
6. For molar control... Expansion - bilateral or unilateral, contraction - bilateral or unilateral, all rotations, buccal and lingual crown tip and root torque.

MAXILLARY ARCH MANAGEMENT

1. It is used as a Nance button for the maxillary arch, for space maintaining and to prevent mesial molar drag. It is adjustable, irritation-free, removable and hygienic, unlike earlier Nance buttons.

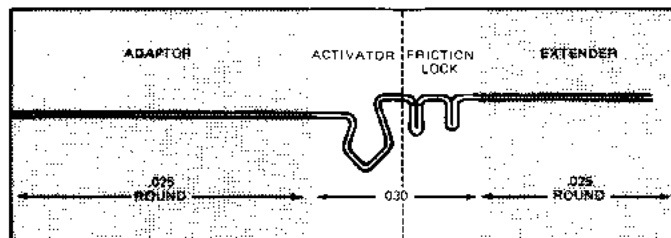
3D® LINGUAL SECTIONAL



- Upper Right Simple Expander
 - Lower Right Simple Expander
 - Upper Right Cantilever Resistor
 - Upper Right Bicuspid Space Maintainer
 - Lower Right Bicuspid Space Maintainer
 - Upper Right Bicuspid Space Regainer
 - Lower Right Bicuspid Space Regainer
 - Upper Right Second Bicuspid Buccal Uprighter
 - Lower Right Second Bicuspid Buccal Uprighter
 - Upper Right Second Bicuspid Intruder
 - Lower Right Second Bicuspid Intruder
 - Upper Right Second Molar Intruder
 - Lower Right Second Molar Intruder
 - Upper Right Second Molar Distal Uprighter
 - Lower Right Second Molar Distal Uprighter
 - Upper Right Bicuspid Retractor
 - Lower Right Bicuspid Retractor
 - Upper Right Cross Elastic Hook
 - Lower Right Cross Elastic Hook
 - Upper Right Elastic Hook
 - Lower Right Elastic Hook
 - Impacted Right Cuspid Activator
- Upper Left Simple Expander
 - Lower Left Simple Expander
 - Upper Left Cantilever Resistor
 - Upper Left Bicuspid Space Maintainer
 - Lower Left Bicuspid Space Maintainer
 - Upper Left Bicuspid Space Regainer
 - Lower Left Bicuspid Space Regainer
 - Upper Left Second Bicuspid Buccal Uprighter
 - Lower Left Second Bicuspid Buccal Uprighter
 - Upper Left Second Bicuspid Intruder
 - Lower Left Second Bicuspid Intruder
 - Upper Left Second Molar Intruder
 - Lower Left Second Molar Intruder
 - Upper Left Second Molar Distal Uprighter
 - Lower Left Second Molar Distal Uprighter
 - Upper Left Bicuspid Retractor
 - Lower Left Bicuspid Retractor
 - Upper Left Cross Elastic Hook
 - Lower Left Cross Elastic Hook
 - Upper Left Elastic Hook
 - Lower Left Elastic Hook
 - Impacted Left Cuspid Activator
 - Posterior Anchorage

WORKSHOP GUIDE

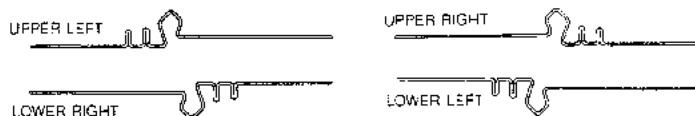
3D® LINGUAL SECTIONAL



3D® SECTIONAL ARCH

This workshop guide demonstrates the fabrication of a simple invisible Bicuspid Retractor made from a 3D® Lingual Sectional. This type of retractor offers many advantages to orthodontists and patients over traditional mechanics. The retractor is just one of many possible "invisible" appliances which can be fabricated from the 3D® Lingual Sectional.

STEP 1

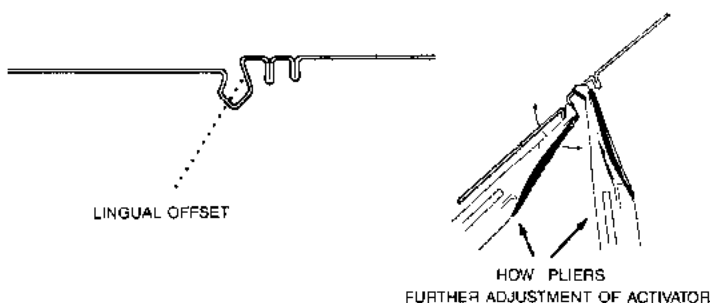


Sectionals are adjusted at the chair and inserted directly in the mouth.

SELECT 3D® LINGUAL SECTIONALS

Select 3D® Lingual Sectionals, right or left, as needed.

STEP 2

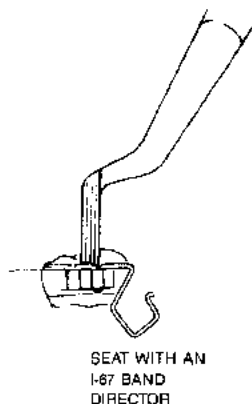
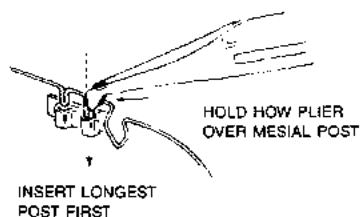


ADJUST FOR MUCOSA CLEARANCE IF REQUIRED

A lingual offset has been introduced into the Activator. Further adjustments of mucosa impingement are rarely necessary, but can be made by holding the mesial post with a How plier as a vise and adjusting the Activator buccally or lingually with a second plier.

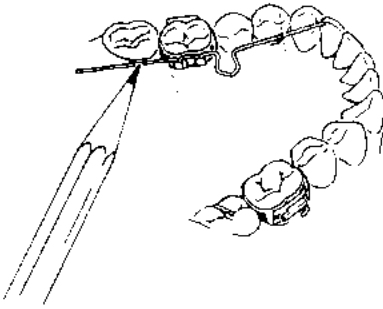
STEP 3

THE HOW PLIER IS USED TO CARRY THE 3D® LINGUAL SECTIONAL TO THE ARCH

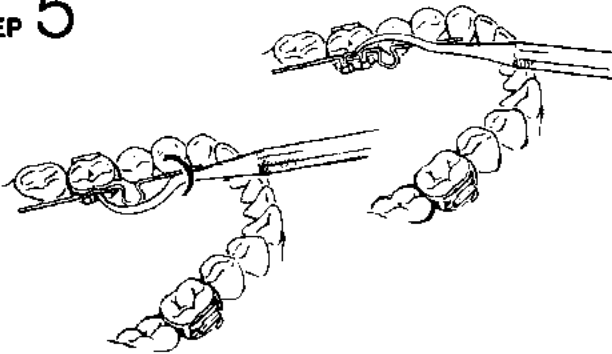


FITTING 3D® LINGUAL SECTIONAL INTO THE 3D® LINGUAL TUBE

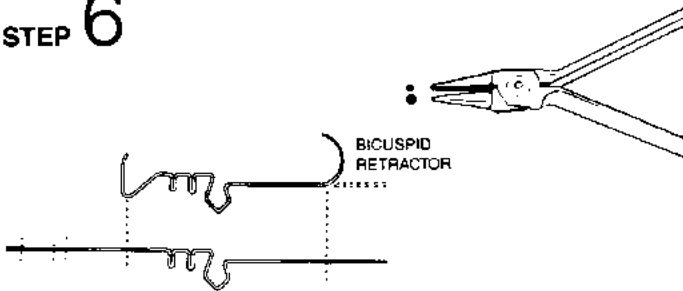
Test the 3D® Lingual Sectional for fit in the mouth by picking it up with a How Plier (i-110) on the top part of the mesial post. The mesial post is designed longer than the distal post to allow easier insertion of both posts. Once the mesial post is inserted partially in the mesial tube, the distal post will insert easily since both tubes are lined up with each other and are not contoured to the tooth. Once both posts are in position, they are further seated by an i-67 band director. The insertion of the twin posts produces a spring-loaded friction lock that is anchored and does not dislodge. Note: avoid any distorting bending to the posts of the friction lock. Distortion will cause an unnatural binding.

STEP 4**MARK FOR ADJUSTMENTS**

Now, with an arch marking pencil, mark where adjustments or modifications are needed.

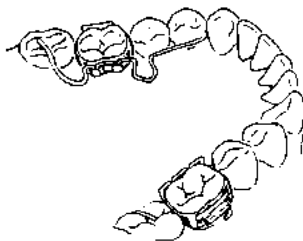
STEP 5**REMOVING THE 3D® LINGUAL SECTIONAL**

A dental scaler lifts the 3D® Lingual Sectional out of the 3D® Lingual Tube. 3D® Lingual Sectionals are removed by simply inserting a dental scaler between the friction lock, with the tip of the scaler resting on the edge of the band. A quick occlusal rotation of the scaler will lift the 3D® Lingual Sectional posts out of the tube.

STEP 6**MAKE MODIFICATIONS**

The i-1140 Light Wire plier is used to make adjustments. The plier has a flat nose that compresses on a concaved surface which makes it ideal to change any one of the five angles for specific activations.

When these 3D® Lingual Sectionals are formed directly at the chair, a temporary recurve of the distal extender will eliminate posterior irritation.

STEP 7**TEST ADJUSTMENTS**

Test your adjustments by replacing the 3D® Lingual Sectionals in the mouth with a How Plier and seat with an i-67 Band Director (No.3).

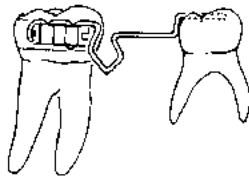
- A. With an arch marking pencil, mark new areas for adjustments.
- B. Take the 3D® Lingual Sectionals out, see No. 5.
- C. Make necessary passive adjustment, see No. 6. Now activate.
- D. Replace in the mouth for final check, see No. 3.

100% force section dictates minimal adjustments.

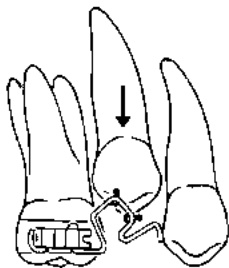
ADVANTAGES OF THE 3D® SECTIONAL BICUSPID RETRACTOR

The invisible 3D® Sectional Bicuspid Retractor offers many advantages over traditional tooth-bracketed retracting mechanics. It is invisible, simple and unobtrusive, and comfortable for the patient. It is friction-free. The retracting mechanism controls movement at the most optimal position for moving the tooth . . . i.e., it engages the tooth at the most gingival point on the mesial, which elevates centroid to produce bodily movement.

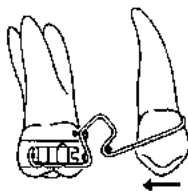
The range of activation is amazingly broad. The Retractor is activated by compressing the diamond 3D® Activator a prescribed amount before placing the module in the mouth. The Activator is reactivated during each appointment until desired distal positioning has been achieved. Ordinarily, this is accomplished in just a few visits. After realizing your retraction objectives, the Retractor is removed and you can proceed to the next step of your treatment plan.



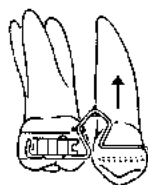
3D® Lingual Sectional Space Maintainers.



3D® Lingual Sectional Arch Space Regainer.
Activation is by angle 3 and 4 adjustment.



3D® Lingual Sectional Arch Space Closer.
Activation is by angle 2 adjustment with
angle 1 and 5 closure.



3D® Lingual Sectional Arch Bicuspid Depressor
Activation is by angle 2 and 3 adjustment.

SUMMARY OF KEY INVISIBLE 3D® LINGUAL SECTIONAL MOVEMENTS

3D® Lingual Sectional variations add multiple coordinate functions:

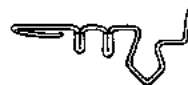
1. Mesial elastic hook.
2. Cross elastic hook.
3. Posterior anchorage.
4. Impacted second molar distalizer.
5. Second molar buccal uprighter.
6. Cantilever resistor.
7. Second bicuspid space opener.
8. Second bicuspid buccal uprighter.
9. Sutural expander.
10. Bicuspid rotator.
11. Bicuspid depressor.
12. First bicuspid retractor.
13. Second molar depressor.
14. Impacted third molar distal uprigger.



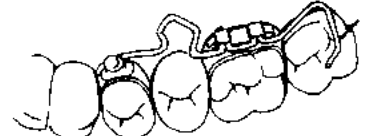
Simple expander



Bicuspid uprighter
Second molar distalizer.

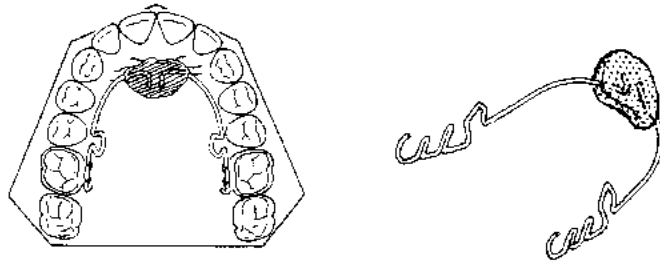


Second molar buccal uprighter
First bicuspid mesial uprighter.



Cantilever resistor for preventing
upper molar tipback during
anterior intrusion.

3D® NANCE HOLDING ARCH

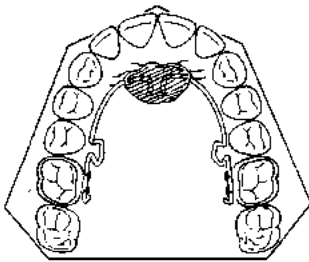


- To prevent molar mesial drift in mixed dentition.
- To prevent molar mesial drag during anterior root torque mechanics.

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® NANCE HOLDING ARCH



The Nance Holding Arch is a proven popular appliance used by orthodontists over a long period of years with outstanding treatment success.

FUNCTIONS:

- To prevent molar mesial drift in mixed dentition
- To prevent molar mesial drag during treatment.

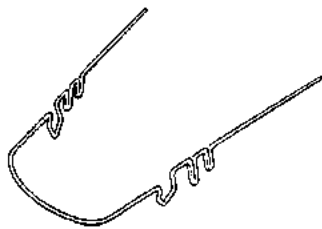
The 3D® Nance Holding Arch has many features, such as:

- Removable...snap in and out of the 3D® Lingual Tube
- Easy to keep clean, more hygienic
- Easy to adjust for continued patient comfort
- Easily adjustable for active treatment
 1. Molar expansion/contraction
 2. Molar expansion/tip torque
 3. Molar rotations

After treatment, appliance can be cut distal to acrylic and converted to two 3D® Lingual Sectionals and used as a:

- 3D® Expander
- Bicuspid Space Regainer
- Bicuspid Space Maintainer
- 2nd Molar Uprighter (Impacted)
- Molar Anti-Tipback
- Elastic Hook

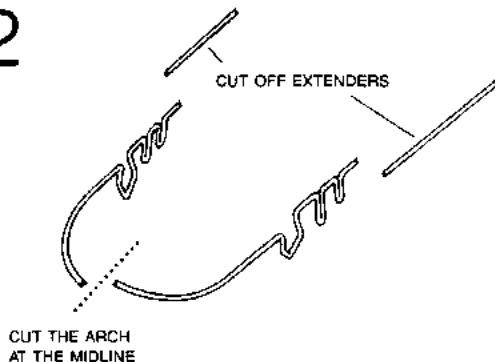
STEP 1



SELECTING THE ARCH SIZE

A 3D® Lingual Arch is selected by laying it over the model, at the first molars and the palatal area.

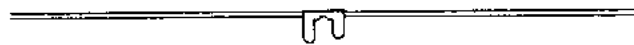
STEP 2



CUTTING THE ARCH

Cut the 3D® Lingual Arch apart at the midline, and cut off both Extenders as shown in the illustration.

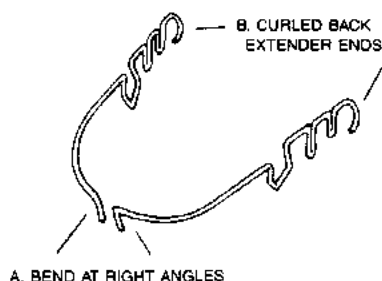
3D® D.Y.S. MODULE



The 3D® D.Y.S. Module is also designed for the fabrication of a Nance Holding Arch.

See page 148 in this Manual (Laboratory Assistance).

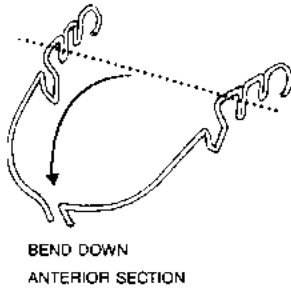
STEP 3



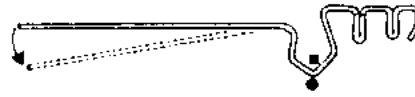
BEND ANTERIOR AND POSTERIOR ENDS

- Bend the anterior ends down at a right angle for support in the acrylic.
- Bend the posterior ends down to avoid tongue irritation.

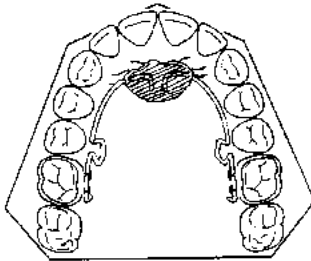
Note: Cutting the arch in two sections permits a quick passive arch. If the arch were left whole, it would require forming the arch to the teeth so it would be in a passive state.

STEP 4**BENDING ANTERIOR SECTION**

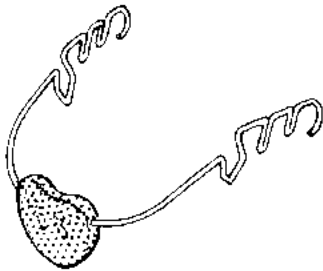
Bend the anterior section down for proper positioning in the palatal area. Check on the model and readjust as needed.



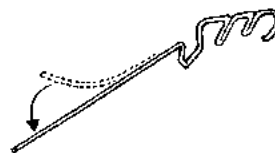
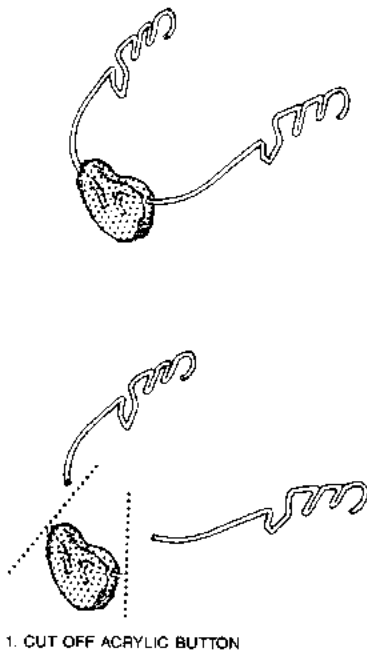
LOWER THE ANTERIOR SECTION WITH AN I-1140 LIGHT WIRE PLIER

STEP 5**FORMING ACRYLIC BUTTON**

You are now ready to form the button to the palate, with the usual method of acrylic fabrication.

STEP 6**THE FINISHED APPLIANCE**

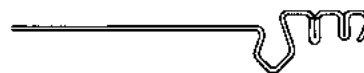
The completed 3D® Nance Holding Arch ready for patient insertion.

MAKING TWO 3D® LINGUAL SECTIONALS FROM A PRE-USED 3D® NANCE HOLDING ARCH

2. STRAIGHTEN OUT ARCH

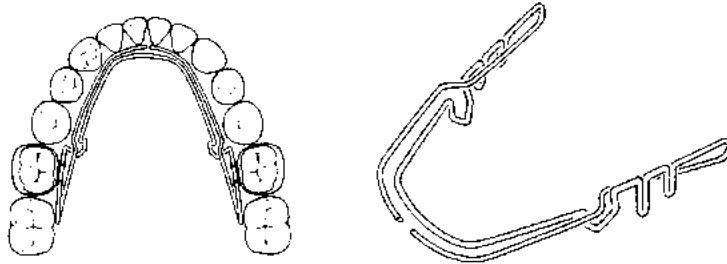


3. CLOSE IN THE DIAMOND LOOP TO LEVEL WIRE



4. READY FOR NEW TREATMENT APPLICATIONS

3D[®] QUAD-ACTION MANDIBULAR APPLIANCE - I



- AN APPLIANCE WITH EVERY ACTION OF A LOWER QUAD HELIX, AND MUCH MORE
 - A SINGLE FIXED/REMOVABLE ALTERNATIVE TO MULTIPLE SAGITTAL AND EXPANSION APPLIANCES
 - A LINGUAL ARCH WITH FINGER-SPRING ACTION AND NO SOLDERING
- | | |
|-------------------------------|--------------------------------|
| • Incisor Advancement | • Cuspid Expansion |
| • Molar Distalizing | • Molar Rotation |
| • Bilateral Expansion | • Molar Bilateral Contraction |
| • Unilateral Expansion | • Molar Unilateral Contraction |
| • Incisor Retraction | • Cuspid Rotation |
| • Molar Distal Uprighting | • Bicuspid Rotation |
| • Selective Expansion | • Molar Buccal Tip |
| • Molar Expansion | • Molar Lingual Torque |
| • Bicuspid Expansion | • Molar Lingual Tip |
| • 2nd Bicuspid Space Regainer | • Molar Buccal Torque |

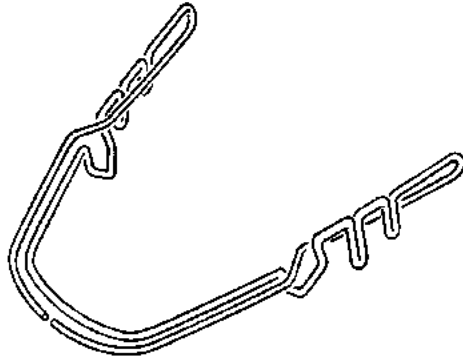
The 3D[®] Quad-Action Mandibular Appliance offers simple inexpensive alternatives to more than 20 different sagittal and transverse removables. It provides double controlled action at a fraction of the time and cost. This advanced design 3D[®] appliance produces rapid arch expansion or contraction, unilaterally or bilaterally; expands or contracts bicuspid; advances or retracts incisors; and rotates, tips and torques all molars for numerous treatment and problem-solving needs. It, too, interchangeably plugs into the 3D[®] Lingual Tube.

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® QUAD-ACTION MANDIBULAR APPLIANCE-I**3D® QUAD-ACTION MANDIBULAR APPLIANCE**

Another Modular advanced design...removable...adjustable...interchangeable...convertible



Equally effective with children and adults... produces the following:

Functions

- Incisor Advancement
- Molar Distalizing
- Bilateral Expansion
- Unilateral Expansion
- Incisor Retraction
- Molar Distal Uprighting
- Selective Expansion
- Molar Expansion
- Bicuspid Expansion
- 2nd Bicuspid Space Regainer

A MULTI-PURPOSE APPLIANCE WITH DYNAMIC ACTION

This appliance is designed to meet long-standing orthodontic needs; a universal lower sagittal and transverse appliance, a lingual arch wire with non-soldered finger springs and a lower quad helix action appliance. The 3D® Quad-Action Mandibular Appliance is much more than just a quad helix. It is all three appliances in one.

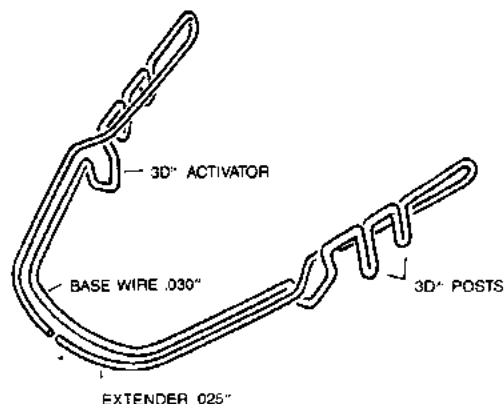
This extremely efficient fixed/removable appliance with its many simple variations can be used as an alternative to many costly removables and fixed appliances, including Crozat appliances. Equally, it serves as a most important adjunct to all multibanded techniques.

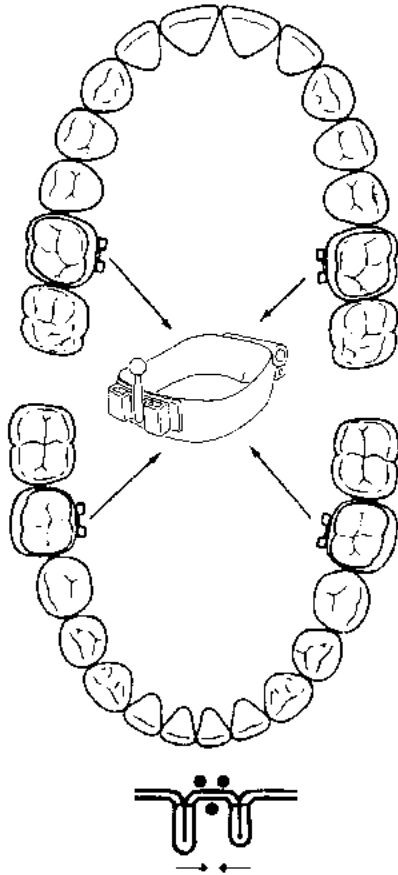
NOMENCLATURE AND FEATURES

The Quad-Action Mandibular Appliance is another Modular advanced design. It is a remarkable appliance and interchangeable with all other 3D® components. It plugs into the 3D® Lingual Tube vertically and simply lifts out. Adjustments can easily be made with its .030" Tru-Chrome® stainless steel construction along with its .025" Extenders.

FEATURES

- Fixed/Removable Appliance
- Fixed for 24-Hour Rapid Action
- Removable for Easy Adjustments
- Easy Vertical Insertion into 3D® Lingual Tubes
- No Headgear, Lip Bumpers or Removables
- Reduces 2nd Molar and Bicuspid Extractions
- Interchangeable with Over 100 Other 3D® Actions
- No Soldering or Band Change-Overs
- Multiple Finger Spring Actions
- Doctor vs. Patient Control
- High Patient Acceptance
- Drastic Cost Reduction with Use of Single 3D® Action Appliance vs. Multiple Removables





—CAUTION—

As with all chairside treatment, care should be exercised to eliminate the possibility of a patient aspirating this 3D® appliance. At each patient visit, check to assure that the friction lock-fit of the 3D® post into the 3D® Lingual Tube is secure. Loss of friction is very rare but, if detected, it is quickly restored with a slight mesial/distal tipping adjustment to the posts. Use a 3-prong plier as shown.

THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ System

The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity of any other soldered or welded lingual attachments, brackets, hooks or button.

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

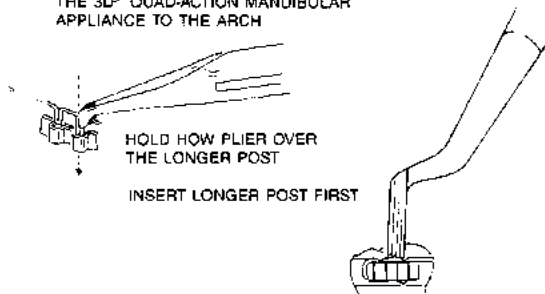
RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bite corrections when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

FRICTION-LOCK DESIGN

The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.

INSERTION OF THE 3D® QUAD-ACTION MANDIBULAR APPLIANCE INTO THE 3D® LINGUAL TUBE

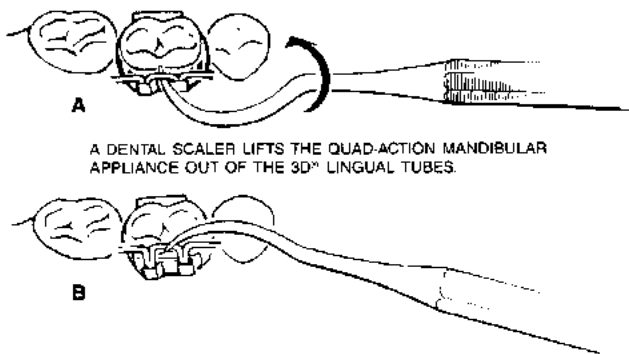
A. THE HOW PLIER IS USED TO CARRY THE 3D® QUAD-ACTION MANDIBULAR APPLIANCE TO THE ARCH



B. FINAL SEAT WITH AN I-67 BAND DIRECTOR

Test the 3D® Quad-Action Mandibular Appliance for fitting by picking it up with a How Plier (i-110) on the top part of the longer (mesial) post. Once the mesial post is partially inserted, the shorter (distal) post will insert easily.

Once both posts are in position, they are further seated by an i-67 Band Director. The insertion of the twin posts produces a spring-loaded friction lock that is anchored and does not dislodge. Note: Avoid any distorting bending to the posts of the friction lock. Distortion will cause unnatural forced fitting.

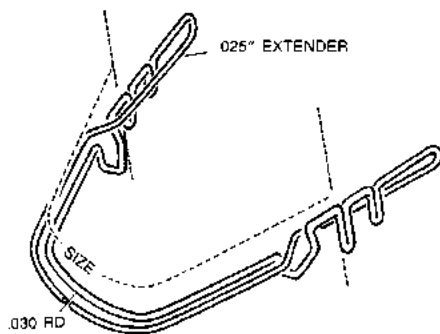


REMOVING THE 3D® QUAD-ACTION MANDIBULAR APPLIANCE

(A) The 3D® Quad-Action Mandibular Appliance is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

(B) A quick occlusal rotation of the scaler will lift the appliance out of the tube.

STEP 1



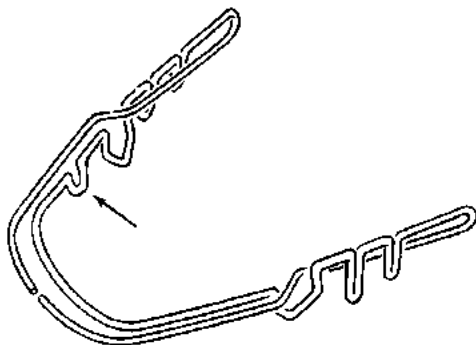
SELECTING THE 3D® QUAD-ACTION MANDIBULAR APPLIANCE

The appliance is available in four sizes which will accommodate most of your requirements.

SIZING THE APPLIANCE ON THE MODEL

Appliance width can be increased or decreased with finger pressure. Holding the friction posts over the 3D® Lingual Tubes permits visual anterior length determination. The base wire should be just free of the incisors. Activator adjustment will advance or retract the wire.

STEP 2

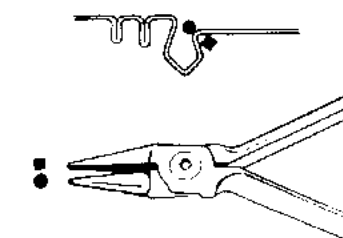


In an asymmetrical or unusual case, the wire length can be reduced with any loop bending plier.

ADAPTING THE APPLIANCE TO THE MODEL

The Extenders are raised temporarily while the base wire is being adapted.

PLIER TIP POSITIONING	SLIGHT ADJUSTMENTS	ACTIVATE	1.0 mm OR LESS



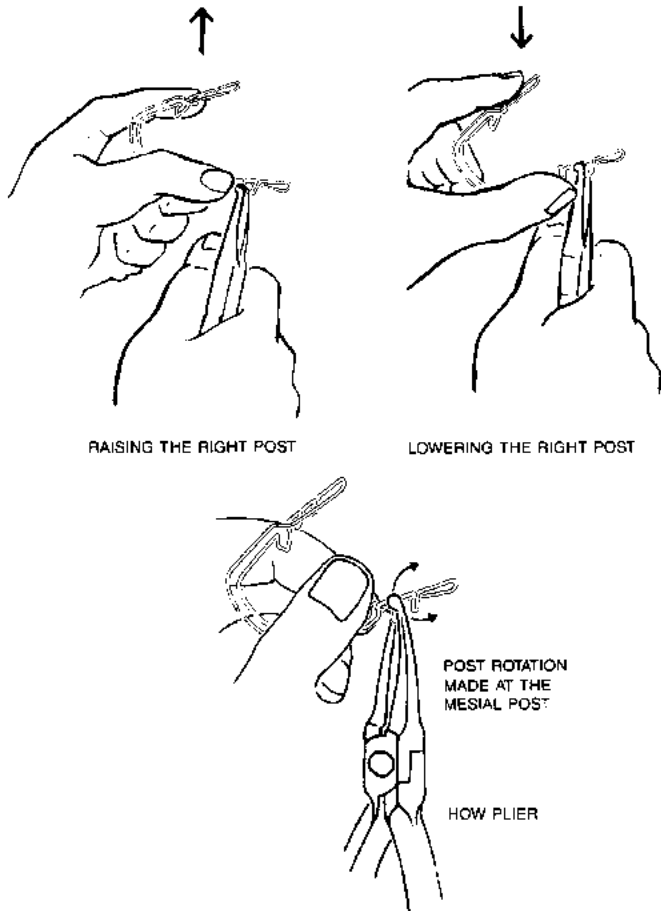
ACTIVATE WITH I-1140 LIGHT WIRE PLIER

STEP 3**LEVELING THE 3D® QUAD-ACTION
MANDIBULAR APPLIANCE**
(Removing molar tip and torque)

Testing for any tip or torque in the vertical posts is a simple procedure. The posts are inserted on the left side only and the height of the right side is tested. It can be raised or lowered. Remove the arch wire; then, holding the left side at the mesial post with a How plier, make a simple finger bend in the arch wire to elevate or lower the right side.

In each instance, the Extenders must be free from the model.

The appliance should have no expansion or contraction. Testing the appliance with the posts against the tubes, any rotation can be corrected with a How plier. The Extenders are now ready for adaptation.

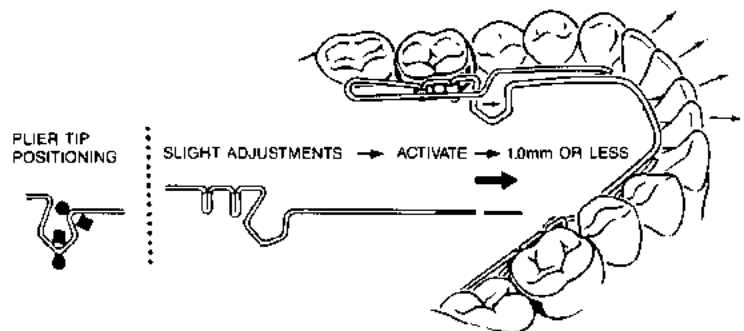
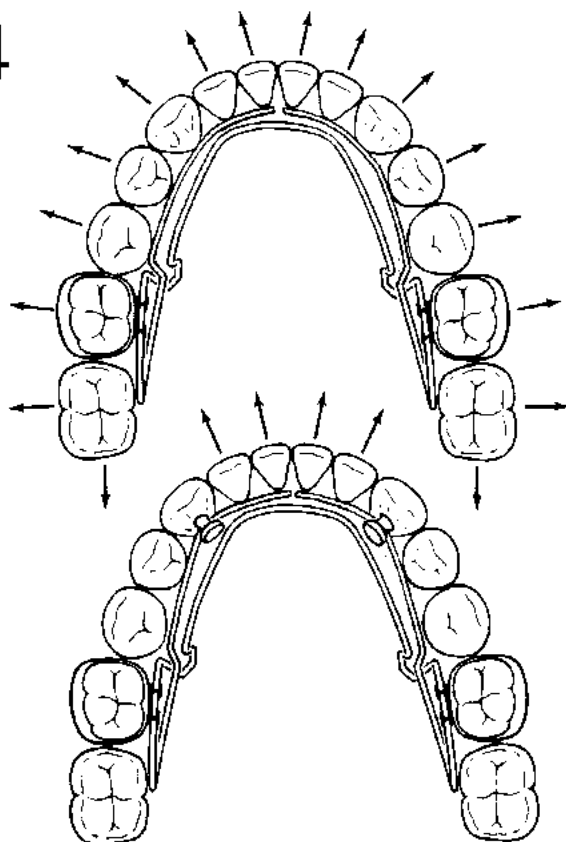
**STEP 4****ACTIVATION FOR TREATMENT**

The two Extenders and the two base wire activators provide quad-action for every sagittal and transverse movement.

The long Extenders are shortened and adjusted for any specific treatment.

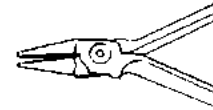
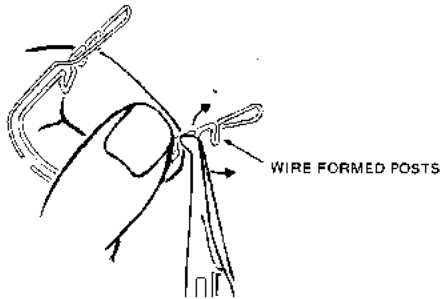
Sagittal treatment with the .030" base wire activators is with 1 mm sequential adjustments.

If irregular incisors are to be advanced by either Extender action or base wire action, first adaptation is to the lingually instanding incisors. As teeth are advanced, wire adaptation engages all teeth. Lingual buttons on cuspids will assure gingival wire control and assure bodily movement of anteriors.



ADJUSTMENT OF ARCH WIRE AND EXTENDER

Pliers hold the mesial posts for mesial adjustments and the distal posts for distal adjustments.



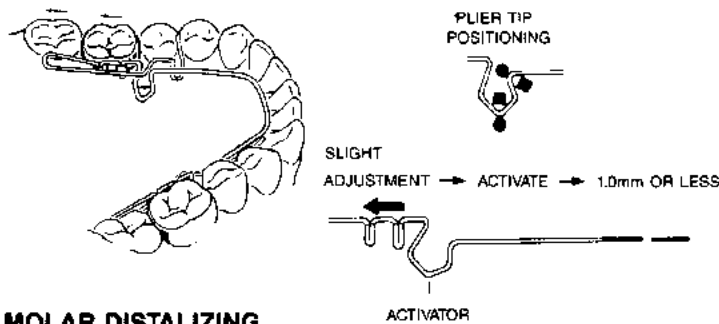
Light Wire Plier, i-1140 is used for Extender adjustments.

Similarly, adjustment of the .025" Extenders requires holding the wire proximal to the nearest post with light wire plier while the wire is bent with finger pressure.

Adjustments of the .025" Extenders at points removed from the twin posts are made with a Light Wire Plier.

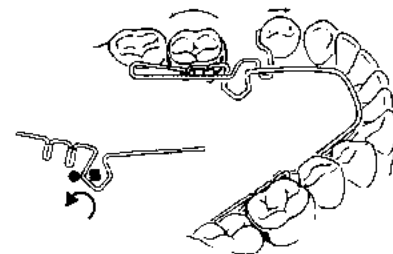
i-110 How Plier is used for appliances with wire-formed posts.

Adjustment of appliances with wire-formed posts requires a How plier to hold the post nearest any bending. This assures that there will be no opening of the posts, causing breakage and distortion of the parallel relationship. At the same time, positive insertion without difficulty is assured.



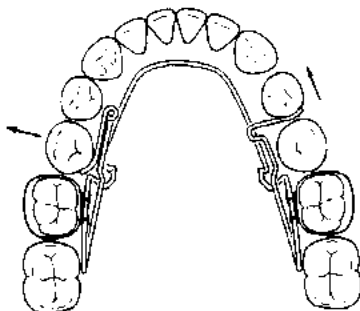
MOLAR DISTALIZING

Base wire adaptation at the cingulum of the anteriors and Extender adaptation with an i-1140 plier to the distal of the first bicuspid provides anchorage. Activator adjustments (1 mm) will distalize molars one at a time. Minimal adjustments produce positive results.



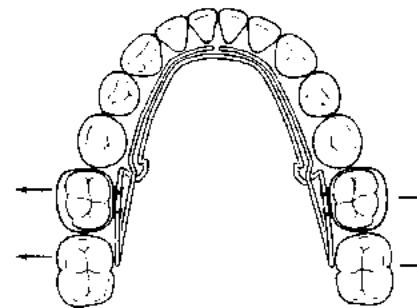
MOLAR TIPBACK

Mesially inclined molars are easily uprighted by a series of minimal adjustments.



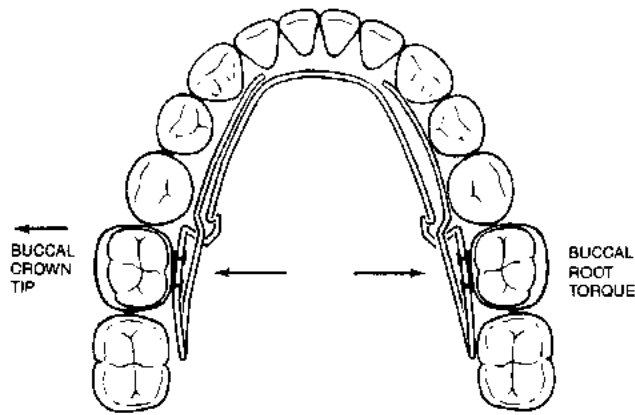
BICUSPID MOVEMENT

Variable bicuspid actions are produced by different adaptations of Extenders.



BILATERAL MOLAR EXPANSION

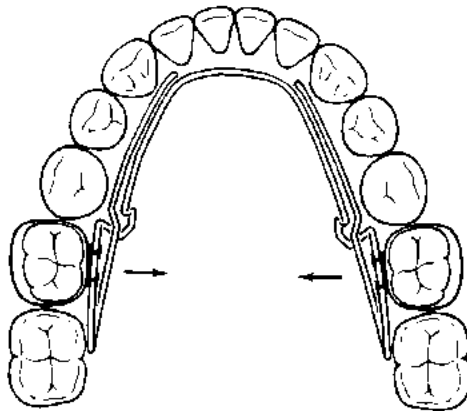
Expansion with or without tip or torque is obtained by adjustment of the posts for spring insertion into the 3D® Lingual Tubes. Holding and adjusting the wire at the mesial post with a How plier will assure trouble-free expansion.



UNILATERAL MOLAR EXPANSION

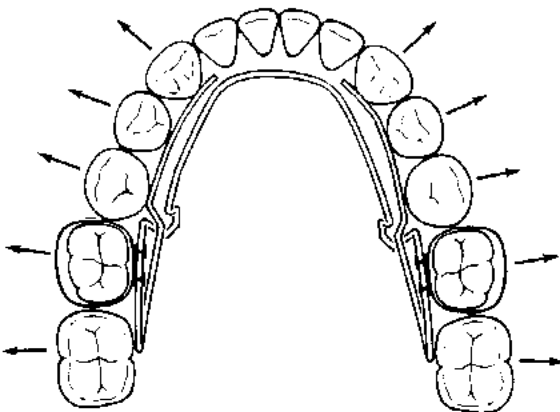
Buccal crown tip on the action side and root torque on the resistance side, with adjustment of the Extenders as indicated, will produce unilateral expansion.

3D® Lingual Tubes with cross-elastic hooks produce rapid cross-bite correction. After the function is completed, tip and torque are removed and the appliance is inserted in a passive state. After molar correction, Extender is activated for cuspid and bicuspid movements.



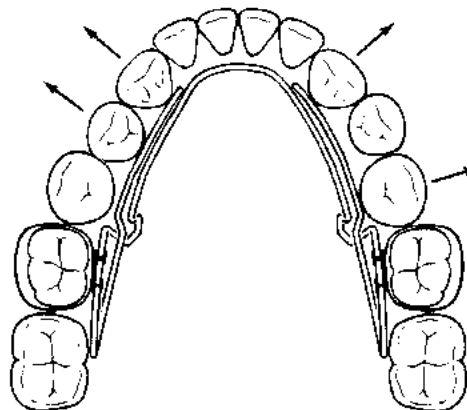
BILATERAL CONTRACTIONS

Arch contraction with lingual crown tip produces contraction. Lingual root torque resistance will produce unilateral contraction with lingual crown tip on the action side.



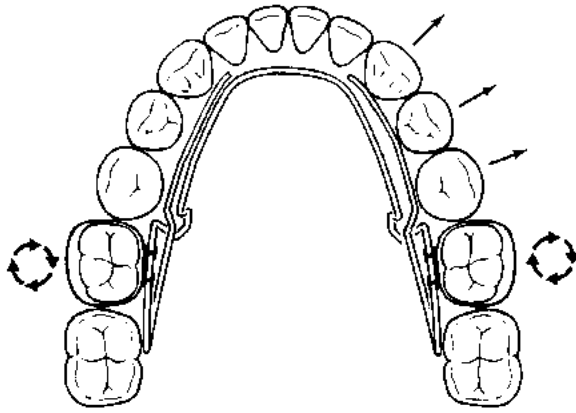
TOTAL ARCH EXPANSION

Expansion of the .030" base wire produces molar expansion and controls countermoments with Extender expansion of the buccal teeth.



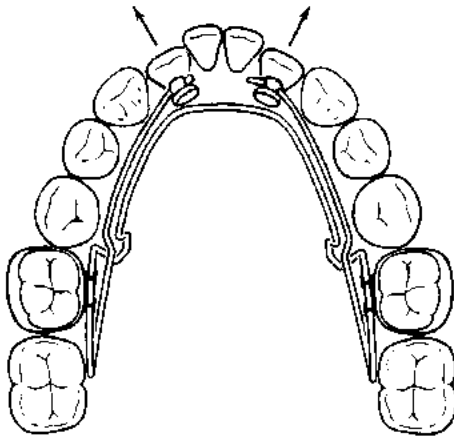
SELECTIVE EXPANSION

Selective adaptation of the Extenders to variable teeth permits precise control of any individual tooth movement with expansion.



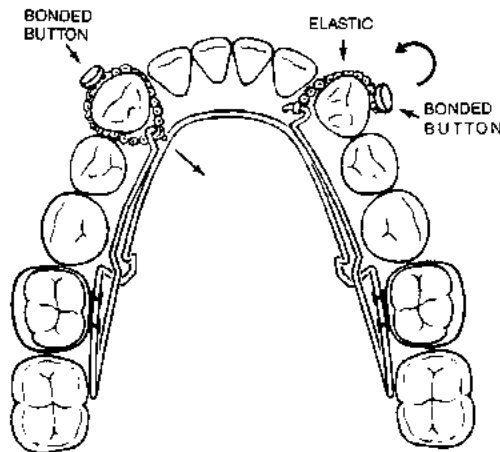
MOLAR ROTATIONS

Post rotation has already been described. Minimal rotation adjustment over 2 or 3 visits assures trouble-free results. Molar rotations produce Extender actions which can be accepted or simply controlled.



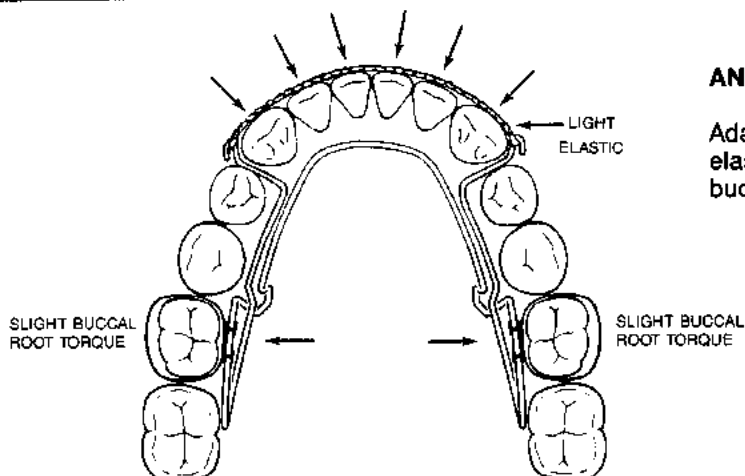
LATERAL INCISOR ADVANCEMENT

Lingually placed incisors with lingual buttons react very quickly to Extender adjustment for advancement.



VARIABLE CUSPID AND BICUSPID MOVEMENTS

Lingual movement and rotations of cuspids and bicuspids respond rapidly to the dual force of elastics and Extender action.



ANTERIOR RETRACTION

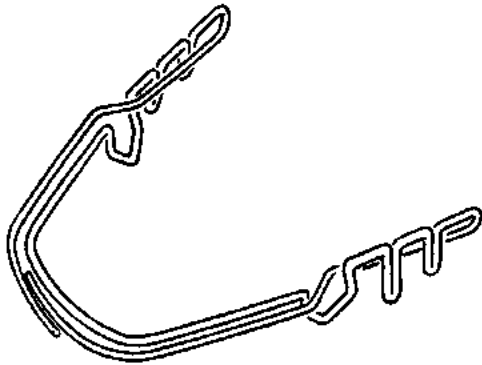
Adaptation of Extenders for cuspid hooks permits use of light elastics for primary incisor retraction. Slight expansion and buccal root torque of molars provide anchorage.

WORKSHOP GUIDE

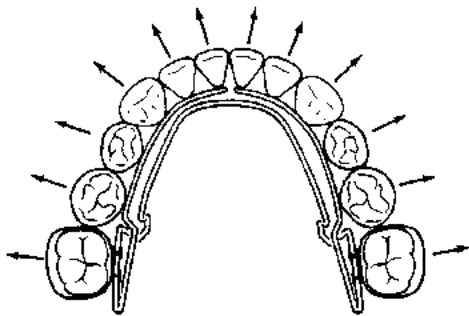
FOR WORKSHOP AND OFFICE REFERENCE

3D® QUAD-ACTION MANDIBULAR APPLIANCE - II**3D® QUAD-ACTION MANDIBULAR APPLIANCE**

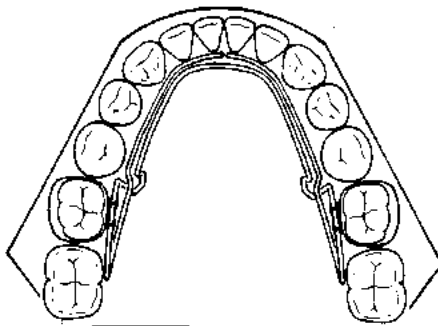
Another Modular advanced design...removable...adjustable...interchangeable...convertible



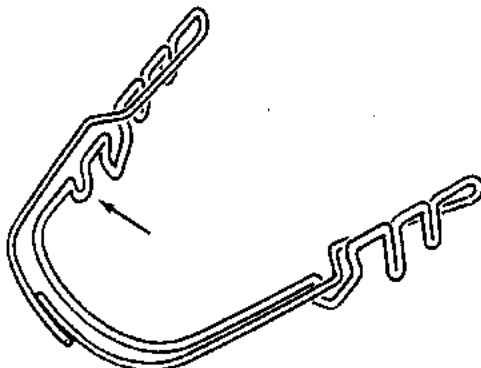
This modified 3D® Quad-Action Mandibular Appliance features a shortened distal Extender and longer anterior .025\"



Total arch expansion is simplified. Crozat-type expansion is controlled. Bilateral 2mm expansion will produce 3mm of action in three weeks. Repeat as needed.

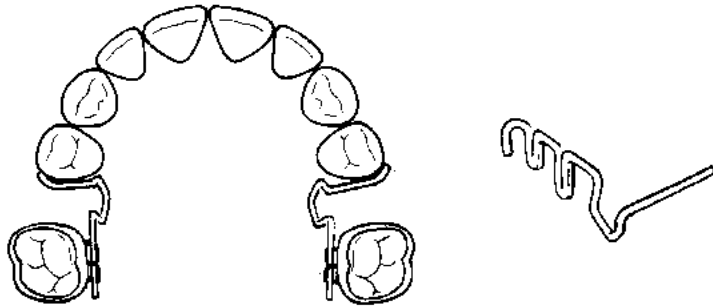


If there are no second molar needs, this appliance is adaptable to the permanent dentition for all 3D® Quad-Action Mandibular Appliance functions.



The appliance can be unilaterally or bilaterally shortened for size variation with a loop-forming 3 Jaw Plier. If longer anterior Extenders are needed, select a larger size appliance and reduce the size with loops, while retaining the longer Extenders.

3D[®] SPACE MAINTAINER



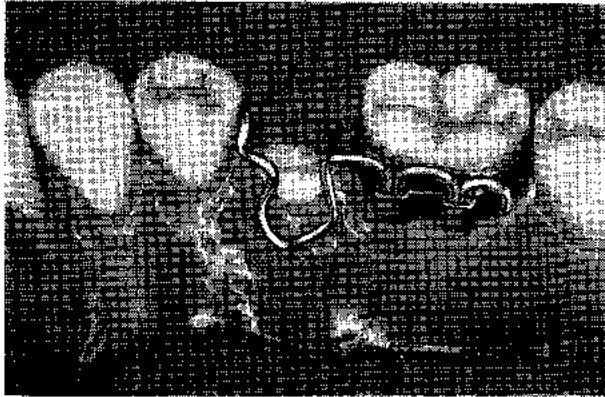
- Space Maintainer
- 2nd Bicuspid Space Regainer
- Fixed/Removable Functional Maintainer

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® SPACE MAINTAINER**3D® SPACE MAINTAINER**

Another modular advanced design...removable...adjustable...interchangeable...convertible

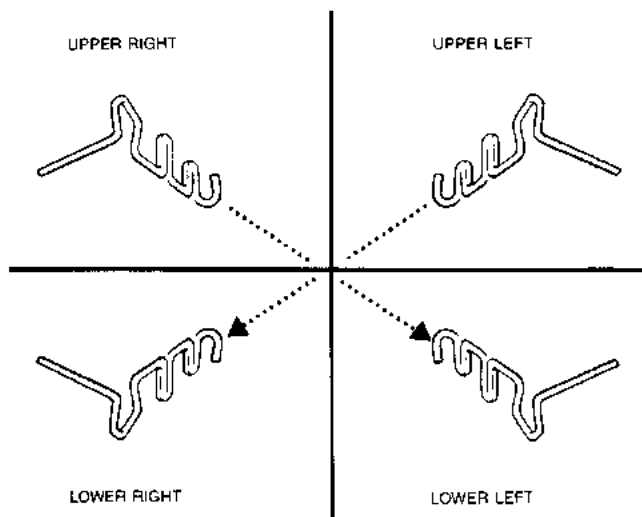
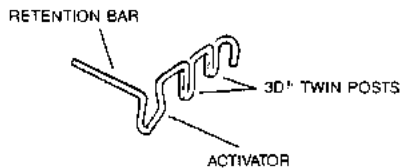
**A SPACE MAINTAINER WITH NEW FUNCTIONS**

The concept and use of a fixed/removable space maintainer is new. The preformed design permits instant insertion and simplified adjustment for many purposes. These few instructions may be especially meaningful. Adaptation to a model is a real time-saver.

1. Space maintainers.
2. 2nd bicuspid space regainers.
3. Fixed/removable functional maintainer.

3D® SPACE MAINTAINER

An auxiliary appliance that plugs into your present treatment mechanics.

**NOMENCLATURE AND FEATURES**

The 3D® Space Maintainer plugs into the 3D® Lingual Tube vertically and lifts out. It is a preformed advanced design alternative to numerous earlier designs. The .030" Tru-Chrome® stainless steel construction produces a secure distortion-free appliance.

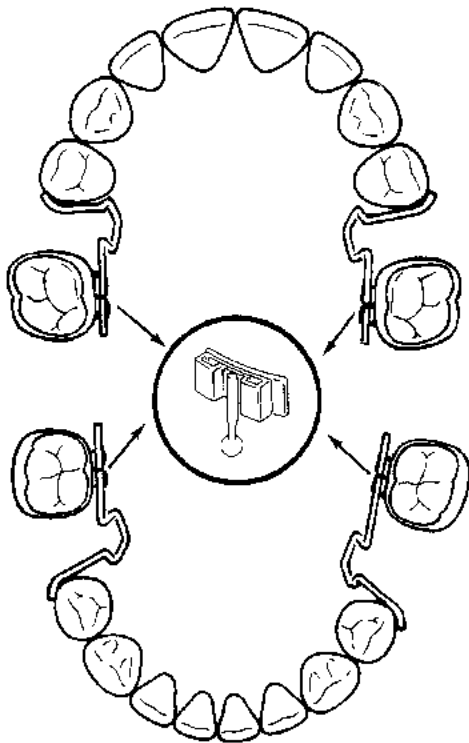
It is produced in two forms:

- Upper right — Lower left
- Upper left — Lower right

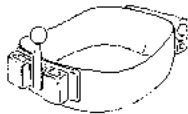
FEATURES

- Immediate Plug-in and Removal
- Secure Lock
- Positive Space Maintainer
- Adjustable for Rapid 2nd Bicuspid Space Regainer
- Convertible to Functional Maintainer
- Resistant to Deformation
- Removable - Hygienic
- Interchangeable with Other 3D® Modules in 3D® Lingual Tubes for Active Treatment with No Band Change-Overs
- Time and Cost Savings

3D® Space Maintainers adapt to all four quadrants and are equally effective in the permanent and mixed dentition.



For long appointment intervals, the appliance can be secured to the ball hook with ligatures or elastics.



THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ System

The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity for any other soldered or welded lingual attachments, brackets, hooks or button.

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bite corrections when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

FRICTION-LOCK DESIGN

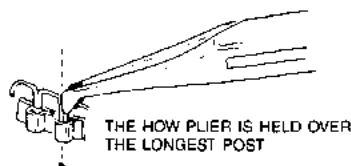
The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.



—CAUTION—

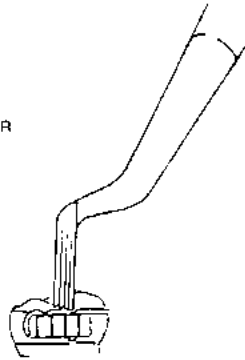
As with all chairside treatment, care should be exercised to eliminate the possibility of a patient aspirating this 3D® appliance. At each patient visit, check to assure that the friction lock-fit of the 3D® post into the 3D® Lingual Tube is secure. Loss of friction is very rare but, if detected, it is quickly restored with a slight mesial/distal tipping adjustment to the posts. Use a 3 Jaw Plier as shown.

A THE HOW PLIER IS USED TO CARRY THE 3D® SPACE MAINTAINER TO THE ARCH



INSERT THE LONGER POST FIRST

B FINAL SEAT WITH A I-67 BAND DIRECTOR



INSERTION OF THE 3D® SPACE MAINTAINER INTO THE 3D® LINGUAL TUBE

Test the 3D® Space Maintainer for fit by picking it up with a How Plier (i-110) on the top part of the longer post. Once the longer post is partially inserted, the shorter post will insert easily.

Once both posts are in position, they are further seated by an i-67 Band Director. Full insertion of the twin posts produces a spring-loaded friction lock that is anchored and does not dislodge. Note: Avoid any distorting bending to the posts of the friction lock. Distortion will cause unnatural forced fitting.

REMOVING THE 3D® SPACE MAINTAINER

(A) The 3D® Space Maintainer is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

(B) A quick occlusal rotation of the scaler will lift the arch out of the tube.



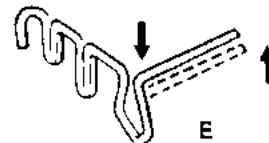
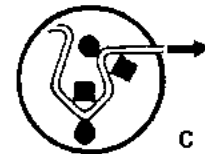
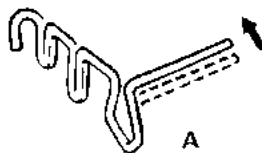
A DENTAL SCALER LIFTS THE 3D® SPACE MAINTAINER OUT OF THE 3D® LINGUAL TUBE

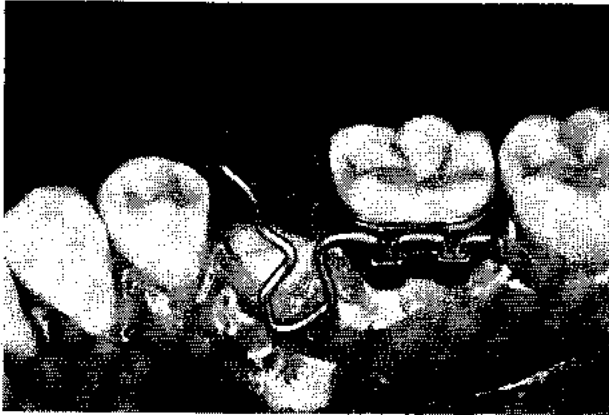


SPACE REGAINING

If space is reduced, the retention bar tip is adjusted distally with a How Plier, as in A. If space loss is greater, additional distal closure is simple with Light Wire Plier i-1140 as in B. Space is regained rapidly with a few 1 mm adjustments, as in C and D.

The retention bar is easily raised or lowered as needed, as in E.



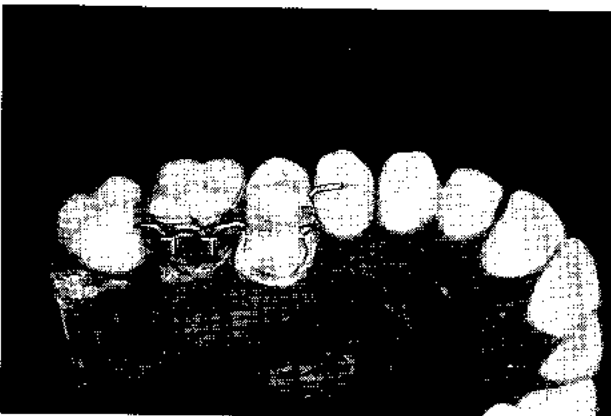
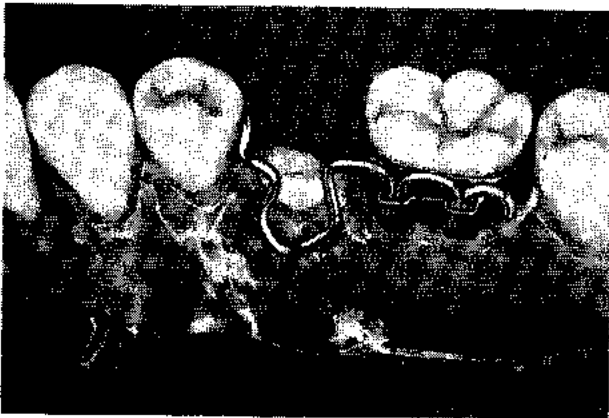


3D® FUNCTIONAL SPACE MAINTAINER

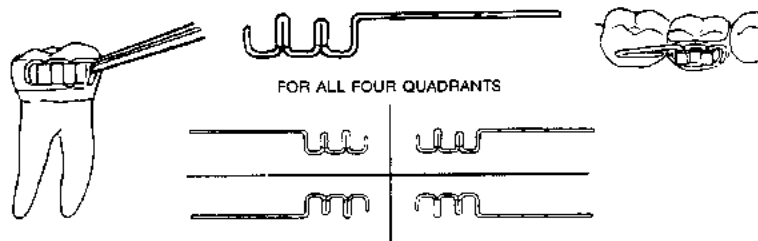
The 3D® Space Maintainer is removed and adjusted at mid-tooth for an occlusal rest. It is removed and a plastic tooth is added and attached by acrylic to the 3D® Activator.

This fixed/removable unit serves a dual function of preserving space and providing the desired functional occlusion.

A thin bonding veneer on the bicuspid will prevent decalcification. The appliance is removable for proper hygiene and serves as a bridge until permanent bridgework is indicated.



3D® MULTI-PURPOSE ADAPTER



- Mandibular Molar Tipback Resistor
- Maxillary Molar Tipback Resistor
- Maxillary Lateral Advancer
- Mandibular Lateral Advancer
- Maxillary Buccal Expander
- Mandibular Buccal Expander
- Maxillary Second Bicuspid Uprighter
- Mandibular Second Bicuspid Uprighter
- Maxillary Second Molar Expander
- Mandibular Second Molar Uprighter
- Cross Elastic Hook (Mesial)
- Cross Elastic Hook (Distal)

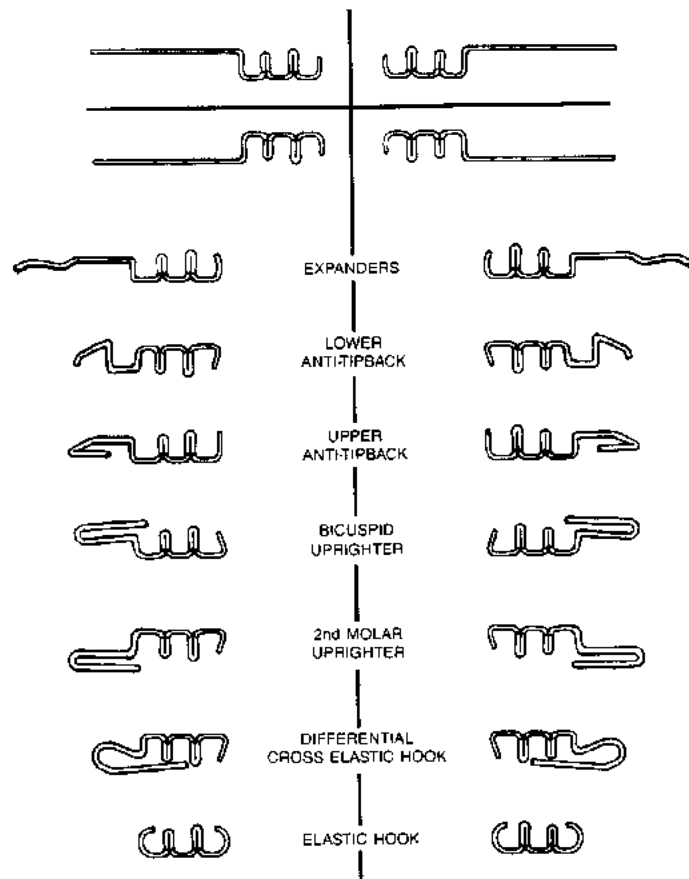
WORKSHOP GUIDE

3D® MULTI-PURPOSE ADAPTER

FOR WORKSHOP AND OFFICE REFERENCE

3D® MULTI-PURPOSE ADAPTER

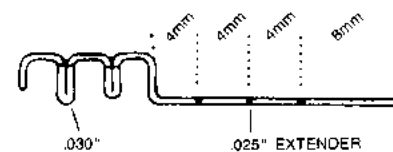
Another modular advanced design...removable...adjustable...interchangeable...convertible

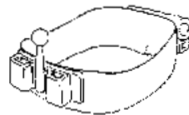
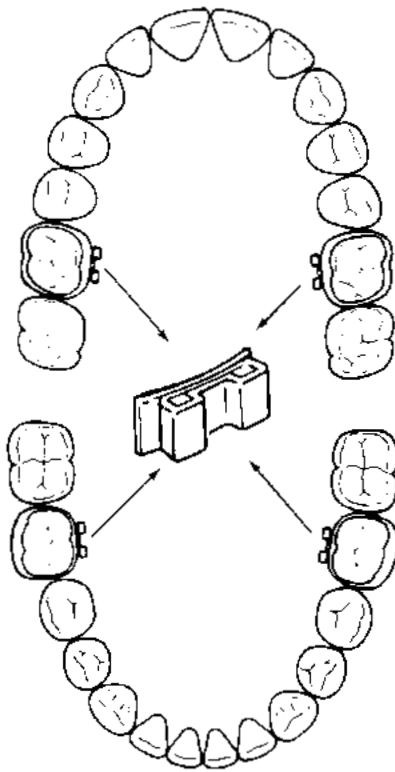


AN APPLIANCE WITH MULTI-PURPOSE FUNCTIONS

The 3D® Multi-Purpose Adapter is another advanced design in the 3D® Lingual System. It is a removable appliance that plugs into the 3D® Lingual Tube and is interchangeable with any one of the other Modular Orthodontics™ components. It alone has as many as 28 various treatment functions. It is equally effective with children and adults.

The post area is constructed of .030" Tru-Chrome® stainless steel, and the light extenders are reduced to .025", allowing for easy adjustments in a matter of seconds. The 3D® Multi-Purpose Adapter is marked on the extender at 4 mm intervals with the last step at 8 mm, and is programmed for quick, easy fabrication. The 3D® Multi-Purpose Adapter is precision-fabricated for use on the four quadrants of the arch. No heat treating is required.





RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bite corrections when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ System

The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity of any other soldered or welded lingual attachments, brackets, hooks or button.

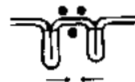
The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

FRICTION-LOCK DESIGN

The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.

—CAUTION—

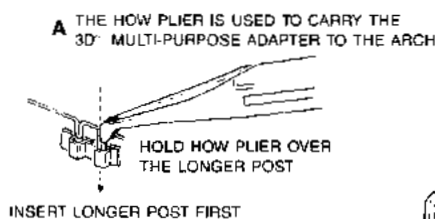
As with all chairside treatment, care should be exercised to eliminate the possibility of a patient aspirating this 3D® appliance. At each patient visit, check to assure that the friction lock-fit of the 3D® post into the 3D® Lingual Tube is secure. Loss of friction is very rare but, if detected, it is quickly restored with a slight mesial/distal tipping adjustment to the posts. Use a 3 Jaw Plier as shown.



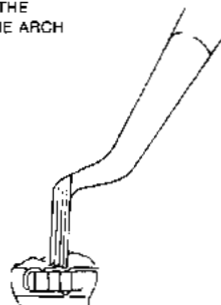
APPLIANCE DESIGN



STEP 2



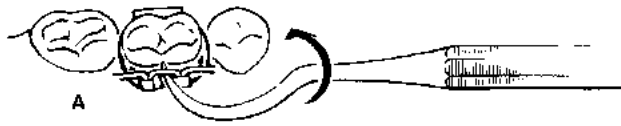
B FINAL SEAT WITH AN i-67 BAND DIRECTOR



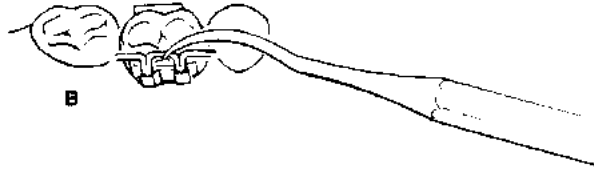
INSERTION OF THE 3D® MULTI-PURPOSE ADAPTER INTO THE 3D® LINGUAL TUBE

Test the 3D® Multi-Purpose Adapter for fitting by picking it up with a How Plier (i-110) on the top part of the longer post. Once the longer post is partially inserted, the shorter post will insert easily.

Once both posts are in position, they are further seated by an i-67 Band Director. Full insertion of the twin posts produces a spring-loaded friction lock that is anchored and does not dislodge. Note: Avoid any distorting bending to the posts of the friction lock. Distortion will cause unnatural forced fitting.

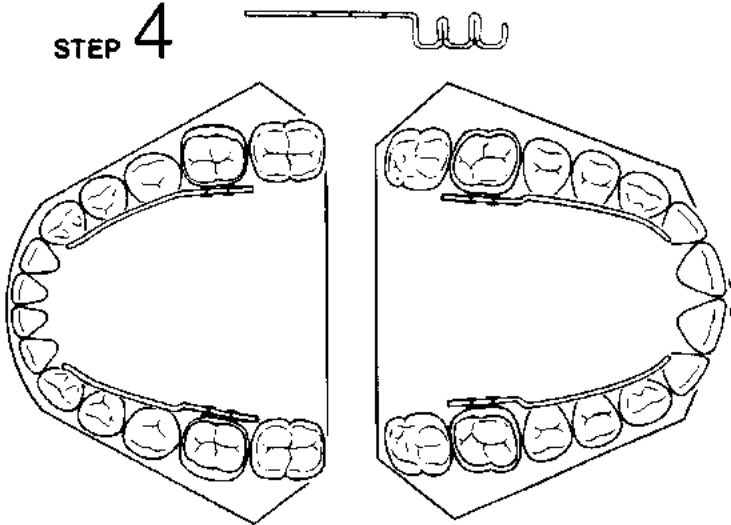
STEP 3

A DENTAL SCALER LIFTS THE 3D® MULTI-PURPOSE ADAPTER OUT OF THE 3D® LINGUAL TUBES.

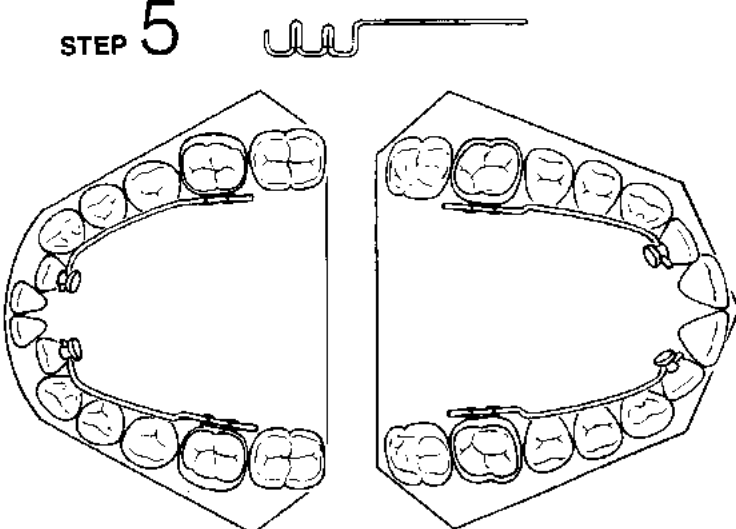
**REMOVING THE 3D® MULTI-PURPOSE ADAPTER**

(A) The 3D® Multi-Purpose Adapter is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

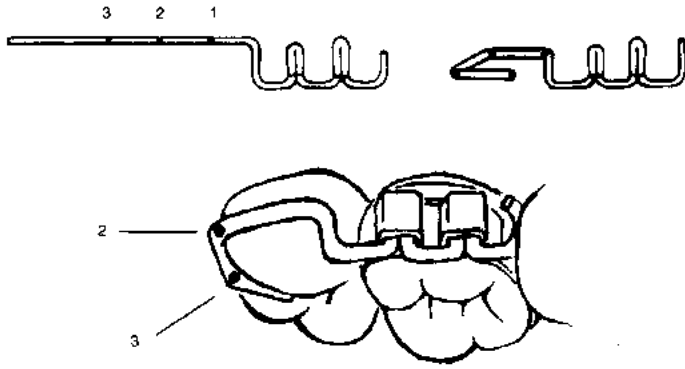
(B) A quick occlusal rotation of the scaler will lift the appliance out of the tube.

STEP 4**BUCCAL EXPANDER . . . ADAPTATION**

The 3D® Multi-Purpose Adapter can be made into a buccal expander and used in all four quadrants. The .025" Extenders permit close adaptation to the teeth to be moved. Teeth may be selectively expanded. Gingival placement assures bodily movement. The light wire resilience permits effective movement with light forces with little countermoment reaction on the molars. Molar expansion force is supplied by your preferred external arch. Likewise, with excessive expansion of bicuspids, your external arch provides countermoment control.

STEP 5**LATERAL INCISOR ADVANCER . . . ADAPTATION**

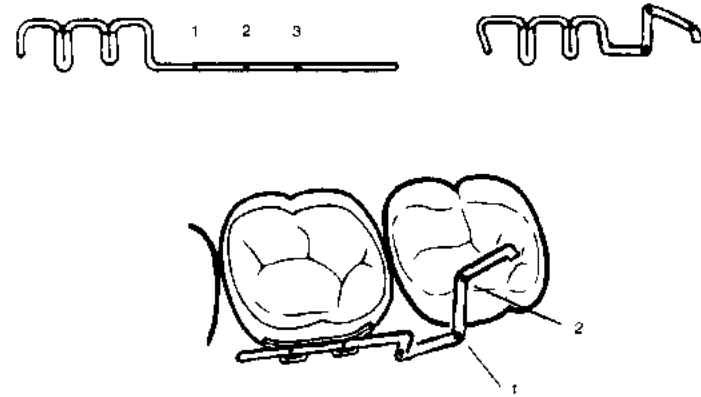
The 3D® Multi-Purpose Adapter is effective in advancing instanding lateral incisors. Adaptation is at the gingival border. A series of slight adjustments mesial to the cuspid will bodily advance the incisor without tipping. This movement is effective in all four quadrants. Gingival adaptation may be assured by bonding lingual buttons at the cingulum on the laterals.

STEP 6**ANTI-TIPBACK ADAPTER (Upper) . . . ADAPTATION**

The 3D® Multi-Purpose Adapter is quickly adjusted for an upper anti-tipback appliance. It prevents tipback with Utility Arches and all other intrusion arches, nearly doubling their effective action.

DIRECTIONS

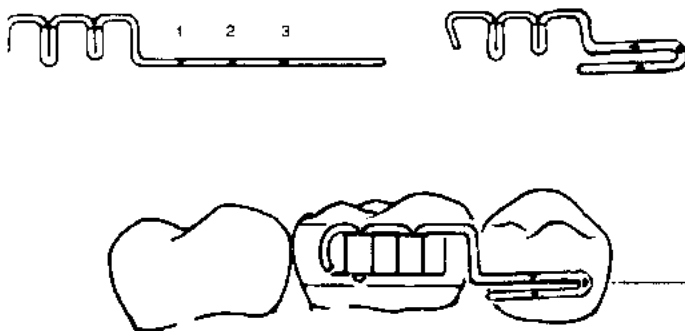
- A. Adjust point 2 buccally 90°.
- B. Adjust point 3 mesially 90°, and cut off any excess wire.
- C. Plug into the 3D® Lingual Tube for fine adjustment.

STEP 7**ANTI-TIPBACK ADAPTER (Lower) . . . ADAPTATION**

The lower anti-tipback appliance nearly doubles the effective action of the Utility Arches and all other intrusion arches.

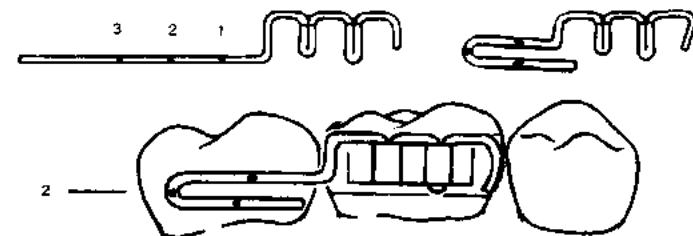
DIRECTIONS:

- A. Adjust point 1 occlusally.
- B. Adjust Point 2 buccally.
- C. Cut off excess.
- D. Plug in for fine adjustment.

STEP 8**SECOND BICUSPID BUCCAL UPRIGHTER . . . ADAPTATION****DIRECTIONS:**

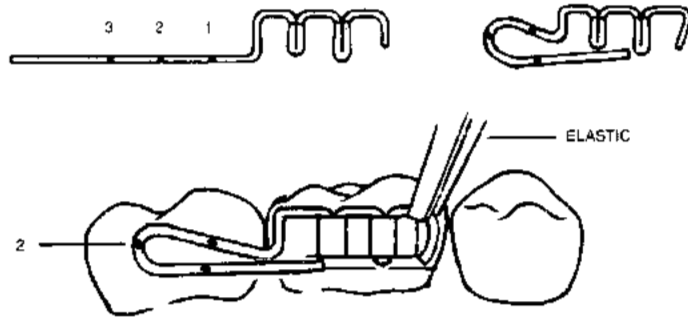
- A. Adjust point 2 at 180°, recurve to distal gingivally.
- B. Cut off excess.

Plug in for fine adjustments and activation of the gingival wire. For use in all four quadrants.

STEP 9**SECOND MOLAR BUCCAL UPRIGHTER . . . ADAPTATION****DIRECTIONS**

- A. Adjust point 2 at 180°, recurve to mesial gingivally.
- B. Cut off excess.

Plug in for fine adjustments and activation of the gingival wire. For use in all four quadrants.

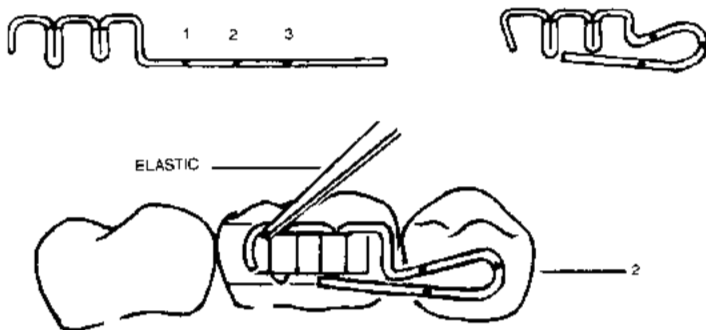
STEP 10**DIFFERENTIAL CROSS-ELASTICS HOOK (Mesial) . . . ADAPTATION**

Differential hooks permit deployment of elastic force across the occlusal for most effective action. Mesial hook is reversed and plugged-in for distal hook. The selection varies with the need for Class I, Class II or Class III cases.

DIRECTIONS:

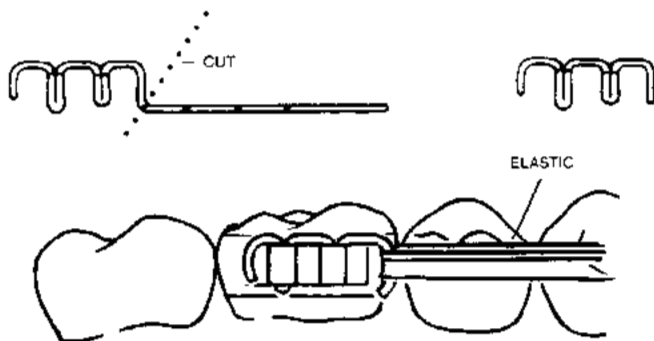
- A. Adjust point 2 at a recurve of 180° to fit under the 3D® Lingual Tube for a locking position.
- B. Cut off excess.

For use in all four quadrants.

STEP 11**DIFFERENTIAL CROSS-ELASTICS HOOK (Distal) . . . ADAPTATION****DIRECTIONS:**

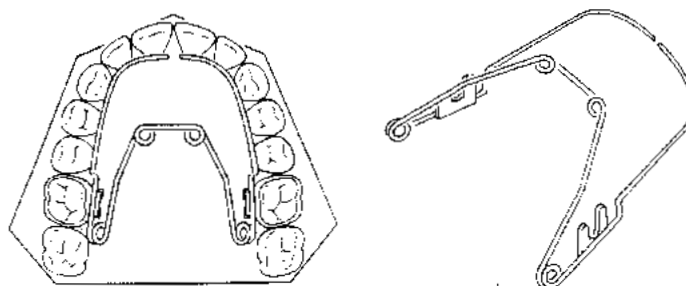
- A. Adjust point 2 at a recurve of 180° to fit under the 3D® Lingual Tube for a locking position.
- B. Cut off excess.

For use in all four quadrants.

STEP 12**SIMPLE INTRA-ARCH HOOK . . . ADAPTATION****DIRECTIONS:**

- A. Cut off the Extender as marked on the drawing.
- B. Recurve the cut-off end.

3D® QUAD HELIX APPLIANCE



MORE THAN JUST A QUAD HELIX

- Molar Control
- Bilateral Molar Expansion
- Bilateral Quadrant Expansion
- Unilateral Molar Expansion
- Molar Rotation
- Molar Buccal Crown Tip
- Molar Lingual Crown Tip
- Molar Buccal Root Torque
- Molar Lingual Root Torque
- Selective Cuspid or Bicuspid Expansion
- Lateral Advancer

The 3D® Quad Helix Appliance is a multi-purpose appliance with several new functions. The appliance plugs into the 3D® Lingual Tubes with precision. The twin posts produce a friction-locked security of the appliance, with no free play or movement allowable. The .036" Tru-Chrome® stainless steel construction assures both stability and flexibility. A step-up of the mesial Extenders permits adaptation for more effective bodily movement of the buccal teeth. The Extenders are also reduced to .025" to provide the desired flexibility and more effective adaptation with the reduced diameter wire.

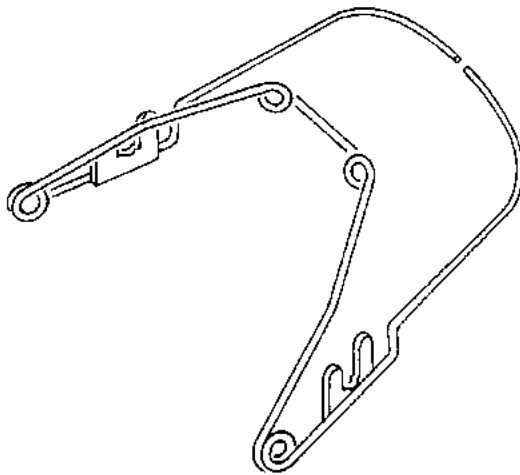
The various sizes of the 3D® Quad Helix Appliance permit visual sizing directly in the mouth or on the model.

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® QUAD HELIX APPLIANCE**3D® QUAD HELIX APPLIANCE**

Another modular advanced design...removable...adjustable...interchangeable...convertible

**AN APPLIANCE WITH A MULTITUDE OF FUNCTIONS PRODUCES THE FOLLOWING:**

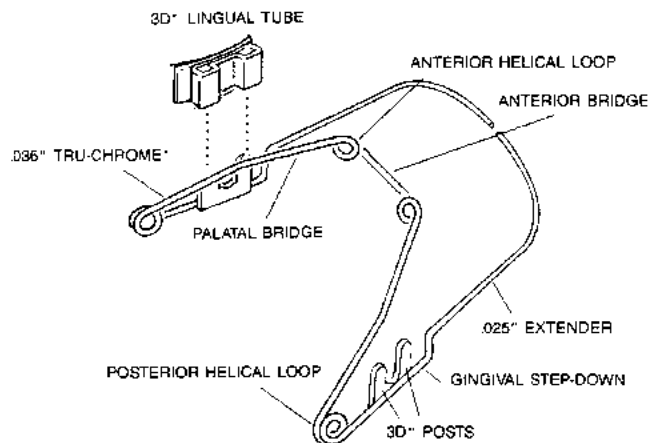
- Bilateral expansion
- Unilateral expansion
- All molar rotations
- Molar buccal tip
- Molar lingual tip
- Molar buccal torque
- Molar lingual torque
- Selective buccal expander
- 2-2 Advancer
- Convertible in seconds into two 3D® Multi-Purpose Adapters for 28 other treatment options

3D® QUAD HELIX APPLIANCE FEATURES

An Auxiliary Appliance that plugs into your present treatment mechanics.

For those experienced with earlier quad helices, you will be greatly impressed with the ease of this advanced design that can be used directly in the mouth. New users, however, will find these instructions meaningful. Adaptation to a model is a real time-saver.

The 3D® Quad Helix Appliance is an advanced Modular design that is interchangeable with other 3D® components, since it plugs in and is easily removed from the 3D® Lingual Tubes. The appliance is easily adjusted with its .036" Tru-Chrome® construction and flexible .025" Extenders, which produce many additional new movements and functions not available before with other quad helix designs.

**ANTERIOR AND PALATAL BRIDGES**

The two bridges are the support system for varied force vector release.

HELICAL LOOPS

The four helical loops are reactive for force release as dictated by appliance adjustments.

THE 3D® POSTS

The twin posts become precision locks when plugged into the 3D® Lingual Tubes. Their positive adjustments dictate controlled molar expansion, rotation, tip and torque.

THE EXTENDERS

The .025" Extenders, with simple adjustments, control either quadrant or selective tooth expansion.

THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ System

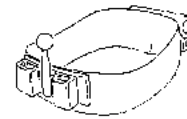
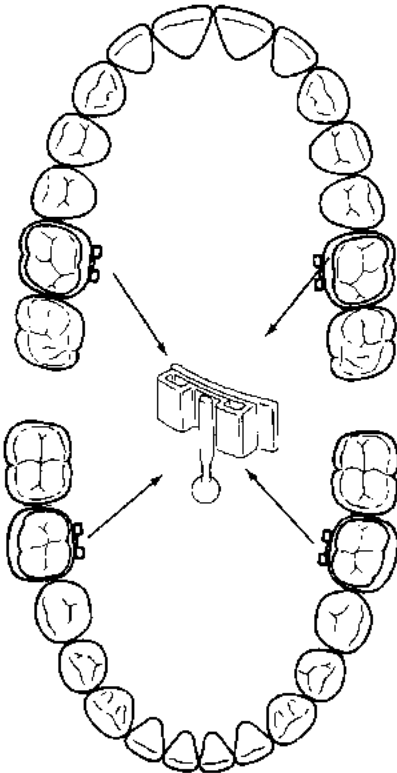
The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity of any other soldered or welded lingual attachments, brackets, hooks or button.

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

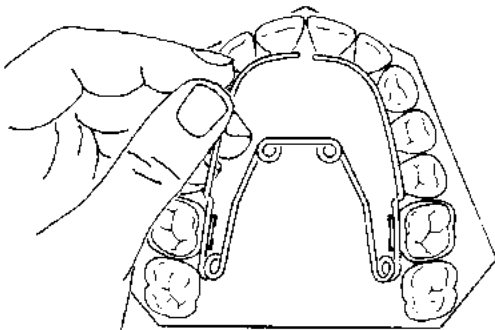
RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bites when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.



FRICTION-LOCK DESIGN

The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.

STEP 1

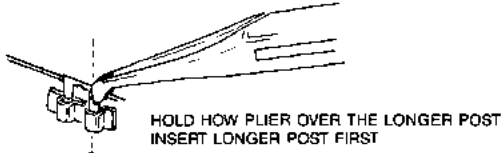


SELECTING THE 3D® QUAD HELIX APPLIANCE

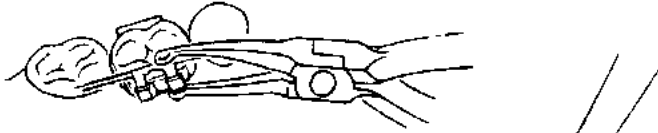
The Modular 3D® Quad Helix Appliance is available in four sizes. With a little experience, the sizing can be done directly on the model.

STEP 2

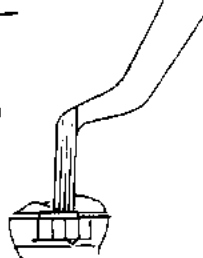
A THE HOW PLIER IS USED TO CARRY THE 3D® QUAD HELIX TO THE ARCH



B THE APPLIANCE IS SEATED FURTHER WITH A HOW PLIER



C FINAL SEAT WITH I-67 BAND DIRECTOR

**INSERTION OF THE 3D® QUAD HELIX APPLIANCE INTO THE 3D® LINGUAL TUBE**

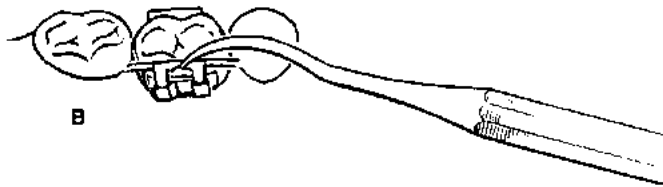
A. Test the appliance for fitting by picking it up with a How Plier (i-110 or curved i-111) on the top part of the longest (mesial) post. Once the mesial post is partially inserted, the shorter (distal) post will insert partially.

B. Once both posts are in position, they are further seated by placing one tip of the How Plier under the mesial tube and one tip over the appliance at the mesial post. Now squeeze the tips until the appliance is seated half way. Remove the appliance as in step 3. Reinsert and repeat squeezing to full seating. This conditions the lock for future insertions, while securing a positive lock throughout treatment. Repeat A and B on the other side of the appliance.

C. Final seating is accomplished with an i-67 Band Director or a Bite Stick.

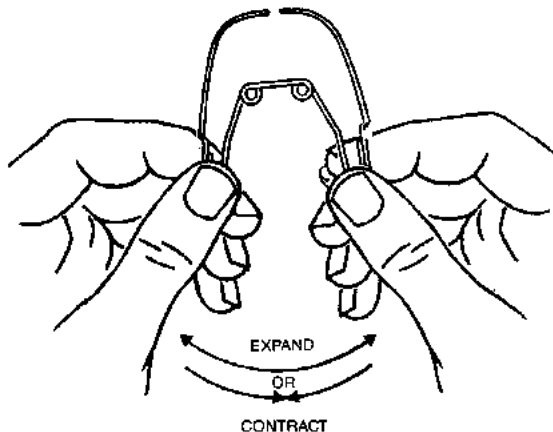
STEP 3

DENTAL SCALER LIFTS THE 3D® QUAD HELIX OUT OF THE 3D® LINGUAL TUBES

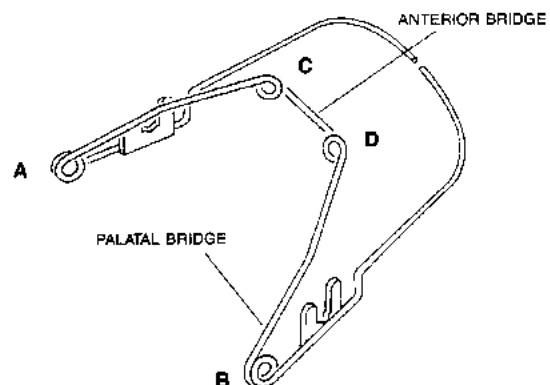
**REMOVING THE 3D® QUAD HELIX APPLIANCE**

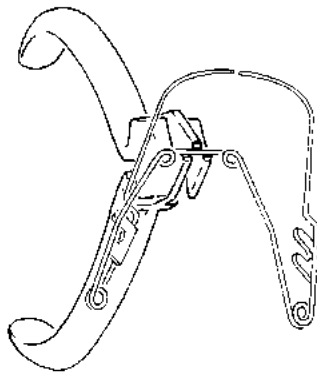
(A) The 3D® Quad Helix Appliance is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

(B) A quick occlusal rotation of the scaler will lift it out of the tube.

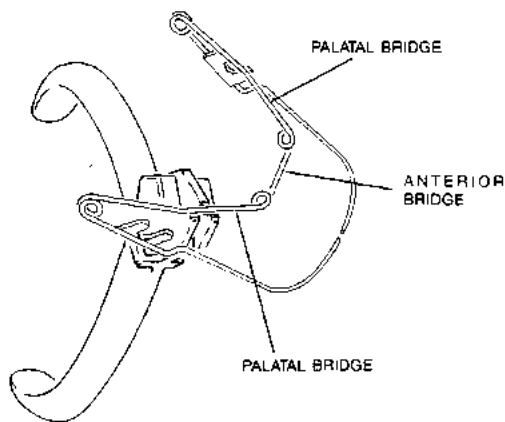
STEP 4**ADAPTING TO THE MODEL**

The 3D® Quad Helix Appliance can easily be expanded or contracted by finger pressure.





ACTIVATE AS DESIRED
WITH I-1200 3 JAW PLIER



ADJUSTMENT OF ANTERIOR AND PALATAL BRIDGE

The anterior bridge and palatal bridge can be adjusted with a 3 Jaw Plier in order to position the palatal bridge 2 to 3 mm from the palate.

A. Using the same plier, the anterior bridge is adjusted for expansion or contraction.

B. Compensating post rotations are made at each palatal bridge.

Note: The 3 Jaw Plier must not be used for other adjustments.

STEP 5

LEVELING THE 3D® QUAD HELIX APPLIANCE (Removing molar tip or torque)

Testing for any tip or torque in the vertical posts is a simple procedure. The posts are inserted on the right side only and the height of the left side is tested. It can be raised or lowered. Remove the Quad Helix; then, holding the right distal post with an i-1410 Lingual Arch Forming Plier, make a simple finger bend of the appliance to elevate or lower the left side.

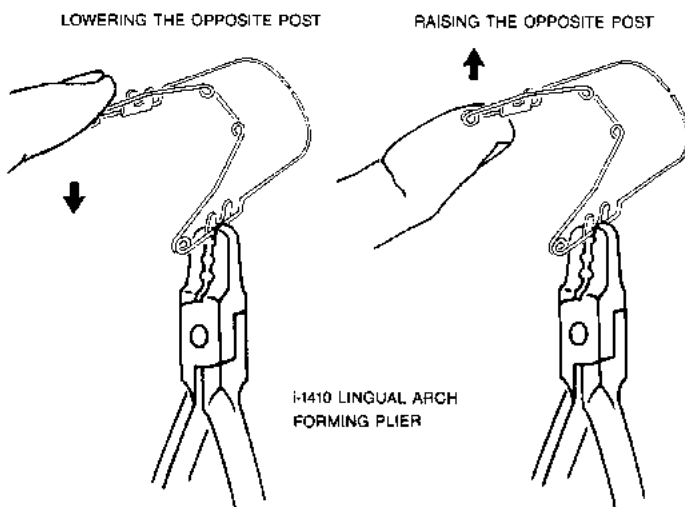
Repeat this procedure on the left side until the appliance is level and passive in the tubes on both sides.

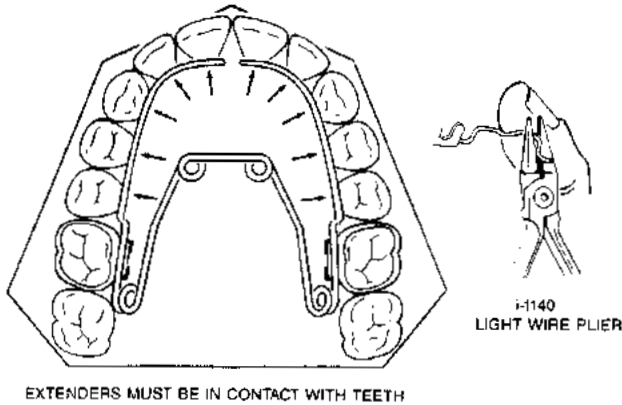
It is recommended that an i-1410 Lingual Arch Forming Plier be used for all leveling, torquing and rotation adjustments made to the 3D® twin posts. Engage the appliance using the outermost grooves of the plier. Bends should be made using thumb or finger pressure while holding the appliance as shown in the illustration.

Note: This same procedure is used for treatment tip and torque.

Note: Use the i-1410 Lingual Arch Forming Plier only on the following Modular Orthodontics™ appliances:

- 3D® Quad Helix Appliance
- 3D® Palatal Appliance
- 3D® Multi-Action Palatal Appliance

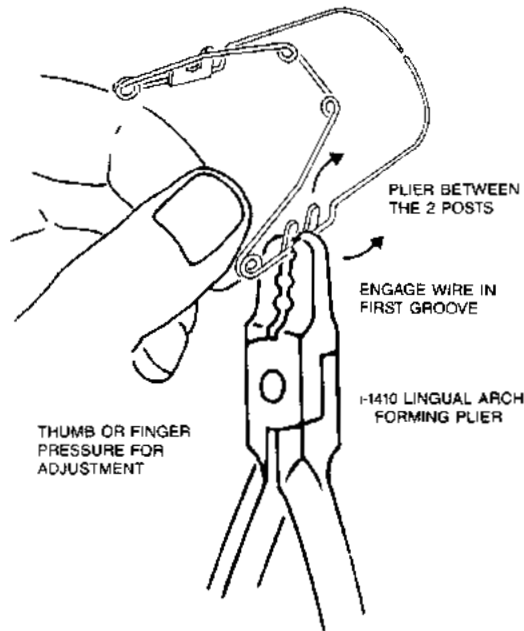


STEP 6**INITIAL ADAPTATION****INITIAL ADAPTATION**

The .025" Extenders are quickly adjusted to all or any specific teeth 54321 | 12345 to passive position with the i-1140 Light Wire Plier.

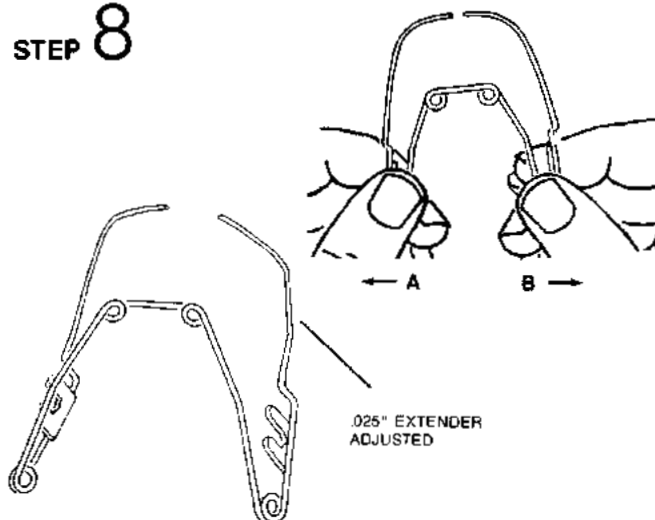
The 3D® Quad Helix Appliance is now ready for passive insertion in the mouth. This passive adjustment assures no movement, discomfort or mobility before activation is applied. The Quad Helix will be ready for controlled activation on the second visit. The Quad Helix is a proven dynamic appliance with built-in potential for excessive activation.

Note: For an experienced person, this passive testing may not be necessary.

STEP 7**POST ADJUSTMENT****MOLAR ROTATIONS**

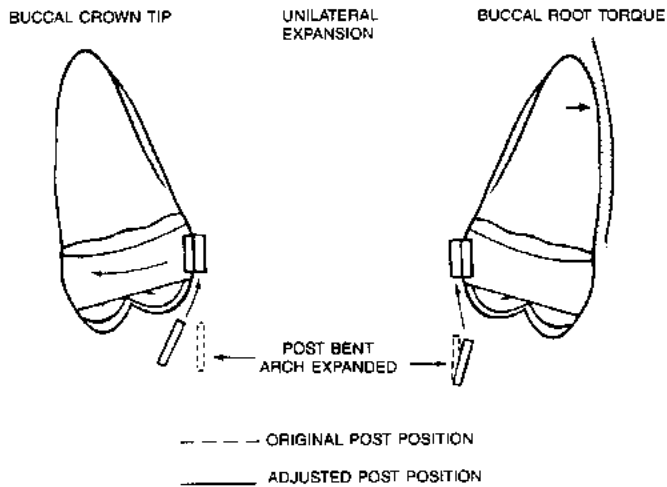
The 3D® posts are rotated with an i-1410 Lingual Arch Forming Plier and finger pressure, as in the diagram.

Insertion of the appliance in the 3D® Lingual Tube produces the rotation tension desired. Minimum adjustment produces trouble-free rotation. Care must be taken never to disturb the 3D® twin posts during such adjustments.

STEP 8**BILATERAL EXPANSION**

1. Expansion is produced by simple finger pressure at A and B.
2. Molar rotation is controlled, produced or eliminated by post adjustments as described in Steps 4 and 7.
3. .025" Extenders are resilient and quickly respond to i-139 Angle Wire Bending Plier adjustment, anterior to the gingival step down. Precise, simple adjustment at the selected gingival border of the teeth produces rapid movement with little tipping, reducing any later need for uprighting.

STEP 9



MOLAR ROOT TORQUE AND UNILATERAL EXPANSION

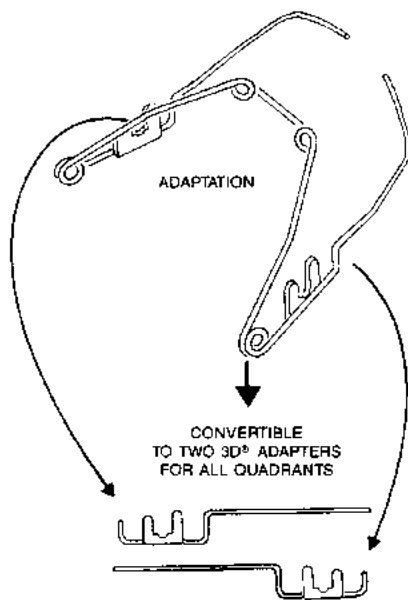
The vertical insertion of the 3D® twin posts produces maximum anchorage and permits multiple controls and movements not possible with horizontal insertion of soldered-type attachments. The precision-fitting posts and tubes provide positive control for all movements.

(A) Friction-lock buccal torque, with expansion, will produce buccal root torque on the molars and, with contraction, will produce lingual crown tip. (B) Lingual torque will produce buccal crown tip, with expansion, and lingual root torque, with contraction.

3D® unilateral molar expansion is produced by buccal root torque on the stationary molar, and buccal crown tip on the molar to be moved with expansion. This can be further supported by contact adjustment of the .025" Extender, with the buccal teeth on the stationary side and no contact on the movement side.

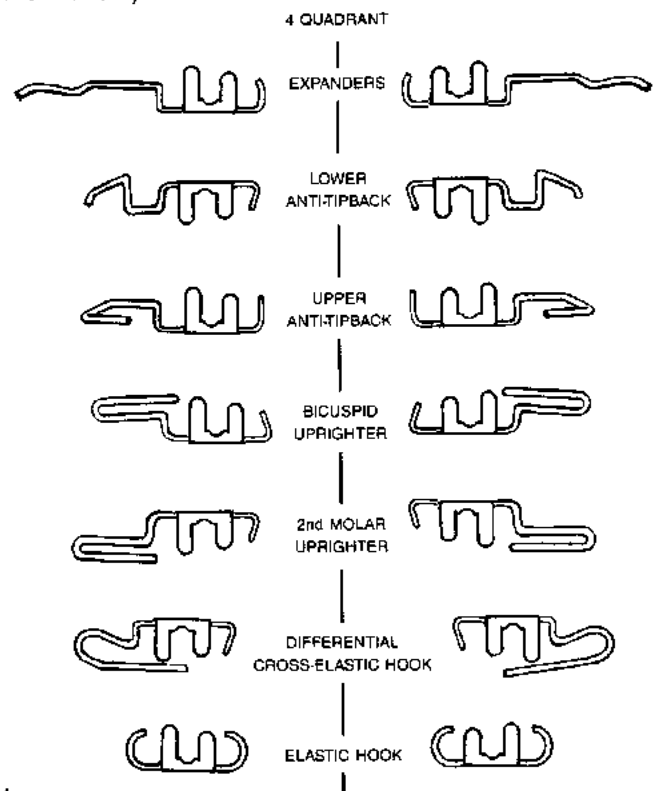
The function is completed rapidly before the cortical resistance allows buccal tooth movement. The 3D® Quad Helix Appliance is then adjusted for neutral control and reinserted.

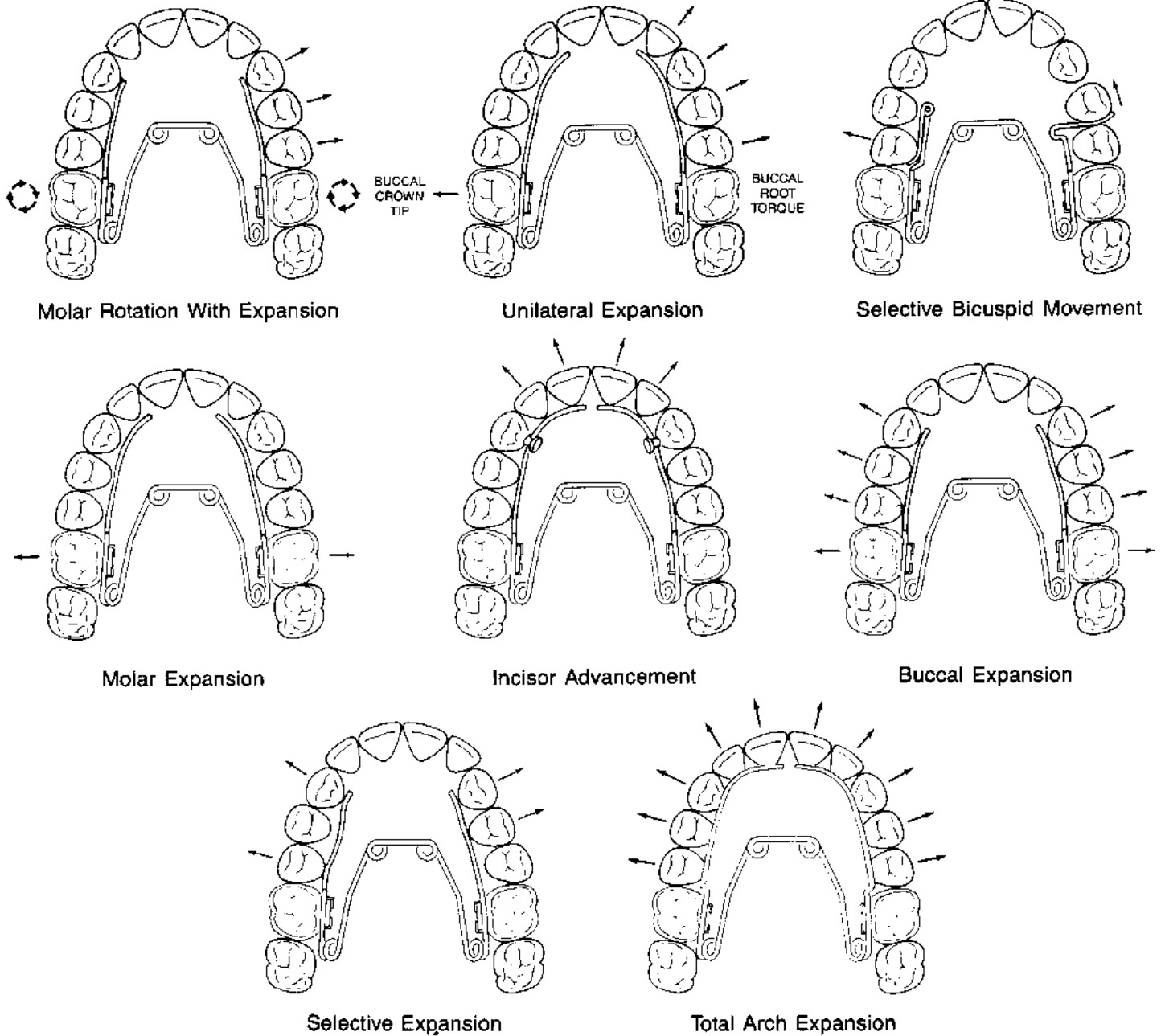
CONVERTING 3D® QUAD HELIX APPLIANCES TO 3D® ADAPTERS



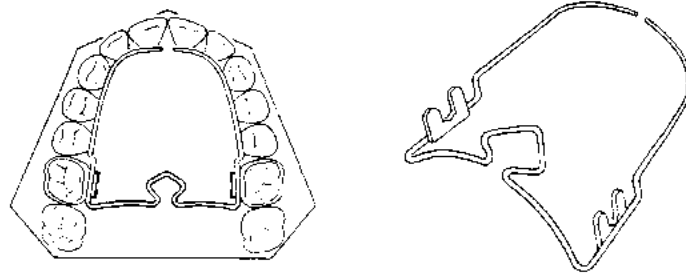
After treatment, don't discard the old 3D® Quad Helix Appliance. It has convertible features worth considering. It can be quickly converted in seconds to two 3D® Multi-Purpose Adapters, by cutting at helical loops A and B and by removing any extender bends. The two short ends are readjusted buccally to be irritation-free.

The 3D® Multi-Purpose Adapter plugs into 3D® Lingual Tubes, with 28 plug-in variations of movements possible. (See the 3D® Multi-Purpose Adapter instructions for further information.)



3D® QUAD HELIX APPLIANCE with multi-purpose functions

3D® MULTI-ACTION PALATAL APPLIANCE



A SINGLE FIXED/REMOVABLE ALTERNATIVE TO MULTIPLE REMOVABLE APPLIANCES

- Transpalatal Arch
- A Total Arch Expansion
- Selected Cuspid and Bicuspids Expansion
- Lateral Incisor Advancement
- Rapid Palatal Expansion
- Unilateral Expansion
- Molar Contraction
- All Molar Rotations
- Molar Buccal Crown Tip
- Molar Buccal Root Torque
- Molar Lingual Root Torque
- Molar Lingual Crown Tip
- Second Bicuspids Space Regainer
- Second Bicuspids Buccal Uprighter

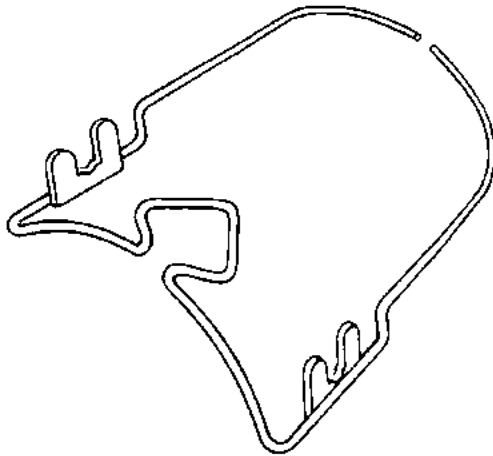
The 3D® Multi-Action Palatal Appliance offers a simple, inexpensive alternative to numerous different sagittal and transverse removables. It provides controlled action at a fraction of the time and cost. This advanced design 3D® appliance produces rapid arch expansion or contraction, unilaterally or bilaterally; expansion or contraction of bicuspids; advancement or retraction of incisors; and rotation, tip and torque of all molars, for more than 14 treatment and problem-solving needs. This too, interchangeably plugs into the 3D® Lingual Tube.

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® MULTI-ACTION PALATAL APPLIANCE**3D® MULTI-ACTION PALATAL APPLIANCE**

Another modular advanced design . . . removable . . . adjustable . . . interchangeable . . . convertible

**AN APPLIANCE WITH MULTI-FUNCTIONS**

The concept and use of the 3D® Multi-Action Palatal Appliance is new. These instructions may be beneficial in describing the advanced design innovations incorporated in this appliance. To new users, these instructions will be especially meaningful. Adaptation to a model can be a real time-saver.

1. A fixed/removable appliance used as a single alternative to numerous removable and fixed appliances.
2. An important accessory for full treatment with all banded techniques.
3. A limited treatment appliance.

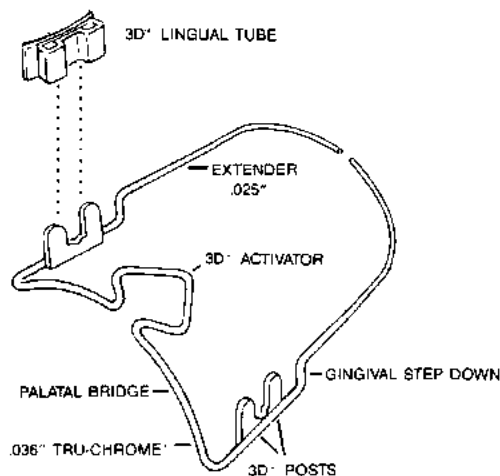
Equally effective with children and adults . . . produces the following:

- 3D® Transpalatal Molar Control
- Total Arch Expansion
- Rapid Palatal Expansion
- Slow Bilateral Expansion
- Lateral Incisor Advancement
- Bilateral Molar Expansion
- Unilateral Molar Expansion
- Selective Buccal Expansion (Stable Molars)
- Molar Contraction

- Variable Molar Rotations With or Without Expansion
- 2nd Bicuspid Buccal Uprighter
- 2nd Bicuspid Space Regainer
- Cuspid Lingual Movement
- Bicuspid Lingual Movement
- Variable Retractions
- Variable Rotations
- Incisor Retraction

3D® MULTI-ACTION PALATAL APPLIANCE

An auxiliary appliance that plugs into your present treatment mechanics.

**NOMENCLATURE AND FEATURES**

The 3D® Multi-Action Palatal Appliance is another modular advanced design. It is a maxillary appliance and is interchangeable with all other 3D® Modular components. It plugs into the 3D® Lingual Tube vertically and lifts out. Adjustments can be made easily with its .036" Tru-Chrome® stainless steel construction.

This appliance needs no annealing or heat-treating. Adaptation to a model is a real time-saver.

FEATURES

- Fixed for 24-hour Rapid Action
- Removable for Quick Adjustment
- Easy Vertical Insertion into 3D® Lingual Tubes
- Doctor vs. Patient Control
- No Headgear or Removables for Sagittal RX
- No Soldering or Band Change-Overs
- Reduces 2nd Molar Extractions
- Reduces Bicuspid Extractions
- High Patient Acceptance
- Interchangeable for Over 100 Other 3D® Actions
- Drastic Cost-Reduction With Use of Single 3D® Action Appliance vs. Multiple Removables

THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ (Wilson) System

The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

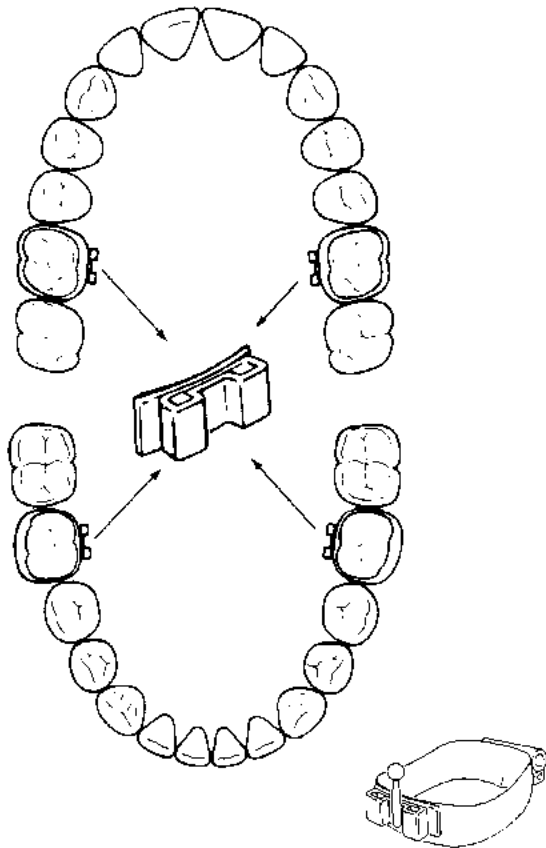
The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity of any other soldered or welded lingual attachments, brackets, hooks or button.

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bites when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

FRICTION-LOCK DESIGN

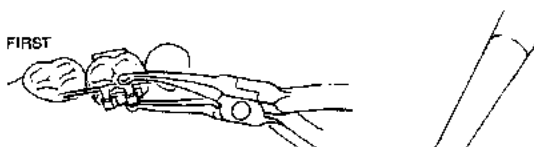
The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.



A THE HOW PLIER IS USED TO CARRY THE MULTI-ACTION PALATAL APPLIANCE TO THE ARCH

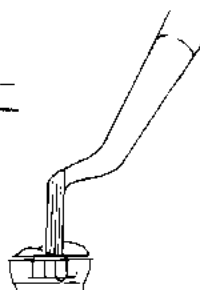


INSERT LONGER POST FIRST



B THE APPLIANCE IS SEATED FURTHER WITH A HOW PLIER

C FINAL SEAT WITH AN I-67 BAND DIRECTOR



INSERTION OF THE 3D® MULTI-ACTION PALATAL APPLIANCE INTO THE 3D® LINGUAL TUBE

- Test the appliance for fitting by picking it up with a How Plier (i-110) or curved i-111) on the top part of the longest (mesial) post. Once the mesial post is partially inserted, the shorter (distal) post will insert partially.
- Once both posts are in position, they are further seated by placing one tip of the How Plier under the mesial tube and one tip over the appliance at the mesial post. Now, squeeze the tips until the appliance is seated half way. Remove appliance (see removing). Reinsert appliance and repeat squeezing to full seating. This conditions the lock for future insertions, while securing a positive lock throughout treatment. Repeat A and B on the other side of the appliance.
- Final seating is accomplished with an i-67 Band Director or a bite stick.

REMOVING THE 3D® MULTI-ACTION PALATAL APPLIANCE

(A) The 3D® Multi-Action Palatal Appliance is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

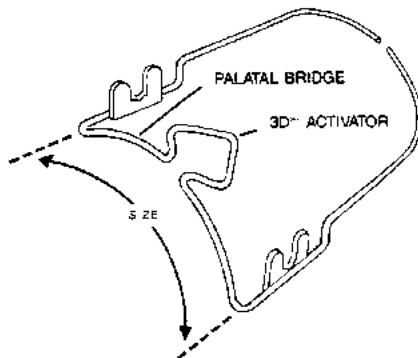
(B) A quick occlusal rotation of the scaler will lift the arch out of the tube.



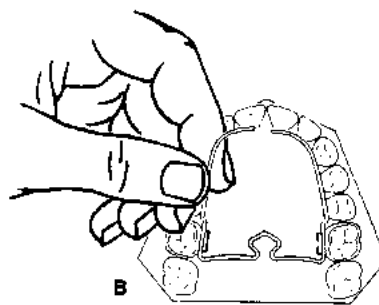
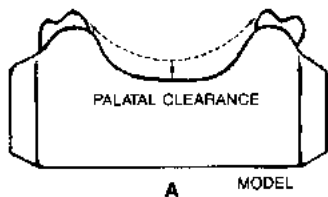
A DENTAL SCALER LIFTS THE 3D® MULTI-ACTION PALATAL APPLIANCE OUT OF THE 3D® LINGUAL TUBES



B

STEP 1

SIZE MEASUREMENT MOLAR TO MOLAR

SIZING THE ARCH
ON THE MODEL**SELECTING THE 3D® MULTI-ACTION
PALATAL APPLIANCE**

The 3D® Multi-Action Palatal Appliance is available in six sizes which will accommodate most of your requirements. The 3D® Activator loop can be expanded or contracted for in-between sizing.

Size 1	32 mm
Size 2	36 mm
Size 3	40 mm
Size 4	44 mm
Size 5	50 mm
Size 6	56 mm

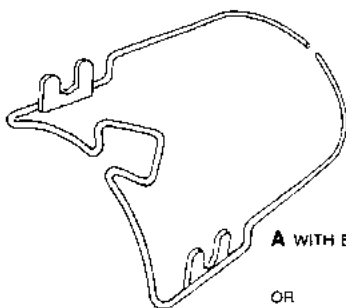
SIZING THE APPLIANCE ON THE MODEL

- (A) Measure the vault of the palate from molar to molar on the model, allowing for a 3 to 4 mm palate clearance, (or your preference).
- (B) Test the selected appliance on the model.

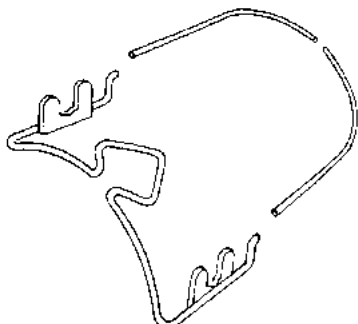
SIZING DIRECTLY IN THE MOUTH

If you are sizing directly in the mouth:

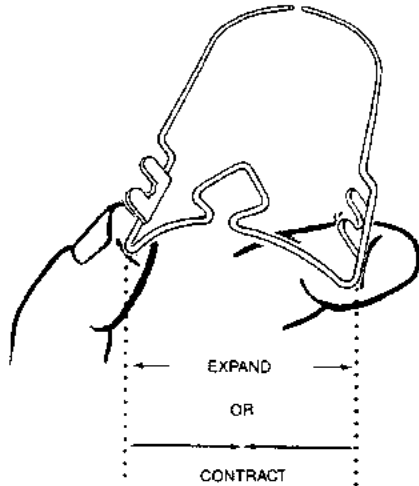
1. Visually size from molar to molar.
2. For a high vault palate, select a larger size.
3. For a lower vault palate, select a smaller size, always allowing for palate clearance.

STEP 2

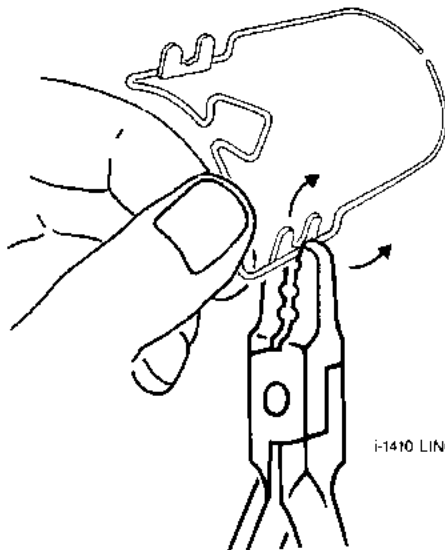
B WITHOUT EXTENDERS

**ADAPTING THE 3D® MULTI-ACTION PALATAL
APPLIANCE TO THE MODEL**

- (A) The 3D® Multi-Action Palatal Appliance is in the preformed shape as illustrated, with Extenders for multi-action.
- (B) For those who wish an appliance without the Extenders, they are simply cut off at the gingival step-down, mesial to the larger post. Turn the cut end buccally. This appliance, like all 3D® appliances, should be irritation-free.

STEP 3**EXPANDING OR CONTRACTING**

The 3D® Multi-Action Palatal Appliance can be easily expanded or contracted by simple finger pressure to align the posts with the 3D® Lingual Tubes on the model or in the mouth.

STEP 4

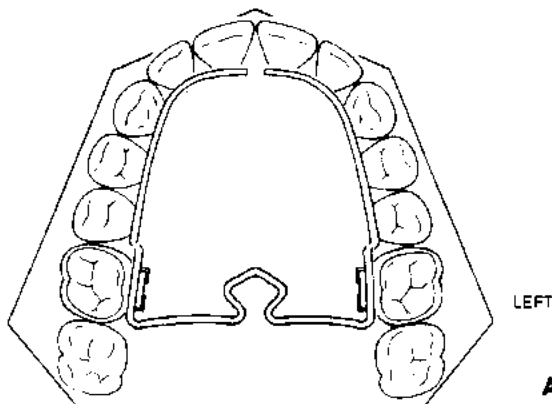
i-1410 LINGUAL ARCH FORMING PLIER

POST ROTATIONS

It is recommended that an i-1410 Lingual Arch Forming Plier be used for all leveling, torquing and rotation adjustments made to the 3D® Twin Posts. Engage the appliance using the outermost grooves of the plier. Bends should be made using thumb or finger pressure while holding the appliance as shown in the illustration.

Note: Use the i-1410 Lingual Arch Forming Plier only on the following Modular Orthodontics™ appliances:

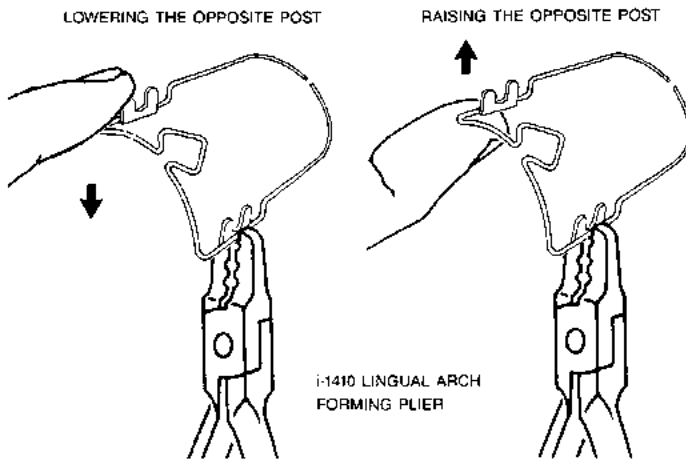
- 3D® Quad Helix Appliance
- 3D® Palatal Appliance
- 3D® Multi-Action Palatal Appliance

STEP 5**TEST THE APPLIANCE IN BOTH 3D® LINGUAL TUBES**

- (A) Now insert the left side into the 3D® Lingual Tube and evaluate the right side. The right side needs to be in neutral position over the right tube. Make additional adjustment if necessary until it lines up over the twin tube.
- (B) When you are satisfied with the left side, take the appliance out and insert it in the right twin tube and reverse the procedure for left side adjustment.

STEP 6

LEVELING THE 3D® MULTI-ACTION PALATAL APPLIANCE (Removing molar tip and torque)



Testing for any tip or torque in the vertical posts is a simple procedure. The posts are inserted on the right side only and the height of the left side is tested. It can be raised or lowered. Remove the appliance, then, holding the right side at the distal post with the i-1410 plier, make a simple finger bend of the appliance to elevate or lower the left side.

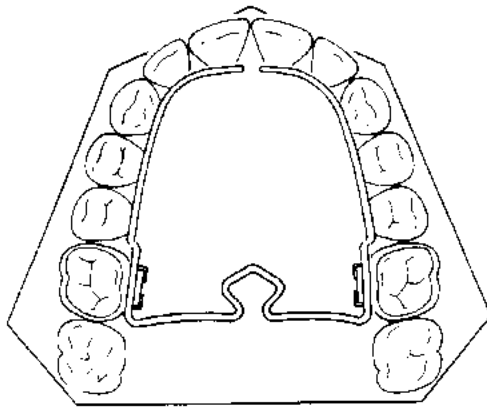
Repeat this procedure on the left side until the appliance is level and passive in the tubes on both sides.

The appliance should now be passive and can be inserted into the 3D® Lingual Tubes.

Note: The same procedure is used for treatment tip and torque.

STEP 7

FINAL TESTING ON THE MODEL

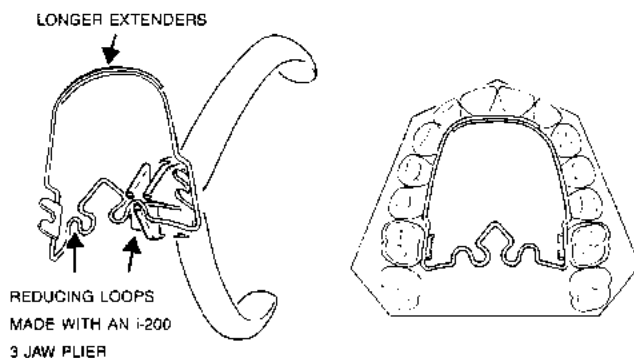


Bands with prewelded 3D® Lingual Tubes and the buccal tubes of your choice are cemented on the first molars. The passive 3D® Multi-Action Palatal Appliance is plugged into the 3D® Lingual Tubes.

ACTIVATION FOR TREATMENT

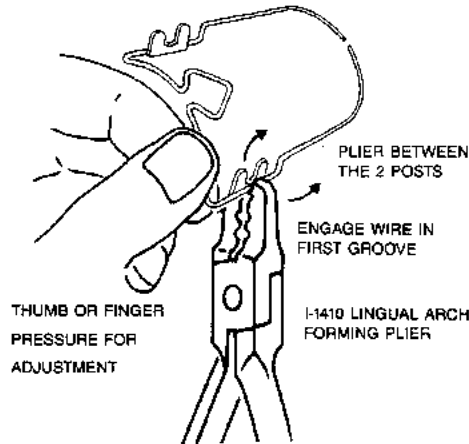
Note: The patient is dismissed with the appliance in a passive state. On the return visit, the appliance is activated for treatment. The passive state is to assure that there is no unnecessary movement in the appliance. With a little experience, this cautionary step will prove unnecessary.

ADJUSTMENT FOR LONGER EXTENDER



In cases with flat palates which dictate a smaller trans-palatal size, or if there is a need for longer .025" anterior Extenders, select a larger size 3D® Multi-Action Palatal Appliance with long Extenders and shorten the intermolar width with an i-200 3 Jaw Plier by forming reducing loops as indicated by arrows. These may be increased or decreased for exact size.

STEP 8



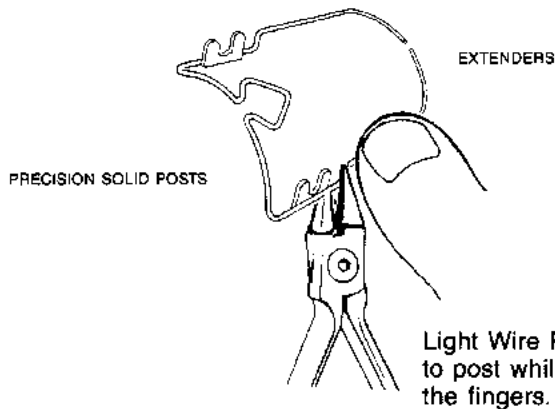
Pliers hold the mesial posts for mesial adjustments and the distal posts for distal adjustments.

MOLAR ROTATIONS

Rotation adjustments are made with an i-1410 Lingual Arch Forming Plier along with indicated expansion or contraction.

Programmed rotation of molars produces a relationship of posts to 3D® Lingual Tubes, which creates a rotational tension. Upon insertion of the 3D® posts into the 3D® Lingual Tubes, positive molar rotation results. Minimal adjustment produces trouble-free rotations.

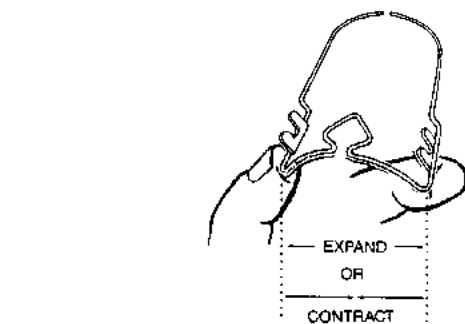
Care must be taken not to disturb the relationship between the twin posts as it is fabricated by the manufacturer.



ADJUSTMENT OF EXTENDER

Appliances with precision-solid posts require the same protection of holding the post with an i-1410 Lingual Arch Forming Plier. Adjustment of .025" Extenders requires holding the .025" wire proximal to the nearest post with a Light Wire Plier while the wire is bent with finger pressure.

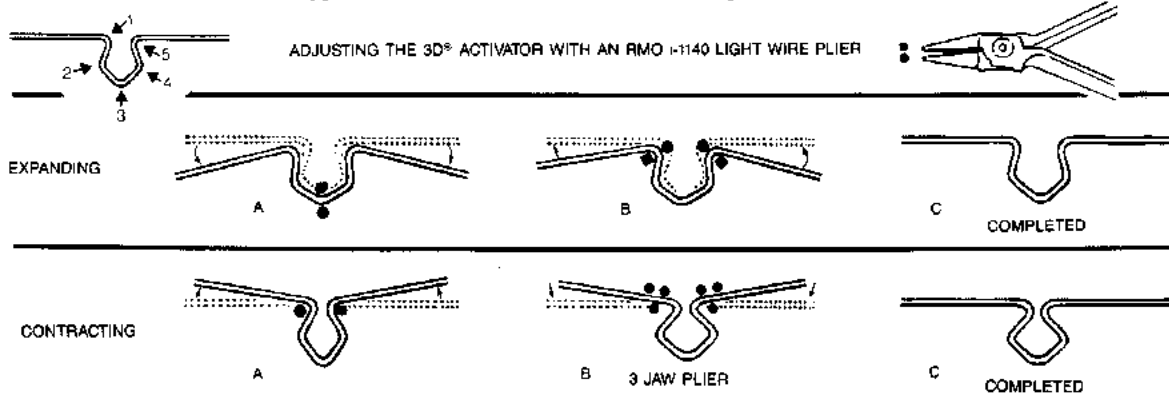
STEP 9



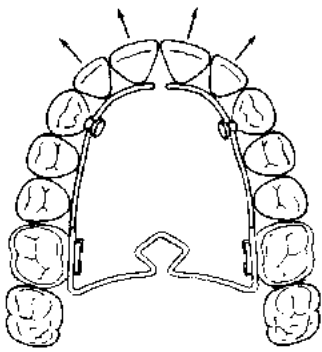
EXPANSION OR CONTRACTIONS

Expansion or contraction are produced by simple finger pressure or with an i-1140 Light Wire Plier adjusting the 3D® Activator loop.

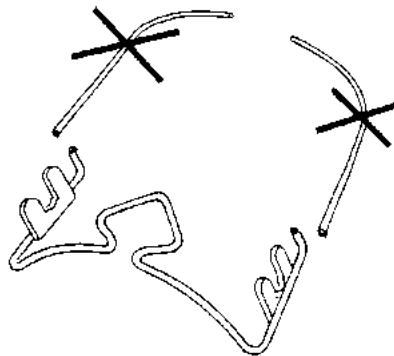
Expansion causes buccal crown tip at the 3D® Posts. Contraction causes lingual crown tip at the 3D® Posts. If either the buccal or lingual tip is not desired, the crown tip is quickly adjusted and removed at the distal post before plugging into the 3D® Lingual Tube.



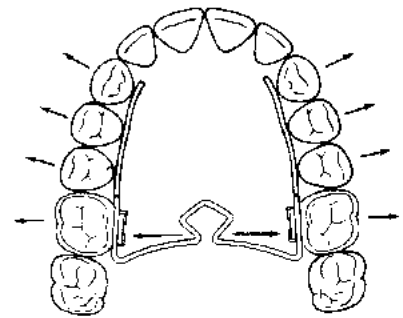
3D® MULTI-ACTION PALATAL APPLIANCE with multi-purpose functions



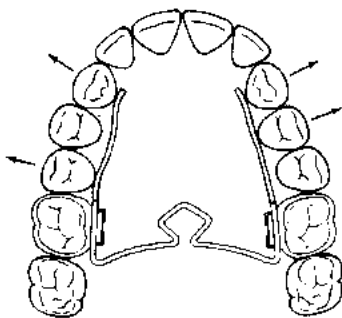
Incisor Advancement



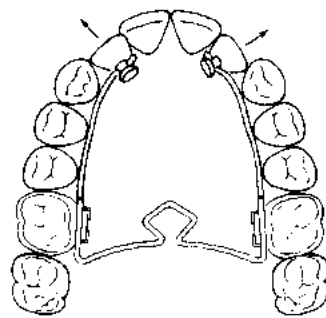
Trans Palatal Appliance



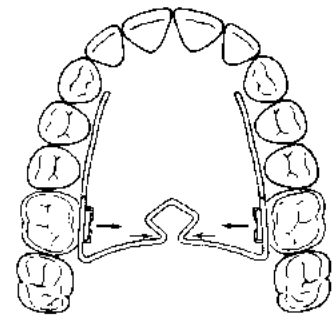
Buccal Expansion



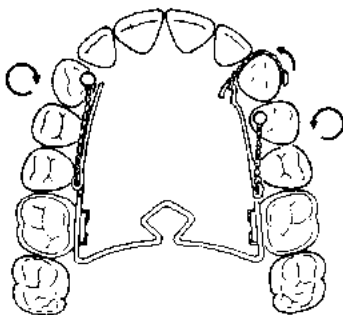
Selective Expansion



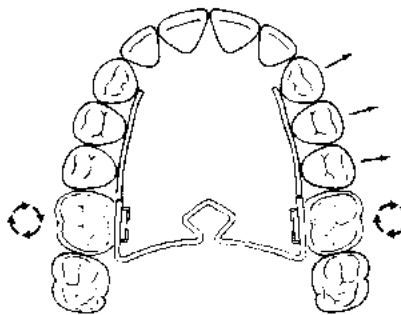
Lateral Advancement



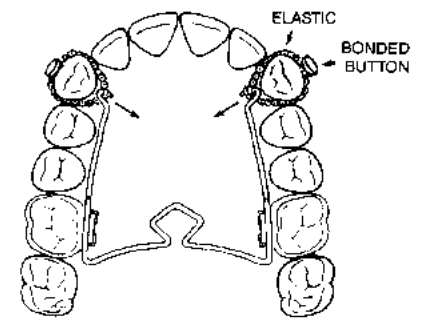
Molar Contraction



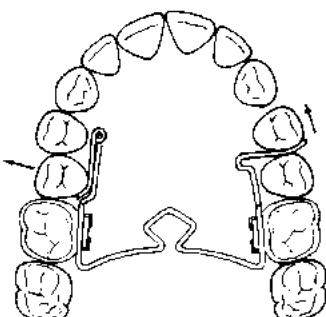
Cuspid and Bicuspid Rotation



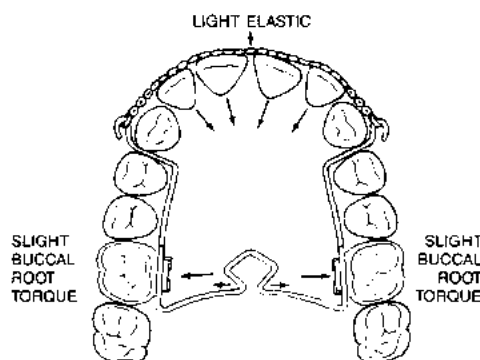
Molar Rotation with or without Expansion



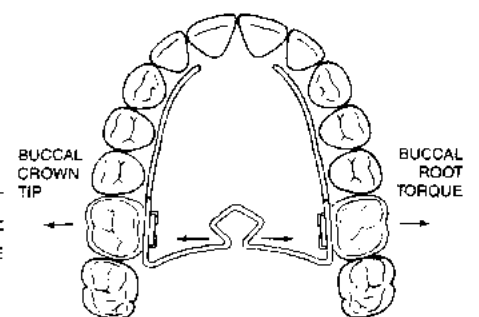
Cuspid Lingual Movement



Variable Bicuspid Movements

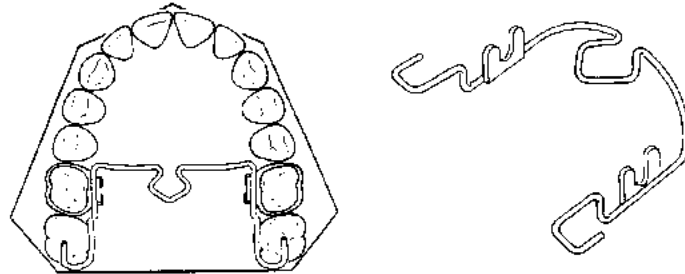


Anterior Retraction



Molar Buccal Movement and Unilateral Molar Expansion

3D® PALATAL APPLIANCE



MORE THAN JUST A PALATAL ARCH

- Transpalatal Arch
- High Pull Headgear Control
- Molar Rotation
- Molar Contraction
- Molar Expansion Bilateral
- Molar Expansion Unilateral
- Palatal Cusp Intrusion
- Selective Cuspid and Bicuspids Expansion
- Second Molar Intrusion
- Molar Buccal Crown Tip
- Molar Buccal Root Torque
- Molar Tipback Resistor
- Molar Lingual Crown Tip
- Molar Lingual Root Torque

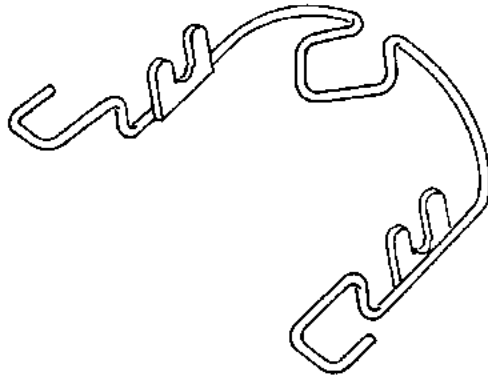
The 3D® Palatal Appliance is another advanced design modular appliance with multi-purpose functions. Although the palatal arch concept is not new to the experienced orthodontist, the 3D® Palatal Appliance does add several new important functions. It interchangeably plugs into the 3D® Lingual Tube and, like the 3D® Quad Helix, is quickly removable for special adjustments. It is designed as an adjunct to straightwire treatment, providing important first and second molar controls. It delivers positive molar control for the edgewise techniques, employing high-pull headgear, and plugs into 3D® Lingual Tubes to provide solid anchorage, rotation control and positive torquing and tipping. Furthermore, it nearly doubles incisor intrusion and lingual torquing mechanics. The 3D® Lingual Tube permits a friction-like security of the appliance, with no free play or movement allowed. Insertion and removal are easy as with all other 3D® appliances, making it a part of the total interchangeable system.

WORKSHOP GUIDE

FOR WORKSHOP AND OFFICE REFERENCE

3D® PALATAL APPLIANCE**3D® PALATAL APPLIANCE**

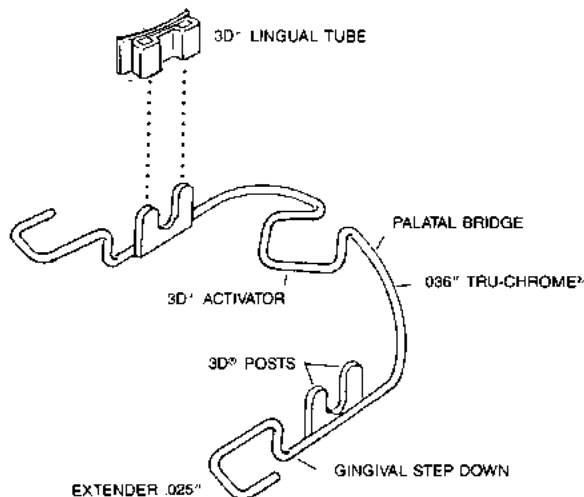
Another modular advanced design . . . removable . . . adjustable . . . interchangeable . . . convertible

**AN APPLIANCE WITH MULTI-PURPOSE FUNCTIONS**

The concept and use of the 3D® Palatal Appliance is not new to the experienced orthodontist, but these instructions may be beneficial in describing the advanced design innovations incorporated in this appliance. To new users, these instructions will be especially meaningful. Adaptation to a model is a real time-saver.

Equally effective with children and adults . . . produces the following:

- High-pull headgear molar control
- Palatal cusp intrusion
- Molar antitip-back to double any utility arch intrusion action
- 2nd molar intrusion
- All molar rotations
- Controlled contraction or expansion
- Molar buccal and lingual crown tip
- Molar buccal and lingual root torque
- Mesial molar drag resistor with anterior lingual torque

**NOMENCLATURE AND FEATURES**

The 3D® Palatal Appliance is another Modular advanced design. It is a maxillary appliance, interchangeable with the other Modular components. It plugs into the 3D® Lingual Tube vertically, and lifts out. Adjustments can be made easily with its .036" Tru-Chrome stainless steel construction and .025" Extenders for 2nd molar action. The 3D® Palatal Appliance produces many new movements and functions, unlike any other palatal appliance.

CONVERTIBLE

The appliance can easily be converted to two 3D® Multi-Purpose Adapters. Each can provide 28 other various movement possibilities.

THE 3D® LINGUAL TUBE

The key element of the Modular Orthodontics™ System

The key element of the system is a 3D® Lingual Tube welded to your molar band/buccal tube assemblies.

The 3D® Lingual Tube opens the way to new treatment horizons, making 100 different appliance functions possible.

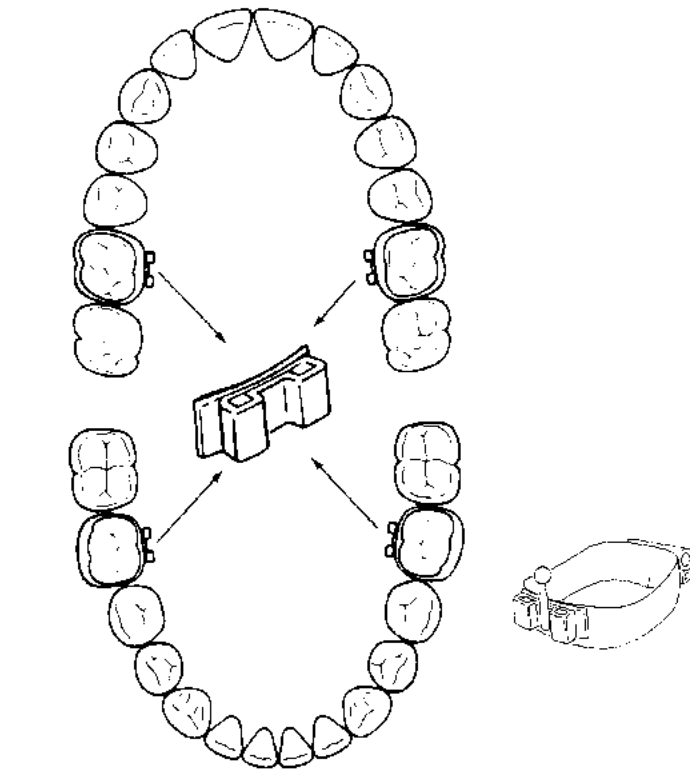
The 3D® Lingual Tube, when prewelded on each first molar band, replaces the necessity of any other soldered or welded lingual attachments, brackets, hooks or button.

The twin tubes provide a quick, secure plug-in for all 3D® Modular Components, which, in turn, can be converted to other appliance functions, satisfying over 100 lingual needs.

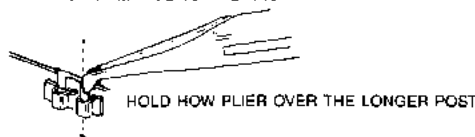
RM® Molar bands can be furnished with 3D® Lingual Tubes, with or without a special gingival ball hook. The ball hook increases your options at any time during treatment. For instance, hooks can be used for cross-bite corrections and they will correct even the most severe cross-bites when used with any of the 3D® lingual expansion appliances. They can also be adjusted as mesial elastic hooks for intra-arch elastics.

FRICTION-LOCK DESIGN

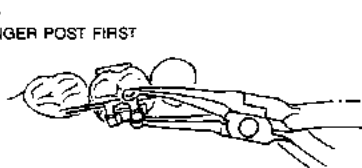
The 3D® Lingual Tube is designed with a wide base which assures a better attachment to the band and a twin tube that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the appliance, with no free-play or movement and also eliminates the necessity for extension lock. Fits all first molars, uppers or lowers.



A THE HOW PLIER IS USED TO CARRY THE APPLIANCE TO THE ARCH

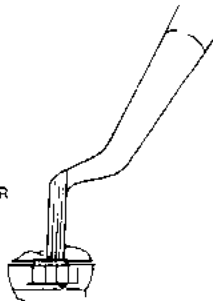


INSERT LONGER POST FIRST



B THE APPLIANCE IS SEATED FURTHER WITH A HOW PLIER

C FINAL SEAT WITH i-67 BAND DIRECTOR



INSERTION OF THE 3D® PALATAL APPLIANCE INTO THE 3D® LINGUAL TUBE

A. Test the appliance for fit by picking it up with a How Plier (i-110 or curved i-111) on the top part of the longest (mesial) post. Once the mesial post is partially inserted, the shorter (distal) post will insert partially.

B. Once both posts are in position, they are further seated by placing one tip of the How Plier under the mesial tube and one tip over the appliance at the mesial post. Now squeeze the tips until the appliance is seated half way. Remove appliance (see removing). Reinsert appliance and repeat squeezing to full seating. This conditions the lock for future insertions, while securing a positive lock throughout treatment. Repeat A and B on the other side of the appliance.

C. Final seating is accomplished with an i-67 Band Director or a bite stick.

REMOVING THE 3D® PALATAL APPLIANCE

(A) The 3D® Palatal Appliance is removed by inserting a dental scaler between the twin posts, with the tip of the scaler resting on the edge of the band.

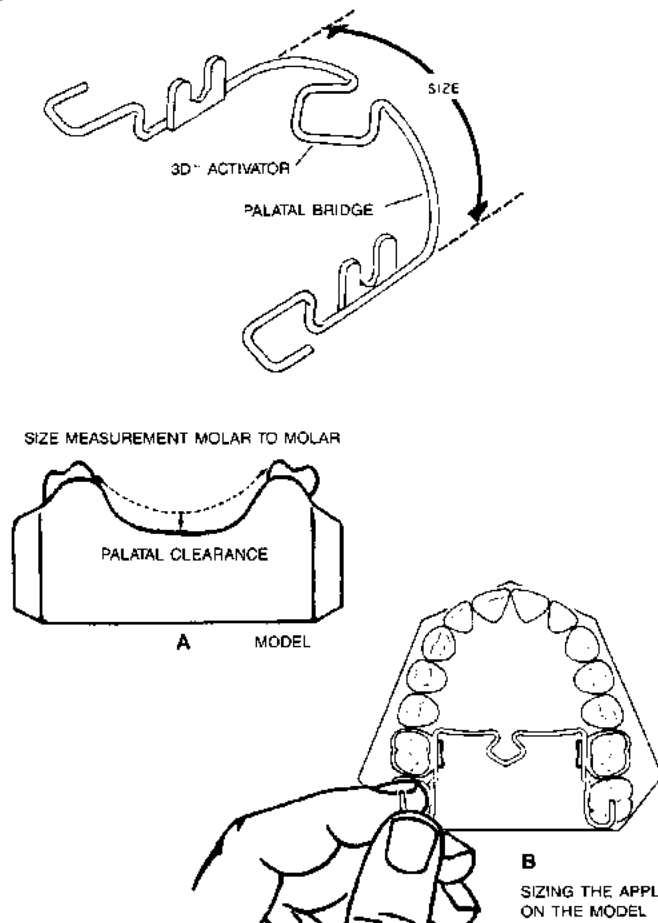
B. A quick occlusal rotation of the scaler will lift the arch out of the tube.



A DENTAL SCALER LIFTS THE 3D® PALATAL APPLIANCE OUT OF THE 3D® POSTS



B

STEP 1**SELECTING THE 3D® PALATAL APPLIANCE**

The 3D® Palatal Appliance is available in six sizes which will accommodate most of your requirements. The 3D® Activator loop can be expanded or contracted to extend the size range if needed, or to adapt to in between sizing.

Size 1	32 mm
Size 2	36 mm
Size 3	40 mm
Size 4	44 mm
Size 5	50 mm
Size 6	56 mm

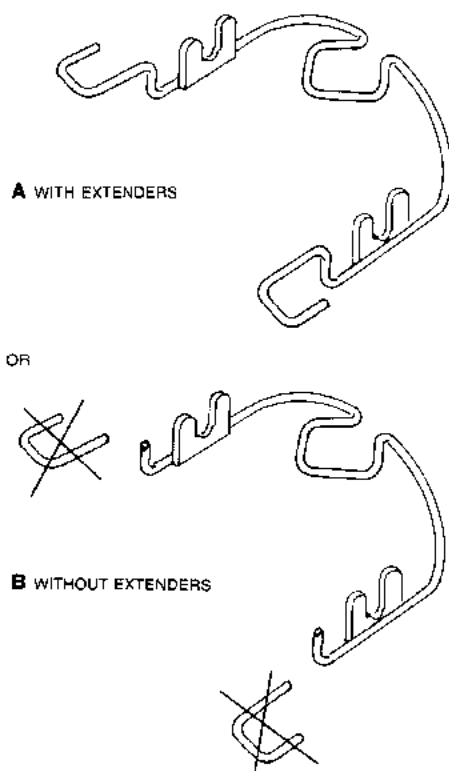
SIZING THE APPLIANCE ON THE MODEL

- Measure the vault of the palate from molar to molar on the model, allowing for a 3 to 4 mm palate clearance (or your preference).
- Test the selected arch on the model.

SIZING DIRECTLY IN THE MOUTH

If you are sizing directly in the mouth:

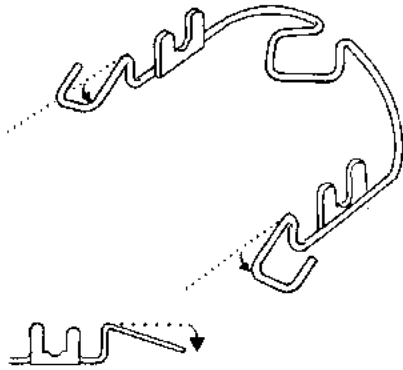
- Visually size from molar to molar of the 3D® Lingual Tubes.
- For a high vault palate, select a larger size.
- For a lower vault palate, select a smaller size, always allowing for palate clearance.
- Tongue action on the activator will assist molar intrusion. Select a smaller size and expand to molar width.

STEP 2**ADAPTING THE 3D® PALATAL APPLIANCE TO THE MODEL**

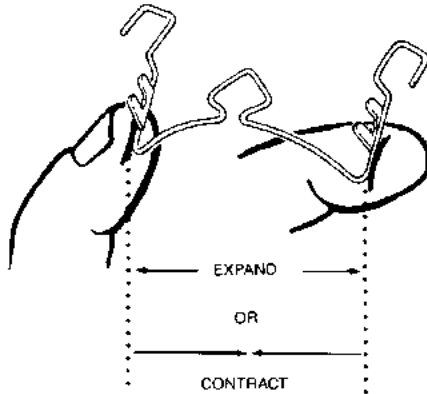
- The 3D® Palatal Appliance is in the preformed shape as illustrated, with preformed Extenders for 2nd molar control.

Indirect adaptation to an in-office model or by an RM® Certified 3D® Laboratory will assure appliance efficiency and significant time-cost savings.

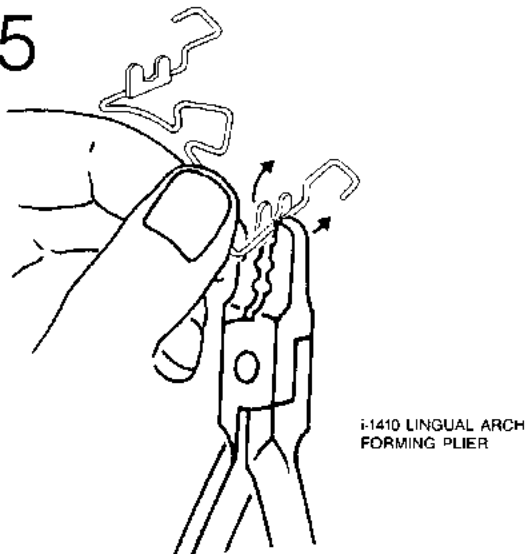
- Developed for those requiring an appliance without the Extenders. They are simply cut off at the gingival step. Turn the cut end buccally. This appliance, like all 3D® appliances, should be irritation-free.

STEP 3**BENDING THE 2 EXTENDERS FROM OCCLUSION**

If you are going to retain the Extenders, they should be adjusted down, away from the occlusal of the 2nd molars temporarily, to permit passive 1st molar adjustment.

STEP 4**EXPANDING OR CONTRACTING**

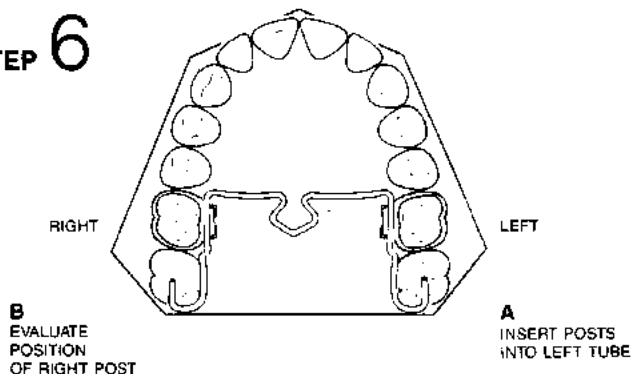
The Palatal Appliance can easily be expanded or contracted by simple finger pressure until the posts are lined up with the 3D® Lingual Tubes on the model or in the mouth.

STEP 5**POST ROTATIONS**

It is recommended that an i-1410 plier be used for all leveling, torquing and rotation adjustments made to the 3D® twin posts. Engage the appliance using the outermost grooves of the plier. Bends should be made using thumb or finger pressure while holding the appliance as shown in the illustration.

Note: Use the i-1410 only on the following Modular Orthodontics™ appliances.

- 3D® Quad Helix Appliance
- 3D® Palatal Appliance
- 3D® Multi-Action Palatal Appliance

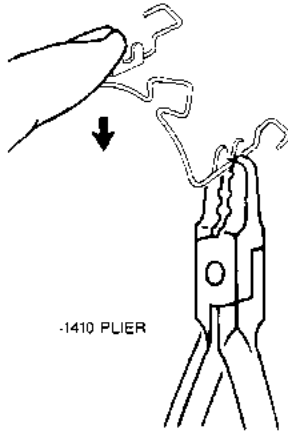
STEP 6**TEST THE APPLIANCE IN BOTH 3D® LINGUAL TUBES.**

A. Now insert the left side into the 3D® Lingual Tube and evaluate the right side. The right side needs to be in a neutral position over the right tube. Make additional adjustments if necessary until the right side lines up over the 3D® Lingual Tube.

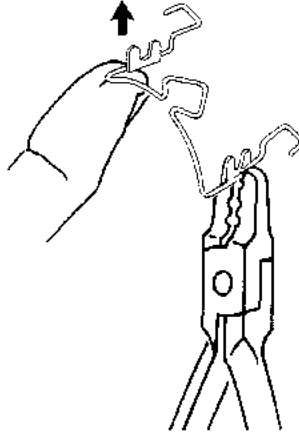
B. When you are satisfied with the right side, take the arch out and insert it in the right tube and reverse the procedure for left side adjustment.

STEP 7

LOWERING THE OPPOSITE POST



RAISING THE OPPOSITE POST



LEVELING THE 3D® PALATAL APPLIANCE (Removing molar tip and torque)

Testing for any tip or torque in the vertical posts is a simple procedure. The posts are inserted on the left side only and the height of the right side is tested. It can be raised or lowered. Remove the arch wire; then, holding the left side with the i-1410 plier, make a simple finger bend of the arch wire to elevate or lower the right side.

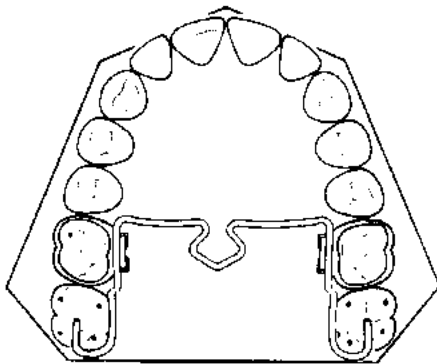
Repeat this procedure on the right side until the appliance is level and passive in the 3D® Lingual Tubes on both sides.

In each instance, the 2nd molar Extenders must be free from the model.

The appliance should now be passive and can be inserted into the 3D® Lingual Tubes.

Note: This same procedure is used for treatment of tip and torque.

STEP 8



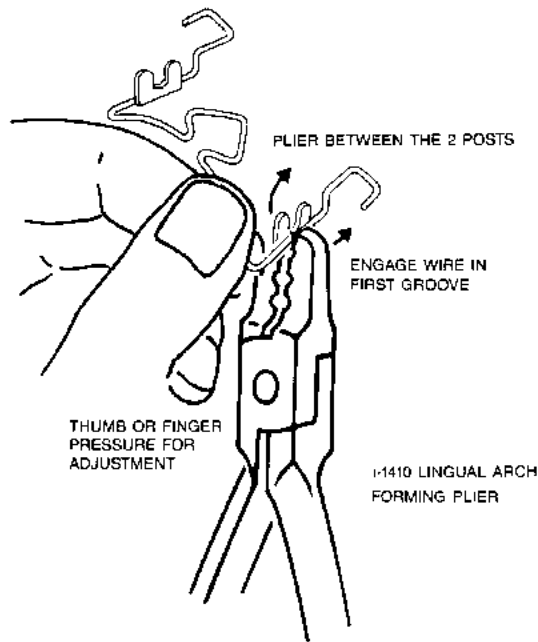
ADAPTING THE EXTENDERS TO THE 2ND MOLARS

Bands with prewelded 3D® Lingual Tubes and the buccal tubes of your choice are cemented on the 1st molars. With articulating paper, the occlusion spots on the 2nd molars are registered. The passive 3D® Palatal Appliance is plugged into the 3D® Lingual Tubes. The extenders are then adjusted to occlusal, bearing free of the occlusal spots of the 2nd molars.

ACTIVATION FOR TREATMENT

Note: The patient is dismissed with the appliance in a passive state. On the return visit, the appliance is activated for treatment. The passive state is to be certain that there is no unnecessary movement in the appliance. With a little experience, this cautionary step will prove unnecessary.

STEP 9



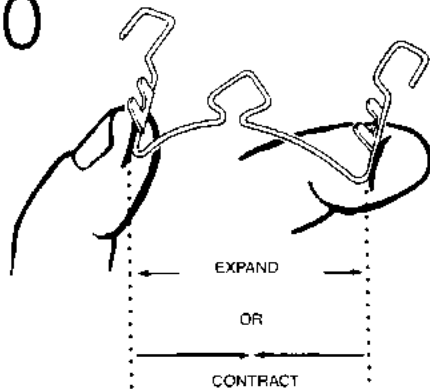
MOLAR ROTATIONS

Rotation adjustments are made with an i-1410 Lingual Arch Forming Plier along with indicated expansion or contraction.

Programmed rotation of molars produces a relationship of posts to lingual tubes, which creates a rotational tension. Upon insertion of the 3D® posts into the 3D® Lingual Tubes, positive molar rotation results. Minimal adjustments produce trouble-free rotations.

Care must be taken never to disturb the relationship between the posts as it is fabricated by the manufacturer.

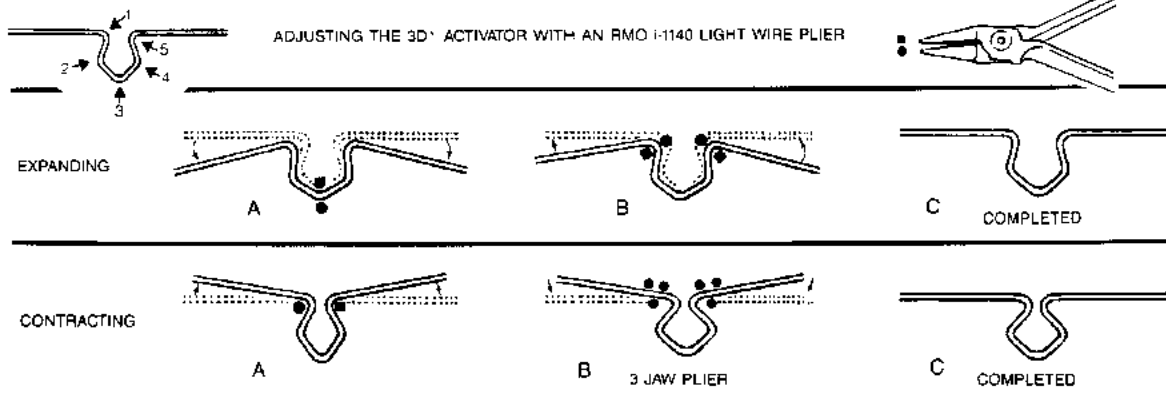
STEP 10



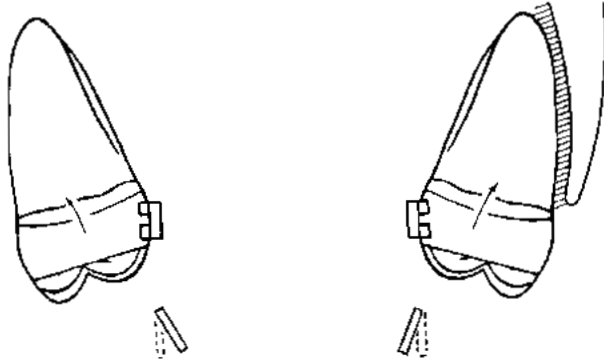
EXPANSION OR CONTRACTION

Expansion or contraction are produced by simple finger pressure or with an i-1140 Light Wire Plier adjusting the 3D® Activator loop.

Expansion causes buccal crown tip at the 3D® posts. Contraction causes lingual crown tip at the 3D® posts. If either the buccal or lingual tip is not desired, the crown tip is quickly adjusted and removed at the mesial post before plugging into the 3D® Lingual Tube.



STEP 11



- REPRESENTS THE PREANGULATED POSTS FROM THE MANUFACTURER
- REPRESENTS THE ADJUSTMENT MADE ON THE 3D® POSTS, WHICH ON INSERTION INTO THE 3D® LINGUAL TUBES WILL INTRUDE THE PALATAL CUSPS

MOLAR CONTROL WITH HIGH-PULL HEADGEAR

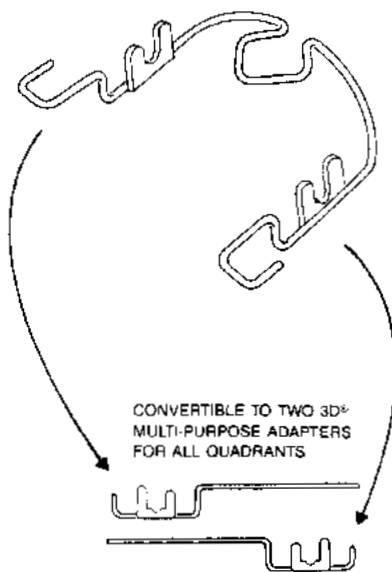
With high-pull headgear, rotational moments on the upper 1st molars produce a buccal movement and rotational extrusion of palatal cusps of the 1st and 2nd molars. The Modular 3D® Palatal Appliance is designed to control and reverse these unwanted countermoments.

Before the headgear is applied, the 3D® Palatal Appliance is contracted with finger pressure. The automatic lingual crown tip of the posts will produce a slight palatal cusp intrusion. The 2nd molar extenders are adapted to the central fossa with a bearing on the palatal cusp for 2nd molar action.

If headgear use is prolonged, these adjustments may be increased.

Note: Following headgear use, the 2nd molar extenders serve anti-tipback functions when utility arches are used for intrusion. They nearly double the utility arch action.

STEP 12

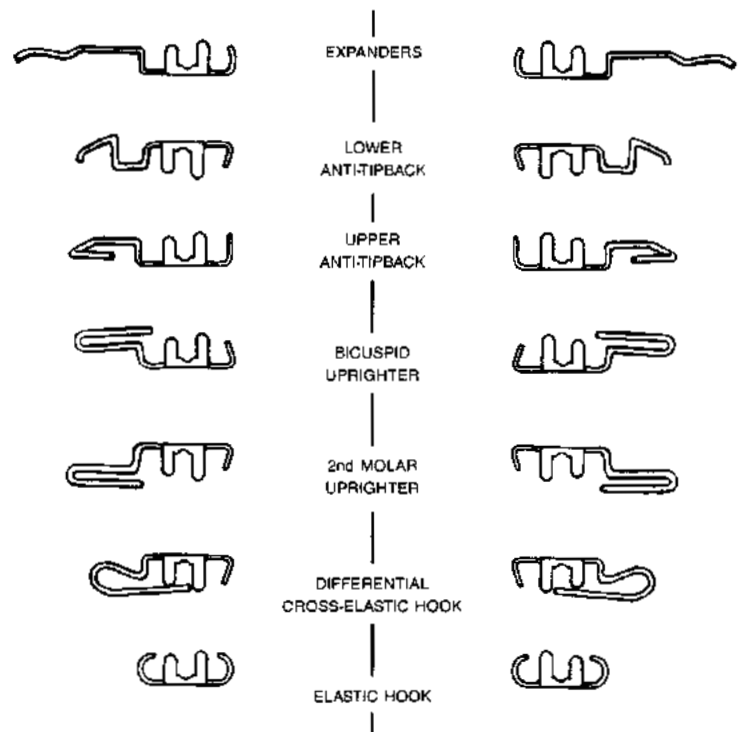


CONVERTIBLE TO TWO 3D® MULTI-PURPOSE ADAPTERS FOR ALL QUADRANTS

CONVERTING THE USED 3D® PALATAL APPLIANCE TO TWO 3D® MULTI-PURPOSE ADAPTERS FOR MULTIPLE USE

Following the use of the 3D® Palatal Appliance, it can be converted into two 3D® Multi-Purpose Adapters.

The 3D® Extenders are cut off at the base of the two ends of the palatal bridge and readjusted to conform to any one of 28 other treatment functions.



SUMMARY

The 3D® Fixed/Removable™ system is designed to give positive and controlled treatment results. The appliance designs incorporate many proven force systems. Appliance construction by RMO reflects a most-detailed and precise utilization of advanced metallurgical technology.

Treatment success is dependent on quality appliances. This success, however, can prove elusive without a valid diagnosis and treatment planning. It can be further elusive without an understanding of appliance use and proper adjustment. The purpose of this *Book 2, Force Systems Mechanotherapy Manual* is to expedite this understanding.

It is further suggested that *Book 1, Concept, Treatment and Case Histories* will reveal many new possibilities of multi-directional treatment previously considered difficult and not possible.

PART 2

AUXILIARY ASSISTANCE

- How to Select and Fit RM® Molar Bands.....109
- Impression Taking and Making Working Models.....121
for 3D® Appliance Fabrications

HOW TO SELECT AND FIT RM[®] MOLAR BANDS

FOR ORTHODONTIC AUXILIARIES

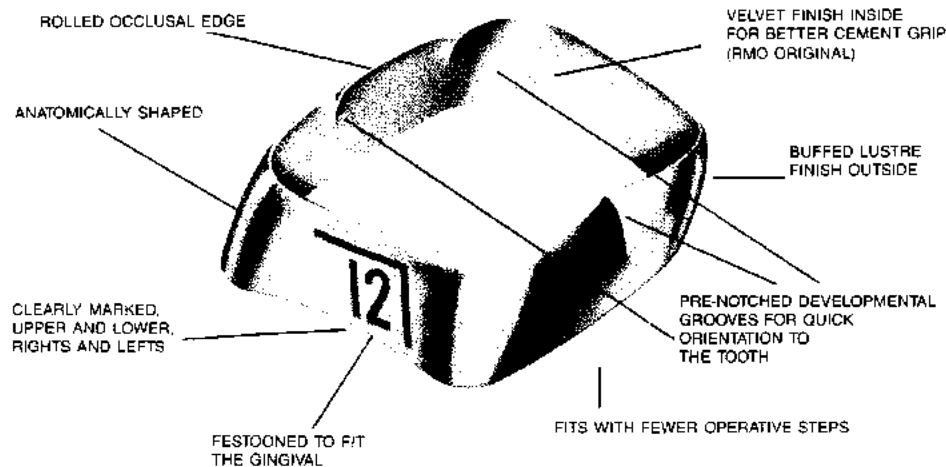
HOW TO SELECT AND FIT RM® MOLAR BANDS

FOR ORTHODONTIC AUXILIARIES

INTRODUCTION

RM® Bands are a product of years of band manufacturing experience and a tradition of superior-quality products. They are dimensionally strong, to remain stable without deformation during trial fitting. They can withstand mastication and the stress of extraoral appliances. Their distinctive ductility allows them to shape to the tooth after seating. The occlusal edge of each RM® band is slightly rolled to enhance fitting and to prevent a cement ridge. The anatomical shape assures a precision fit, when the band is driven to the correct position. RM® Bands are properly festooned to conform accurately to the tooth anatomy.

RM® Bands have a buffed lustre finish outside and a velvet-finish inside. Both finishes are unique for their practicability. The buffed lustre outside finish contributes to a clean and attractive appearance. The velvet-finish inside assures excellent cementation. Bands in universal shapes have been designed to be used interchangeably for right or left. Bands in right and left shapes have been correctly proportioned for right and left configurations, providing positive retention with minimum effort and adaptation.



RM® MOLAR BAND CHARACTERISTICS

Molar bands have a pre-positioned lingual groove and a buccal groove for orientation to the tooth. They provide optimum tooth coverage for strength and stability, with a maximum buccal surface for tube placement. The "Palmer Notation" system makes size, and left and right selection easy. There are color-coded markings for easy selection of band sizes from a complete range to fit every tooth size probability.



MAXILLARY



MANDIBULAR

UNIVERSAL

UNIVERSAL MAXILLARY 1st AND 2nd MOLAR BANDS UNIVERSAL MANDIBULAR 1st MOLAR BANDS

RM® Preformed Universal Molar Bands are furnished in 36 maxillary and mandibular sizes for primary and permanent molars and in 9 "extra large" sizes. These bands can be fitted on the left or right of the designated arch (unless prewelded with attachments that are designated by configuration for left or right only). These bands have a single orientation notch centered on the lingual (mandibular) or the buccal (maxillary).



RIGHT



LEFT

MAXILLARY



RIGHT



LEFT

MANDIBULAR

RIGHT AND LEFT 1st MOLAR BANDS

RM® Preformed Right and Left 1st Maxillary and Mandibular 1st Molar Bands are furnished in 36 sizes. Sizes 1 through 6 fit primary molars while sizes 6.5 through 18.5 fit permanent 1st molars. For the mandibular, there are 9 sizes for "extra large" molars. These bands have both buccal and lingual orientation notches for minimal adaptation.



RIGHT



LEFT

MANDIBULAR

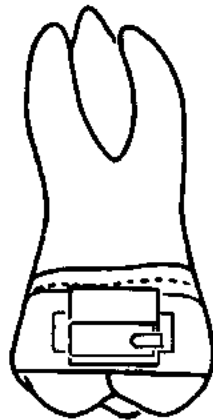
RIGHT AND LEFT MANDIBULAR 2nd MOLAR BANDS

RM® Preformed Right and Left Mandibular Permanent 2nd Molar Bands are furnished in 26 sizes, have a lingual orientation notch and are proportioned to fit the 2nd molar with optimal coverage and positive retention.

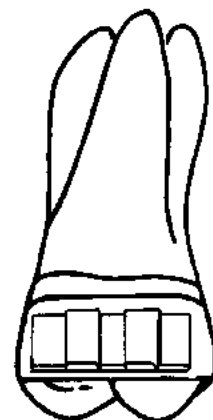
DESIGNED TO FIT

RM® Molar Bands are designed and engineered to fit occlusally at the marginal ridge and just into the gingiva at the buccal and lingual. RM® Molar Bands are strong enough to withstand forces without deforming and without loss of tooth control. The occlusal roll is engineered to provide a snug, glove-like fit to help prevent decalcification. RM® Molar Bands continue to be the choice of the profession because of years of unparalleled proven performance.

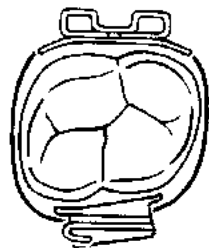
MAXILLARY 1st MOLAR TOOTH CHARACTERISTICS



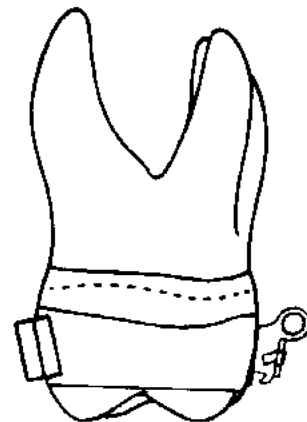
BUCCAL



LINGUAL



OCCLUSAL



DISTAL

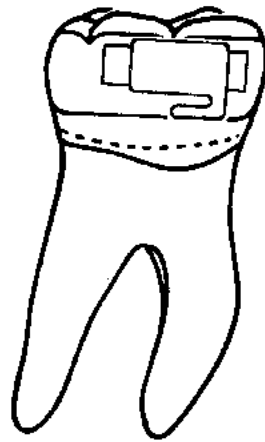
OCCLUSAL OBJECTIVES

1. Slight mesial inclination.
2. From the occlusal aspect, this tooth is not square, but has a diamond shape. This tooth is longer from the mesio-buccal cusp to the disto-lingual cusp.

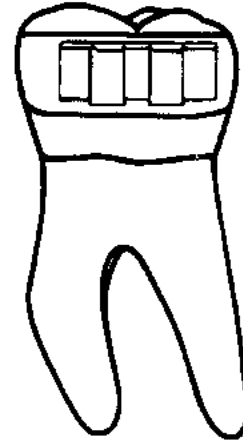
BAND

Average Size: 9.5
Range of Average: 7-10.5

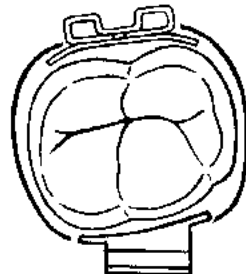
MANDIBULAR 1st MOLAR TOOTH CHARACTERISTICS



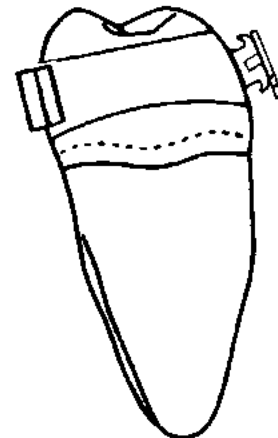
BUCCAL



LINGUAL



OCCUSAL



DISTAL

OCCUSAL OBJECTIVES

1. Has a flat mesial surface, while the distal surface possesses a decided convexity in every direction.
2. Has a greater circumference at the occlusal margin than at the cervical line, which gives a flaring appearance to the crown when viewed buccally.
3. This tooth is rotated distally so that the distal cusp contacts near the center of the lower 2nd molar.
4. From the frontal aspect, the crown is inclined lingually.
5. Laterally, this molar should be straight up or inclined distally thus the angulated buccal tube.

BAND

Average Size: 9.5
Range of Average: 9–11

A REVIEW OF THE PROPER AND EFFICIENT SELECTION OF BANDS

“Selection of bands involves a thought process of association.” That process is being able to visualize in the mind’s eye the size and shape of a tooth in three dimensions and then associate that image with a particular size number.

The usual practice of selection of band sizes is to visually approximate the size of the tooth and the band size it might require. It requires trial for fit in the beginning, but the operator quickly associates the size of the molar tooth within the wide range of RM® Molar Band sizes, and, in a relatively short time, bands selected by this method are quite accurate or within a half size.

Note: Once a band size is chosen for one side of the arch, you will find that, in most cases, the same size band fits the other side of the arch. This, in itself, is a considerable time-saver.

When attempting to select the correct size of a band, there are certain mental steps one must follow to be effective:

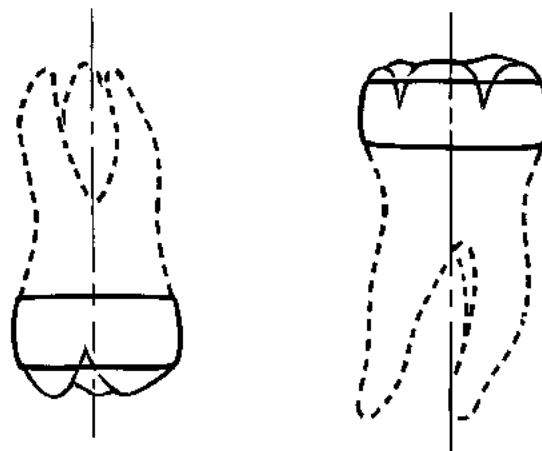
1. First, know (memorize) the average band size for each tooth (that band which fits the average-sized tooth).
2. Be able to determine if the tooth is larger or smaller than average. Develop a visual picture of an average-sized tooth.
3. Then make the mental calculation necessary from the known average band size to an educated guess for this particular tooth. Is it larger or smaller than average? How much? Then, after selection, mentally record what size it finally took.
4. Become able then, by this process, to look at the tooth and automatically know its size — from a previously recorded visual picture with a number.

HINTS IN BAND SELECTION

1. Bands must fit down on the larger middle third labiogingivally of the crown of the tooth.
2. If at all possible, bands should be seated with the ultimate occlusal objectives in mind.
3. Bands must be slightly larger than the “top of the tooth” — learn to judge how much larger in order to fit around the larger middle third.
4. Molars may have large cusps:
Cusp of Caribelli on lingual of upper molars (1st)
Buccal distal cusp on lower 1st molars
5. Restoration in a tooth may alter its size.
6. Set band on tooth and try to picture it fitting snugly around the tooth and not going too far down into the tissue.

FITTING MANDIBULAR BANDS

The band should fit with finger pressure only one-third of the way on the tooth. The band is then fitted on the remaining length of the tooth with instruments. . . but NOT seated to its final position in the initial fit. The initial fit should place the gingival margin of the band a half-millimeter from the final seating so that, at final seating and cementation, there will be some unstretched band circumference for good mechanical retention. Molar separation is a necessary step for good control of band fit. Pre-welded bands with 3D® Lingual Tubes and buccal tubes of your choice are selected.

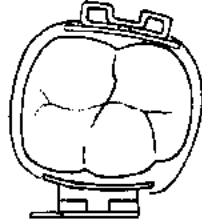


RM® Mandibular Molar Bands are designed to fit the buccal protuberance with complete coverage and provide ample area to position and weld a buccal tube. The lingual of the band has less height than the buccal, but is sufficient to accommodate lingual tubes, buttons and hooks. The mesial and distal of both Maxillary and Mandibular Molar Bands are festooned in the shape of the gingival tissue for minimal impingement.

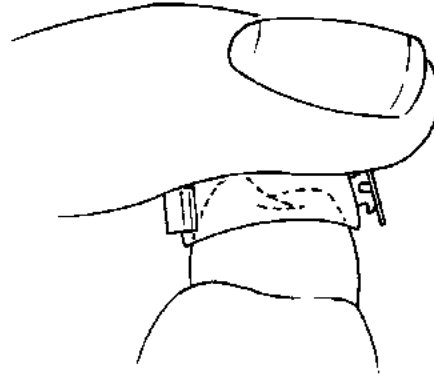
The Mandibular Molar Band is placed on the tooth with the lingual notch matching the tooth notch and finger-pressed to about one-third of the height of the tooth (Fig. B & C). An i-64 Band Adapter (or i-6 Band Setter) is employed to press the lingual down first and then rock the buccal over the buccal of the tooth (Fig. D). Next, the i-67 Band Director is used to press the buccal of the band down out of contact with the buccal cusps of the upper molar. If the buccal shape of the tooth will not accommodate the band form at the gingival, the band is removed with an i-347 Band Removing Plier (Fig. F) and contoured with an i-114 or i-139 plier to produce a slight contour at the gingival that will latch under the bell of the buccal protuberance (Fig. G). If desired, the gingival edge can be feather-edged with a diamond wheel (Fig. H).

INITIAL RM® BAND FITTING

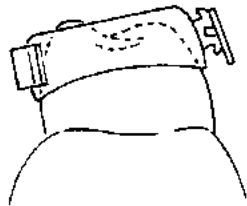
After molar separation, bands with prewelded 3D® Lingual Tubes and prewelded buccal tubes with hooks are selected for the initial fitting below.



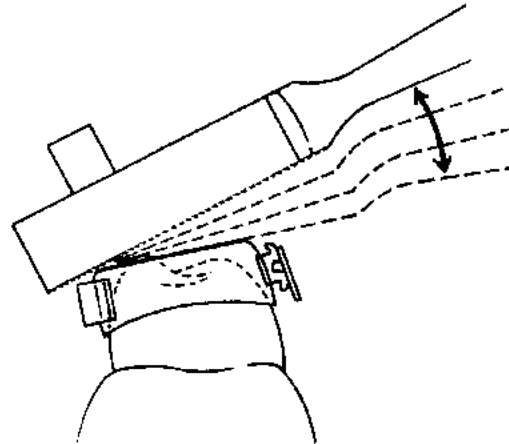
A. Lingual band notch is oriented to the lingual groove of the tooth.



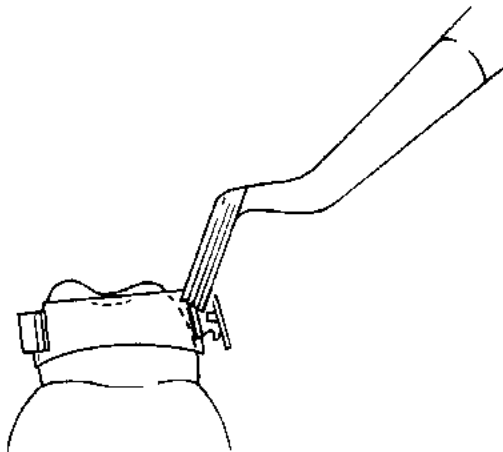
B. Band is placed on the tooth and finger-pressed down.



C. Band will usually go 1/3 of the way down.

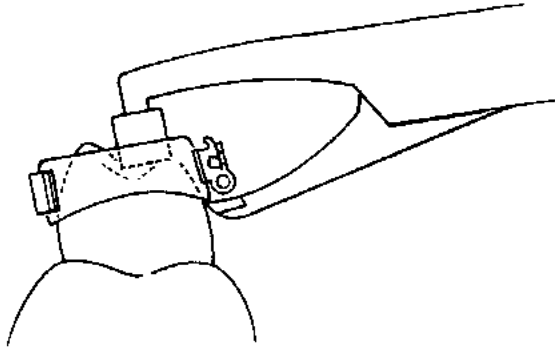


D. Band is rocked lingual to buccal with an RMO i-64 Band Adapter.

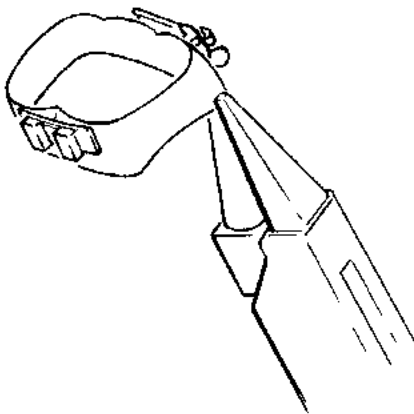


E. The RMO i-67 Band Director is used to press the buccal down out of contact with buccal cusps of the upper molar.

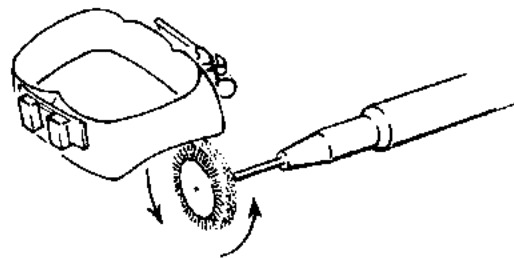
BAND REMOVAL AND SPECIAL ADJUSTMENTS



F. Remove the band with the RMO i-347 Band Remover.



G. Rim in the edges with the RMO i-139 or i-114 plier.

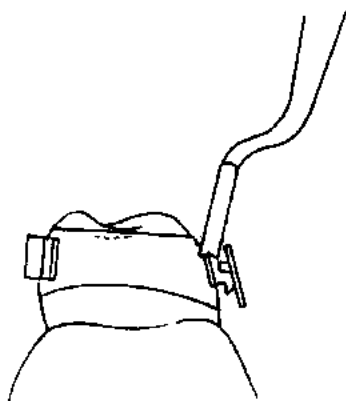


H. Feather-edge lightly with a diamond wheel if necessary.

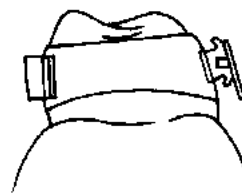
Actually, 90% of RM® Preformed Molar Bands can be fitted without contouring. The adjustments are mentioned to indicate what can be done for certain cases and should be done only after initial fitting. Important: Do not contour lingual of lower band. Also, keep in mind that the contoured RM® Bands are designed to minimize final adjustment. If you plier an RM® Band excessively, you will destroy its fitting qualities.

FINAL FITTING AND SEATING

RM® Molar Bands are designed to fit in a certain position on the tooth. Therefore, proper seating and placement are absolutely necessary. Final seating is accomplished with an i-580 Band Seater (offset tips). Rest the tip of the seater on the welding flange of the attachment and apply a series of taps to seat the band firmly into the correct position on the tooth (Fig. I & J). The operator should be certain that the band seater is engaged on the flanges of the attachment so as not to distort its shape.



I. Final seating is done with the RMO i-580.



J. Band in final position.

Lower band: The i-580 Band Seater is used on the buccal of the lower only. This drives the buccal out of occlusion and pulls the lingual groove of the band into the lingual groove of the tooth, thus indicating that the band is in the correct position.

Upper band: The band seater is applied to the lingual of the upper band only. This pushes the lingual well out of occlusion and pulls the occlusal and gingival portions tightly against the tooth.

FITTING MAXILLARY BANDS

The maxillary band is placed on the tooth, aligning the buccal groove with the groove of the tooth, and is finger-seated as far as it will go (about 1/3). The band has to be tight enough to require rocking. If it fits over the tooth with finger pressure, it is too large. An i-64 RMO Band Adapter or i-6 Band Setter is applied over the occlusal of the band; it should be rocked as it is pressed over the tooth from the buccal over the lingual. Next press the band into position with an RMO i-67 Band Director. Remove and make adjustments if necessary. Replace by following the same steps as illustrated for the mandibular. Exception: lingual of the upper band should be positioned on the lingual so that the lingual of the upper band is out of contact with the cusps of the lower.

CEMENTATION (Bands are not cemented until after working models are made and arches are fabricated. See Part 2, Section 6.)

The cement of your choice is applied. Special care should be taken to prevent cement from going under the bracket wings or in the tubes. Replace the band on the tooth, following B through E instructions. Tap seating on the lingual of the upper bands and buccal of the lower bands, in final seating, will stretch the band around the contours of the tooth, providing a glove-like fit. The properly fitted RM® Band utilizes only a thin seal of cement between the band and the tooth to reinforce the glove-like mechanical fit of the band. With RM® Bands minimal cement is necessary. Consequently there is minimal space between teeth.

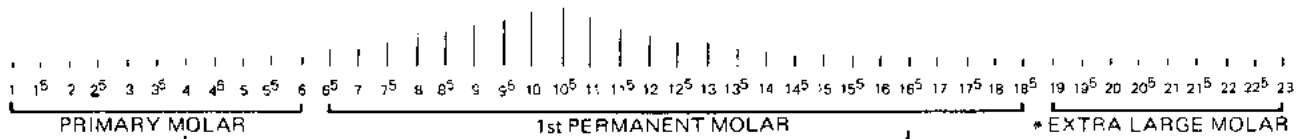
A SUMMARY REFERENCE OF RM® MOLAR BAND FITTING

1. Select Size

Note average band size for 1st molar. Determine if the tooth to be banded is smaller or larger. Guess probable size smaller or larger than average and try. Repeat procedure as necessary. In a short time you will develop an instinct for coming within one or two sizes on the first trial.

Relative Use Factor by Size

Mandibular 1st and 2nd Molar — Maxillary 1st Molar



Fitting Procedures

Mandibular and maxillary band fitting procedures are the same.

2. Orienting Band to Tooth

Mandibular

Lingual notch of the band is oriented to the lingual groove of the tooth.

Maxillary

Buccal notch of the band is oriented to the buccal groove of the tooth.

3. Placing Band on Tooth

Mandibular

Band is placed on the tooth and finger-pressed down. Band will usually go 1/3 of the way down.

Maxillary

Band is placed on the tooth and finger-pressed up. Band will usually go 1/3 of the way up.

4. Rock Band Over Contours

Mandibular

Band is rocked lingual to buccal with an RMO i-64 Band Adapter.

Maxillary

Band is rocked buccal to lingual with an RMO i-64 Band Adapter.

5. Positioning and Seating

The RMO i-67 Band Director

Mandibular

The RMO i-67 Band Director is used to press the buccal down out of contact with buccal cusps of the upper molar.

Maxillary

The RMO i-67 Band Director is used to press the lingual out of contact with the lingual cusps of the lower molar.

6. Final Seating

Mandibular

Final seating is done by tapping the RMO i-580 over the buccal.

Maxillary

Final seating is done by tapping the RMO i-580 over the lingual.

IMPRESSION TAKING AND MAKING WORKING MODELS FOR 3D® APPLIANCES

IMPRESSION TAKING AND MAKING WORKING MODELS FOR 3D® APPLIANCES

MAKING THE IMPRESSION

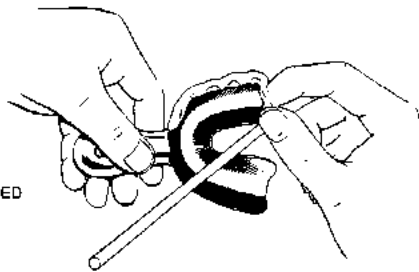


SELECT PROPER SIZE TRAYS, MAXILLARY OR MANDIBULAR

Tray Preparation

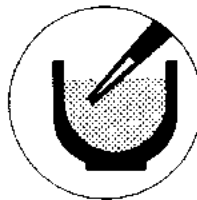
1. From your impression tray inventory, select the appropriate size to correspond with your patient's oral cavity and dentition. Some trays require a spray-release agent to release the alginate impression from the tray. If yours does, then spray the inside of the tray with a light, even coat.

MINERS WAX IS ADDED



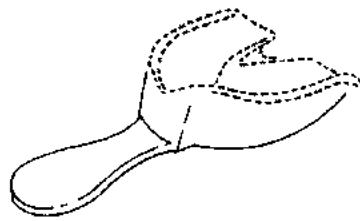
2. To obtain full alveolar height, miner's rim wax is used, or the tray may be modified for individual patient requirements by bending an outward flaring of the edges with pliers or fingers; for greater depth and best impression details, line tray peripherally with miner's wax to increase tray height another 5.0 mm. Postdam tray to minimize escape of alginate materials, and to help prevent patient from gagging. Wax adapts easily and adheres to tray without preheating. The tray is now ready for the impression material.

TAKING THE IMPRESSION



MIX ALGINATE MATERIAL

3. Using the impression material of your choice, follow the recommended instruction for mixing powder and water. Usually 70° temperature is average. Colder water may retard setting. Warmer water may accelerate setting time.
4. Have the patient rinse his/her mouth with warm water.

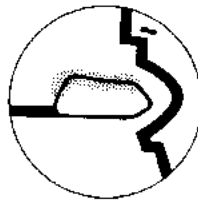


LOAD IMPRESSION TRAY



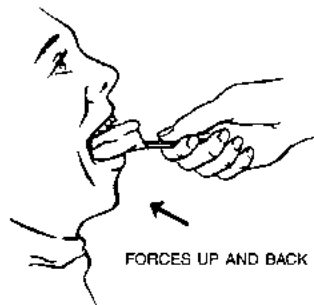
ALGINATE "ROLLS" OVER WAX BEADING
FOR BETTER RETENTION AND LOCKING

5. After the alginate is mixed to a smooth mix, load the impression tray. The alginate is loaded in the usual manner. You may need more alginate in the posterior segment and less in the anterior area. There is enough alginate when the alginate has a good roll on all edges and does not require packing extra material in the palate or under the lip.

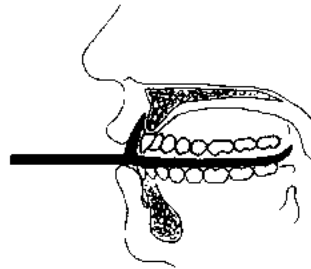


INSERT TRAY INTO PATIENT'S MOUTH

6. Place the impression tray in the patient's mouth, and hold firmly in place until the alginate has set up firmly.



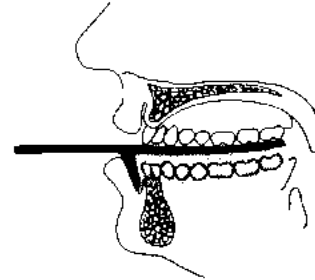
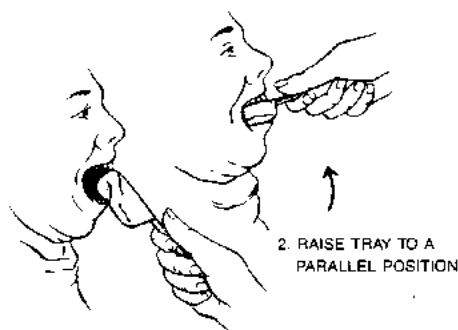
FORCES UP AND BACK



PROPER SIZE RELATIONSHIP

Maxillary Placement

The upper tray is placed in the mouth as usual, and then positioned by driving it up and back without holding the upper lip out. Use care to expel trapped air from under the lip. Experience will be helpful to develop your technique. The soft palate area of the impression should now be functional and should exhibit an area of seal on the impression where the tongue meets the soft palate. This sharp, clear area will be a good indication of a properly loaded tray and a true functional impression of the soft palate. Thus, the tray itself does not cause gagging. The patient should be able to tolerate the alginate as he would a mouthful of soft food.

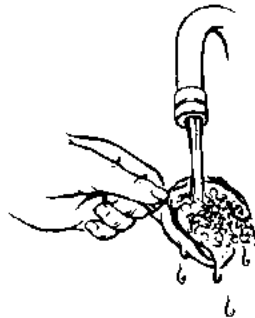


PROPER SIZE RELATIONSHIP

1. START AT 45° ANGLE, HEAD LOWERED

Mandibular Placement

The lower tray is more difficult to get in the mouth, but with a little different path of insertion, it should be "old hat" after a few impressions. The lingual flanges must clear the lower anterior teeth. The tray is held with the handle down at a 45° angle and inserted. The tray is then raised to the usual parallel position after the lingual flanges have cleared the lower anterior teeth. You will get a true, supported impression of the mylohyoid area without impinging upon the genioglossus area.



CLEAN SALIVA FROM THE TRAY

7. Remove the impression tray from the mouth and rinse the impression in cool tap water to remove the saliva.



NOW IS THE TIME TO POUR MODELS

8. After the impression is taken is the best time to pour the mold to avoid alginate shrinkage in drying. For best results, pour model within 3 to 4 hours. If you cannot pour the model at this time, keep the impressions moist until you are able to do so.

MAKING THE STONE MODEL



MOLAR BANDS WITH PREWELDED TUBES ARE POSITIONED IN THE IMPRESSION

After the impression is taken, the prewelded molar bands are removed from the patient's teeth and placed in position in the alginate impression. The alginate around the molar bands is dried with air and further dried quickly with a Bunsen Burner, to permit the use of sticky wax to hold the bands in place. Place wax in each of the tubes to prevent stone from entering the aperture. (Optional: The interior of the band is lubricated with wax or Vaseline for later easy removal.) You are now ready to pour the stone into the impression.



DO NOT BURY TRAY IN PLASTER

Model Pour-Up

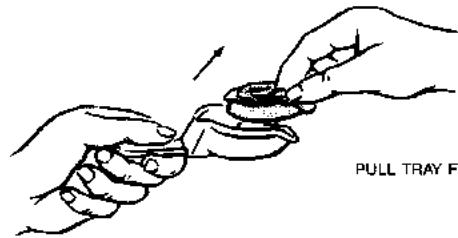
When the impression is ready for pouring, take the impression and lay it on a vibrator in order to eliminate all air bubbles. Then pour the plaster or stone into the impression.

LOWER TRAY

The lower tray must not be buried in the plaster or stone when pouring. You may find the following hints helpful:

1. Use additional alginate in the posterior area, thus giving more of a roll of alginate in the lingual flange area.
2. Add an "alginate tongue" to the impression, after it is removed, with a different color alginate to show any excess. This tongue can be added by holding the impression by hand or placing it on a flat surface. If added by holding, the impression is held face up with one hand. The mixed alginate is then placed into the tongue area, then smoothed and shaped with a wet finger. It should be held until alginate sets. If a flat tongue is desired, the tray is placed face down on a flat surface and soft alginate is pressed from the back and top down into the tongue area. To retain the alginate with the tray, slide the tray from the flat surface, instead of pulling it off. Some operators suggest taking the lower impression first, and using the excess material from the upper impression to make the tongue. This eliminates the use of additional alginate and saves time.

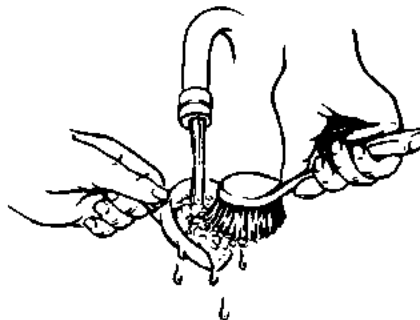
3. You may wish to add an upper zone of wax to the tray before loading, which will aid in "digging out" the impression tray if it is inadvertently buried in the plaster during pour-up.



PULL TRAY FROM ALGINATE UPWARD AND ANTERIORLY

UPPER TRAY

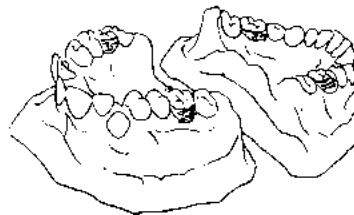
Remove the upper tray from the alginate by removing in an upward/anterior direction because of the parallel long axis design of the upper tray, leaving the alginate impression on the partially set plaster or stone. If duplicate model is to be made, the tray with the alginate intact may be removed from the set plaster in the usual manner.



CLEAN AND STERILIZE TRAYS

CLEANING TRAYS

Some trays are disposable and some are not. It is important to keep the trays clean and sanitary. Usually, they can be cleaned with a soft brush and soap and water. Use a cold sterilization solution afterward.

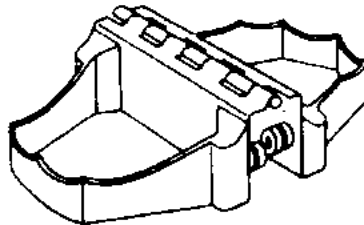


MODELS READY FOR FINISHING

Both rough based models have molar bands and tubes in place for construction of your lingual appliances. Rough bases are now ready to be cut as required for practical laboratory working models. Some offices like to use the Broussard Model Forming System to make more attractive matching upper and lower working models.

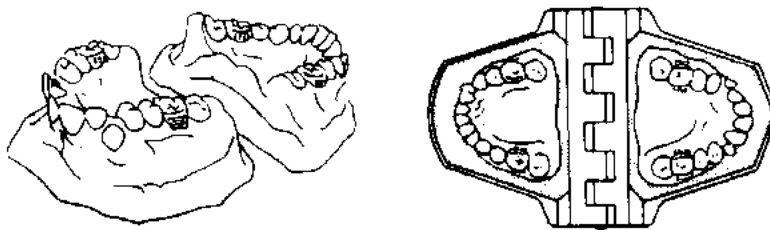
COMPLETING THE FINAL MODEL

The RMO Broussard Model Former can make attractive, consistently uniform study models, quickly and efficiently. Many of the undesirable elements of previous methods have been eliminated. When processing models in quantity, use three or more model formers.



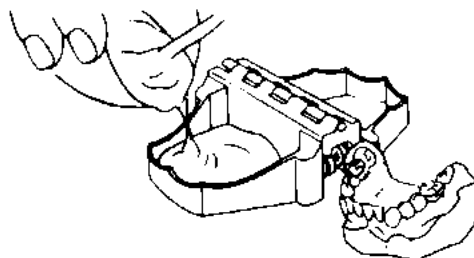
LAY MODEL FORMER FLAT

1. Lay the Broussard Model Former opened on a flat smooth surface. (Glass, porcelain or stainless steel surface.)



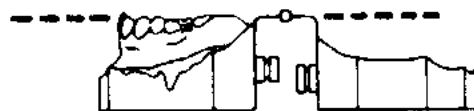
FITTING IMPRESSION MODELS INTO FORMS

2. Take the two poured models with the rough bases upper and lower. Cut and bevel so they fit in the appropriate places in the model former.



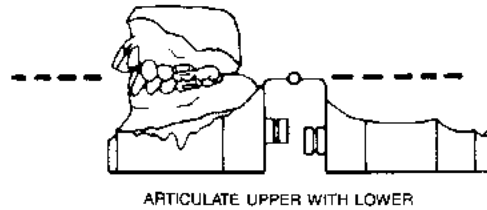
POURING PLASTER INTO THE LOWER FORM

3. Mix your stone plaster according to instructions on the plaster package. Pour the syrupy plaster or stone in the forming unit to be used for the lower.

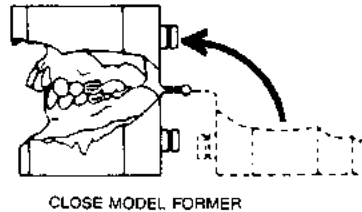


OCCUSAL PLANE ORIENTATION

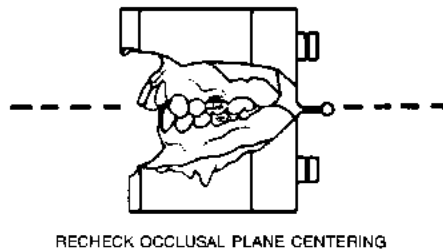
4. Set the lower impression rough, wet model in the plaster, orienting it so the occlusal plane is level with the hinge.



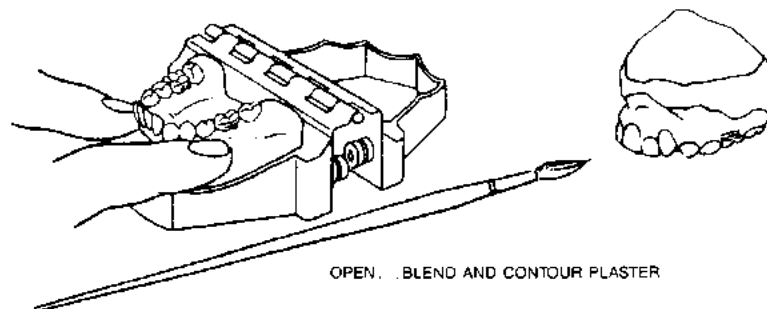
5. Articulate the upper model with the lower model.



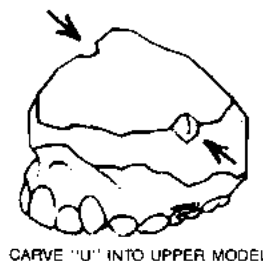
6. Bring the model former upper frame to a closed position, being careful not to disturb the lower model.



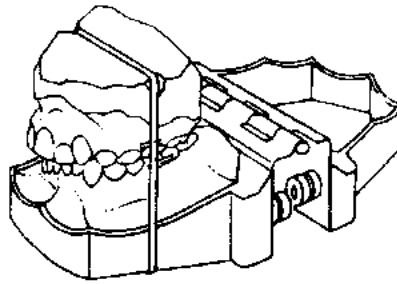
7. While plaster is semi-workable, recheck the centering of the occlusal plane, being certain it is midway between the upper and lower frame.



8. **IMPORTANT:** Open upper frame, remove upper model carefully. . . remove excess plaster. Blend and contour plaster with wet brush or fingers to allow plaster to dry.

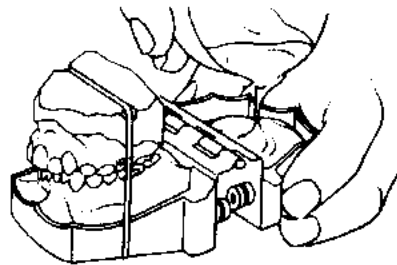


9. Take the upper impression model and carve "U" notches in the base of both sides to accept rubber bands.



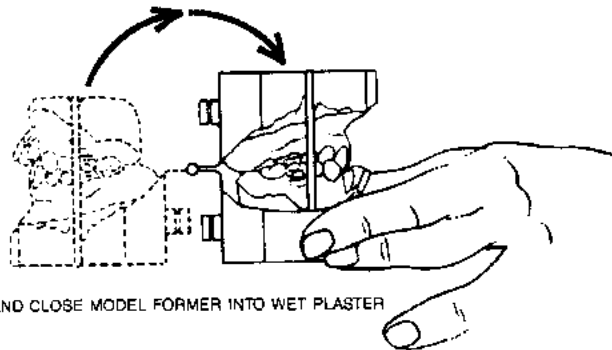
ARTICULATE AND SECURE WITH RUBBER BAND

10. Articulate the upper impression model to the lower model. Secure with a rubber band going through the notches on the upper model and bring around the base of the lower frame of the model former. Place the model former on smooth surface in an open position.



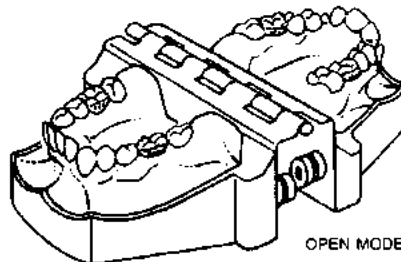
POUR PLASTER IN UPPER UNIT

11. Pour plaster in the empty upper unit of the model former while holding the model former firmly in position with your fingers.



RAISE AND CLOSE MODEL FORMER INTO WET PLASTER

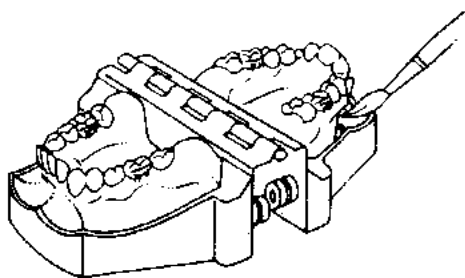
12. Holding the upper frame of the model former in place, and with the upper and lower models still articulated, raise and fully close the model former into the wet plaster of the lower frame. (Close gently - DO NOT PRESS.)



CUT RUBBER BANDS

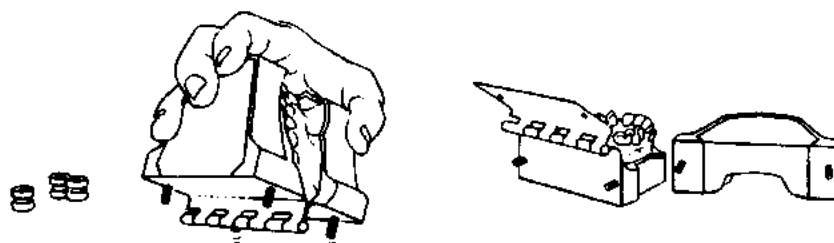
OPEN MODEL FORMER

13. A. Allow the plaster to set semi-firm, but NOT HARD.
B. Cut the rubber band and remove. Re-smooth plaster.
Hold the upper unit down securely and open the model former so both units are flat.



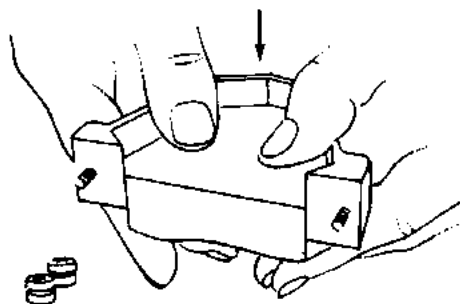
SMOOTH PLASTER

14. Festoon excess plaster with wet brush or fingers. Smooth peripheral areas to desired contour. Allow plaster to set and harden.



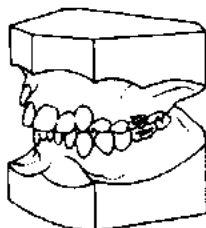
REMOVE HINGES

15. Remove the nuts from the hinges. . . pick up model former with models and tap gently on the table in the area of the screws to break the seal of the plaster from the frame. This will break any vacuum caused by moisture from the mold.



SLIDE MODELS OUT

16. Slide the models down from the frame. Do not "spring-open" frames. (This is most important because forcing the plaster models from the open end of the frames could break the Bakelite.)



FINISH MODELS

17. After removing both models from the frame, finish smoothing and contouring models. (Be sure to allow models to dry thoroughly before numbering or soaping.) Clean the model former in cold water to remove dried plaster. Do not use sharp instruments to clean parts.

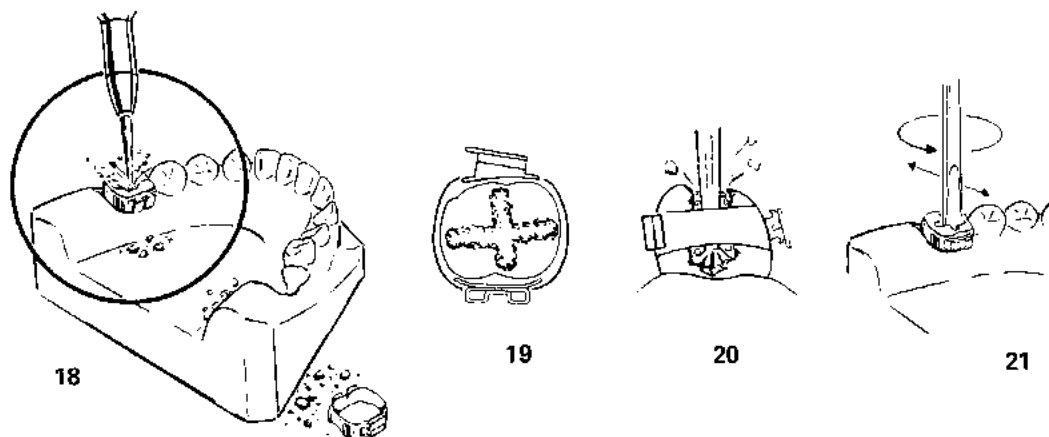
You will now have a functional working model, ready for the fabrication of the 3D® Lingual Arch or 3D® Lingual Sectional. Patient-identify the model by writing the name of the patient on the bottom of the model with a pencil. As a rule, these are working models and they will be discarded after fabrication of the 3D® Lingual Arch.

FABRICATION OF 3D® LINGUAL ARCH

Full description is provided in Part 2, Section 2 on the prefabrication of the 3D® Lingual Arch. This same description is also applicable to the 3D® Lingual Sectional.

TAKING BANDS OFF THE PLASTER MODELS

Since the bands were lubricated with Vaseline or some sort of lubricant before the plaster model was poured, it is now a simple matter of warming the bands with minimum heat from a Bunsen Burner or a flame, making sure not to over-heat or anneal the metal. This "warm heat" will melt the lubricant, and the metal will expand slightly to allow the bands to come off readily. Another approach for removing bands is to cut cross-grooves into the plaster of the occlusal of the tooth with a long burr (Figs. 18 & 19). The grooves in the plaster occlusal of the tooth should be cut a little deeper than the occlusal gingival depth of the band (Fig. 20). Using a chisel-shaped instrument within the grooves, pry and "pop" the band from the model (Fig. 21). Then separate and clean the small plaster pieces from the inside of the band.



PATIENT READY

You are now ready for the patient's next appointment. The bands are off the model and your 3D® Lingual Arch is ready for insertion. Separating materials are removed and the bands are cemented and placed on the teeth. Band adaptation has been reviewed in Part 2, Section 5. Your prefabricated 3D® Lingual Arch should, as a rule, fit the patient's arch. If not, only a slight chairside adjustment will be needed.

TIME-SAVER

Prefitting bands and prefabricating the 3D® Lingual Arch on a model is a time-saver for the doctor and cuts his chairtime to a minimum.

PART 3

LABORATORY ASSISTANCE

IN FABRICATING 3D[®] APPLIANCES

- RM[®] Certified 3D[®] Laboratories135
- Commonly Used 3D[®] Appliances by Practice Type ...136
- 3D[®] Transfer Systems137
- 3D[®] D.Y.S. Module143

RM® CERTIFIED 3D® LABORATORIES

In some practices, it is not cost-effective to inventory all 3D® Modules. Hence, RMO has formed a network of RM® Certified 3D® Laboratories in the U.S.A. These laboratories have invested in courses, workshops, and inventories. They can provide all types of 3D® 1st Phase Fixed/Removable™ Appliance services, and they can help you with information. Contact your RMO representative or call RMO in Denver for information about the RM® Certified 3D® Laboratory near you.

It is suggested that you refer to 3D® Transfer Systems, page 137 to maximize your laboratory benefits.

COMMONLY USED 3D® APPLIANCES BY PRACTICE TYPE

ORTHODONTIC SPECIALIST PRACTICE	NON-ORTHODONTIC SPECIALIST PRACTICE	PRACTICE USING MINOR TOOTH MOVEMENT FOR PERIO/RECONSTRUCTION/ PROSTHETICS
<ul style="list-style-type: none"> • 3D® Maxillary Bimetric Distalizing Arch • 3D® Lingual Arch • 3D® Lingual Sectional • 3D® Quad Helix Appliance • 3D® Palatal Appliance • 3D® Nance Holding Arch • 3D® Lower Holding Appliance • 3D® Anti-tipback Appliance - Upper • 3D® Anti-tipback Appliance - Lower • 3D® Multi-Action Palatal Appliance • 3D® Quad-Action Mandibular Appliance • 3D® Multi-Purpose Adapter • 3D® Space Maintainer 	<ul style="list-style-type: none"> • 3D® Quad-Action Mandibular Appliance • 3D® Multi-Action Palatal Appliance • 3D® Quad Helix Appliance • 3D® Nance Holding Arch • 3D® Holding Arch • 3D® Space Maintainer • 3D® Maxillary Bimetric Distalizing Arch • 3D® Lingual Arch • 3D® Lingual Sectional 	<ul style="list-style-type: none"> • 3D® Lingual Sectional • 3D® Multi-Purpose Adapters • 3D® Lingual Arch • 3D® Space Maintainer

THE FOLLOWING APPLIANCES ALL PLUG INTO 3D® LINGUAL TUBES ON MOLAR BANDS

- | | |
|--|---|
| <ul style="list-style-type: none"> • 3D® Quad Helix Appliance • 3D® Palatal Appliance • 3D® Lingual Arch for mandibular anchorage (to avoid headgear use in distalizing molars) • 3D® Nance Holding Arch | <ul style="list-style-type: none"> • 3D® Lower Holding Arch, extraction and non-extraction • 3D® Anti-tipback Appliance - Upper • 3D® Anti-tipback Appliance - Lower • 3D® Multi-Action Palatal Appliance • 3D® Quad-Action Mandibular Appliance |
|--|---|

Note: The 3D® Quad Helix Appliance, the 3D® Multi-Action Palatal Appliance and the 3D® Quad-Action Mandibular Appliance are used as superior alternatives to sagittal and transverse removables.

FOR DENTISTS AND PEDODONTISTS:

- Habit Breakers (variable)
- Space Maintainers, Space Regainers and 2nd bicuspid bridges

FOR DENTISTS, PERIODONTISTS, PROSTHODONTISTS:

- Multiple minor tooth movements — 3D® Lingual Sectionals, 3D® Multi-Purpose Adapters
- Using the 3D® Maxillary Bimetric Distalizing Arch is the most efficient manner of distalizing molars and buccal segments WITHOUT HEADGEAR. It also produces dramatic inter-bicuspid width increase, much the same as the removable Functionals; the advantage being that this is purely a by-product of the distalizing process and secondly, the appliance being worn 24 hours a day produces much more efficient action. It is also extremely effective in Class II treatment both in distalizing molars and in Class II mandibular change unlike any single appliance. Because of the dramatic headgear reduction, this is the greatest practice-builder in Orthodontics today. The properly constructed 3D® Lingual Arch used for anchorage makes this possible.

Many orthodontists will adapt the 3D® Maxillary Bimetric Distalizing Arch directly in the mouth. GPs and Pedodontists, however, will want to adapt it on models.

3D® TRANSFER SYSTEM

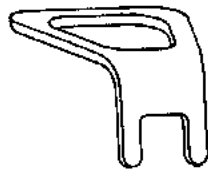
From patient . . . to Laboratory . . . to finished 3D® Appliance

The Fixed/Removable™ System permits an interchangeable plug-in of various 3D® Appliances into a common 3D® Lingual Tube for more than 100 tooth movements.

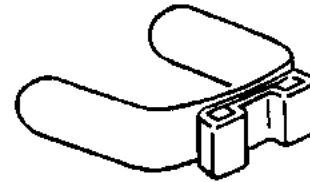
Earlier systems required removal of bands, unsoldering, re-soldering and re-cementing of bands when a new or different appliance was needed. This time-consuming, expensive procedure is now obsolete.

The 3D® Transfer System is designed to facilitate insertion of any other 3D® Appliance without removing molar bands. This system is unique in orthodontics.

3D® TRANSFER SYSTEM



3D® TRANSFER INSERT



3D® TRANSFER LINGUAL TUBE

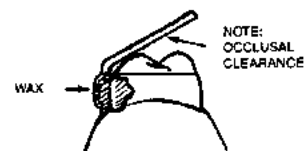
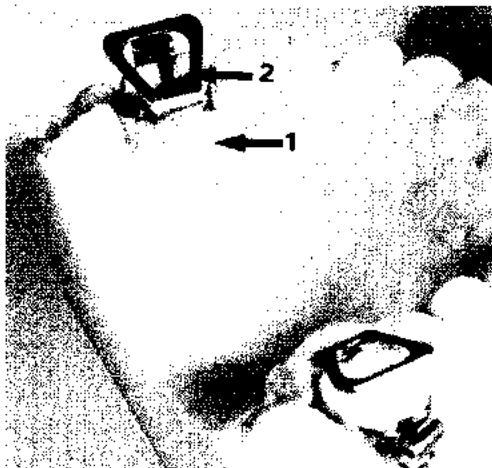
OFFICE PROCEDURES

DOCTOR SENDS IN AN IMPRESSION WITH 3D® TRANSFER INSERTS ALREADY IN POSITION

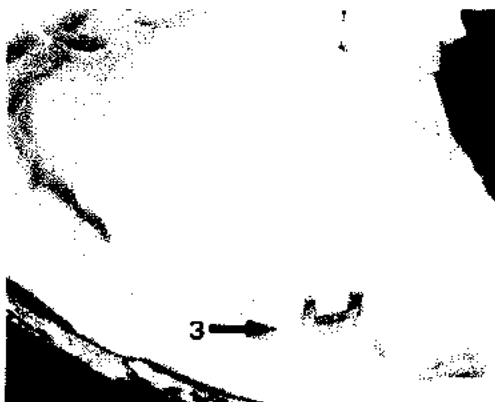
RM® Molar Bands, prewelded with buccal tubes and 3D® Lingual Tubes have been cemented in place on the patient.

1. The 3D® Lingual Tubes are covered with wax.
2. Insert the 3D® Transfer Inserts into the 3D® Lingual Tubes.

The posts are designed as loose-positioning posts for the 3D® Transfer System, and not as the friction-fit posts in the 3D® appliances.



3D® TRANSFER INSERT IS SEATED CONTACTING THE LINGUAL CUSPS



3. Take soft colloid impression and remove after setting. Note how the Insert posts are protruding through the impression.

4. The impression is now sent to the laboratory for 3D® appliance fabrication.

LABORATORY PROCEDURES

Doctor sends in an impression with 3D®
Transfer Inserts already in position as in #3.



5. With scalpel, remove 3 mm of colloid, lingual to
the posts, for seating clearance.

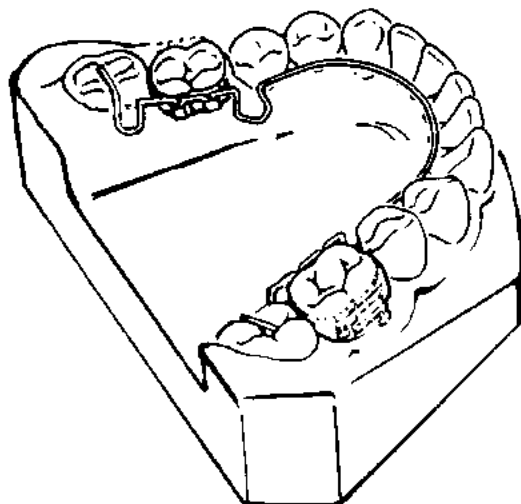




6. Seat the 3D® Transfer Lingual Tubes on the protruding posts. If necessary, contour the retaining tabs of the 3D® Transfer Tube to insure retention in the stone model.

7. Add sticky wax over the 3D® Transfer Lingual Tubes and fill the space between the tubes and colloid.

8. Pour with stone and separate. The 3D® Transfer Lingual Tubes will be accurately positioned and securely attached to the stone model.



9. Proceed to fabricate the 3D® appliance on the stone model.

10. With knife, remove the 3D® Transfer Inserts from the colloid. Also, remove the 3D® Transfer Lingual Tubes from the stone model for future reuse or retain in stone model for future 3D® modular components.

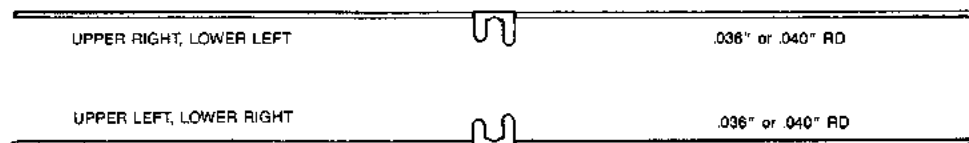
11. For commercial laboratories, send the finished 3D® appliance to the doctor on the stone model for reference. If the doctor does not wish to retain the model, remove the 3D® Transfer Lingual Tube for future reuse.

3D® D.Y.S. MODULE

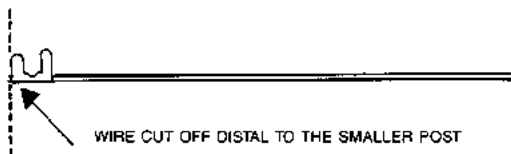
The 3D® D.Y.S. Module is designed as a multi-option unit for orthodontic laboratory construction of variable 3D® Fixed/Removable™ Appliances.

WORKSHOP GUIDE

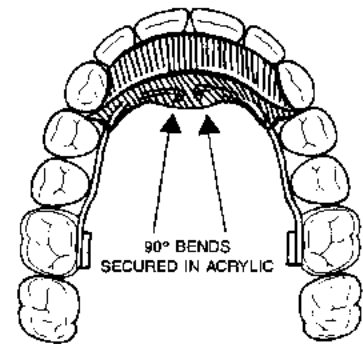
FOR WORKSHOP AND OFFICE REFERENCE

3D® D.Y.S. MODULE (Do-it-Your-Self)**3D® D.Y.S. MODULE**

A Do-it-Your-Self 3D® Lingual Module that allows custom fabrication of special Fixed/Removable™ Appliances.

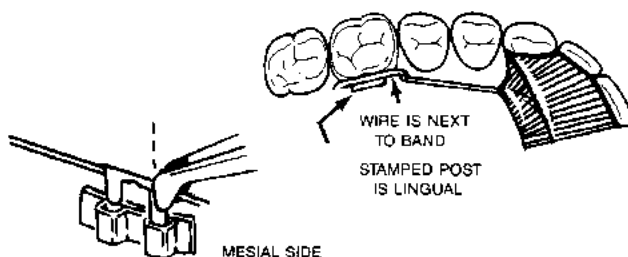


The 3D® D.Y.S. Module is designed as a multi-option unit for laboratory or in-office construction of variable 3D® Fixed/Removable™ accessory appliances. It is available in rights and lefts, consisting of a section of .036" or .040" Tru-Chrome® stainless steel wire with a centrally positioned laser-welded precision solid 3D® post. It can be used as a bilateral section or a unilateral section by cutting the wire distal to the smaller post. The posts plug into the conventional 3D® Lingual Tube with precision and security to become an extension of the 3D® Fixed/Removable™ system with all of the advantages of 24-hour action. The 3D® D.Y.S. Module is inserted and removed in the same manner as the 3D® Quad Helix and other 3D® precision solid post appliances. Proper insertion requires the solid posts to be on the lingual side of the wire.



Variable new appliances may be fabricated with unilateral sections by inserting and adapting to a model, cutting at the midline and making 90° bends at the ends. These bends are secured in an acrylic addition to unify the two sections into one strong and secure appliance.

An acrylic portion should be designed with a minimum of tissue bearing. Appliance support is, primarily, in the 3D® D.Y.S. Module molar insertion and, anteriorly, in the tooth bearing acrylic, except in the case of the Nance Button, which will, on occasion, cause mucosal irritation. Previously, the whole banded appliance would be removed and then re-cemented at a later date (a time-consuming, expensive procedure). Now the 3D® D.Y.S. Module is simply removed and plugged-in a few days later, involving only a few minutes of chairtime.

PROPER POST PLACEMENT

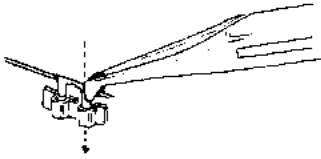
INSERT THE LONGER POST INTO THE MESIAL TUBE

Design of other tooth-supported appliances should keep mucosal acrylic contact to a minimum.

SEATING THE 3D® D.Y.S. MODULE

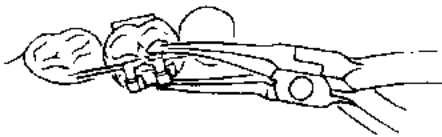
Proper seating of the 3D® posts is necessary to insure that they retain their feature of being both fixed and removable. The ideal fit is one that is snug, so that the posts remain in the 3D® Lingual Tube, yet removable, so they can be adjusted or interchanged with another 3D® component.

A. The How Plier is used to carry the module to the arch.



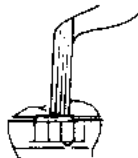
3D® posts should always be aligned with the twin tubes during insertion and seating. The longer post is always placed first in the twin tubes and is always mesial on the tooth.

B. The module is seated further with a How Plier.



NOTE: Place one tip of a How Plier under the mesial tube and one tip over the module at the mesial post. Squeeze the tips until the module is seated half-way. Remove module. Reinsert module and repeat squeezing to full seating. This conditions tube for future easy insertions.

C. Final seating with an i-67 Band Director.



REMOVING THE 3D® D.Y.S. MODULE



A. A Scaler is inserted between posts with tip of Scaler resting on edge of band.

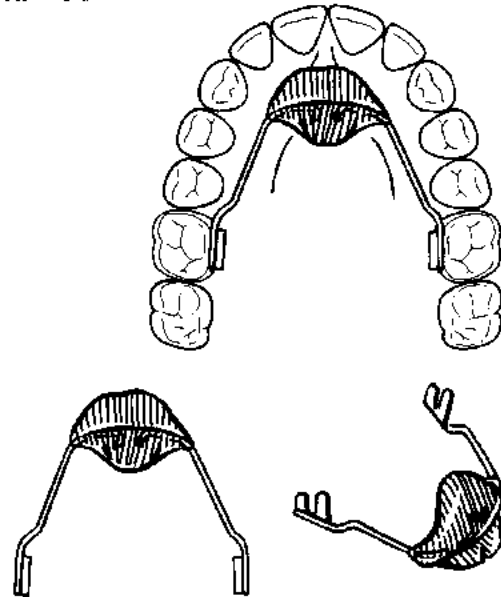


B. Quick occlusal rotation of scaler lifts posts out of tube.

FIXED/REMOVABLE™ APPLIANCES MADE FROM THE 3D® D.Y.S. MODULE

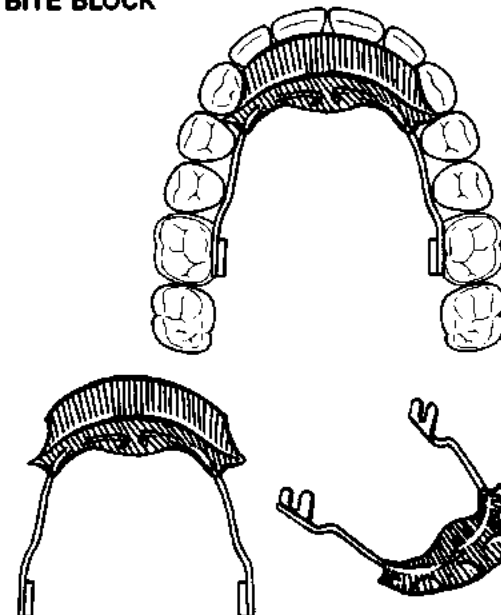
The following are a few examples of various appliances which can be made from the 3D® D.Y.S. Module. In addition to the following, a 3D® Crozat can be constructed.

3D® NANCE BUTTON

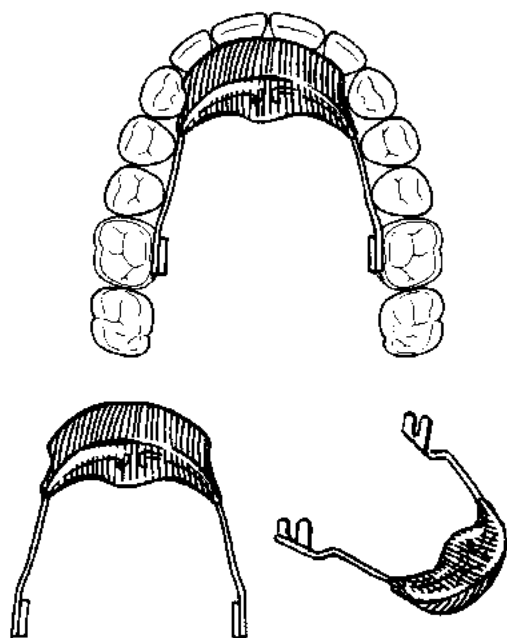


The 3D® Nance Button is used (1) to maintain molar position during the mixed dentition and (2) to prevent mesial molar drag during incisor lingual root torque.

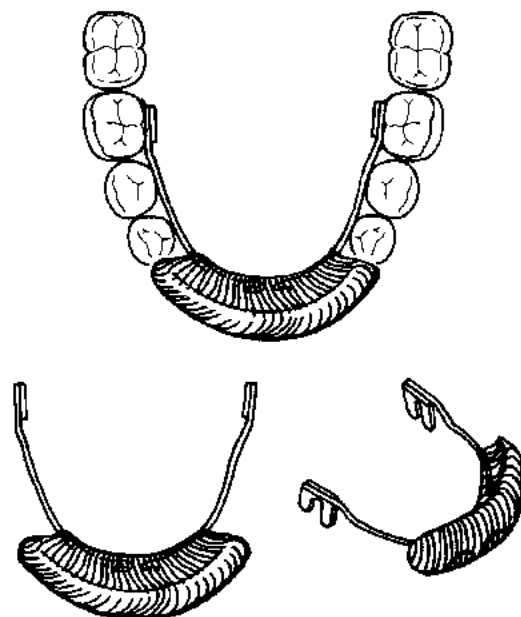
3D® BITE BLOCK



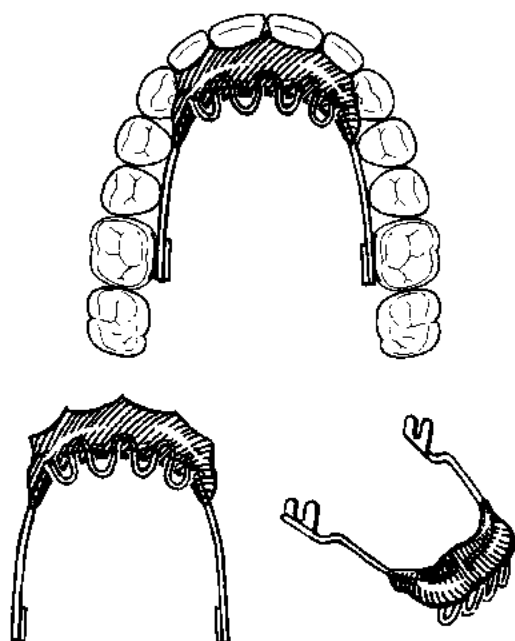
The 3D® Bite Block is used for functional lower incisor intrusion or for a temporary bite opening during posterior cross-bite correction.

3D® FUNCTIONAL INCLINE PLANE

The 3D® Functional Incline Plane is used to reduce any closed-bite resistance to potential mandibular growth.

3D® REVERSE BITE PLANE

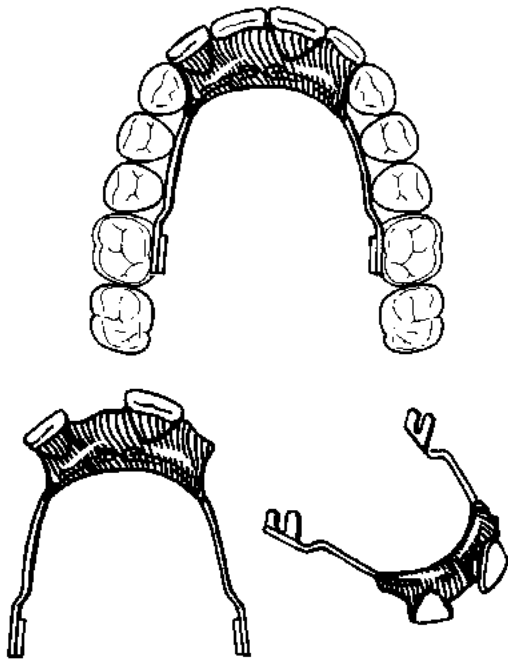
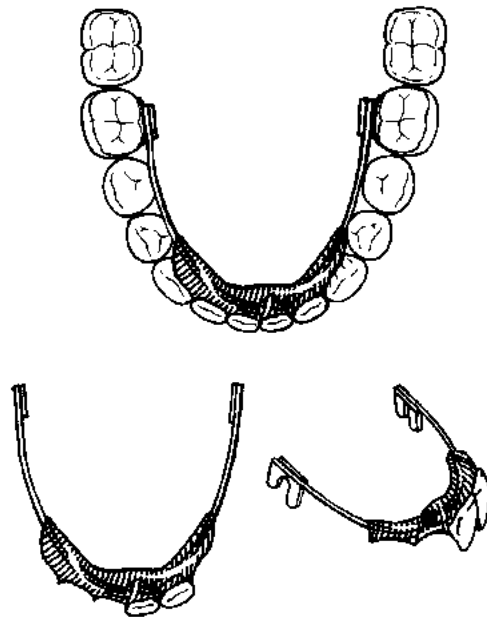
The 3D® Reverse Bite Plane is used in pseudo Class III, cases. The functional acrylic plane over the lower incisors assists in guiding the upper incisors labially.

3D® OLIVER GUIDE PLANE

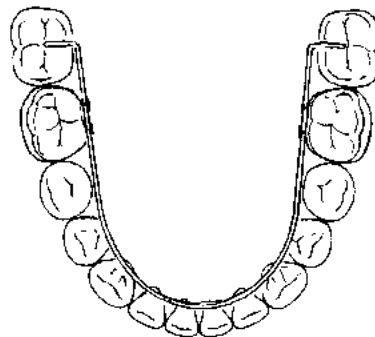
The 3D® Oliver Guide Plane is a functional assist to any potential for mandibular growth.

3D® LATERAL TONGUE THRUST INHIBITOR

The 3D® Lateral Tongue Thrust Inhibitor is made with .030" inhibitors soldered on the base wire.

3D® BAR PROSTHESIS (Upper)**3D® BAR PROSTHESIS (Lower)**

The 3D® Bar Prosthesis is for accidental tooth loss during orthodontic treatment. This appliance is non-interfering with external arch appliance action. During post-treatment, it can serve as a Fixed/Removable™.

3D® LINGUAL HOLDING APPLIANCE

The .036" Lingual Holding Appliance is made by adapting to a model and soldering the Extenders at the mid-line. This holding arch is not to be interpreted as, or used as, a lingual arch for anchorage. Such heavier .036" and .040" lingual archs will not work effectively as an anchorage appliance.

Note: If a lingual arch is needed for Class II anchorage, the .028" 3D® Lingual Arch should be used because of its more precise adaptation.

When 3D® Lingual Tubes and bands are already cemented, use the 3D® Transfer System for construction of model for D.Y.S. Modules. After D.Y.S. use, the transfer system can be used again for any of the 3D® Fixed/Removable™ appliances. This is a great convenience and time/cost-saver. See page 139.

PART 4

3D® CONTINUING EDUCATION / RMO MATERIAL LIST/ RMO DIAGNOSTIC SERVICES

Part 4 summarizes continuing education, the many cost-saving benefits of using 3D® Modular Orthodontics™, and a list of 3D® materials, along with other related materials mentioned in the two books.

3D® Continuing Education

3D® Lecture / Workshop Seminars	151
3D® Literature	151
3D® Cost-Savings Hints	152
3D® Modular Orthodontics™ Materials, RMO Materials ..	155
RMO Diagnostic Services	169
Vishay Photocclusion™ Occlusal Diagnostic System ...	173

3D® CONTINUING EDUCATION

Communicating concepts and facts about successful use of new products and services is an obligation and an interesting part of RMO's business. Hence, continuing education has been a prime concern of RMO since our beginning over 55 years ago.

LECTURE / WORKSHOP SEMINARS

Due to numerous requests, Drs. Robert and William Wilson have developed two new "Enhancement Seminars".

One is the **1-Day Enhanced 3D® Lecture Seminar**. This seminar contains in-depth theory, case histories, concepts, applications and a review of the 3D® system. The practitioner and auxiliary personnel will find this seminar valuable for learning the 3D® Modular Orthodontics™ principles for differential problem-solving. This is a complete orthodontic "how-to" course.

The other is the **1-Day Enhanced 3D® Workshop**, which is a "hands-on" workshop seminar. The **1-Day Enhanced 3D® Workshop** is designed for those who want in-depth, hands-on instruction of the 3D® Modules. There will be ample time for discussion with Drs. Wilson. The 1-Day Enhanced Workshop will be held on the day immediately following the 1-Day Enhanced Lecture Seminar, at the same location. Limited attendance will assure small group, hands-on instruction in details of appliance adaptation and use.

LITERATURE

Literature on 3D® Modular treatment has been extensive, with many articles in both U.S. and foreign journals, a treatment manual and numerous monographs. Now, these all have been consolidated and updated with several new advanced design additions to the 3D® appliances.

Treatment options previously considered not possible are now available. Besides this new *Force Systems Mechanotherapy Manual*, the following new book by Drs. Robert and William Wilson is available:

*ENHANCED ORTHODONTICS™
with 3D® Modular 1st Phase Fixed/Removables™
Book 1 | Concept, Treatment and Case Histories*

3D® COST-SAVINGS HINTS

SAVE MATERIAL COSTS, REAL TIME, AND MONEY WITH 3D® MODULAR ORTHODONTICS™.

With 3D® Modular Orthodontics™ in your first phase of treatment, you will be able to experience:

1. Real dollar savings in treatment materials costs.
2. Reduction in treatment time.
3. Reduction in office overhead.

First Phase 3D® Modular Orthodontics, for most orthodontic techniques, can be used conservatively in 75% of cases.

You inventory only a minimum of modular items. However, the per-patient cost of these items is more than offset by any one or two cost reductions featured below.

1. Reduction of use of headgear in an estimated 75% of cases. When orthopedics is not required, which is an estimated 75% of cases, 3D® Modular components can be used for rapidly distalizing the maxillary 1st molars.
2. They are also used for rapid anterior intrusion and advancements.
3. Little need for 2nd molar banding. As the first molar is being distalized, the 2nd molar easily follows distally along with it and can be positioned without banding, or other mechanics. This means less inventory of the 2nd molar bands and tubes.
4. Notable reduction of 1st and 2nd bicuspid banding or bonding. Since molars can be distalized to form needed space, less extraction is needed. This means reduced inventory of 8 bicuspid bands and brackets, or brackets if you are bonding. This gives an average minimum saving of at least 4 bicuspid bands and brackets per case.
5. In most cases, 3D® Modular components replace expensive removable appliances. As an example, many cases require 2 Frankel appliances for treatment. Many of the same movements and functions are carried out by Modular components. This can be quite a saving in itself.
6. Cost of treatment can be accurately evaluated by combining per-patient chairtime and per-patient overhead. The Modular components result in rapid movements during first phase treatment, amounting to 50% reduction in chairtime per-patient for an estimated 75% of cases during the first phase of treatment. A 50% reduction in chairtime is the answer to your problem of time/cost overhead. This allows you to serve more patients within your chairtime.

SUMMARY STATEMENT

All businesses and professionals are constantly faced with rises in costs of material, people and operations. With 3D® Modular Orthodontics™ innovations, RMO is contributing a unique system that fits into your present first phase treatment mechanics. It provides rapid distalization. It also provides rapid anterior intrusion and rapid anterior advancement. It reduces 2nd molar and 1st and 2nd bicuspid banding or bonding, thus reducing per-patient material costs and inventories. It allows you to speed up your treatment time without sacrifice of treatment quality. It's simple, extremely versatile and results can be predicted and scheduled. In addition to saving material costs, time and money . . . benefits to patients are: less pain, less headgear, less root resorption, fewer extractions, no TMJ latrogenics and more comfort during treatment.

COST EFFICIENCY

Orthodontic office overhead is identified with: 1. Cost of materials and treatment appliances, 2. Office overhead which is reflected in per-patient chairtime costs and the number of patient visits. Of the two, office overhead is by far the greater factor. In each of these areas, advanced 3D® Modular Orthodontics™ stands alone in cost-effectiveness.

1. When an Action Appliance is used as an alternative to multiple acrylic appliances, there are significant laboratory cost-savings. If used for Crozat-type movements, the greater Crozat costs and breakage costs are eliminated.
2. With 3D® Modular First Phase Treatment, there is a bracket reduction for bicuspids and 2nd molars.
3. Rapid first phase distalizing, incisor intrusion/ retraction and advancement reduce treatment time and number of visits.
4. The interchangeable plug-in of different 3D® appliances eliminates any soldering of attachments or appliances. It replaces the now obsolete, costly, time-consuming band removal, unsoldering, re-soldering and re-cementing of bands and appliances. In addition, the 3D® Transfer System will save further chairtime.
5. Time-consuming round trips and friction factors in 2nd phase multiband appliances are reduced or eliminated. In a single case, it is not unusual to find chairtime savings of more than one hour when compared with earlier treatment. The chairtime/cost-savings can exceed the cost of appliances.
6. Past functional treatment with costly Frankel appliances now is possible as a by-product of 3D® Modular First Phase Appliances, at no cost.
7. Many 3D® appliances can be altered to different appliances after their first use. alone can prove a 50% savings.
8. Utilizing RM® Certified 3D® Laboratories can further enhance cost-savings.

Equally important, quality results for the orthodontist are now attained with increased ease and simplicity.

3D® MATERIAL LIST / RMO MATERIAL LIST/ RMO DIAGNOSTIC SERVICES

The following pages list RMO 3D® Modular Orthodontics™ components, many items that are commonly used with 3D® Modular Orthodontics™, and RMO Diagnostic Services information.

RMO offers prewelding services for assemblies of 3D® Lingual Tubes and other auxiliaries. For ordering assistance, please call RMO Customer Service in Denver at 1-800-525-6375. Or, contact your RMO sales representative, one of our worldwide subsidiaries, any RMO Dealer, or RM® Certified 3D® Laboratory.

For information about RMO Diagnostic Services, please contact RMO Diagnostic Services, P.O. Box 9812, Calabasas, CA 91302-0812. Telephone: 1-800-458-8884 or 1-818-888-6567, from California, Alaska and Hawaii.

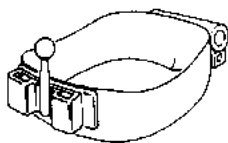
3D® MODULAR ORTHODONTICS™ TUBES**MODULAR ORTHODONTICS™ (Wilson) LINGUAL TUBE**

The key element of the system is a 3D® Lingual Tube welded to molar band/buccal tube assemblies. (Buccal tube is dependent upon the technique being used.)

The 3D® Lingual Tube is designed with a wide base, which provides a better attachment to the band, and a twin tube, that provides stability for solid anchorage and better control of rotation, torquing and tipping. The twin tube permits a friction-lock security of the arch wire, with no free-play or movement and, also, eliminates the necessity for an extension lock. Fits all first molars, upper or lower.

Whatever the technique, order all 1st molar bands with 3D® Lingual Tubes prewelded. Quick plug-in of 3D® modules permits a wide range of time-saving movements. Also order buccal tubes prewelded.

The 3D® Lingual Tube is designed to accept the 3D® Lingual Arch, 3D® Lingual Sectional, 3D® Multi-Purpose Adapter, 3D® D.Y.S. Module, 3D® Quad Helix, 3D® Palatal Appliance, 3D® Multi-Action Palatal Appliance and 3D® Quad-Action Mandibular Appliance.

**MODULAR ORTHODONTICS™ (Wilson)
LINGUAL TUBE****Order No.****Package
Contains**

3D® Lingual Tube

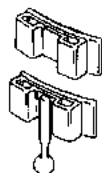
A-4115

10

3D® Lingual Tube with Gingival Hook

A-4114

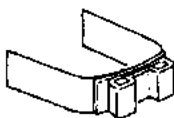
10

**3D® TRANSFER LINGUAL TUBE**

The 3D® Transfer Lingual Tube is a prewelded 3D® Lingual Tube on band material, used by the laboratories in the 3D® Transfer System, for the fabrication of 3D® Fixed/Removable Appliances on stone models. See 3D® Transfer System, page 139.

A-4199

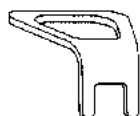
10

**3D® TRANSFER INSERT (A Companion Product to the 3D® Transfer Lingual Tube)**

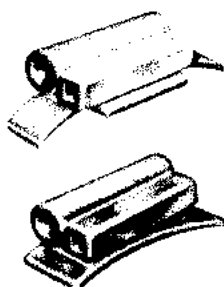
The 3D® Transfer Insert is used by the doctor for inserting into patient's impressions, before sending the impression to the laboratory for fabrication of 3D® Fixed/Removable Appliances.

A-4198

10

**MODULAR ORTHODONTICS™ (Wilson)
MAXILLARY DOUBLE BUCCAL TUBES**

Description	Offset	.018" x .025" + .045" (.0457 x 0.635 + 1.143mm)	.022" x .028" + .045" (0.558 x 0.711 + 1.143mm)	Package Contains
		Order No.	Order No.	
Round tube to gingival. 6.3mm wide.		A-4130	A-4131	10
To be used with 3D® Maxillary Bimetric Distalizing Arch and 3D® Bimetric Arch.	6°	Right A-4132		10
		Left A-4133		10
	6°		Right A-4134	10
			Left A-4135	10



3D® MODULAR 1st PHASE FIXED/REMOVABLES™

3D® MAXILLARY BIMETRIC DISTALIZING ARCH Tru-Chrome® Stainless Steel

Size Package
Order No. Contains

This is a multi-purpose unit, combining two sections. The anterior (.022") provides an unusual balance of formability, low deformation and resilience for multiple functions. The posterior .040" end section with intermaxillary hooks has Omega Adjustable Stops attached. This combination unit inserts into the .045" headgear tube, without interfering with bracketing, and acts as both an arch length control and a multi-directional arch modifier for controlled distal movement of the molar. Omega loops are fastened in position.

Measurement is from mesial of buccal tube to mesial of buccal tube.

Arch Assortment includes Arch Selector.

1 - 80 mm	A-4155	3
2 - 83 mm	A-4156	3
3 - 86 mm	A-4157	3
4 - 89 mm	A-4158	3
5 - 92 mm	A-4159	3
6 - 95 mm	A-4160	3
7 - 98 mm	A-4161	3
Assorted	K-678	14

3D® BIMETRIC ARCH

Tru-Chrome® Stainless Steel

The 3D® Bimetric Arch is designed for unusual sizes with special patient applications, with .040" end sections for rigidity and stability, and with an .022" Tru-Chrome® anterior section, that is flexible and adjustable. The arch operates with hooks upright or inverted for various functions.

Measurement is from midline of cuspid to midline of cuspid.

Arch Assortment includes Arch Selector.

1 - 40 mm	A-4127	3
2 - 43 mm	A-4128	3
3 - 46 mm	A-4129	3
4 - 49 mm	A-4150	3
5 - 52 mm	A-4151	3
6 - 55 mm	A-4152	3
7 - 58 mm	A-4153	3
Assorted	K-688	15

3D® QUAD-ACTION APPLIANCES

Tru-Chrome® Stainless Steel

Two advanced designs in 3D® upper and lower quads. Both are designed to be fixed/removables and are interchangeable for easy plug-in into the 3D® Lingual Tubes. With Tru-Chrome® construction, they are easily adjusted, with flexible .025" Extenders providing many treatment movements and functions.

3D® QUAD HELIX APPLIANCE

1	A-1210	3
2	A-1211	3
3	A-1212	3
4	A-1213	3
5	A-1214	3
6	A-1215	3
Assorted	K-698	6

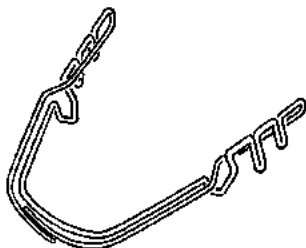
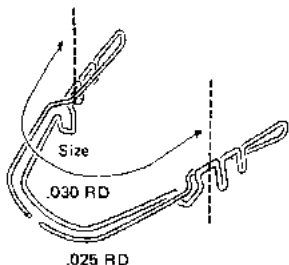
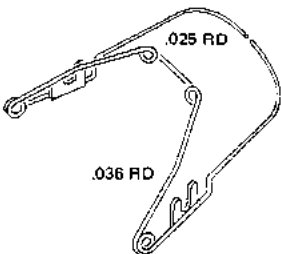
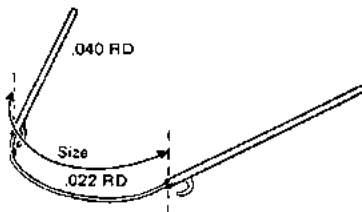
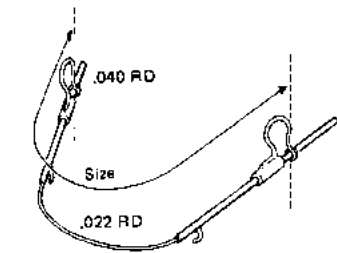
3D® QUAD-ACTION MANDIBULAR APPLIANCE—I

Measurement is from mesial post to mesial post.

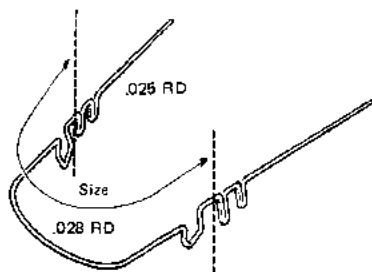
1 - 51 mm	A-4190	3
2 - 54 mm	A-4191	3
3 - 57 mm	A-4192	3
4 - 60 mm	A-4193	3
Assorted	K-721	4

3D® QUAD-ACTION MANDIBULAR APPLIANCE—II

1 - 51 mm	A-4210	3
2 - 54 mm	A-4211	3
3 - 57 mm	A-4213	3
4 - 60 mm	A-4214	3
Assorted	K-726	4



3D® MODULAR 1st PHASE FIXED REMOVABLES™



3D® LINGUAL ARCH

Tru-Chrome® Stainless Steel

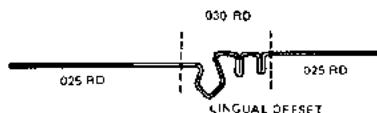
Sophisticated Lingual Arch engineering. Vertical insertion, producing maximum anchorage and permitting multiple auxiliary functions not possible with horizontal insertion.

Twin vertical posts for positive molar control, torque and rotations that are geometrically predictable.

Size	Order No.	Package Contains
1 – 51 mm	A-4100	3
2 – 54 mm	A-4101	3
3 – 57 mm	A-4102	3
4 – 60 mm	A-4103	3
5 – 63 mm	A-4104	3
6 – 66 mm	A-4105	3
7 – 69 mm	A-4106	3
8 – 72 mm	A-4107	3
Assorted	K-687	30

Measurement is from mesial post to mesial post.

30 Arch Assortment includes Arch Selector.



3D® LINGUAL SECTIONAL

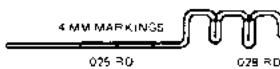
Tru-Chrome® Stainless Steel

Maxillary Right / Mandibular Left

A-4111 5

Mandibular Right / Maxillary Left

A-4112 5

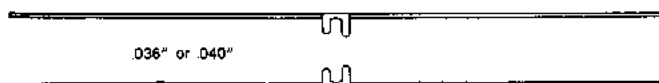


3D® MULTI—PURPOSE ADAPTER

Tru-Chrome® Stainless Steel

A-4180 10

Another in the family of Modular components designed to plug into the 3D® Lingual Tubes on upper or lower molars, right or left. The extender is .025" Tru-Chrome® stainless steel and is marked for programmed adjustment, converting the unit to many different uses.



3D® D.Y.S. MODULE (WILSON)

Tru-Chrome® Stainless Steel

Designed for Do-it-yourself, custom fabrication of 3D® Fixed/Removable™ appliances. Module is a section of .036" or .040" Tru-Chrome® stainless steel, with centrally positioned laser-welded 3D® posts. Can be used bilaterally or unilaterally. 3D® posts plug into 3D® Lingual Tube.

Max. Right/
Man. Left,
or
or
Max. Left/
Man. Right

.036"	A-4145	2 (1 of each)
.040"	A-4147	2 (1 of each)

3D® MODULAR 1st PHASE FIXED/REMOVABLES™

3D® PALATAL APPLIANCES

Tru-Chrome® Stainless Steel

Size

Order No.

Package
Contains

Two designs...the 3D® Palatal Appliances are designed for quick adaptation and easy plug-in and removal from the 3D® Lingual Tubes. They are extremely responsive to adjustment in the activator or palatal bridge, with the added feature of .025" extenders to produce many new movements and functions not available with earlier palatal arches.

Measurement is along roof of palate, across arch.

3D® PALATAL APPLIANCE

1 - 32 mm	A-4170	3
2 - 36 mm	A-4171	3
3 - 40 mm	A-4172	3
4 - 44 mm	A-4173	3
5 - 50 mm	A-4184	3
6 - 56 mm	A-4185	3
Assorted	K-718	6

3D® MULTI-ACTION PALATAL APPLIANCE

1 - 32 mm	A-4175	3
2 - 36 mm	A-4176	3
3 - 40 mm	A-4177	3
4 - 44 mm	A-4178	3
5 - 50 mm	A-4188	3
6 - 56 mm	A-4189	3
Assorted	K-719	6

3D® SPACE MAINTAINER

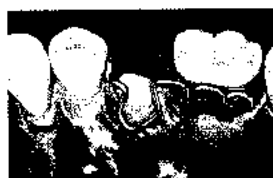
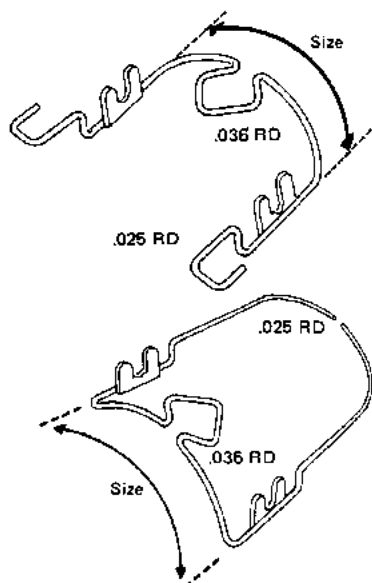
Maxillary Left/Mandibular Right
Maxillary Right/Mandibular Left

C-124 5
C-125 5

Features:

- Plug into 3D® Lingual Tube welded to molar band
- Secure lock
- Effective in permanent and mixed dentition
- Positive space maintainer
- Adjustable for rapid second bicuspid space regainer
- Convertible to Functional Maintainer
- Resistant to deformation
- Removable
- Interchangeable with other 3D® modules for active treatment with no band change-overs
- Time- and cost-savings

3D Space Maintainers adapt to all four quadrants and are equally effective in the permanent and mixed dentition.



3D® MODULAR ORTHODONTICS™ ACCESSORIES

ENERGY PAK™ ELASTICS

These are the elastics recommended for use for the Elastic Load Reduction Principle. See page 20.

Made from the finest quality of pure latex. Clean-cut, packaged in zippered polyethylene bags to ensure highest standards of hygiene and durability.

1/4" - 2 oz.	J-1102	2,000
5/16" - 2 oz.	J-1103	2,000
1/4" - 3 oz.	J-1112	2,000
5/16" - 3 oz.	J-1113	2,000

OMEGA ADJUSTABLE STOP

The crimpable Omega Adjustable Stop offers wide flexibility in adjusting arch length with built-in efficient mesial and distal activation, bilateral, unilateral and sutural expansion.

A-4124 10





5 mm COIL SPRING

	Size	Order No.	Package Contains
Open Elgiloy® coil spring for 3D® Distalizing Arches.	.010" x .045" x 5mm	F-125	50
Does not require heat treatment.			

3D® MODULAR ORTHODONTICS™ GUIDE AND SELECTORS

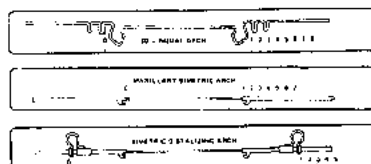


3D® ACTIVATOR ADJUSTMENT GUIDE

A plastic guide for operator use, to assist in the proper plier adjustments of the 3D® Lingual Arch and the 3D® Lingual Sectional for the various treatment movements required.

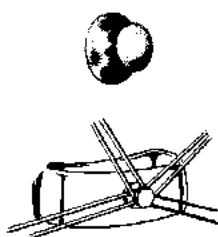
P-63 1

Plastic arch selectors to aid in selection of the proper arch form for treatment. After arch selection is made, check size directly on the patient or model.



3D® LINGUAL ARCH SELECTOR	I-505	1
3D® BIMETRIC ARCH SELECTOR	I-506	1
3D® MAXILLARY BIMETRIC DISTALIZING ARCH SELECTOR	I-507	1

ADDITIONAL ORTHODONTIC OPTIONS



LINGUAL BUTTON

Stainless Steel Lingual Button
Round-base design. Combination hook and band seating lug can easily be welded to stainless steel bands. With minimum protrusion, can be used from any direction for easy engagement of elastics. Ultra-smooth finish.

A-47 10



PLASTIC LINGUAL HOOK (Miura)

Secures elastics in positive grip.

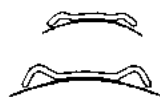
A-3910 10



SEATING LUG/HOOK

Stainless steel.
Serves as lingual hook or molar hook for cross elastics and as a band seating and removing lug for anteriors.

With anterior base	A-768	100
With cuspid/bicuspid base	A-767	100



LUG/CLEAT (Debnam)

Stainless Steel.
Functions as a band seating lug, and mesial-distal elastic hook.

For cuspid/bicuspid bands	A-476	100
For molar bands	A-720	100

ORTHODONTIC WIRE OPTIONS



Straight Lengths

Preformed Arch Forms

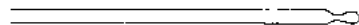


Straight Lengths

Preformed Arch Forms



Preformed Arch Forms



TRI-FLEX™ Twisted Wire

Tri-Flex™ (3 strands) is spring-tempered twisted leveling wire for early treatment stages. It bends readily and can accept great deflection before its limit is reached. It provides gentle force and will not unravel or fray when cut.

	Straight Lengths 14" length	Preformed Arches	Package Contains
	Order No.	Order No.	
ROUND			
.015" (0.381mm)	E-175	E-170	10
.0175" (0.445mm)	E-176	E-171	10
.0195" (0.495mm)	E-177	E-172	10
.0215" (0.546mm)	E-178	E-173	10
SQUARE			
.016" x .016" (0.406mm x 0.406mm)		E-770	10
RECTANGULAR			
.016" x .022" (0.406mm x 0.558mm)		E-771	10
.017" x .022" (0.431mm x 0.558mm)		E-772	10
.017" x .025" (0.431mm x 0.635mm)		E-773	10
.018" x .025" (0.457mm x 0.635mm)		E-774	10
.019" x .025" (0.482mm x 0.635mm)		E-775	10
.021" x .025" (0.533mm x 0.635mm)		E-776	10

SUPRA-FLEX™ Twisted Wire

Supra-Flex™ (6 strands) is cable-designed initial stage arch wire with five exterior wires helically wound around a core wire. Can be flexed to a great degree without taking a set. It delivers constant uniform light force over a long period of time and does not fray when cut.

ROUND			
.0155" (0.394mm)	E-179	E-183	10
.0175" (0.445mm)	E-180	E-184	10
.0195" (0.495mm)	E-181	E-185	10
.0215" (0.546mm)	E-182	E-186	10

FLEX-VIII™ Braided Wire

Flex-VIII™ (8 strands) is a braided wire for unscrambling and leveling. Bright finish.

SQUARE			
.016" x .016" (0.406mm x 0.406mm)		E-1400	10
RECTANGULAR			
.016" x .022" (0.406mm x 0.558mm)		E-1401	10
.017" x .022" (0.431mm x 0.558mm)		E-1402	10
.017" x .025" (0.431mm x 0.635mm)		E-1403	10
.018" x .025" (0.457mm x 0.635mm)		E-1404	10
.019" x .025" (0.482mm x 0.635mm)		E-1405	10
.021" x .025" (0.533mm x 0.635mm)		E-1406	10

PREFORMED LIGATURE WIRE

Preformed for quick use, Preformed Ligature Wire has a precise, convenient shape. Made of dead-soft stainless steel.

.008" (0.203mm)	E-700	1,000
.009" (0.228mm)	E-701	1,000
.010" (0.254mm)	E-702	1,000
.011" (0.279mm)	E-703	1,000
.012" (0.304mm)	E-704	1,000

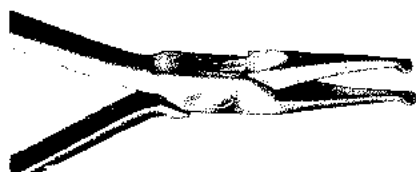
AUXILIARY LIGATURE TIE HOOKS

Preformed for quick and easy placement without removing the arch wire. Stainless steel ligature wire is spotwelded to form hook. Tie Hooks are placed under bracket tie wings and secured like ligature wires. Easily adaptable for up or down usage.

.010" (0.254mm)	A-1201	100
.012" (0.304mm)	A-1202	100
.014" (0.355mm)	A-1203	100

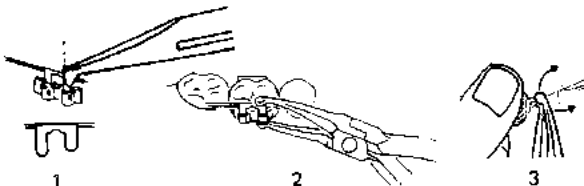
RECOMMENDED 3D® INSTRUMENTS

The following RMO instruments are recommended for use with the 3D® components, in order to obtain the maximum treatment response and to avoid any unnecessary distortion or breakage of the appliances.

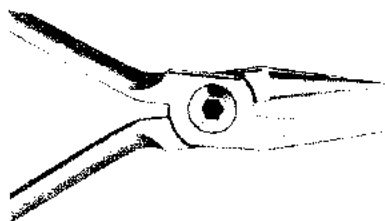


How Plier, Straight
Or, **How Plier, Curved**
Or, **Straight Utility Plier, How Style**

Order No.	Package Contains
i-110	1
i-111	1
i-1110 (ETM110)	1

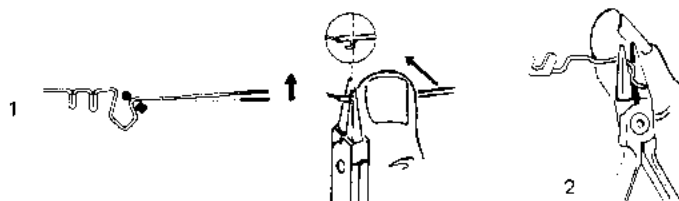


1. For carrying all 3D® Appliances to the arch.
2. For final seating of precision-solid posts of the 3D® Action Appliances into the 3D® Lingual Tube.
3. For rotating, tipping and torquing of the 3D® Lingual Arch and 3D® Quad-Action Mandibular Appliance.

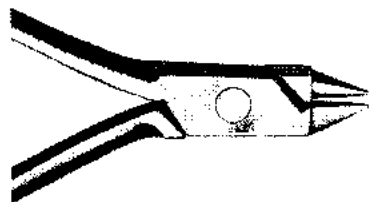


Light Wire Plier
Or, **"Super Looper" Light Wire Plier**

i-1140 (ETM 140)	1
i-1141 (ETM 141)	1



1. For adjusting and activating 3D® Appliances.
2. For adjusting the .025" extenders on all 3D® Appliances.



Wire Bending Plier (Angle)

i-139	1
-------	---

or,

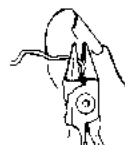
Bird Beak Plier

i-1139 (ETM 139)	1
---------------------	---

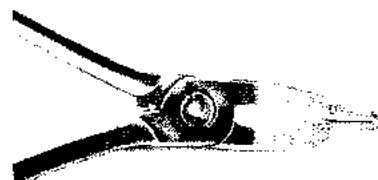
or,

Angle Wire Bending Plier

i-539	1
-------	---



1. For adjusting and activating 3D® Appliances.



Modular Omega Plier
Replacement tips for i-548W (Includes 1 wrench.)

i-548W	1
i-549W	2



1. For adjusting the expansion or contraction of the omega loop on the 3D® Maxillary Bimetric Distalizing Arch.
2. Use tip to draw Omega Stop away from mucosa prior to adjustment.

RECOMMENDED 3D® INSTRUMENTS



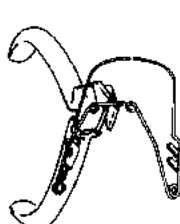
3 Jaw Plier

Order No.

**Package
Contains**

**i-1200
(ETM 200)**

1



1

2

3

1. For tightening wire-formed 3D® posts for any loose fit.
2. For adjusting the .036" wire in the 3D® Quad Helix Appliance.
3. For adjusting the 3D® Activator of the two 3D® Palatal Appliances.

Note: Not to be used with .025" wire.

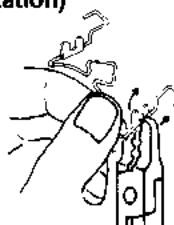


Lingual Arch Forming Plier (Post adaptation)

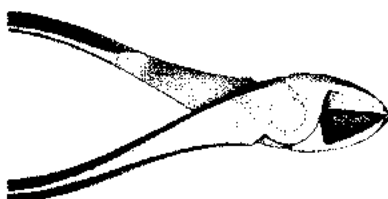
i-1410

1

PRECISION SOLID POSTS



1. For holding the 3D® Appliances with precision solid posts during fabrication.
2. For rotation and torquing of 3D® Quad Helix and the two 3D® Palatal Appliances.



Belzer Wire Cutter (Large)

Cuts up to .045" (1.143mm) wire.

i-267

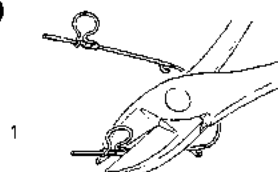
1

Or, Belzer Wire Cutter (Small)

Cuts up to .030" wire.

i-266

1



1. To crimp Omega Stop and Tandem Yoke onto arch.
2. For rotation and torquing of 3D® Quad Helix and the two 3D® Palatal Appliances.

Band Director

or,

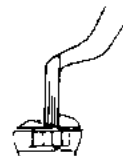
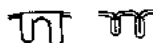
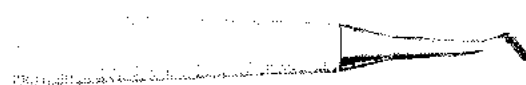
Band Pusher

i-67

1

i-300

1



1. For seating of 3D® Posts in 3D® Lingual Tubes.

Band Pusher/Scaler (Guequierre)




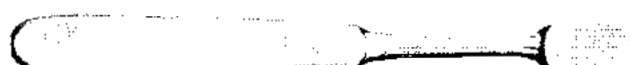

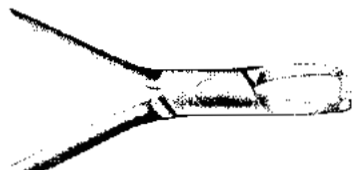
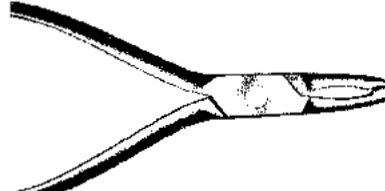
i-358

1

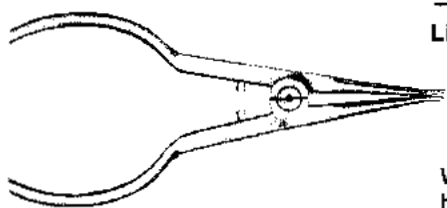
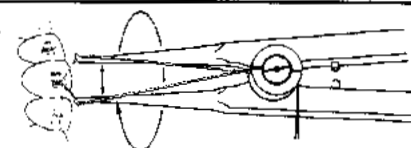

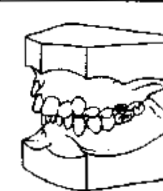


1. For removing 3D® Appliances from 3D® Lingual Tubes.

BAND ADAPTING INSTRUMENTS

		Order No.	Package Contains
	Band Seater w/offset tip	i-580	1
	Hard Steel Tip Replacement tip for i-580	i-581	1
	Band Seater w/straight tip	i-600	1
	Band Seater w/narrow straight tip (Gaston)	i-610	1
	Band Setter	i-6	1
	Band Adapter	i-64	1
	Posterior Band Removing Plier	i-347	1
	Nylon Tip Replacement tips for i-347	i-357	10
	Contouring Plier (Johnson)	i-114	1

OTHER INSTRUMENTS

	Ligature Tying Plier (Coon)		i-153	1
	With small tips. Semi-automatic locking channel automatically holds wire ends as handles close and tips spread. Stainless steel.			
	Model Former (Broussard) Maxillary Replacement Mold Mandibular Replacement Mold		i-35 i-36 i-37	1 1 1
	Forms uniform bases and articulates maxillary and mandibular models. Metal hinge and plastic molds.			

ORTHODONTIC EQUIPMENT

WELDER AND ACCESSORIES

660 MULTI-PURPOSE WELDER

The 660 Multi-Purpose Welder is a small, versatile, economical chairside unit created to fulfill the multi-purpose requirements of appliance fabrication. It occupies minimum counter space and its light weight makes it appropriate for chairside or mobile use. Electrodes align automatically and accessories add versatility to appliance fabrication. Blue color only.

Functions: •Welds with four welding heats and self-centering electrodes •Electro-solders with turret carbon tip and cables •Anneals with plug-in jack •Heat-tempers and stress-relieves with cables

Electrical, size and weight data: •115 volt, or 230 volt, 60 Hz alternating current only •Solid state circuitry •Size: 6½" wide x 10½" deep x 6⅞" high (16.5cm x 26.7cm x 17.4cm) •Net weight, 8 lbs. 12 oz. (4.0 kg) •Shipping weight, 13 lbs. (5.9 kg)

Order No. Package Contains

J-60 1
(115 volt)

J-61 1
(230 volt)

660 Welder Accessories

Auxiliary Cables

Designed to provide auxiliary functions of soldering, annealing, heat-tempering and stress-relieving when used with RMO equipment. Cables have reversible tips which permit several combinations of metal tip, soldering tip, vise tip.

Cables, complete with brass tips, wire vise tip and carbon soldering tip. Sturdy white handles and white cords, banana-type plug.

J-431 1

Annealing Jack

J-432 1

Auxiliary Plug-in Vise

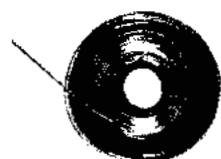
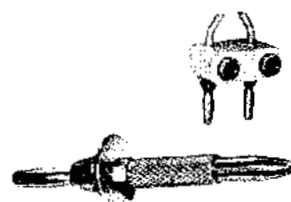
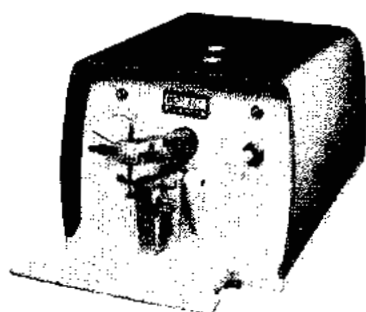
A plug-in vise replaces one cable when a stationary grip is required on wire, band, etc., to solder an accessory.

J-433 1

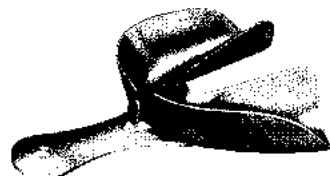
AUXILIARIES FOR SOLDERING

	Size	Order No.	Package Contains
Tru-Chrome® Flux			
•Paste Flux for flame soldering.	1 oz.	J-40	1
•Fluid Flux for electro-soldering. (Not for flame soldering.)	1 oz.	J-41	1
Bridging Wire			
Dead soft. For connecting broken appliance parts together, prior to electro-soldering.	.010" x .022" (0.25 mm x 0.55 mm) x 6 ft.	H-30	1 coil
RMO Silver Solder			
•Rectangles	3.1 mm x 4 mm 3.1 mm x 6 mm	H-116 H-117	100 pieces 100 pieces
•Bar Strips			
Standard	0.6 mm x 3.0 mm x 7.5 cm	H-21	4 strips
Heavy (for Commercial Lab Equipment)	1.0 mm x 3.0 mm x 7.5 cm	H-20	4 strips
•Wire, 5 pennyweight (.25 oz.) spool	28 ga. 25 ga. 22 ga. 20 ga.	H-25 H-24 H-119 H-49	1 spool 1 spool 1 spool 1 spool

Silver solder melts at 1125° F (607° C).



ORTHODONTIC IMPRESSION MATERIAL TRAYS, ALGINATE, TRAY WAX



IMPRESSION TRAYS		Size	Order No.	Package Contains
Maxillary Aluminum tray, anodized and colored blue.	1 (smallest)	J-251	1	
	2	J-252	1	
	3	J-253	1	
	4	J-254	1	
	5	J-255	1	
	6	J-256	1	
	7	J-257	1	
	8 (largest)	J-258	1	
Mandibular Aluminum tray, anodized and colored blue.	1 (smallest)	J-261	1	
	2	J-262	1	
	3	J-263	1	
	4	J-264	1	
	5	J-265	1	
	6	J-266	1	
	7	J-267	1	
	8 (largest)	J-268	1	
ORTHODONTIC ASSORTMENT Includes 8 Maxillary and 8 Mandibular sizes.		1 - 8	K-450	16
PEDODONTIC ASSORTMENT Includes sizes 1-4 Maxillary and sizes 1-4 Mandibular.		1 - 4	K-451	8

CAUTION: Ultrasonic cleaning and very strong cold sterilization will remove or fade color.



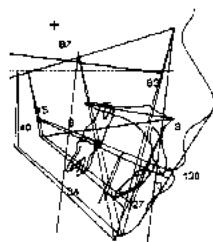
ORTHO-JEL® ALGINATE IMPRESSION MATERIAL	Order No.	Package Contains
With a 30-second set time, Ortho-Jel® is an exceptional, lead-free alginate orthodontic impression material that is extremely elastic, capable of fine detail, and has a pleasant vanilla taste. A smooth, creamy consistency is quickly achieved, yet there is ample time to mix, load the impression tray and take the impression.	J-250	1 canister
Ortho-Jel® is distinctive for its "color-signaling" feature. After mixing with water, it changes to a violet color for the spatulation period. When the mixture turns pink, it is time to load the impression tray; when it turns white, it is ready for insertion and sets in 30 seconds. This "3-color time guide" is especially helpful to the chair-side assistant who prepares the impression trays. After insertion, Ortho-Jel® sets to an elastic firmness that retains accurate reproduction of even the peripheral areas and undercuts.	J-249	6 canisters
Consistently smooth mixes are assured from batch to batch. Ortho-Jel® is sealed in poly bags and packed in airtight plastic canisters, each containing a special measuring cup for alginate and water. Each canister contains approximately 600 grams of alginate, which is sufficient for 40 average impressions.	J-247	10 canisters
Because of the special nature of this material, Ortho-Jel® is non-returnable.		

MINER'S WAX

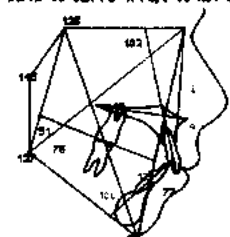
Adapts easily, adheres to non-perforated impression trays without heating. White color.	6 1/2" x 1/4" (16.51 cm x 0.635 cm)	J-100	48 sticks
1/2 lb. (.226 kg).			



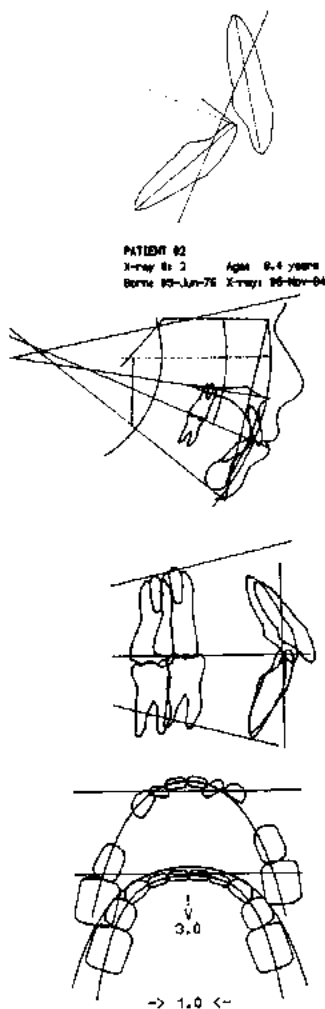
PATIENT #2 (R.C.P. -> L.V.P.)
X-ray #1: 2 Age: 8.4 years
Born: 05-Jun-76 X-ray: 06-Nov-84



PATIENT #2
X-ray #1: 2 Age: 8.4 years
Born: 05-Jun-76 X-ray: 06-Nov-84



PATIENT #2
X-ray #1: 2 Age: 8.4 years
Born: 05-Jun-76 X-ray: 06-Nov-84



THE NEW ERA OF DIAGNOSTICS

In July, 1986, Rudolf Slavicek, M.D., D.D.S., of Vienna, Austria, presented the **Advanced Diagnosis of Cranio-mandibular Disorders Seminar**. Dr. Slavicek is a graduate of the University of Vienna in both Medicine and Dentistry. Since 1970 he has performed extensive studies in occlusion involving children and adults, collaborating with many other researchers in Europe. The information obtained from his research has been used to develop an instrumentation system and computer programs that are useful for orthodontics, orthognathic surgery and all phases of occlusal treatment. Dr. Slavicek has published extensively in Europe and has lectured widely in Europe and the U.S. He has been the president of the European Academy of Cranio-mandibular Disorders. He has maintained an active private practice in Vienna and has directed study clubs. He is a part-time faculty member and lecturer at the dental school in Vienna and is a visiting professor at the University of Florida, College of Dentistry.

Below are quotes from Dr. Slavicek's **Seminar**.

"Dentistry (including orthodontics) is probably 50% science, 25% technical experience and art, and 25% human relations."

"Because people change, orthodontics should not be looked upon as one-time treatment. Orthodontics or occlusion is a prime concern for all dentists during all periods of a patient's life."

"In the near future, success in orthodontic/occlusion-related dentistry will depend more and more upon consistent high levels of individualized diagnosis and treatment planning. . . . Improved differential diagnosis, teamwork and interprofessional communications are where the action will be."

RMO has been involved in second opinion, computer-aided diagnostics for nearly 20 years. Many innovations, improvements and options are now available for Orthodontics, General and Restorative Dentistry, Periodontics, Orthognathic Surgery and Prosthodontics.

Second opinion computer-aided dental diagnosis has progressed far beyond computerized cephalometrics. Gnathologic instrumentation and other diagnostic inputs have been added. In addition, customized treatment planning can be included.

Due to RMO's developments, all disciplines of dentistry now have a common system . . . (a common logic and a common language) for Orthodontic/Occlusion-related diagnosis and treatment planning.

RMO Diagnostics, in Calabasas, California, offers four options for dentists becoming involved in **The New Era of Dental Diagnosis**:

- (1) Special RMO Custom Processing Service, sent in by mail and returned by mail.
- (2) Special RMO Custom Processing Service, sent in by telephone modem to RMO Diagnostics in Calabasas, California, processed and returned by mail.
- (3) The CADIAS™ in-practice computer system. CADIAS™ is the "nerve center" of the comprehensive, universal diagnostic system developed and used by Rudolf Slavicek, M.D., D.D.S., of Vienna, Austria.
- (4) "Send-in" CADIAS™ Processing Service, by the RMO Diagnostics computer lab in Calabasas.

More detailed information about CADIAS™, RMO Custom Services, and RMO's Education Support follows:

CADIAS™ is the universal, comprehensive in-office system developed and used by Rudolf Slavicek, M.D., D.D.S., of Vienna, Austria.

This unique, in-office computer system is designed to aid in diagnosis, documentation, storage, treatment selection and treatment presentation. It allows the patient to participate in choosing his/her treatment alternatives and compromises.

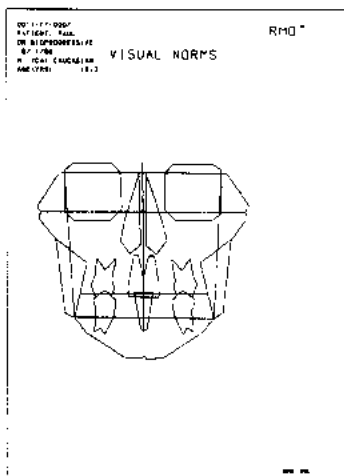
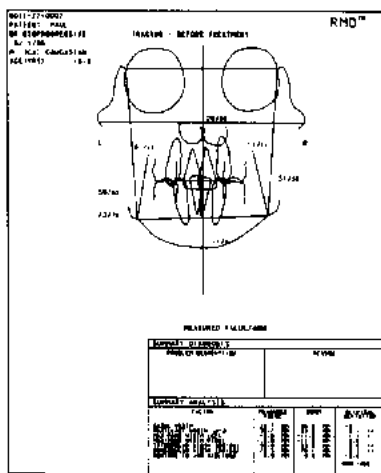
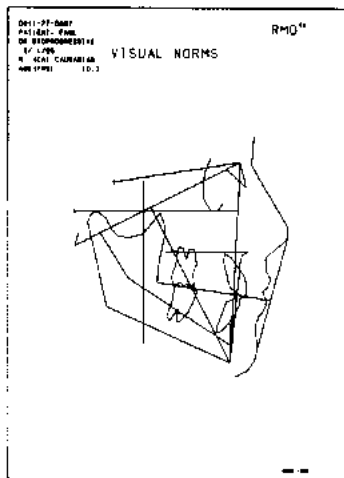
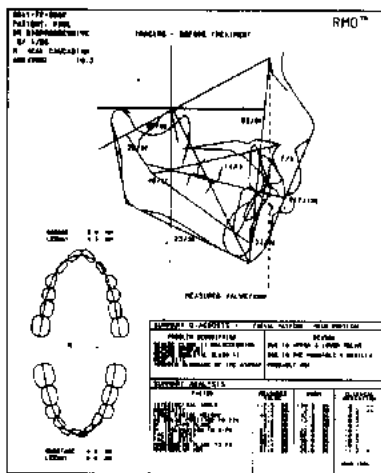
Information acquisition can range from the simple to the complex. The simplest form of data is a lateral radiograph and a rendition of the lower arch. Within minutes, one can print a detailed analysis, interact with the visual treatment objective portion of the program, or plot a tracing in color graphics and print the comprehensive analysis. More detailed data can include information from patient questioning, muscle and neurological exams, as well as a tracing of the condylar pathway, the lingual surface of the upper incisor and the articulator positions. Entry of SAM data will allow a review of the patient's lateral tracing in CO/CR, corrected in the ideal vertical positions.

TMJ / Splint

TMJ diagnosis can be aided by analyzing functional input data and ideal splint therapy positions with an interactive screen that repositions the mandible and incisors. Ideal vertical height is calculated, displayed and used in superimposition to show relative deviation from the norm. This is especially important when trying to determine the ideal plane of occlusion.

Selectivity

The preferred method of treatment planning and presentation may be selected from a list of both orthodontic and gnathologic-oriented analyses. Comprehensive values can be printed or viewed on the screen. Definition, norms, clinical deviations, change with age and method of application of any value can be viewed at the touch of a key. The severity of deviations from the norm are color-coded on tracings and listed next to each value available on the system. Thus, the degree of treatment difficulty can be quickly established.



Flexibility

Immediately after completing an entry, one may work on treatment objectives by reviewing any arch length discrepancy, the degree of difficulty and the preferred mechanics. In the interactive treatment planning mode, one can move point A, change the incisor inclination and protrusion, do symmetric extractions and expand the lower arch. Then, at the push of a button, the system incorporates these changes, projects the soft tissue profile and grows the lateral dimensions along the averages for two years for growing patients.

Leeway space is taken into account when dealing with the deciduous and mixed dentition. The well-proven four-superimposition analysis assures that personal attention is provided for each patient, which is necessary for quality service and individualized treatment.

Documentation

After reviewing and approving each patient's data, the information is simultaneously stored on a hard disk and on a removable floppy disk. Any case data can then be reviewed, with additional copies of the analysis and tracings reproduced for the files, for the patient and for transferring cases. Additional copies can also be used as documentation for insurance purposes. A statistical package, when combined with the current CADIAS™ capability, can produce four-color transparencies for overhead projectors, which can allow the practitioner involved in education to enhance any presentations of case data. Visual treatment objectives (VTOs) are saved and can be recalled for re-evaluations and post-treatment reviews. With this simple and fast system, all cases can now be fully documented.

Practice Building

As an educational tool, CADIAS™ will not only help in the training of staff, but, also, will facilitate a new standard of communication with other health professionals. The same data can be analyzed using any of the following methods: Slavicek, Ricketts, Jarabak, Sassouni, Steiner, or Björk. The tracing can be selected in the same manner.

Another feature is the ability to send complex cases to RMO Diagnostics via the telephone modem and receive the results within 24 hours. Furthermore, CADIAS™ will allow a review of the data base of previously treated cases with follow-up records.

RMO DIAGNOSTICS CUSTOM LABORATORY SEND-IN SERVICES

Since 1967, RMO Diagnostics has engaged in an ongoing program of progress, through continuous research and the providing of helpful services particularly directed to the orthodontic, orthopedic and surgical diagnostic needs of the dental profession.

The Custom Diagnostic Services system is based on case and research information derived from a worldwide orthodontic network, consisting of practicing orthodontists, universities and researchers. The information contained in the Diagnostic Services computer represents the latest scientific findings in the field of orthodontics. This information is used, along with the doctor's personal treatment philosophy, to form a complete detailed analysis of each patient prior to and during treatment. The descriptive and visual materials can assist the clinician in many areas:

Patient Application—Diagnosis, treatment planning, treatment monitoring, case presentation and patient motivation.

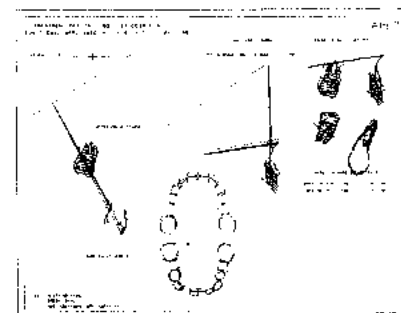
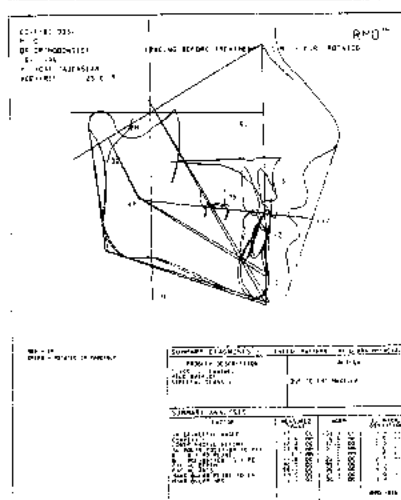
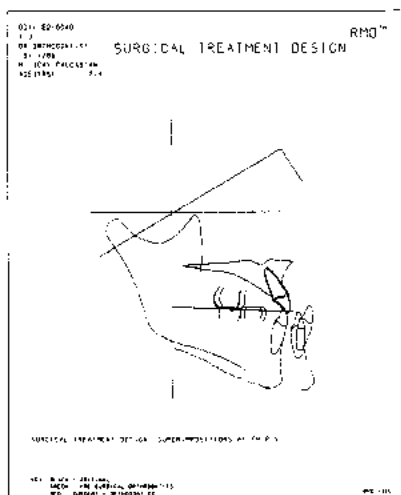
Practice Development and Promotion—Legal considerations, consistent documentation and marketing tools.

IMPORTANT AREAS OF RMO's CUSTOM SERVICES

Diagnosis and growth prediction paints a comprehensive picture of the patient's pre-treatment condition. It describes, cephalometrically, current dental and skeletal relationships compared with individualized norms, in which the age, sex, race and size of the patient are considered.

RMO Diagnostics originated the use of the frontal in analysis, which, along with arch analysis, provides a full three-dimensional visualization of the patient.

Each racial and ethnic group has its own skeletal and dental characteristics. Growth rates



EDUCATIONAL SUPPORT

Those who intend to participate in the New Era of Dental Diagnosis will benefit by studying the research theory and procedures. RMO has an effective program to help practices become functional and proficient in using the various RMO second opinion computer-aided diagnostic options.

Essentially, the program consists of two courses:

- (1) The prerequisite is RMO's 10½-hour video seminar, "Introduction to Computer-Aided Dental Diagnosis". This seminar is conceptual. It provides a comprehensive overview of what second opinion computer-aided dental diagnosis is all about, including 7 hours of key selections from Dr. Slavicek's 3-day basic course, "Fundamentals of Diagnosis of Cranio-Mandibular Problems", and a brief review of orthodontic applications by Dr. Robert Ricketts.
- (2) After viewing the conceptual video, attendance is recommended at one of RMO's "hands-on" 2-day workshops.

Some subjects covered in the workshops are: Anatomy

Points and Planes
Growth and Development
Abnormal Growth
Superimpositions
Degrees of Treatment Difficulty
Clinical Applications
Applied Research
Using Computer Assistance

The conceptual video and the "hands-on workshop" offer enough information for one to become functional and to continue learning by doing.

Special support courses on physiology, anatomy, neurology, kinesiology, axiography, MPI and SAM systems, splints, computerization, etc., which relate to CADIAS™ and RMO's Laboratory "send-in" services, are also available from a variety of teaching resources.

When a doctor begins to use RMO's second opinion computer-aided diagnostics, a Technical Representative will analyze the first case, in detail, over the telephone. Technical Representatives are available to answer questions, at any time, by calling the toll-free telephone number.

Special notes about the video seminar "Introduction to Computer-Aided Dental Diagnosis" (Order No. P-1024. Price \$420.)

This video seminar signals that a new era of importance and professionalism is developing for dentistry. This seminar is comprised of six video cassettes.

Cassette Number 1 begins with a 50-minute discussion about the Future of Dentistry. There is a discussion among a practicing orthodontist, a cranio-mandibular specialist and a leading dental laboratory owner/technician, who present their different expectations about the future of dentistry.

Cassette Numbers 2 through 5 review the main themes and elements of Dr. Slavicek's basic course, "Fundamentals of Universal Diagnosis for Cranio-Mandibular Disorders."

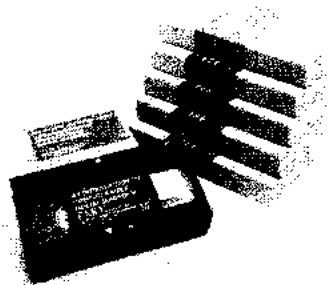
Cassette Number 6 presents an overview of computer-aided systems and services available. This section also includes a presentation by Dr. Robert Ricketts.

RMO's second opinion computer-aided diagnostic and treatment planning services can aid in maintaining consistently high levels of diagnosis, planning and treatment. The video seminar can assist in improving intraprofessional relationships and practice development. The video can be viewed repeatedly in a staff continuing education program and in dental and medical study clubs.

It has been predicted that, within a very few years, most leaders in dentistry will be involved with such computer diagnostic assistance. Considering the fact that travel, expenses and time away from a practice would cost six times the cost of this video, it is a very significant and economic investment. It should be a top priority for your continuing education plan.

(VHS only. Returns only if tape is defective.)

RMO Diagnostic Services, P.O. Box 9812, Calabasas, CA 91302-0812. Telephone: 1-800-458-8884 or 1-818-888-6567, from California, Alaska and Hawaii.



VISHAY PHOTOCCLUSION™ OCCLUSAL DIAGNOSTIC SYSTEM

HISTORY OF VISHAY PHOTOCCLUSION™

With the exception of young Felix, the entire Zandman family of Vishay, Poland, was killed during, or closely after, World War II. Soon after the war, at age 19, Felix Zandman fled Poland to freedom.

Today, Dr. Felix Zandman (Ph.D.) is President of Vishay Intertechnology, Inc., of Malvern, Pennsylvania. The company is named after his family's hometown in Poland in memory of his family. Vishay is a high technology company, with plants in many locations around the world. It concentrates on sophisticated stress measurement systems and precision electronics. Vishay Intertechnology, Inc. was identified in the 1986 publication *The 101 Best-Performing Companies in America* by Ronald M. Paul and James W. Taylor. (Probus Publishing Company, Chicago, Ill.)

Several years ago, while working with Dr. Mircea Arcan of Tel Aviv University, Vishay Intertechnology, Inc. developed a process for quantifying stresses of occlusion. Vishay Intertechnology, Inc., respecting RMO's contribution to dental diagnosis, chose RMO as the international distributor of the Vishay Photocclusion™ Occlusal Diagnostic System, an innovation that can be of great value to all fields of dentistry.

THE VISHAY PHOTOCCLUSION™ SYSTEM

The Vishay Photocclusion™ System provides accurate occlusal diagnosis, quickly and easily. It measures the pressure between the arches and provides a permanent record. Through the use of a photoplastic Memory-wafer™, which is occluded by a patient, and the Photocclusion Analyzer™, which magnifies the strain patterns in the wafer, individual tooth pressures can be viewed, compared and analyzed, and the peak stresses of occlusion in the dental arch can be identified. The Vishay Photocclusion™ system provides a more accurate means of analysis than articulating paper or bite wax, through its precise measurement and permanent record-keeping capabilities.

Vishay Photocclusion™ is a clinical and diagnostic tool, with applications for restorative dentistry, fixed and removable prosthetics, periodontics, orthodontics, oral diagnosis, implantology, gnathology, and dental research, and is essential in the treatment of temporomandibular joint disease and facial pain.

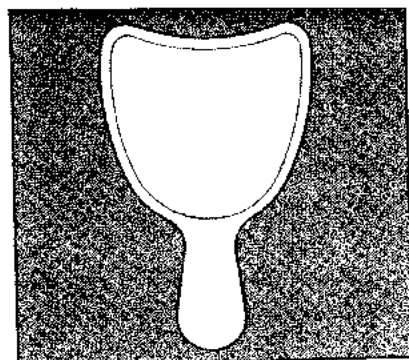
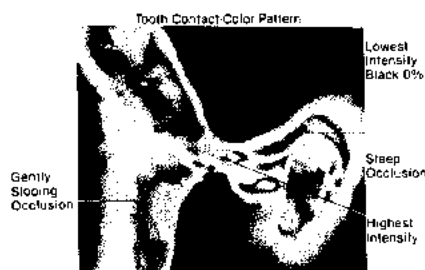
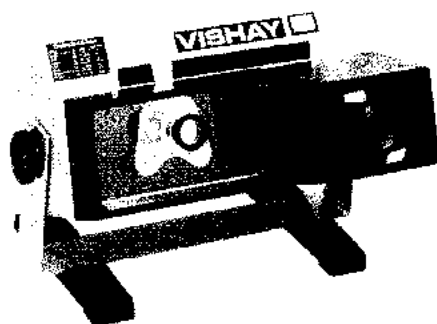
The Vishay Photocclusion™ process is quick and very easy to use. Registration of arch pressure on the Memory-wafer™ requires only ten seconds. The process is non-toxic and non-invasive. No developing or radiation is required. With Vishay Photocclusion™, the occlusal diagnosis can be visually explained to each patient.

The expense of Photocclusion™ analysis performed in the office, can be covered by most dental insurance plans. Such an analysis is an excellent tool for making finishing adjustments and, also, for communicating with other dental professionals and laboratories.

The Photocclusion Analyzer™ has a compact, modern design and can easily be used either on the operator counter or mounted on the wall. The viewing area is 4" x 11½" (10 x 29cm), with interchangeable 3X and 7X lenses. The 7X lens has an adjustable focus. Both lenses may also be used to magnify standard x-rays against the brightly illuminated screen of the analyzer.

The Memory-wafer™ provides a permanent full arch record of a patient's *in vivo* contacts. Memory-wafers™ should be stored in specially designed Patient Record Holders, that facilitate making comparisons before, during and after treatment. Changes in a patient's dentition, including any occlusal rebound or tooth mobility, can be demonstrated over a long period of time.

The Memory-wafer™ is durable and will not tear. If necessary, it can be bent to facilitate placement against the upper arch. The Memory-wafer™ is not affected by moisture, saliva, or the surface texture of various restorative materials, such as gold, porcelain, composites, pit and fissure sealants, enamel and amalgams. It does not need to be developed or have stains or dyes added. Memory-wafers™ are available in small, medium and large sizes.



Description	Order No.	Package Contains
Photocclusion Analyzer™ Kit	J-530	
Kit Contains:		
Photocclusion Analyzer™		1
Memory-wafer™ — Small		30
Memory-wafer™ — Medium		30
Memory-wafer™ — Large		30
Patient Record Holder		15
Replacement Items		
Memory-wafer™ — Small	J-531	100
Memory-wafer™ — Medium	J-532	100
Memory-wafer™ — Large	J-533	100
Patient Record Holder	P-59	50

