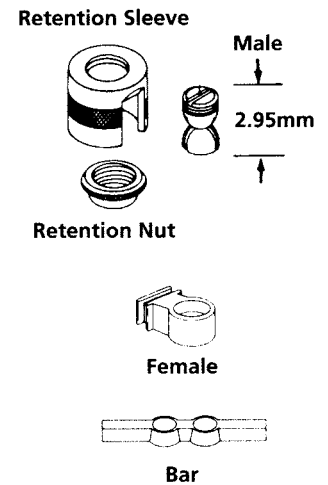
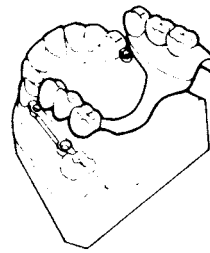


OCTOLINK MINIATURE ANCHOR

Summary

- Extracoronary precision/semi-precision attachment.
- Universal hinge with vertical resiliency.
- Can be fabricated to be non-resilient.
- Choice of gold or non-precious alloy male buttons and non-precious alloy (NPS) or plastic pattern females.
- Female also available as a plastic bar pattern.
- Attachment retention is adjustable.
- Male retentive button is easily changed. The button screws into a metal retention sleeve, or a retention nut, held in denture acrylic.



Fixation: Male - retained in processed denture acrylic. The retention nut also can be soldered or spot welded to removable partial denture frameworks.

Female - becomes part of a crown. The metal version is cast to with precious and most non-precious alloys. The plastic version is cast as part of the wax pattern.

Cast plastic components using alloys with a minimum Vickers hardness of 200 and at least 85,000 psi ultimate tensile strength, 95,000 psi for bars. Appropriate choices are Pegasus ceramic alloy and Sterngold 100 crown and bridge alloy for yellow gold castings.

Use the non-precious male button only with non-precious females. This prevents excessive wear of the female component.

Minimum Space Required				
	Height+	FC width	Prep depth	RC width
Plastic female	4.0mm	2.0mm	Normal crown	6.0mm
Cast to female	4.0mm	4.7mm	1.9mm	6.0mm
Bar	4.8mm	2.7mm	N/A	6.0mm

+Add 1.0mm for patients with habitually strong bites.

Indications

In a bilateral free end application use individual female eyelets off the distal of the abutments (Fig. 1).

When distal abutments remain, they may be splinted to the mesial abutments using the Octolink bar with female eyelets (Fig. 2). Placement of the female eyelet close to the abutments (1 mm) allows the prosthesis to be easily converted to a free end partial denture. Simply cut the bar just distal to the mesial female eyelet with a thin disk and modify or remake the removable partial denture.

The resulting configuration (Fig. 3) is also a recommended design for a partial denture that is free end on one side and bounded on the other.

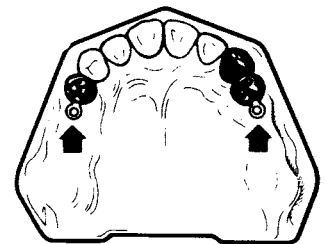


Fig. 1

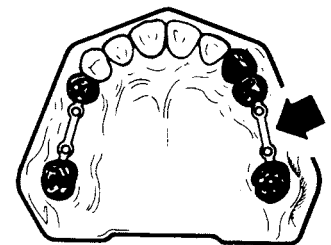


Fig. 2

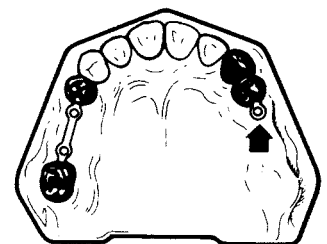


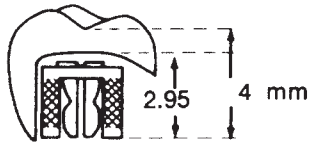
Fig. 3



Contraindications

- Inadequate space to fit the attachment.
- Patient lacks the manual dexterity to easily insert and remove a precision partial denture.

ATTACHMENT DESCRIPTION



Miniature Octolink

Male Options	
<p>Retention Sleeve for acrylic</p> <p>Male</p>	<p>Retention Nut acrylic or soldering</p> <p>Male</p>
Female Options	
<p>NPS female for direct casting</p>	<p>Plastic female casting pattern</p>
<p>Plastic bar casting pattern</p>	<p>Plastic bar casting pattern</p>

Selecting the correct alloy for male and female

The Octolink female may be ordered in the form of plastic patterns or prefabricated of a hard non-precious alloy.


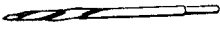


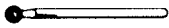
If you use a prefabricated female, or cast one of the plastic patterns in non-precious alloy, you can use a non-precious male button. If you cast a plastic pattern in noble alloy ALWAYS select the precious alloy button to avoid excessive wear of the eyelet. (The NP buttons are silver in color. The precious alloy buttons are golden.)

Order Numbers

Item	Number
Octolink: Cast to female, NP button, Sleeve	808042
Octolink: Cast to female, Gold button, Sleeve	808055
Cast to (prefabricated) female	808049
Plastic female patterns, 4 distal extension	808056
Non-precious button	808047
Gold alloy button	808051
Retention sleeve	808057
Plastic bar pattern, 2 eyelet	808058
Retention nut for button used with bar	808048



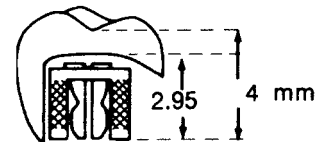
TOOLS LIST

Item		Number
Paralleling mandrel		808207
Reamer (sizes female)		808145
Pin vice (holds reamer)		808150
Button activation wrench		808200
Carbide round bur		808195

FABRICATION INSTRUCTIONS

Check for Available Space

Articulate the study models and measure the available vertical space. Be sure that the attachment will fit the available space without over contouring the restoration. Check that the vertical space is adequate for the complete attachment and the denture tooth that covers the attachment (Fig. 4).



Miniature Octalink

Fig. 4

Initial Preparation

1. Prepare the retaining abutments.
2. Prepare the master cast and dies. Wax the abutment restorations.

Female Components

Sizing plastic patterns:

Eyelets

1. The occlusal side of the pattern comes marked with a circular spot. However, since the portion of the pattern marked with the spot may be later cut off, we suggest marking the occlusal of the female eyelet with a pencil or a Sterngold Indelible Marking Pen (order no. 812015) (Fig. 5).
2. Cut the female eyelet to length so that approximately 1 mm of the bar remains between the eyelet and the height of contour of the abutment pattern (Fig. 6). This will allow space for the retention sleeve when the prosthesis is fully seated.

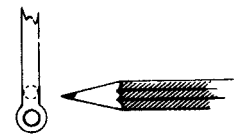


Fig. 5

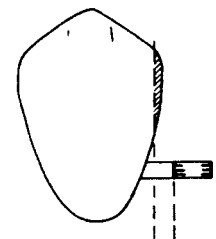


Fig. 6

Bars

Using a thin disk, cut through the center of the bar pattern between the two eyelets leaving approximately 1.0mm extensions for attachment of the bar to the crown patterns. Reverse the two pieces so the long bar extensions are directed toward each other. Measure the distance between the abutment crowns. Shorten the bar by cutting the long extensions as necessary, then waxing them together to form the bar.

It is helpful to place the pieces of the bar pattern on a smooth flat surface when luting them together. This keeps the eyelets parallel during reassembly of the plastic pattern. Use sticky wax. Be sure both eyelets are right side up (Fig. 7).

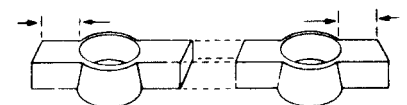


Fig. 7



Setting the plastic females

1. Parallel all females using the paralleling mandrel and lute them to the abutments. Be sure occlusal surface is properly oriented.

When using the bar pattern you may wax the space between the bar and model to slight tissue contact and design of choice. Be careful that the wax does not flow under the female eyelets (Fig. 8).

2. Sprue in a conventional manner. Add an 18 gauge vent to the distal of individual female eyelets to assure a complete casting (Figs. 9 and 10).

Casting the patterns

1. Invest and burnout. Burnout for plastic components requires two stages:
 - A. Slow rate of rise to 600°F (316°C) and hold for 30 minutes. This assures a clean and complete burnout of the plastic piece.
 - B. Complete the burnout procedure by following your alloy manufacturer's instructions.
2. Cast using alloys with a minimum Vickers hardness of 200. For extension eyelets the alloys should have an ultimate tensile strength of at least 85,000 psi. For bars use an alloy with an ultimate tensile strength of 95,000 psi or greater.

Finishing

Devest and finish the castings. Use the reamer, held in the pin vice to manually refine the female. Be sure the full length of the reamer passes through the female (Fig. 11). Then use the Octolink round bur to refine the countersink of the female eyelet. The bur should be placed in a drill press or parallelometer or turned by hand. The bur should not be used in a handpiece as movement could oversize the female. When doing porcelain to metal restorations, complete the porcelain application prior to using the round bur.

Cast-to female technique

1. Prior to paralleling the female into position with the mandrel be sure to properly identify the gingival and occlusal surfaces of the attachment. The retention groove runs across the occlusal surface (Fig. 12).
2. The retention plate should be fully incorporated in the wax pattern up to, but not including, the proximal plate of the female (Fig. 12). The retention plate may be slightly altered if necessary, but **DO NOT GRIND THE RETENTION PLATE OFF** as it provides a mechanical lock of the attachment to the cast crown.
3. When positioning the female, its base should be in light tissue contact. The female should not be angled to accommodate a high distal papilla. Many operators routinely re-contour the papilla with electrosurgery.
4. Cast the crown in your alloy of choice. The cast-to female has a melting range of 2700-2850°F (1480-1565°C). The casting temperature of your alloy should be at least 150°F (80°C) below the low end of the melting range.

Caution: **DO NOT** place the Octolink cast-to female in hydrofluoric acid or acid solutions.

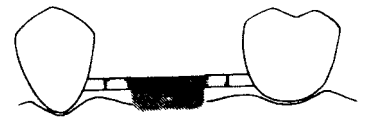


Fig. 8

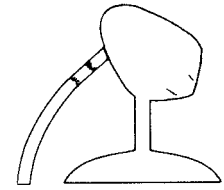


Fig. 9

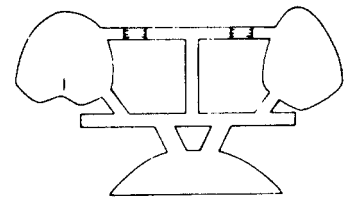


Fig. 10

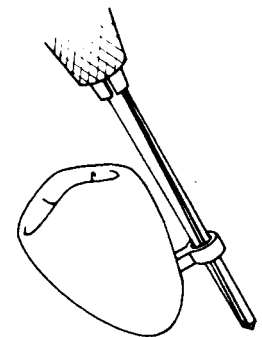
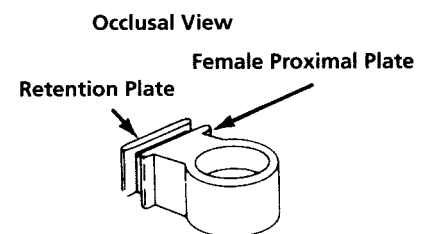


Fig. 11



Retention groove runs across the occlusal surface

Fig. 12



5. After porcelain application, gently use the Octolink round bur to remove any oxide accumulation on the interior of the female. The bur should be used in a drill press or parallelometer or turned by hand. The bur should not be used in a handpiece as movement could oversize the female.

Partial Denture Construction Using Males with Retention Sleeves

When single Octolink eyelets are used, the retention sleeve is used to hold the button in the partial denture. The use of the retention sleeve facilitates retention of the male in denture base acrylic.

1. Seat abutment restorations and females on the master model.
2. Pre-relieve saddle bearing areas.
3. Fully seat the male and retention sleeve in the female (Fig. 13). Block out all undercuts with wax.
4. Take an impression and pour a refractory model.
5. Design and wax the partial denture frame. The frame should be waxed up to the base of the male retention sleeve represented on the refractory model. In the final prosthesis the retention sleeve can be connected to the frame with self-curing resin (Fig. 14).
6. Cast and finish the frame.
7. Seat the cast frame securely on the master model with the abutment crowns in place.
8. For resilient application, place the 0.5mm thick spacer ring inside the male's retention sleeve and re-seat the male in the female (Fig. 15). For non-resilient application - do not use the spacer ring.
9. Connect the retention sleeve to the cast frame with self-curing resin (Fig. 16).
10. Grind out an acrylic tooth to fit over the attachment.
11. Complete set up and try in. Make any necessary adjustments. For resilient application, continue to leave spacer in.

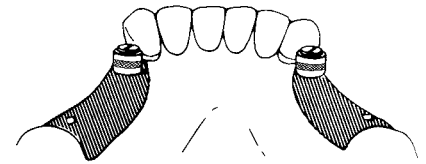


Fig. 13

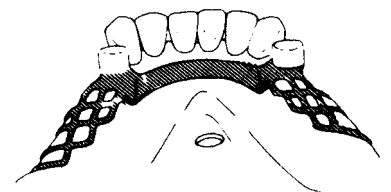


Fig. 14

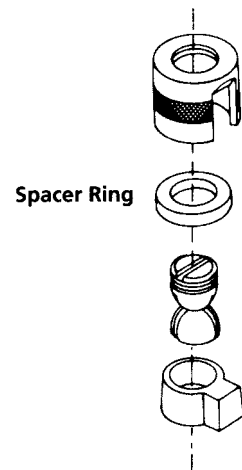


Fig. 15

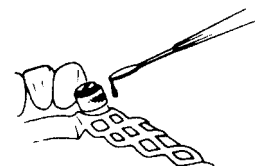


Fig. 16

Partial Denture Construction Using Bars

The use of the Octolink bar requires that the retention nut be used to retain the male button in the partial denture.

1. Seat the abutment restorations and bars on the master model.
2. Pre-relieve saddle bearing areas.
3. Remove the retention nuts from the males and seat the males in the female eyelets. Place the cylindrical blockout sleeve over the male (Fig. 17).

4. Blockout all undercuts and fill the cylindrical blockout sleeve to the top with wax. Pre-relieve the bar with 16 or 18 gauge wax. This will provide a space for insertion and removal (Fig. 18).
5. Take an impression and pour a refractory model.
6. Place the modeling disk over the representation of the cylindrical blockout sleeve on the refractory model. The modeling disk becomes part of the framework pattern. It will create a precise opening for the male (Fig. 19).
7. Wax the partial denture framework on the refractory model. The wax up should extend gingivally over the representation of the bar on both the buccal and lingual surfaces. The wax framework pattern must incorporate the modeling disk.
8. Cast and finish the framework.
9. Seat the cast frame securely on the master model with the abutment crowns and bar in place.
10. Insert the male through the hole in the cast framework so it fully seats in the female eyelet. Secure the male to the cast frame with the retention nut. The nut may be connected (not the male itself) to the cast frame by spot welding or soldering. Another option is to retain the nut in position with self-curing resin. The grooves on the nut facilitate retention in resin (Fig. 20).
11. Grind out an acrylic tooth to fit over the attachment (Fig. 21).
12. Complete the setup and try-in. Make any necessary adjustments.

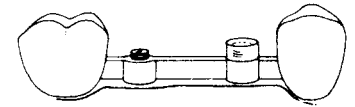


Fig. 17

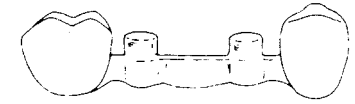


Fig. 18

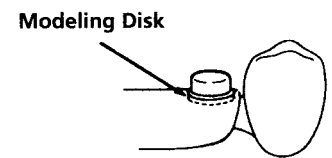


Fig. 19

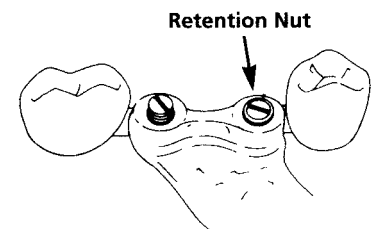


Fig. 20

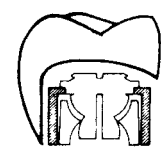


Fig. 21

Processing the Partial Denture

For maximum accuracy, it is recommended to process the resin directly on the master model. When desired, you may process on a duplicate model.

Duplicate processing model technique:

1. Make plaster bucco-occlusal matrixes of the set up on master model. Utilize anteriors for accurate reference points. Remove the completed set up, abutment restorations, and dies from the master model.
2. Fill the die spaces on the master model with blockout compound or wax.
3. Take an impression of the master model and pour a duplicate processing model.
4. Put Rubber Sep over and around the exposed male in the wax-up. This will prevent resin from engaging the male.
5. Seat the cast frame and set up on the processing model. Use the plaster matrixes to assure accurate seating.

6. Using a small spatula, carefully place stone to fill all voids around the attachments. This will maintain the set up in position on the duplicate processing model and keep the resin away from the attachment.
7. Process using any standard technique: flask and heat process, pour resin, injection, casting.
8. Remount the final prosthesis on an adjustable articulator and complete any occlusal adjustments prior to separating from the processing model.
9. Remove the final prosthesis from the processing model and finish.

Delivery of the Finished Restoration

The cast abutment restorations are tried in with the prosthesis. The abutment restorations are cemented. Complete occlusal adjustments. In resilient application, the spacer remains in place during final intraoral occlusal adjustments. After the patient demonstrates the most convenient path of removal, make a notch on the cervical of the tooth containing the attachment to aid during removal of the prosthesis (Fig. 22). In resilient application, the spacer is now removed.

SERVICING

Most patients find the Octolink retained prosthesis extremely comfortable. Therefore, it is most important that the patient understand the necessity of returning to the dentist for periodic servicing and rebasing, even though no discomfort is felt.

Retention Adjustment

To increase retention, spread the male by gently inserting the adjustment tool first in one retentions lot and then in the other. Try to spread all flanges as evenly as possible.

Worn Males

The Octolink system has been designed to concentrate wear in the removable male component. This preserves the accuracy of the female, which is permanently attached to the abutment. If the male wears to the point that adequate retention cannot be achieved by adjusting the male retention flanges, it should be replaced. The socket end of the adjusting tool is used to remove males from the partial denture.

When replacing the male, place a thin wash of self-curing acrylic on the threads to keep it from loosening in function.

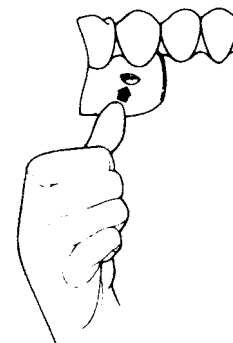


Fig. 22

REBASING

NOTE: When rebasing be sure to replace the spacer ring during impression taking, processing and occlusal adjustment.

1. Place a small amount of petroleum jelly in the female.
2. Take a wash impression in the prosthesis. Be sure that the male fully engages the female.
3. Block out around the male of the attachment with Rubber Sep. Pour processing base.
4. Make a stone occlusal index or flask.
5. Rebase the prosthesis as usual.

TROUBLE SHOOTING

Problem	Possible Cause	Solution
Oversized female	The refining bur or reamer was used in a handpiece during fabrication. (Burs or reamers should be operated by hand in the pin vice, or motor driven in a drill press or parallelometer).	Expand male to increase retention. Flow solder around the interior of the female. Re-refine to correct size with appropriate tools.
Frequent male wear or breakage	Tissue resorption. Patient is biting the prosthesis to place, rather than inserting it manually. The frame has been bent.	Rebase prosthesis. Instruct patient in proper insertion technique. Realign frame.
Excessive female wear	Plastic pattern was cast in an alloy with properties not compatible with the male. A non-precious alloy male button was used with a precious female.	Restoration will eventually have to be replaced. Replace the non-precious alloy button with a precious alloy one.

RECORD KEEPING

Whenever a precision attachment restoration is fabricated, we recommend that precise records be maintained in the patient's file listing the attachment used, including size, alloy and order number. This information will be helpful if replacement components are ever required.



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