

# Scorpio® TS

## Single Axis Revision Knee System

Scorpio TS  
Trial Cutting Guide Surgical  
Protocol



# **Scorpio® TS**

## Single Axis Revision Knee System

---

**Scorpio TS**  
Trial Cutting Guide Surgical Protocol

### **Acknowledgements**

Stryker Orthopaedics would like to thank Dr. Masini for his help in developing the Scorpio Trial Cutting Guide.

#### **Michael A. Masini, MD**

Ann Arbor Bone and Joint Surgery  
St. Joseph Mercy Hospital  
Ann Arbor, MI

Clinical Instructor in Orthopaedic Surgery  
University of Michigan  
Ann Arbor, MI

### **Introduction**

This surgical protocol is a supplement to the Scorpio Total Stabilizer Revision Knee System Surgical Protocol (Lit No. LSTS/ST).

The Scorpio Trial Cutting Guide is an intramedullary based instrumentation system focused on the restoration of the joint line and proper flexion-extension gap assessment.

# Tibial and Femoral Canal Preparation

## Scorpio Trial Cutting Guide

### Tibial Preparation

Prepare the tibia following the Scorpio Total Stabilizer Revision Knee System Surgical Protocol (Lit. No. LSTS/ST, pages 1- 5). If an offset is needed, use the tibial offset reamer to prepare for the tibial offset. Insert the assembled trial into the tibia (Figure 1 and Figure 2).

**Note: The Scorpio Trial Cutting Guide (TCG) is designed for use with its own mating tibial insert trial. The trial insert does not have a post to allow for more accurate assessment of the ligaments during surgery.**

### Femoral Canal Preparation

Prepare the femoral canal to accept a stem as described in the Scorpio Total Stabilizer Revision Knee System Surgical Protocol (Lit. No. LSTS/ST, page 5). If an offset is needed, use the femoral offset reamer to prepare for the femoral offset (Lit. No. LSTS/ST, page 9) (Figure 3).



Figure 1 ▲ Tibial Canal Preparation



Figure 2 ▲ Tibial Trial Assembly and Insertion

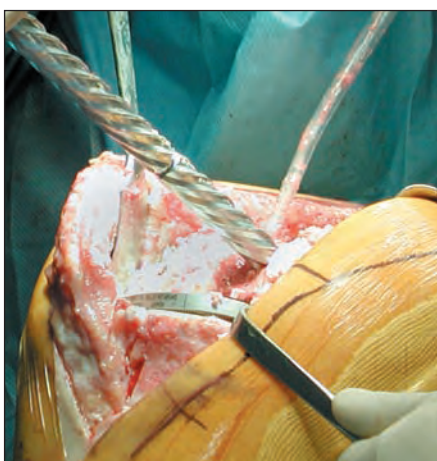


Figure 3 ▲ Femoral Canal Preparation



#### Femoral Offset Reamer

8200-0095



#### Reamer Depth Stop

8200-0047 80mm stem with offset  
8200-0048 155mm stem with offset



#### Tibial Boss/Offset Reamer

8200-0015



#### Command T-Handle

6266-5-401



#### IM Reamers

6633-9-408	8mm
6633-9-409	9mm
6633-9-410	10mm
6633-9-411	11mm
6633-9-412	12mm
6633-9-413	13mm
6633-9-414	14mm
6633-9-415	15mm
6633-9-416	16mm
6633-9-417	17mm
6633-9-418	18mm
6633-9-419	19mm
6633-9-420	20mm
6633-9-421	21mm
6633-9-422	22mm
6633-9-423	23mm

# Femoral/Tibial Trial Selection

## Scorpio Trial Cutting Guide

### Femoral/Tibial Trial Selection

Select the appropriate size femoral trial cutting guide, offset adapter, and corresponding tibial insert trial (**Table 1**).

Appropriate sizing can be achieved through the use of:

- Previous operative notes
- Size of the original implant removed
- X-ray templates

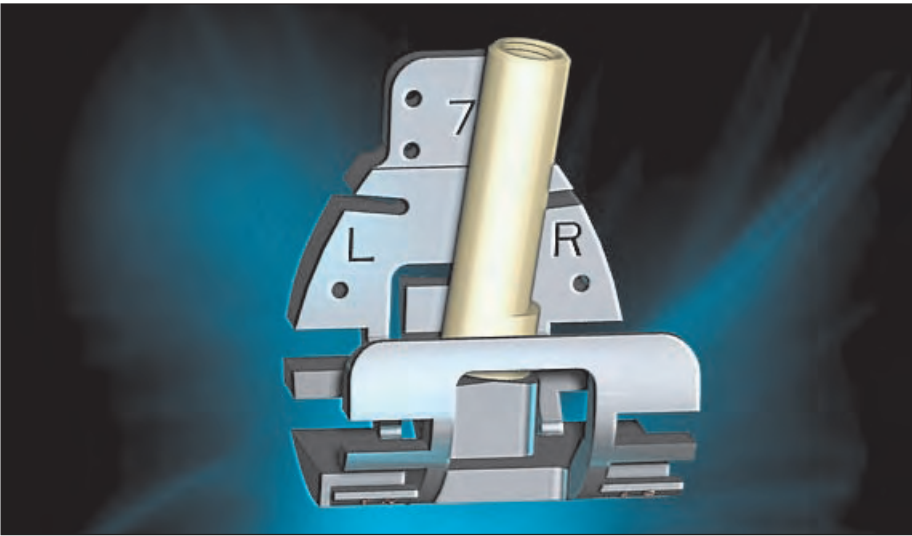
**Femoral  
Cutting Guide**



**Table 1 ▼ Trial Cutting Guide Instrument Sizes**

Category	Sizes
Femoral Cutting Guides	3, 5, 7, 9, 11, 13
Offset Adapter	0mm, 2mm, 4mm, 6mm, 8mm
Tibial Insert Trial Sizes	3, 5, 7, 9, 11, 13
Tibial Insert Trial Thickness	10mm, 12mm, 14mm, 16mm , 18mm, 21mm, 24mm

The Scorpio Trial Cutting Guide (TCG) can be assembled for either a left or right knee. Assemble the offset adapter into the housing of the TCG so the offset adapter is pointing to the appropriate left or right orientation (**Figure 4**).



**Figure 4 ▲ Trial Cutting Guide in “Right” Orientation**



### **Trial Cutting Guide**

8200-5003  
8200-5005  
8200-5007  
8200-5009  
8200-5011  
8200-5013

# Femoral/Tibial Trial Selection (continued)

## Scorpio Trial Cutting Guide

### Assembly

Assemble the trial cutting guide, offset adapter, and appropriate size trial stem as shown (Figure 5).

A neutral offset adapter may be used initially to construct the trial cutting guide assembly until the need for a femoral offset is determined.

First, assemble the trial stem to the offset adapter, then assemble the offset adapter into the Trial Cutting Guide housing and secure the anterior set screw. Once “finger tight” pressure is achieved, rotate counterclockwise 1/2 turn to allow the offset adapter to rotate freely. The anterior set screw will be fully secured after the appropriate offset and rotation is determined (Figure 6).

**Note: Rotating counterclockwise 1/2 turn will allow the offset adapter to rotate freely without disassembling from the Trial Cutting Guide housing. Rotating counterclockwise more than 1/2 turn will cause the offset adapter to fall out of the Trial Cutting Guide housing.**

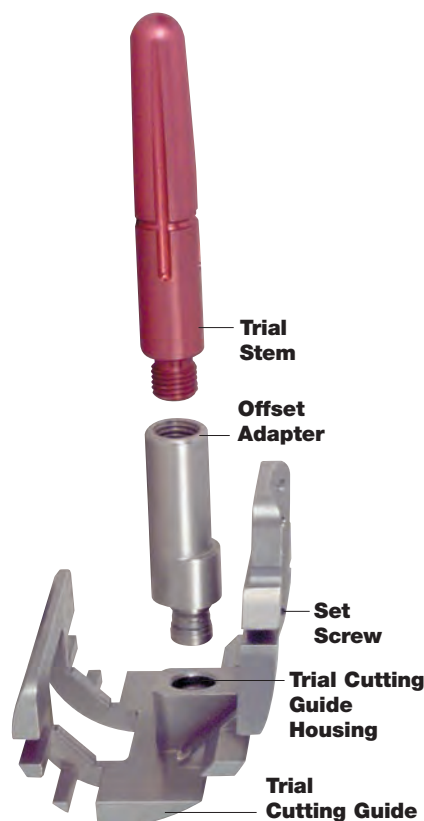


Figure 5 ▲ Trial Cutting Guide Assembly



Figure 6 ▲ Set Screw Assembly



#### Torx Screwdriver

8200-5110



#### Tibial Insert Trial

T72-7-XXYY

XX = 03, 05, 07, 09, 11

YY = 10, 12, 14, 16, 18, 21, 24



#### Offset Adapter

8200-5100

8200-5102

8200-5104

8200-5106

8200-5108



# Trial Cutting Guide Orientation

## Scorpio Trial Cutting Guide

**Note: Femoral chamfer cuts cannot be made with the TCG. However, if bone loss is minimal and it is determined that chamfer cuts are required, the Scorpio Total Stabilizer (TS) All-In-One Cutting Block may be used to make chamfer cuts (Lit. No. LSTS/ST, Page 8).**

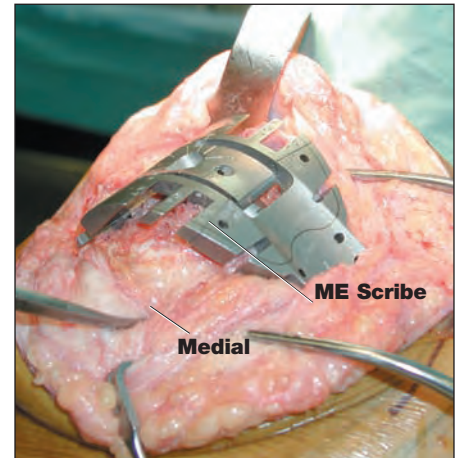
### Joint Line Restoration

Insert the TCG into the femoral canal (Figure 7) and align the TCG medial epicondyle (ME) scribe line reference mark with the medial epicondyle (Figure 8). The ME scribe line is 28mm from the distal surface of the TCG. When the ME scribe line is in line with the medial epicondyle, the distal surface of the TCG will be approximately located at the joint line. (The joint line can also be estimated using pre-operative radiographs and anatomic landmarks.)

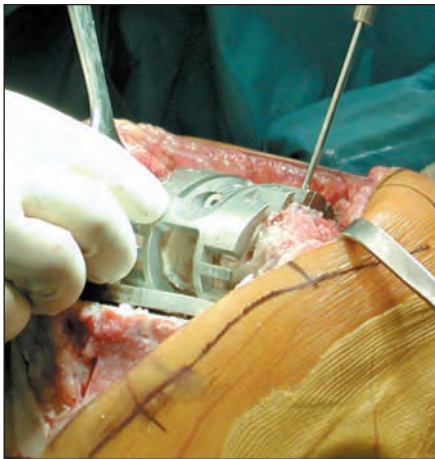
Place an initial fixation pin in the middle of the medial slot on the TCG (Figure 9 and Figure 10). Pinning the medial slot will fix the proximal/distal position while allowing for slight internal and external rotation of the TCG.



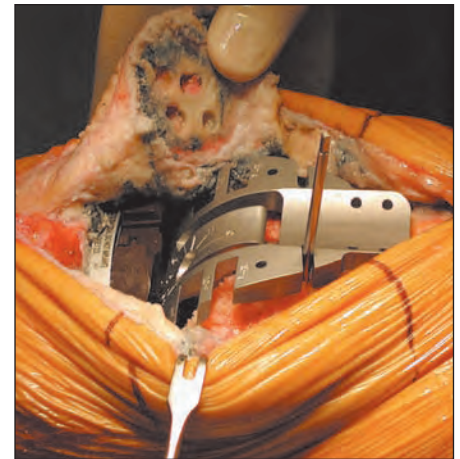
**Figure 7 ▲ TCG Femoral Canal Insertion**



**Figure 8 ▲ Joint Line Restoration to Medial Epicondyle**



**Figure 9 ▲ Initial Fixation Pin Insertion**



**Figure 10 ▲ Initial Fixation Pin - Extension**

---

**1/8" Headless Pins**

7650-1038



**Joint Line Scale**

8200-0065

# Trial Cutting Guide Orientation (continued)

## Scorpio Trial Cutting Guide

### Femoral Offsetting

There are several ways to determine the proper femoral offset required.

- 1) Start with a neutral offset and measure or estimate the distance from the inferior surface of the anterior flange of the TCG to the anterior femur (Figure 11) or,
- 2) Line up the femoral sizing “C” templates with the trial stem and measure or estimate the distance from the anterior femur to the inferior surface of the anterior flange of the TCG.

**Note: A 4mm offset is typical for many revision scenarios, and if an A/P offset is not necessary, the offset adapter may be used to displace the femur medially or laterally.**

**Note: When adjusting the offset of the TCG, the entire offset adapter and stem construct will be rotating.**

To adjust the offset, insert the hex driver into the distal face of the offset adapter and rotate (Figure 12). After final offset position has been determined, tighten the anterior set screw to secure the offset position on the TCG (Figure 6, page 4).

If an offset is required, record the final position of the offset by reading the location of the hash mark on the offset adapter relative to the clock face on the TCG. The clock recording will be required when assembling the implant. If an offset is not required, use the 0 adapter (Figure 13).

**Note: The numerical clock on the TCG is a mirror image of the clock face markings on the femoral trial and final implant (Figure 14 and Figure 14a).**



Figure 11 ▲ Offset Measuring

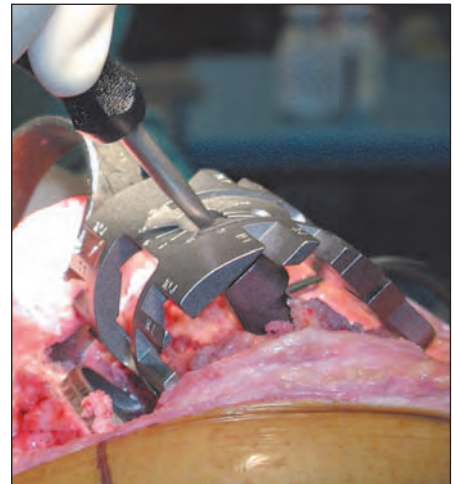


Figure 12 ▲ Trial Cutting Guide Offsetting



Figure 13 ▲ Offset Reading

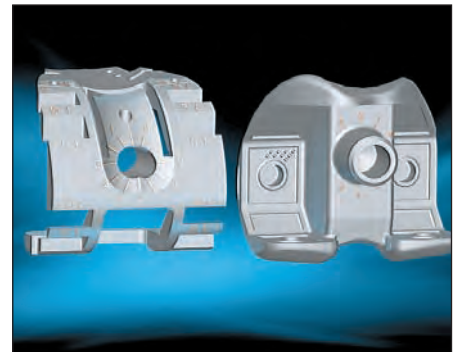


Figure 14 ▲ Trial Cutting Guide and Implant/Trial Clock Face



Figure 14A ▲ Enlarged View of Clock Face (0=Posterior Offset)



### Femoral Sizing Template

8200-0096 #3/5  
8200-0097 #7/9  
8200-0098 #11/13

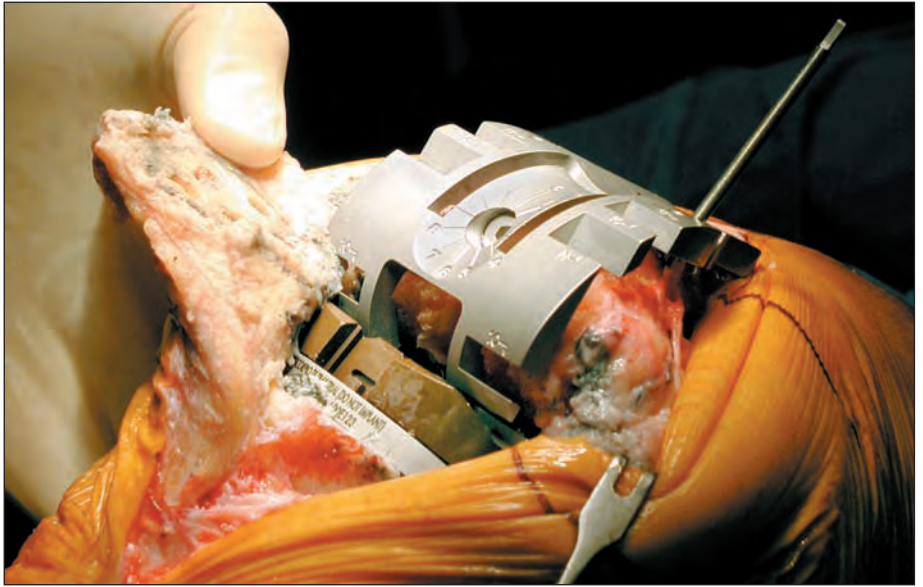
# Trial Cutting Guide Orientation (continued)

## Scorpio Trial Cutting Guide

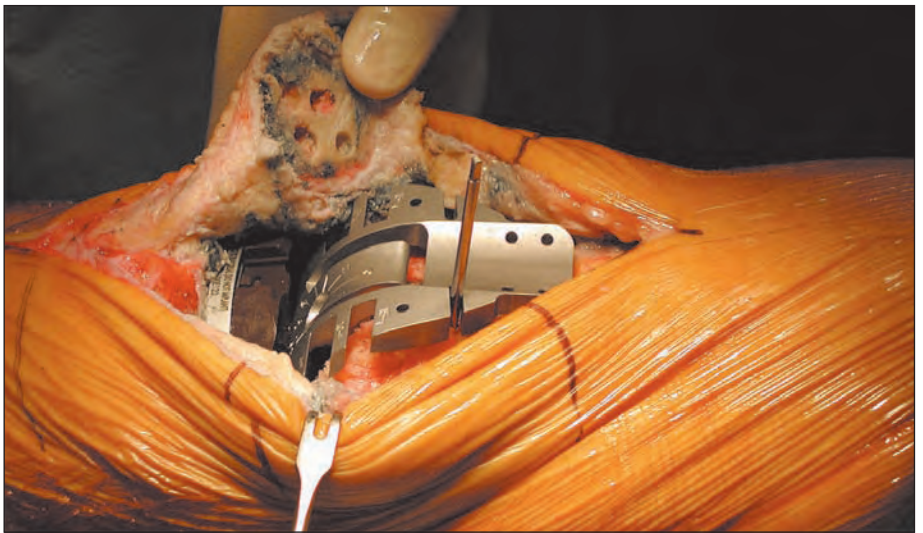
### Preliminary Trial Assessment

With the joint line restored and the appropriate offset determined, a preliminary trial assessment should be conducted with the trial tibial components in place (**Figure 15**).

Select the appropriate trial tibial insert and place it onto the trial tibia. Select the insert that provides varus/valgus stability in full extension (**Figure 16**).



**Figure 15 ▲ Preliminary Trial Assessment**



**Figure 16 ▲ Varus/Valgus Stability Check at Full Extension**



# Trial Cutting Guide Orientation (continued)

## Scorpio Trial Cutting Guide

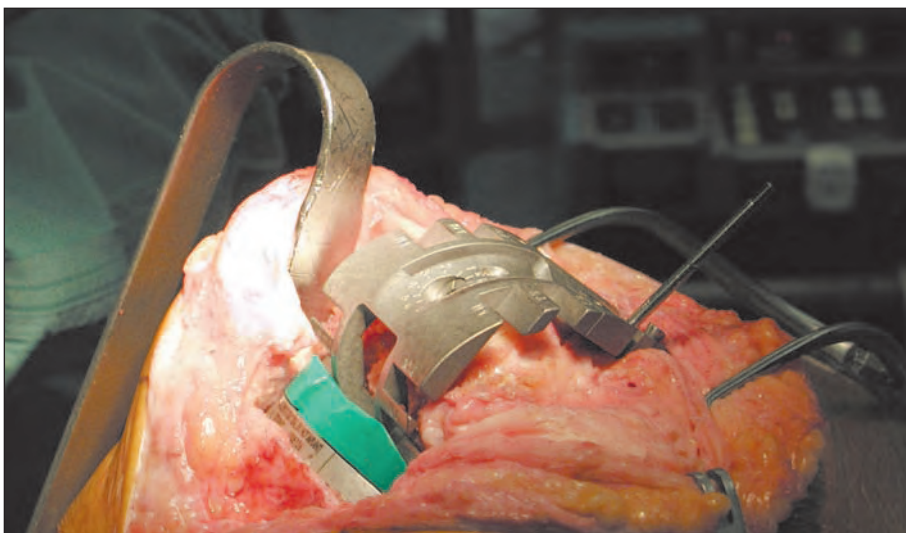
### Rotation

With the knee flexed at 90°, appropriate external rotation can be set by positioning the TCG on the tibial trial insert so that it is seated with no varus/valgus tilt. The transepicondylar axis or Whiteside's axis can be used to estimate rotation as well.

A second headless fixation pin should then be placed in the TCG's anterior pin hole to fix the TCG position once rotation has been established (**Figure 17**). Place as many pins as necessary to securely fix the TCG on the distal femur.

**Note: Headless pins may now be replaced with short headed fixation pins to facilitate joint reduction.**

**Note: The TCG trial inserts do not have a post. This allows for a more accurate assessment of the ligaments during trialing.**



**Figure 17 ▲ Second Fixation Pin – Rotation**



### Headed Fixation Pin

7650-1136 1" Headed Pin

7650-1137 3" Headed Pin

# Trial Cutting Guide Orientation (continued)

## Scorpio Trial Cutting Guide

### Trial Assessment

Once the TCG is fixed to the femur, a trial reduction may be conducted. Reduce the extensor mechanism and patella. The inferior pole of the patella should rest approximately 14mm above the joint line with the knee in 90° of flexion unless patella baja or patella alta was present pre-operatively. Tracking of the patella can then be assessed (Figure 18).

**Note: A suture or towel clip may be used to facilitate reduction and trial assessment (Figure 19).**

It should be noted that the flexion gap often feels “too loose” in the revision situation even when the appropriately sized femoral implant is positioned at the joint line. Using the TCG gives the surgeon the unique opportunity to upsize the femoral component and offset the next size femur to selectively fill the flexion gap that feels “too loose.” However, if upsizing results in poor tracking and “overstuffing of the joint”, the surgeon need only return to the previous size TCG and offset.

**Note: A full evaluation of stability and range of motion can be performed before making any resections on the distal femur. Adjustment of the implant position and size is possible before making any femoral bone cuts.**

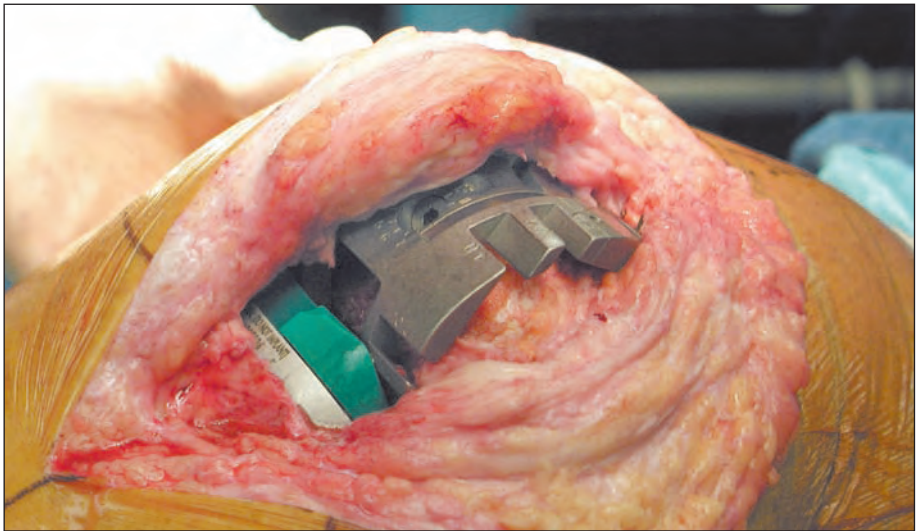


Figure 18 ▲ Preliminary Trial Reduction

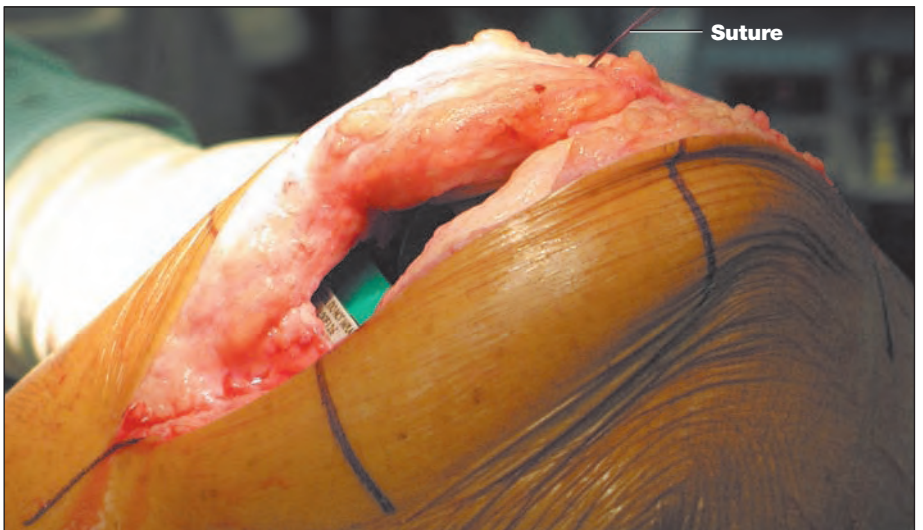


Figure 19 ▲ Preliminary Trial Reduction With Suture



# Femoral bone Cuts

## Scorpio Trial Cutting Guide

**Note: A Stryker 152 saw blade (narrow-thick) or a reciprocating saw blade are recommended for augment cuts and the box cut.**

### Augment Cuts

With the TCG properly positioned, visually determine the appropriate posterior and distal resections required (Figure 20 and Figure 21). A blade runner may be used to assess the level of resection if necessary. The appropriate cut is selected by resting the blade on the surface of the TCG apertures that will provide a clean up cut.

**Note: If an augment cannot effectively “fill the gap,” i.e., deficiencies greater than 15mm distally or 10mm posteriorly, a bone graft may be required (Figure 22).**

### Box Cut

When making the box cut, cut along the outer sides of the box guide and cut completely through the femur (Figure 23 and Figure 24). The posterior portion of the proximal box cannot be completed due to the presence of the stem. Complete the proximal posterior box cut after the TCG has been removed using the initial resection as the guide.

**Note: The sides of the box may be completed with a distal approach (Figure 25) in addition to the anterior approach.**

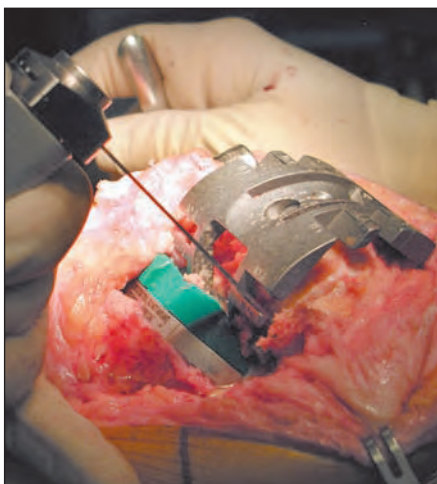


Figure 20 ▲ Posterior Femoral Cuts

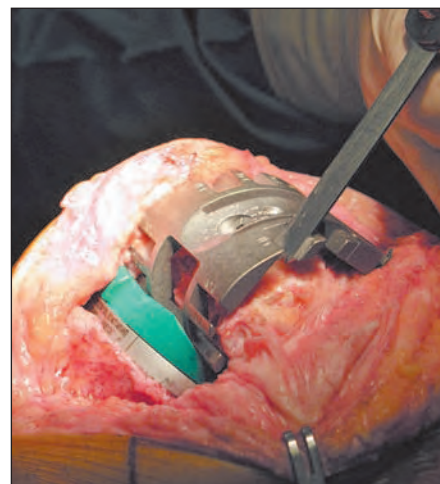


Figure 21 ▲ Distal Femoral Cuts



Figure 22 ▲ Bone Graft

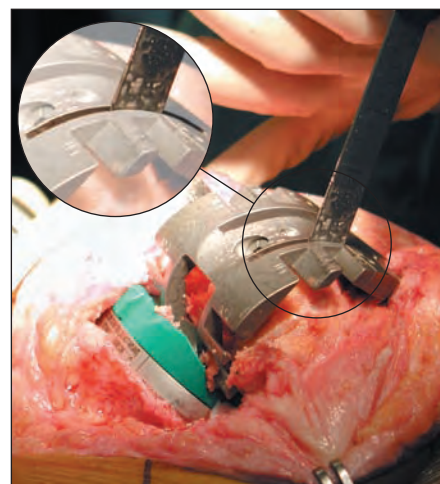


Figure 23 ▲ Box Cut – Side Walls

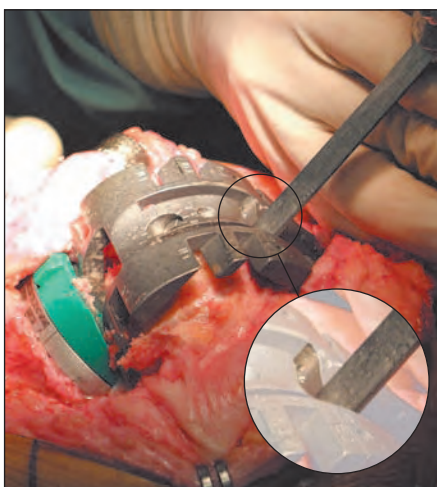


Figure 24 ▲ Box Cut – Proximal Wall



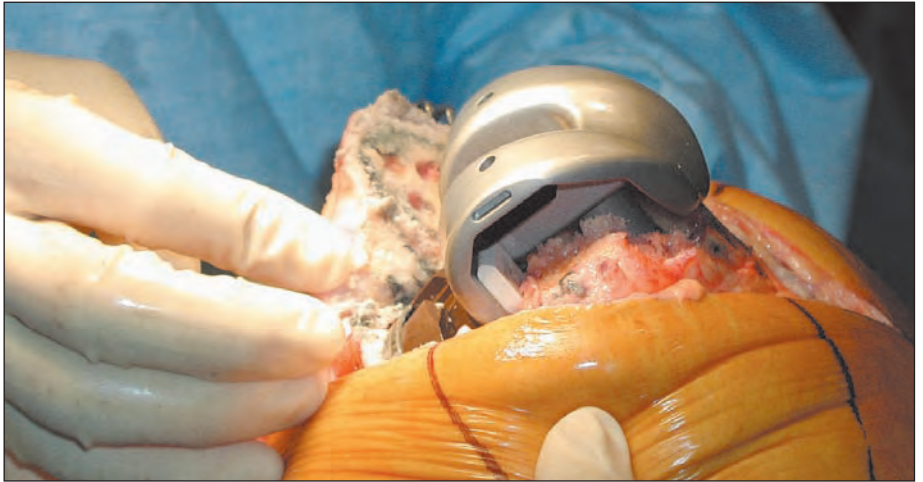
Figure 25 ▲ Box Cut – Distal Approach

# Final Trial Assessment

## Scorpio Trial Cutting Guide

A final trial assessment should be conducted with the Scorpio TS trial femoral components to verify the accuracy of the cuts and that the offset has been properly recreated (**Figure 26**).

See the Scorpio Total Revision Knee System Surgical Protocol (Lit. No. LSTS/ST, page 10) for details on trial assembly and trial reduction.



**Figure 26 ▲ Final Trial Assessment**



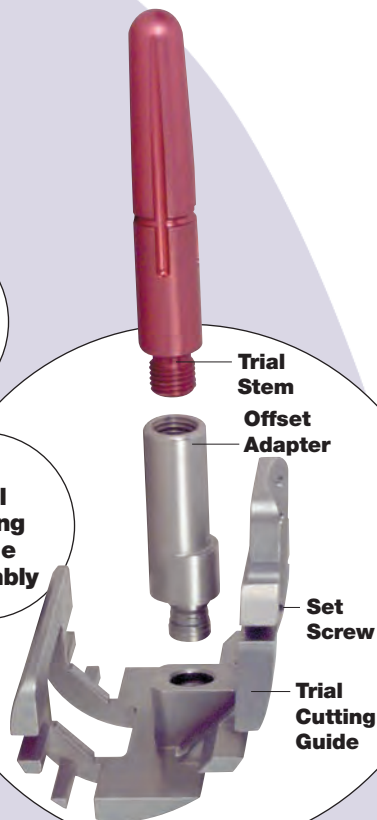
# Quick Pictorial Surgical Technique Reference

## Scorpio Trial Cutting Guide

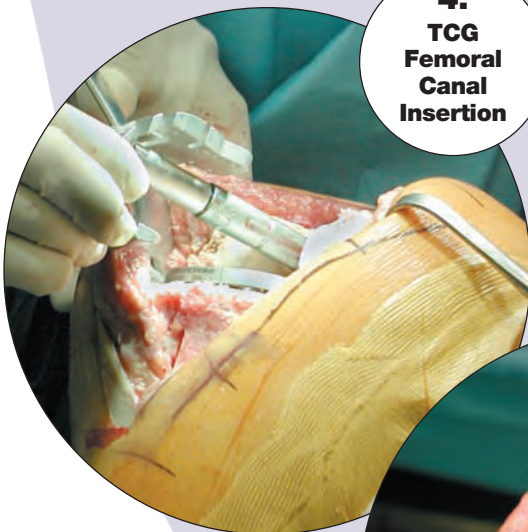
**1.**  
**Tibial**  
**Canal**  
**Preparation**

**2.**  
**Femoral**  
**Canal**  
**Preparation**

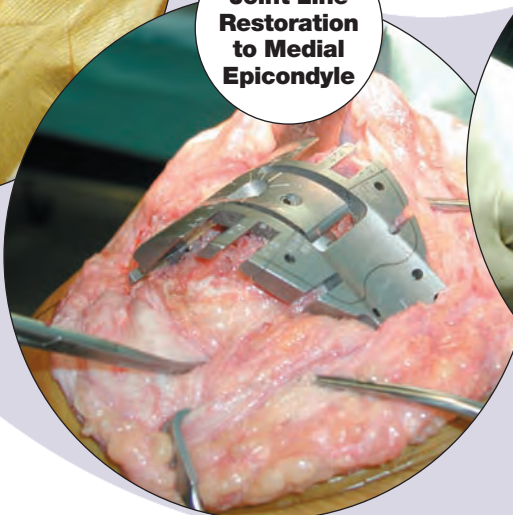
**3.**  
**Trial**  
**Cutting**  
**Guide**  
**Assembly**



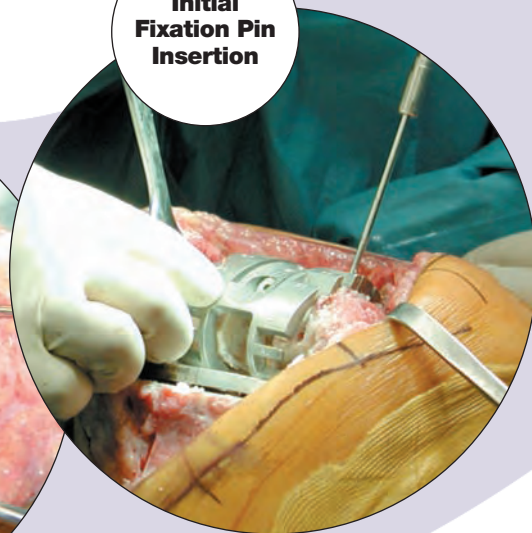
**4.**  
**TCG**  
**Femoral**  
**Canal**  
**Insertion**



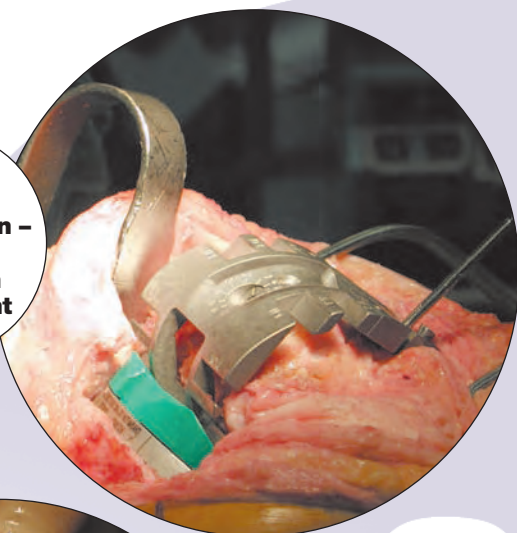
**5.**  
**Joint Line**  
**Restoration**  
**to Medial**  
**Epicondyle**



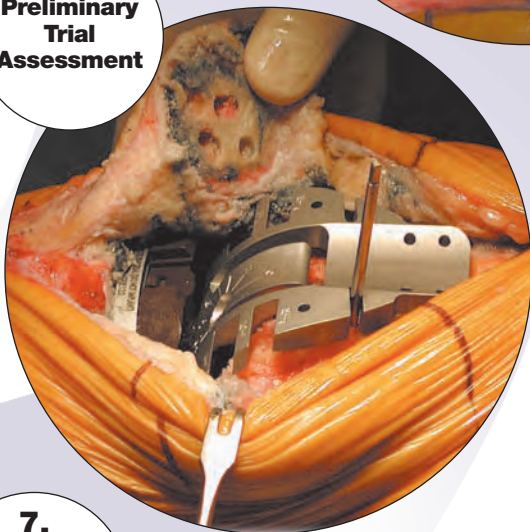
**6.**  
**Initial**  
**Fixation Pin**  
**Insertion**



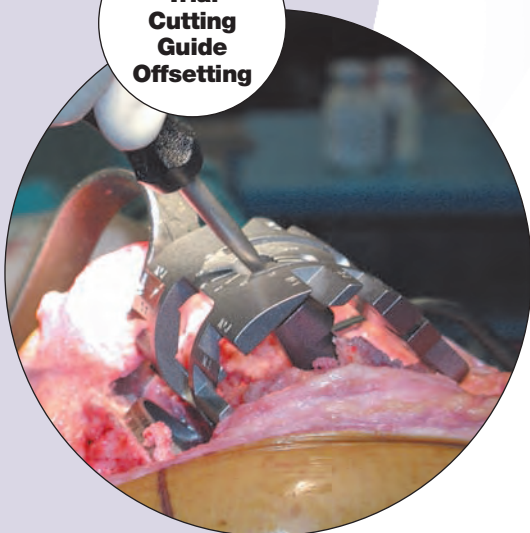
**9.**  
**2nd**  
**Fixation Pin –**  
**External**  
**Rotation**  
**Alignment**



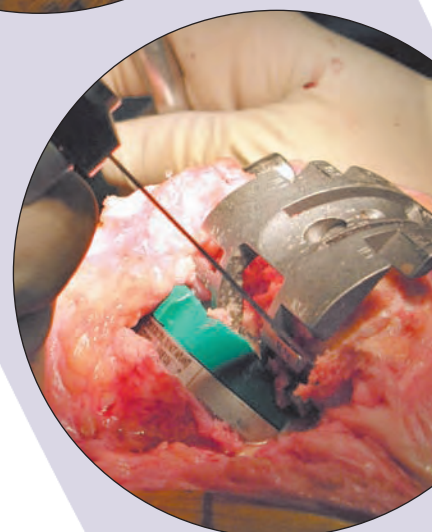
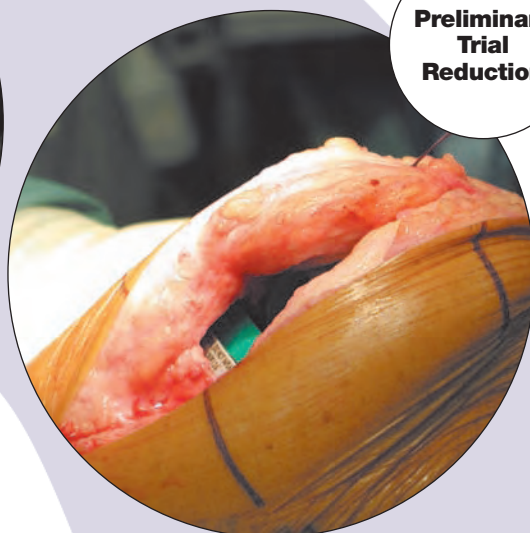
**8.**  
**Preliminary**  
**Trial**  
**Assessment**



**7.**  
**Trial**  
**Cutting**  
**Guide**  
**Offsetting**



**10.**  
**Preliminary**  
**Trial**  
**Reduction**



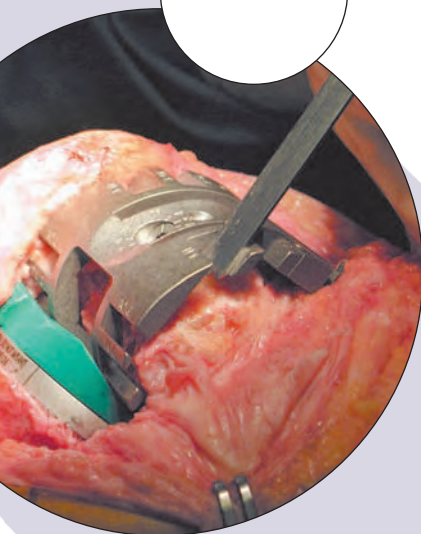
# Quick Pictorial Surgical Technique Reference

## Scorpio® Trial Cutting Guide

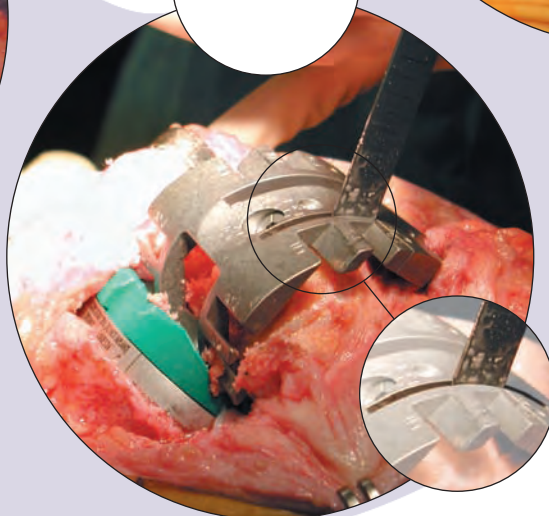
**11.**  
**Posterior**  
**Femoral Cuts**



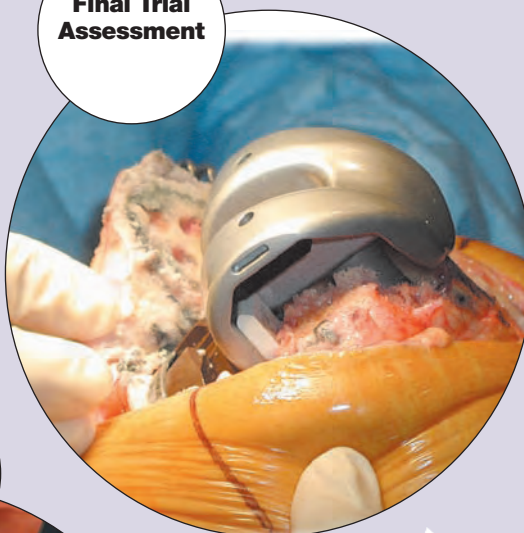
**12.**  
**Distal**  
**Femoral Cuts**



**13.**  
**Box Cut**

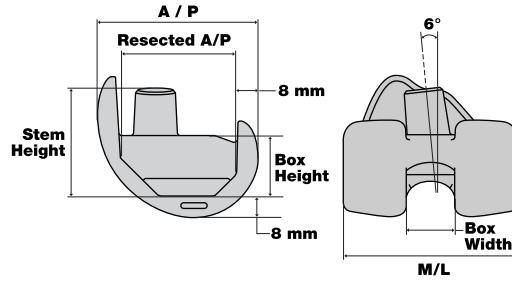


**14.**  
**Final Trial**  
**Assessment**



# Sizing Information

## Scorpio Trial Cutting Guide



**Scorpio TS Femoral Component Specifications**

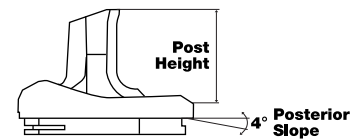
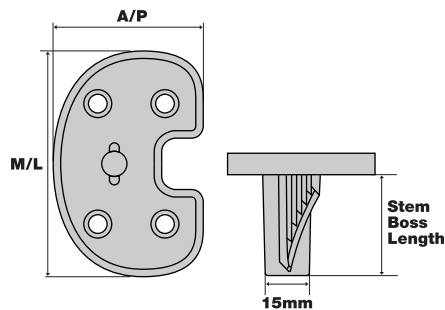
Size	A/P-Med (mm)	A/P-Lat (mm)	M/L (mm)	Resected A/P (mm)	Box Height (mm)	Intercondylar Box Width (mm)	Condylar Width (mm)	Stem Height* (mm)
#3	52	54	56	35	20	17	20	42
#5	56	58	61	39	20	17	22	42
#7	60	62	66	44	23	19	24	46
#9	66	68	71	49	23	19	26	46
#11	72	72	76	53	25	21	28	48
#13	74	76	81	58	25	21	30	48

\*With end cap

**Tibial Baseplates\*\***

	77-4003	77-4005	77-4007	77-4009	77-4011
<b>76-4103</b>	72-4-03xx	72-4-05xx			
<b>76-4105</b>	72-4-03xx	72-4-05xx	72-4-57xx Crossover		
<b>76-4107</b>		72-4-75xx Crossover	72-4-07xx	72-4-09xx	
<b>76-4109</b>			72-4-07xx	72-4-09xx	72-4-91xx Crossover
<b>76-4111</b>				72-4-19xx Crossover	72-4-11xx
<b>76-4113</b>					72-4-11xx

\*\*Scorpio® PS Inserts may be used.



**Scorpio TS Tibial Insert Specifications**

Size	A/P (mm)	M/L (mm)	Post Height (mm)	Post Width (mm)
3	40	61	23	16
5	44	66	23	16
7F/5T	44	66	27	18
5F/7T	47	71	23	16
7	47	71	27	18
9	51	77	27	18
11F/9T	51	77	29	20
9F/11T	54	82	27	18
11	54	82	29	20

**Scorpio TS Tibial Tray Specifications**

Size	A/P (mm)	M/L (mm)	Stem Boss Length* (mm)
3	40	61	35
5	44	66	35
7	47	71	37
9	51	77	37
11	54	82	43
13	58	88	43

\*With end cap





---

**Joint Replacements**

---

**Trauma, Extremities & Deformities**

---

**Craniomaxillofacial**

---

**Spine**

---

**Biologics**

---

**Surgical Products**

---

**Neuro & ENT**

---

**Interventional Spine**

---

**Navigation**

---

**Endoscopy**

---

**Communications**

---

**Imaging**

---

**Patient Care & Handling Equipment**

---

**EMS Equipment**

325 Corporate Drive  
Mahwah, NJ 07430  
t: 201 831 5000

[www.stryker.com](http://www.stryker.com)

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery.

The information presented is intended to demonstrate the breadth of Stryker product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any Stryker product. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Stryker representative if you have questions about the availability of Stryker products in your area.

Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: Scorpio, Stryker. All other trademarks are trademarks of their respective owners or holders.

Literature Number: **LSPK34 Rev. 2**  
MS/GS 06/11

Copyright © Stryker 2011  
Printed in USA.