



Take a cast of the residual limb. Modify as normal.
Make a cast of the modified model to above the ankle.
Index well for later reference.



Make a plastic holder for an $\frac{3}{8}$ " ankle bolt and T-Nut assembly, thread the T-Nut up $\frac{1}{2}$ " (12mm) which will hold the insert in place during fabrication steps.



Cut the cast in half and paint with melted wax or mold release agent. Reassemble, wrap with plaster bandage, and fill with SFPOS – Q Form. (Set time is 15 minutes). Mold can be drilled, sanded and shaped. Plaster can be used, but will result in a more fragile model.



After drawing trim lines as desired. Angle the top of the cast. Start at the trim line and angle toward the bolt hole. These angles are used to prevent rotation of the plug when bolted to the top of the mold.

Insert a $\frac{3}{8}$ " foot bolt welded to a length of pipe to make a modification fixture.





Trace a reverse pattern of the sound foot and the shoe insole pattern to create an acceptable shape. A foot drawn on paper will generally be too large for the shoe.



Placing the model on the insole pattern helps to visualize the shape of the restoration. Draw the toes on the mold.



Roll clay to the desired thickness. (5mm works well). The photograph shows 5mm Pelite being used as a guide. Turn the clay often so it does not stick to the paper. Make the 5mm slab larger than the insole pattern.

Use the paper insole pattern to cut the 5mm clay slab. The 5mm represents the silicone thickness that will be under the foot. If you have added shapes or pressure relief areas they will be in the finished restoration.





3mm clay is being used for the top of the foot. This is the suggested thickness, but you can use any thickness to reach the desired effect.

Build up the toe area. Alginate can be used to form a mirror image of the sound foot to assist in your sculpting.



Continue to refine the shape of the sculpted clay.

Blend the 3mm top and 5mm bottom to form a seamless transition. Any shapes or marks will be accurately replicated in the finished silicone. Be sure the clay is very smooth.





Example of clay that is not smooth enough.

To make a mold with a top and bottom, it is necessary to part the mold in such a way that eliminates undercuts. To avoid undercuts, move a square along the model and mark any undercuts. Everything above the marks will be part of the upper outer mold.



Roll out a slab of water based pottery clay. Thickness is not critical. Be sure clay is very smooth, and turn often to avoid sticking.



Cut the pottery clay in strips 1 1/2" (37mm) wide.





Lay the strips of water based clay along the seam line drawn using the square. Notice how the seam is not a straight line.



Apply parting agent on any area where the plaster of paris might stick. Apply plaster to form the upper part of the mold. The first layer of plaster of paris should be applied with a brush to eliminate bubbles and completely cover the details in the toe sculpture.

Build up the plaster of paris until it is approx 1" (25mm) thick.



When the top of the mold is done, completely remove the water based clay from the plaster top portion. Use a large $\frac{3}{8}$ " – $\frac{1}{2}$ " (10-12mm) drill bit to create "dimples" in the plaster to register the top and bottom of the mold.



Apply parting agent on any area where plaster might stick. Make a "dam" around the top portion or the mold to form a mold for the bottom portion. Fill the bottom of the mold with plaster of paris, and allow the plaster to dry.



Completed mold looks like this. Remove the bolt and open the mold by working along the seam with a screwdriver or other flat tool.



Mold view with clay and insert still present.



Top and bottom of separated mold.



Clean the clay from the plaster mold insert and outer mold parts. Bolt the in the insert and reassemble mold parts. Drill a ½” hole in the top of the mold at the heel area for the injection nozzle, and small holes at the end of each toe to allow air to escape. The silicone you are going to inject must have a way to escape when the mold is full. Allow the silicone to fully cure (approx. 4 hours) before demolding.



Finished Silicone restoration. Shown here in clear silicone. Silicone may be pigmented prior to injection for a more cosmetic appearance.

Important Notes

- 1.) Clay used for the sculpting of the foot should be a clean grade suitable for contact with silicone. DO NOT use clay with any sulphur content as it will inhibit the curing of the silicone.
- 2.) Have your patient come in a inspect the foot sculpture. The silicone foot restoration will be difficult if not impossible to modify without starting over.
- 3.) When modifying the positive model of the foot to create the “plug”, you must reduce the volume so that the finished product is stretched on. The finished product will be flexible and elastic. Care should be taken with patients that have poor circulation as the tight fit and moisture can be a problem.
- 4.) Pigmenting silicone to exactly match skin tones is very difficult. If the patient wants an exact cosmetic match, send the job to one of the companies that specialize in cosmetic restoration.
- 5.) For Central Fabrication of Partial Feet call: San Francisco P&O 415-861-4146