Resection

When the amount of proximal femoral bone loss is so severe that a minimum replacement of 10cm is indicated, the following steps are recommended for using the 7cm modular proximal femur and the diaphyseal segments (Figure 1).

Measure the proximal femur and make a reference resection mark and a rotation mark with either methylene blue or a cautery device (Figure 2).

Using a transverse cut, resect the proximal femur at the reference resection mark (Figures 3 & 4).
**Canal Preparation**

Prepare the femoral canal using incremental bullet tip reamers until cortical contact is achieved (reaming depth is determined by the length of stem to be used: 90mm, 150mm, 225mm, 300mm) (Figures 1 & 2).

Based on the diameter of the final bullet tip reamer, select the flare reamer of equivalent size and ream the canal opening to the “depth etch” located on the reamer body (Figures 3 & 4).
Utilizing the Resection Planer

**Option One**

Leave the flare reamer within the canal and remove the power source (Figure 1).

Place the resection planer over the exposed shaft of the flare reamer and plane the resected proximal femur (Figures 2 & 3).

Figure 1

Figure 2

Figure 3
Utilizing the Resection Planer

Option Two

Remove the flare reamer and attach the resection planer insert to the selected stem trial. Insert the assembly into the prepared femoral canal until the resection planer insert is flush with the resected proximal femur (Figures 1–3).

Place the resection planer over the exposed shaft of the resection planer insert and plane the resected proximal femur (Figures 4 & 5).
Trial Assembly

Secure the proximal femoral trial to the diaphyseal segment trial with the 3.5mm short shaft screwdriver (Figure 1).

Secure the stem trial to the diaphyseal segment trial by tightening the locking wheel on the diaphyseal segment (this may be accomplished either digitally or with the diaphyseal segment wheel wrench) (Figures 2 & 3).

Insert the proximal femoral trial assembly into the prepared femoral canal (Figure 4).

**Note:** Utilize Biomet® femoral heads (taper type 1) and the appropriate acetabular components of choice with this construct.
Implant Assembly

When opening the sterile stem implant box at the back table, make certain to remove and *discard* the large-head/small-thread locking screw from the stem: it will not be used (the stems are pre-packaged with the screws threaded into the male tapers) (Figures 1 & 2).

When opening the sterile diaphyseal segment implant box, make certain to locate the two locking screws (small-head/small-thread and large-head/large-thread) that are individually packaged with the implant. Set these two screws aside, as they will be used for securing the implants (Figure 3).

After aligning the stem with the diaphyseal segment, vigorously impact the taper using the diaphyseal taper holder and the stem impactor handle (Figures 4 & 5).
Implant Assembly (cont’d)

Secure with the small-head/small-thread locking screw that was previously set aside. When using the larger diaphyseal segments, it will be necessary to use the 3.5mm long shaft screwdriver (Figure 6).

Position the proximal femoral implant onto the diaphyseal segment/stem assembly and vigorously impact the taper using the stem holder and proximal femoral impactor (Figure 7).

Secure with the large-head/large-thread locking screw that was previously set aside (Figure 8).

The proximal femoral construct is now implanted using contemporary techniques for either a cemented or press-fit application.

Note: Utilize Biomet® femoral heads (taper type 1) and the appropriate acetabular components of choice with this construct.

Utilizing a Soft Tissue Claw

Both the OSS™ Finn® and Letson-style proximal femoral implants will accept the oblong trochanteric bolt and soft tissue claw used with the Mallory-Head® Calcar hip (Figures 9 & 10).
Stacking Adapter Assembly

Note: In the event that two diaphyseal segments are necessary to form a specific reconstruction length, the following steps should be taken to achieve a taper/locking screw interface between the two segments.

After a diaphyseal segment and stem have been impacted together and secured with a small-head/small-thread locking screw, a segmental stacking adapter (Figure 1), is threaded into the male taper of the diaphyseal segment/stem construct with the axle screwdriver (Figures 2–4).

With the segmental stacking adapter fully seated, the second diaphyseal segment is vigorously impacted onto the initial diaphyseal segment using the diaphyseal taper holder and the stem impactor handle. Secure with the small-head/small-thread locking screw that was previously set aside (Figures 5 & 6).

The proximal femoral component is now secured to the double segment construct using the standard impaction technique.
**Trial Assembly**

**Note:** A total femoral construct (excluding the tibial components) typically consists of four separate implants:

- 7cm proximal femoral body (Finn or Letson-style)
- Diaphyseal segment (3cm–23cm)
- Total femur coupler (10cm or 30cm)
- 7cm modular segmental distal femur

The replacement value of each component is added together to achieve the total femoral construct’s overall length:

**EXAMPLE**

(objective: 41cm total femur)

7cm proximal femoral body
&
17cm diaphyseal segment
&
10cm total femur coupler
&
7cm modular segmental distal femur

Secure the proximal femoral trial to the diaphyseal segment trial with the 3.5mm short shaft screwdriver (Figure 1).

Secure the total femur coupler trial to the diaphyseal segment trial by tightening the locking wheel (this may be accomplished either digitally or with the diaphyseal segment wheel wrench) (Figures 2 & 3).

Secure the segmental distal femoral trial to the total femur coupler trial with the 3.5mm short shaft screwdriver (Figure 4).
**Trial Procedure**

Perform a trial reduction, beginning with the 12mm tibial bearing trial.

Reduce the trial bearing/tibial assembly toward the trial segmental femoral condyles. Insert the trial axle through the condyles so that the entire construct is captured (Figures 1 & 2).

Balance the soft tissue in extension. Select the tibial bearing that allows for full extension, but not more than 8mm of joint distraction with longitudinal traction. Upon confirming fit and interaction of all components, the trials are removed.

**Note:** Utilize Biomet® femoral heads (taper type 1) and the appropriate acetabular components of choice with this construct.
Implant Assembly

When opening the sterile total femur coupler implant box, make certain to remove the two large-head/small-thread locking screws that are threaded into the male tapers. Set these aside, as one screw will be used for securing the implants* (Figures 1 & 2).

When opening the sterile diaphyseal segment implant box, make certain to locate and remove the two locking screws (small-head/small-thread and large-head/large thread) that are individually packaged with the implant. Set these two screws aside, as they will be used for securing the implants (Figure 3).

*Note: If no diaphyseal segment is used, retain both large-head/small-thread locking screws to secure the proximal femur and segmental distal femur.
Implant Assembly (cont’d)

Align the total femur coupler with the diaphyseal segment, and vigorously impact the taper using the taper holder and the taper impactor (Figure 4).

Secure with one of the small-head/small-thread locking screws that was previously set aside. When using the larger diaphyseal segments, it will be necessary to use the 3.5mm long shaft screwdriver (Figure 5).
Implant Assembly (cont’d)

Position the segmental distal femoral implant onto the total femur coupler and vigorously impact the taper using the taper holder and the modular femoral impactor (Figure 6).

Secure with the large-head/small-thread locking screw that was previously set aside (Figure 7).

Position the proximal femoral implant onto the diaphyseal segment and vigorously impact the taper using the proximal femoral impactor (Figure 8).

Secure with the large-head/large-thread locking screw that was previously set aside (Figure 9).

The total femur construct (Figure 10) and the tibial component of choice are now implanted using contemporary techniques.