



# TRIPLE ACTION®

## Fabrication Guide

### Parts Included

The Becker Triple Action ankle joint Alignment Tool and Fabrication Kits (**Figure 1**) include the following parts:

1. Alignment bushings
2. Alignment rod
3. Alignment tube
4. Component spacers

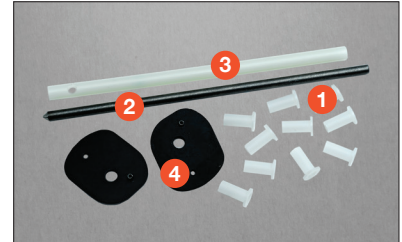


Figure 1

### Setting the Ankle Axis in the Mold

(Parts Required: Alignment rod (2) and Alignment tube (3))

#### Step 1. Assemble the Alignment Tool

- Carefully push the flat end of the alignment rod through the hole in the alignment tube (**Figure 2**).

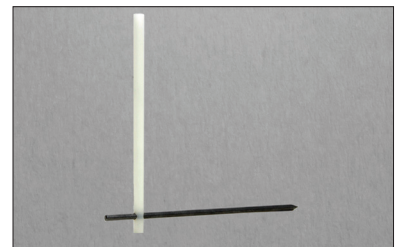


Figure 2

#### Step 2. Locate the Medial Ankle Joint Axis

- Drill a hole for the alignment rod through the medial side of the mold at the distal tip of the medial malleolus, or at the desired medial ankle axis location (**Figure 3**).
- Push the point end of the alignment rod through the hole in the mold until the point contacts the lateral inside surface of the mold (**Figure 4**).
- Apply slight pressure to keep the point in contact with the mold. Do not push the point through the mold at this time.



Figure 3



Figure 4

#### Step 3. Determine the Coronal Ankle Axis Alignment

- Rotate the alignment tube into the coronal plane (**Figure 5**).
- Adjust the coronal plane orientation of the ankle axis using the alignment tube as a visual reference with respect to the axis of the mold.

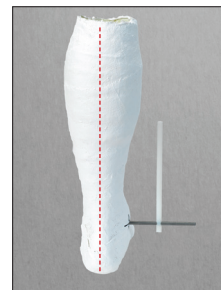


Figure 5



Figure 6

#### Step 4. Determine the Tibial Torsion

- Rotate the alignment tube into the transverse plane (**Figure 6**).
- Adjust the tibial torsion of the ankle axis using the alignment tube as a visual reference.
- Orient the alignment tube parallel to the medial border of the foot to mechanically-align the ankle axis.
- Orient the alignment rod parallel with the malleoli to anatomically align the ankle axis.

#### Step 5. Set the Alignment Rod

- To set the ankle axis location on the lateral ankle side of the mold, assertively tap the flat end of the alignment rod with a plastic mallet. This will drive the rod point into the lateral side of the mold and indicate the hole location with a bump on the outside of the mold.
- Remove the alignment rod from the mold and drill a hole for the alignment rod through the lateral side of the mold at the specified location.
- Re-insert the alignment rod through the holes in the mold and fill the mold with plaster to produce the positive model (**Figure 7**).



Figure 7





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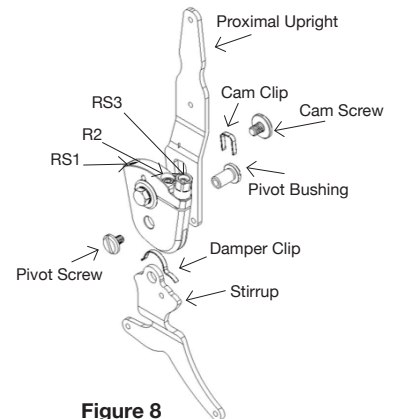
## Contouring and Fabrication

**Fabrication (Parts Required: Alignment Rod (2), Alignment Bushings (1), Component Spacers (4))**

The component spacer replaces the Triple Action component body and aligns the stirrup and proximal upright for fabrication. The alignment bushing holds the proximal upright and stirrup to the component spacer and slides easily onto the alignment rod for contouring.

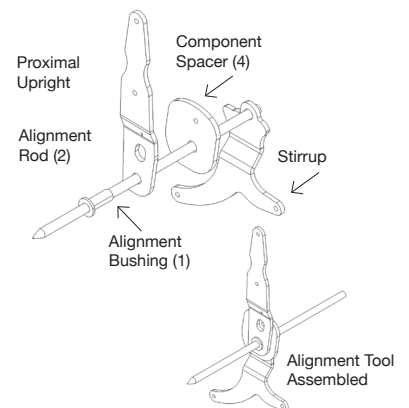
### Step 1. Disassemble the Triple Action Component

- Loosen, but do not remove, the RS1, R2, and RS3 set screws.
- Remove the pivot screw (**Figure 8**).
- Remove the cam screw.
- Pull the proximal upright away from the component. The pivot bushing, which is lightly pressed into the proximal upright, will slide out of the component body and stirrup.
- Slide the stirrup out of the clevis and remove the damper clip.
- Remove the cam clip from the proximal upright.
- Remove the pivot bushing from the proximal upright by reinstalling the pivot screw in the pivot bushing and gently tapping the pivot screw with a plastic mallet to drive the pivot bushing out of the proximal upright. Use care not to damage the pivot screw or bushing during this procedure.



### Step 2. Assemble the Fabrication Tool

- To assemble the fabrication tool, first install the alignment bushing in the proximal upright by carefully pushing it through the pivot bushing hole from the mold-side of the proximal upright (**Figure 9**). The shoulder of the bushing will be closest to the mold when correctly installed.
- Attach the proximal upright to the component spacer by pressing the alignment bushing through the large hole in the component spacer. When correctly oriented, the pin in the component spacer will align with the small hole in the proximal upright.
- Attach the stirrup to the component spacer and proximal upright by pressing the alignment bushing through the pivot hole in the stirrup. The pin pressed into the component spacer will pass through the orientation hole in the stirrup to align the proximal upright with the stirrup. This alignment between the stirrup and the proximal upright corresponds to the 0° alignment setting of the Triple Action component (**Figure 10**).
- Slide the fabrication tool onto the alignment rod as shown (**Figure 11**).



### Step 3. Contour the Proximal Upright and Stirrup

- **IMPORTANT:** The pivot bushing head of the assembled Triple Action ankle joint protrudes 3mm [1/8"] from the proximal upright. When contouring the proximal upright and stirrup, add this head height to achieve the desired clearance between the Triple Action component and the mold. When contouring the proximal upright and stirrup, do not mar or bend the stirrup or proximal upright on the component side of the standard relief contours. **Refer to the Triple Action Fabrication Template for additional information.**

### Step 4. Fabricate the Orthosis

- After contouring the proximal upright and stirrup, secure them to the positive model using adhesive or your preferred method.
- Remove the alignment rod from the mold, leaving the alignment bushing and component spacer attached.
- Trim the alignment bushings flush with stirrup head.
- Cover the stirrup head with foam or other material to prevent damage when the orthosis is cut-away after fabrication.
- Thermoform or laminate the orthosis.
- **Establish the desired trim lines using the Triple Action Fabrication Template.** Note that the distal trim line of the tibial section should be 50mm [2"] proximal to the pivot bushing and the shape of the anterior distal trim line should provide clearance for the alignment lock nut. The proximal trim line of the foot section should be 30mm [1 3/16"] distal to the pivot bushing.

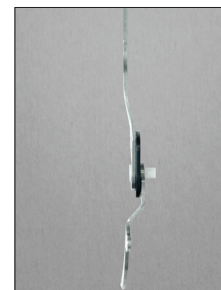


Figure 10



Figure 11

### Step 5. Reassemble the Component

- Remove the alignment bushing and component spacer from the proximal upright and stirrup.
- Clean the proximal upright and stirrup.
- Gently press the pivot bushing back into the proximal upright.
- Prior to reassembly, lubricate the stirrup head and damper clip using Teflon grease (included).
- Re-assemble the component (**Figure 8**).
- Ensure that the damper clip is correctly oriented in the clevis prior to inserting the stirrup head into the clevis.
- When reinserting the cam clip into the proximal upright ensure that the opening in the clip is facing downward.
- Secure the pivot screw and cam screw using a small amount of thread locking adhesive (included).

### Step 6. Assemble the Orthosis

- After assembly, attach the component to the orthosis using the provided machine screws.
- Apply thread locking adhesive to all machine screws before delivery.

#### NOTES:

- The RS1 and RS3 adjustment screws are precoated with a thread locking adhesive. The coating will allow up to 3 adjustment cycles without the application of additional thread locking adhesive.
- If the RS1 spring is removed or if grease is added to the RS1 channel, clean the threads at the top of the channel prior to replacing the set screw.