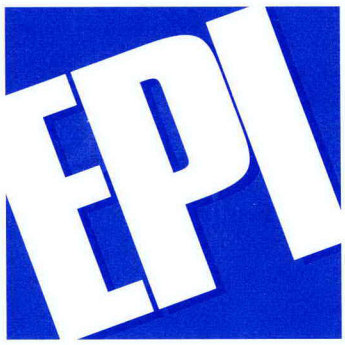
NexGen® LEGACY PS
Complete Knee Solution



NEXGEN® COMPLETE KNEE SOLUTION

Epicondylar Instrumentation Surgical Technique For Legacy™ Posterior Stabilized Knee

zimmer

WMT 1028-1

INTRODUCTION

Successful total knee arthroplasty is directly dependent on reestablishment of normal lower extremity alignment, proper implant design and orientation, secure implant fixation, and adequate soft tissue balancing and stability. The *NexGen* Epicondylar Instruments are designed to help the surgeon accomplish these goals by combining optimal alignment accuracy with a simple, straightforward technique.

The center of the hip, knee, and ankle are restored to lie on a straight line, establishing a neutral mechanical axis. The femoral and tibial components are oriented perpendicular to this axis. Femoral rotation is determined using the collateral ligament attachment to the epicondyles, (the transepicondylar axis). The A/P position of the femoral component is ascertained by a combination of anterior and posterior referencing. Well-designed instruments allow accurate cuts to help ensure secure component fixation. Ample component sizes allow soft tissue balancing with appropriate soft tissue release.

This surgical technique was developed in conjunction with:

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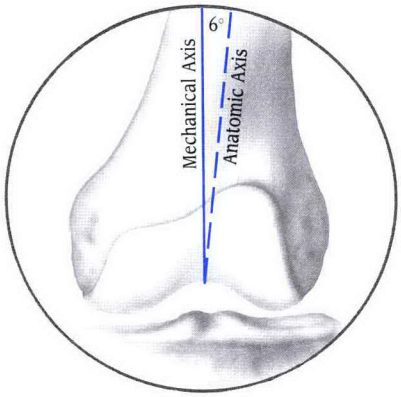
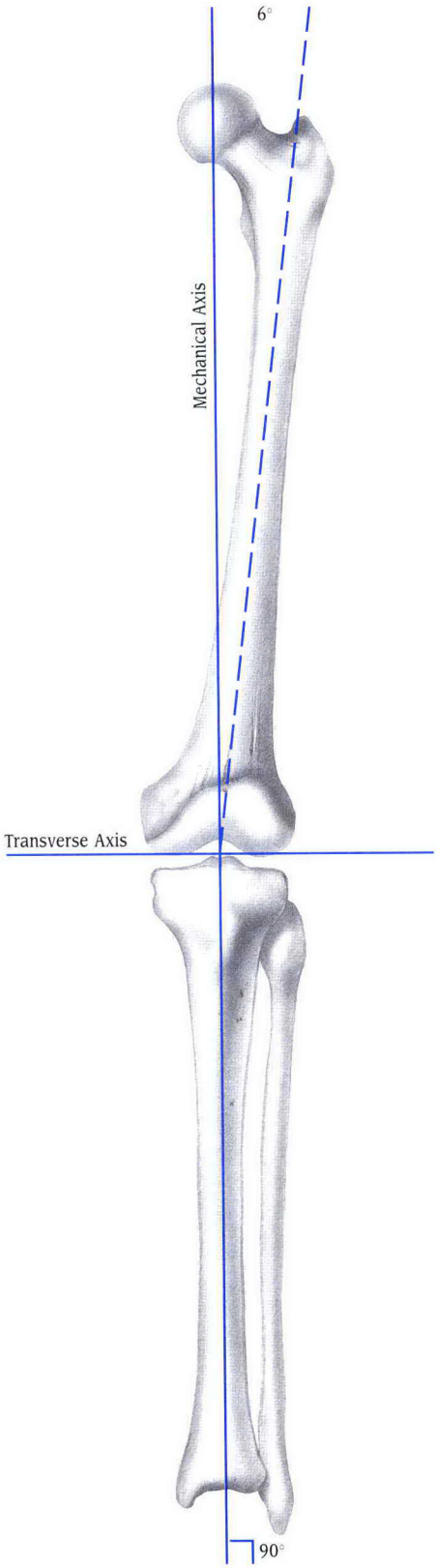
PREOPERATIVE PLANNING

Use the template overlay (available through your Zimmer representative) to determine the angle between the anatomic axis and the mechanical axis. This angle will be reproduced intraoperatively. This surgical technique ensures that the distal femur will be cut perpendicular to the mechanical axis and, after soft tissue balancing, will be parallel to the resected surface of the proximal tibia.





SURGICAL APPROACH

The femur, tibia, and patella are prepared independently, and can be cut in any sequence using the principle of measured resection (removing enough bone to allow replacement by the prosthesis). Adjustment cuts may be needed later (pg. 15).

SIZE THE FEMUR

Drill a hole in the center of the patellar sulcus of the distal femur (Fig. 1), making sure that the hole is parallel to the shaft of the femur in both the anteroposterior and lateral projections. The hole should be approximately one-half to one centimeter anterior to the origin of the posterior cruciate ligament. Medial or lateral displacement of the hole may be needed according to preoperative templating of the A.P. radiograph.

Use the 8mm IM Drill with step to enlarge the entrance hole on the femur to 12mm in diameter. This will reduce IM pressure during placement of subsequent IM guides. Suction the canal to remove medullary contents.

Insert the IM Femoral A/P Sizing Guide into the hole until it contacts the distal femur. Compress the guide until the anterior boom contacts the anterior cortex of the femur, and both feet rest on the cartilage of the posterior condyles. Flexion or extension of the guide can produce inaccurate readings. Check to ensure that the boom is not seated on a high spot, or an unusually low spot on the anterior cortex.

Read the femoral size directly from the guide (Fig. 2). If the indicator is between two sizes, the smaller size is typically chosen which will require "in between" placement of the A/P Cutting Guide. *(See page 10 for more detail on "in between" placement.)* The sizing can be confirmed when the anterior and posterior femoral condyles are cut, along with any adjustment to the A/P location.

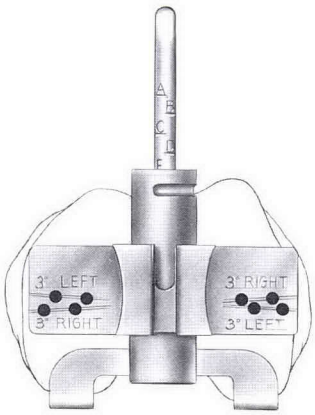


Fig. 2

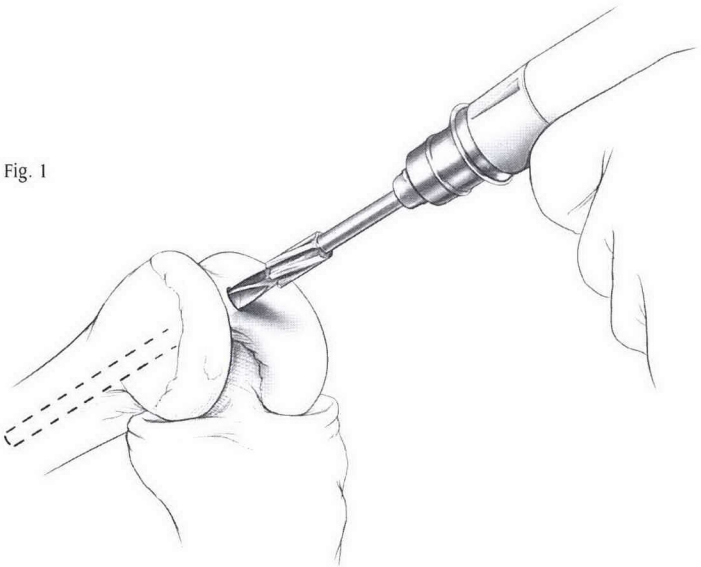


Fig. 1

ESTABLISH FEMORAL ALIGNMENT

In this step, the valgus angle and depth of distal femoral resection are set.

First, set the IM Alignment Guide to the proper valgus angle as determined by preoperative radiographs. Check to ensure that the proper "Right" or "Left" indication is used and engage the lock mechanism (Fig. 3).

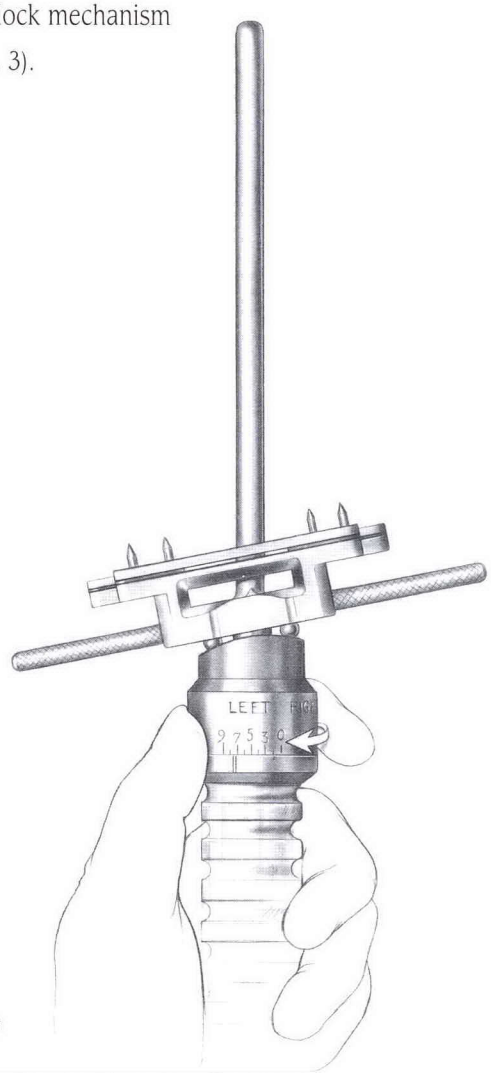
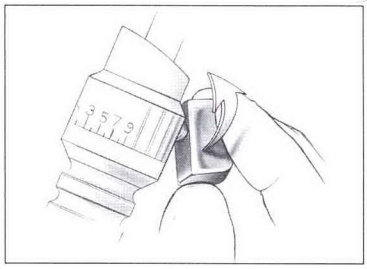


Fig. 3



The Standard Cut Block must be attached to the IM Alignment Guide for a standard distal femoral resection. The plate should be tightened on the guide prior to use, but the screws should be loosened for sterilization. Remove the Standard Cutting Block if a large flexion contracture exists. This will allow for an additional 3mm of distal femoral bone resection (Fig. 4).

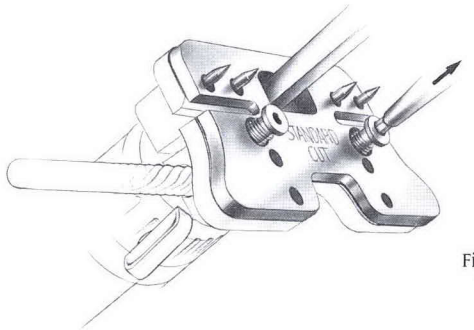


Fig. 4

Insert the guide into the IM hole on the distal femur.

Optional Technique:

An Extramedullary Alignment Arch and Alignment Rod can be used to confirm the alignment. If this is anticipated, identify the center of the femoral head before draping. If extramedullary alignment will be the only mode of alignment, use a palpable radiopaque marker in combination with an A/P x-ray to ensure proper location of the femoral head.

Use the epicondylar axis as a guide in setting the orientation of the IM Alignment Guide. Position the handles of the guide relative to the epicondyles. This does not set rotation of the femoral component, but keeps the distal cut oriented to the final component rotation.

Once the proper rotation is achieved, impact the IM guide until it seats on the most prominent condyle. After impacting, check to ensure that the valgus setting has not changed. Ensure that the guide is contacting at least one distal condyle. This will set the proper distal femoral resection.

CUT THE DISTAL FEMUR

While the IM Alignment Guide is being inserted by the surgeon, the scrub nurse should attach the Distal Femoral Cutting Guide to the appropriate Distal Placement Guide.

The Distal Placement Guide sets 3° of flexion into the distal femoral cut to help protect against notching of the anterior femoral cortex.

Ensure that the attachment screw is tightened (Fig. 5). Verify that the anterior thumb screw is backed out, away from the bone surface.

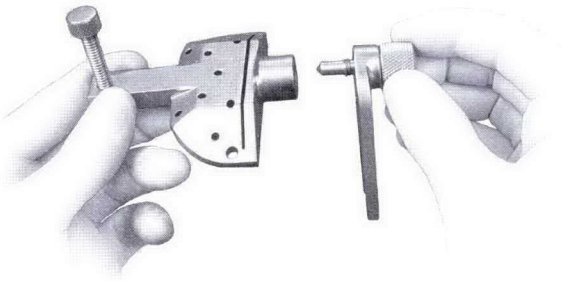


Fig. 5

Insert the Distal Placement Guide with the Cutting Guide into the IM Alignment Guide until the Cutting Guide rests on the anterior femoral cortex.

To further stabilize the guide, turn the anterior screw by hand until it contacts the anterior femoral cortex (Fig. 6). Do not overtighten.

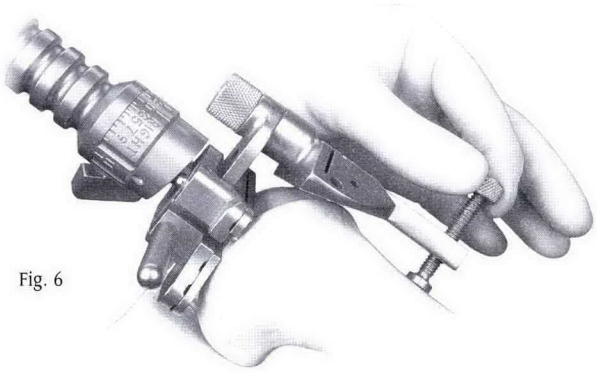


Fig. 6

Place holding pins through two or three of the pin holes in the anterior surface of the Distal Femoral Cutting Guide to secure it further to the femur (Fig. 7).

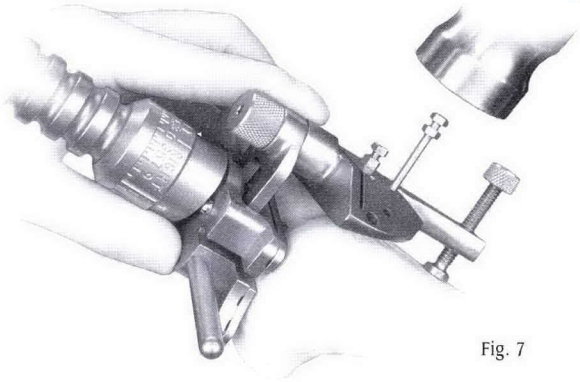


Fig. 7

Completely loosen the attachment screw (Fig. 8) in the Distal Placement Guide.

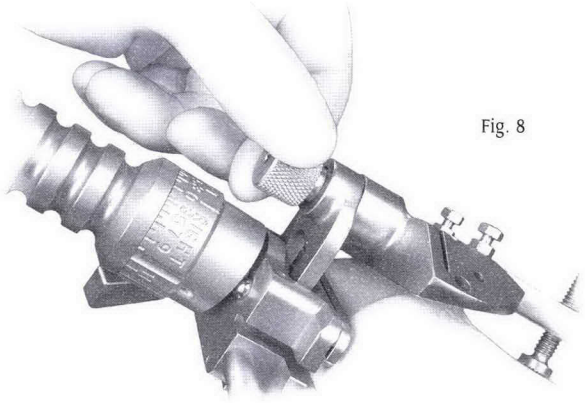


Fig. 8

Use the Slaphammer Extractor to remove the IM Alignment Guide and the Distal Placement Guide (Fig. 9).

Cut the distal femur through the distal cutting slot in the cutting guide using a .050" blade (Fig. 10). This slot removes the same amount of bone that will be replaced by the femoral component. (The correct thickness of bone resection is determined in the previous step by having the IM Alignment Guide flush against the most prominent condyle.)

Check the flatness of the distal femoral cut with a flat surface. (A/P Cutting Guides or the Distal Femoral Recutting Plate may be used for this purpose.) If necessary, modify the distal femoral surface so that it is completely flat. This is extremely important for the placement of subsequent guides and for proper fit of the implant.

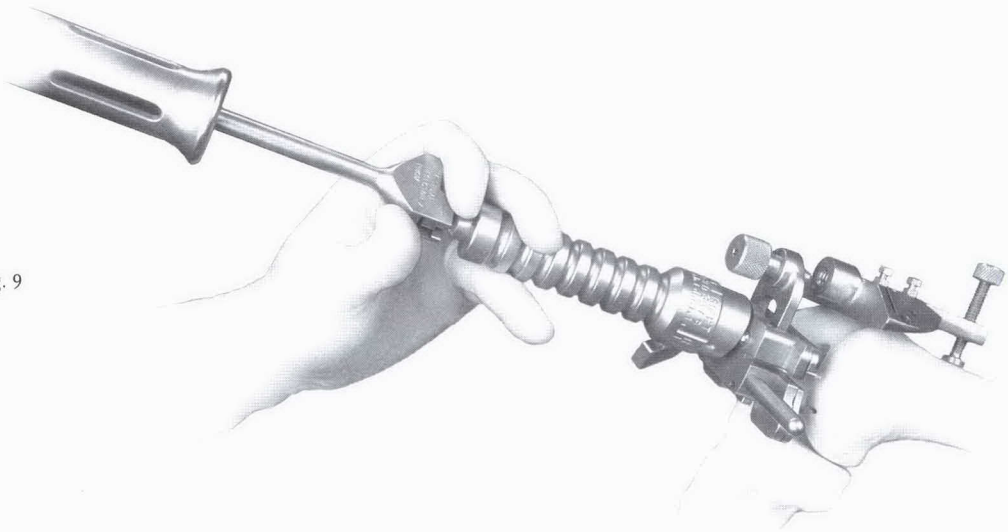


Fig. 9

Fig. 10

ESTABLISH FEMORAL ROTATION

Identify the epicondyles. To identify the lateral epicondyle it is necessary to dissect away the patello-femoral ligament. The lateral epicondyle is a discrete point at the center of the lateral collateral ligament attachment. The medial epicondyle can be found by removing the synovium from the medial collateral ligament attachment to the femur. The medial collateral ligament has a broad attachment to the medial epicondyle forming an approximate semicircle (Fig.11). Choose the center of the diameter. Mark these two points with methylene blue (Fig. 12). Then, draw a line between the two epicondyles on the resected surface of the distal femur (Fig. 13). This line represents the epicondylar axis.

A line can also be drawn along the deepest point of the patellar sulcus to serve as an additional reference point.

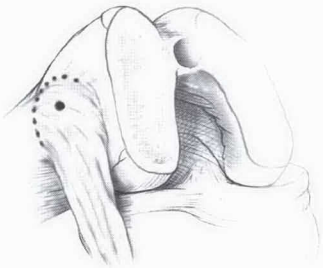


Fig. 11

Place the Epicondylar Guide along the line drawn on the distal femur (Fig. 14). Ensure correct orientation by checking the handles of the guide relative to the epicondyles. The handles should be in line with the axis. Center the guide medio-laterally using the line along the patellar sulcus or the intramedullary canal.

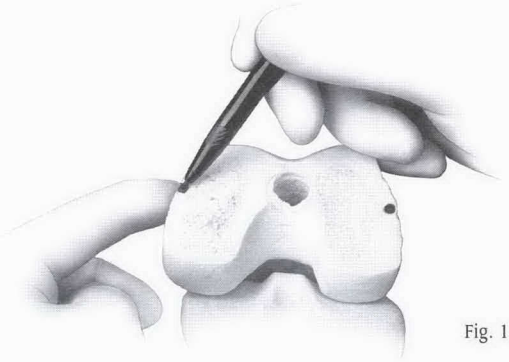


Fig. 12

Fig. 13

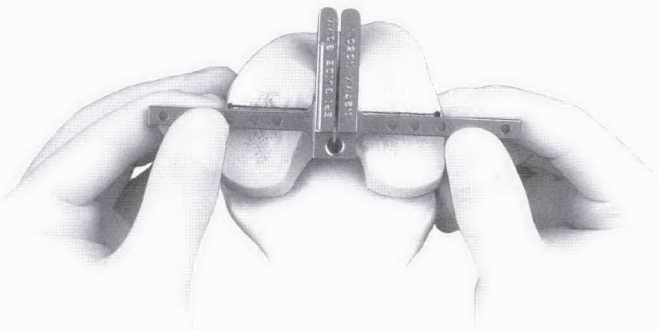


Fig. 14

SECONDARY LANDMARKS FOR FEMORAL ROTATION

A/P Axis

The A/P axis of the distal femur as defined by the deepest point of the patellar sulcus, is approximately at right angles to the epicondylar line although there is considerable variation, (90°± 7°).[1]

Posterior Condyles

The epicondylar line is rotated externally 0–8°, (4° ± 4°)[1]*, relative to the posterior condylar line (Fig. 15). The Posterior Reference/Rotation Guide should read between 0° and 8°.*

Both of these secondary landmarks can be used to confirm femoral rotation.

When the proper rotation is achieved, secure the Epicondylar Guide with two pins.

Using an oscillating blade marked to a 30mm depth, cut the distal femur through the slot in the Epicondylar Guide (Fig. 16). The Epicondylar Guide provides a 30mm line in order to measure and mark the oscillating blade.

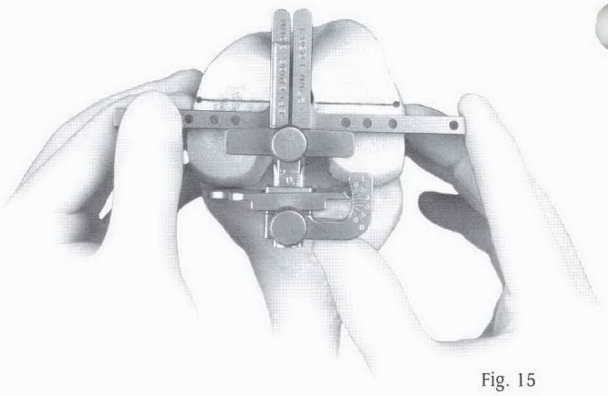


Fig. 15

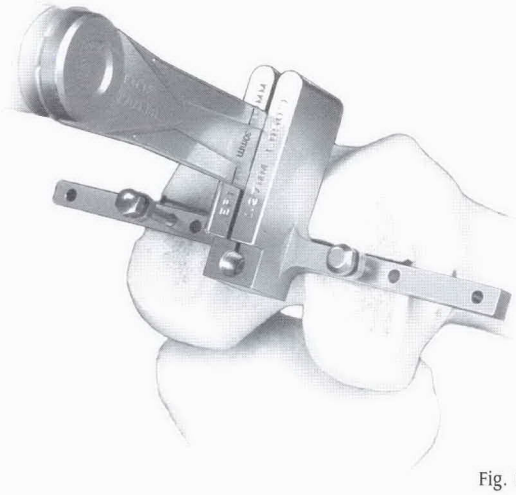
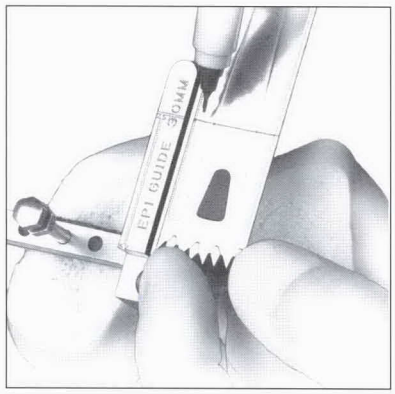


Fig. 16



1) **Poilvache PL, Insall JN, Scuderi GR, Font-Rodriguez DE.** Rotational Landmarks and Sizing of the Distal Femur in TKA. *Presented at the Knee Society Speciality Day*, Atlanta, GA, Feb. 25, 1996.

CUT THE ANTERIOR AND POSTERIOR FEMORAL CONDYLES

Select the correct size A/P Cutting Guide using the measurement from the IM Femoral A/P Sizing Guide. Insert the fin of the A/P Cutting Guide into the slot cut in the distal femur (Fig. 17). This determines the rotation of the instrument.

Fig. 17

To set the A/P location, tap the guide on the anterior edge until the boom contacts the anterior femoral cortex (Fig. 18). The boom indicates the depth at which the anterior cut will exit the femur.

The resection level can be checked using either the Posterior Resection Gauge or the Posterior Reference/Rotation Guide.

Fig. 18

CHECKING THE RESECTION LEVEL USING THE POSTERIOR RESECTION GAUGE

Attach the Posterior Resection Gauge to the A/P Cutting Guide. Rotate the arm of the gauge to check the posterior resection level (Fig. 19). The points where the tip of the arm contact the posterior condyles indicates the position of the posterior condyles of the femoral component, not the resection level. (Note: Typically, more bone is removed from the medial posterior condyle.)

Fig. 19

If the posterior condyle location is not satisfactory, reevaluate the sizing step, or continue with the Posterior Reference/Rotation Guide check which is detailed next.

CHECKING THE RESECTION LEVEL USING THE POSTERIOR REFERENCE/ROTATION GUIDE

The Posterior Reference/Rotation Guide may be used in place of the Posterior Resection Gauge to verify femoral sizing and/or check rotation. Lock the femoral position indicator on the Posterior Reference/Rotation Guide to the zero (0) position (Fig. 20). This zero setting ensures that, when the feet are flush with the posterior condyles, the amount of posterior bone resection will average 9mm.

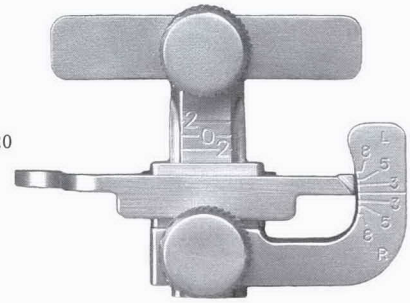


Fig. 20

Attach the Posterior Reference/Rotation Guide to the A/P Cutting Guide. If the posterior condyles prevent this guide from seating, unlock the femoral position indicator. The resulting femoral position indicator reading represents the variation from the standard posterior resection required to balance flexion and extension gaps.

For example, the 2mm line below the "0" setting would indicate that 2mm of additional posterior condyle bone would be resected. Stated another way, the flexion gap would be 2mm larger than the extension gap.

With this information, the A/P Cutting Guide may be adjusted in order to minimize any potential imbalance in the flexion and extension gaps. The 3° distal flexion cut will facilitate this adjustment and help to protect against notching of the anterior femoral cortex.

"IN BETWEEN" SIZING

Typically, it is better to choose the smaller size when selecting a femoral component. This means, however, that additional bone must be removed either anteriorly or posteriorly. If additional anterior bone is removed, there is a risk of notching the femur. Additional posterior resection enlarges the flexion gap. "In-between" placement minimizes both these effects. By moving the anterior boom of the A/P Cutting Guide medially, the guide can be positioned more posteriorly and an additional 2–3mm of anterior bone can be resected. The 3° distal femoral cut facilitates this shift and protects against potential anterior notching. The Posterior Reference/Rotation Guide helps determine "in between" placement. The zero (0) mark on the Posterior Reference/Rotation Guide measures an average 9mm posterior resection and provides a scale which indicates any variance from that 9mm average. If the posterior resection, as determined by the guide, is not within the 2mm markings, the femoral size should be re-evaluated.

Insert two pins to secure the A/P Cutting Guide (Fig. 21). Use the appropriate thickness (.050"/ 1.27mm) blade and an oscillating saw to cut the anterior and posterior femoral condyles (Fig. 22). To yield the optimum cut and implant fit, be sure to use a blade of proper thickness.

Remove the A/P Cutting Guide and excise the anterior and posterior cruciate ligaments and the menisci or their remnants.

Fig. 21

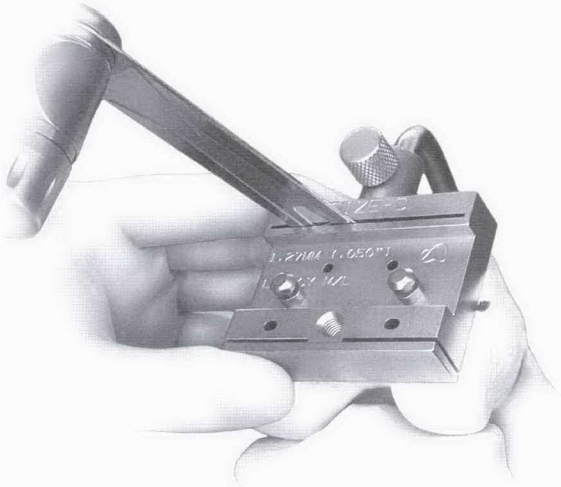


Fig. 22

CUT THE PROXIMAL TIBIA

To improve the exposure of the tibial surface, lever the tibia anteriorly using the Tibial Retractor. Carefully position the retractor so it hugs the posterior cortex of the tibia subperiosteally to prevent neurovascular injury. Another Tibial Retractor can be used to retract the patella laterally.

The Extramedullary Tibial Cutting Guide allows for variability in the thickness of tibial resection after the alignment of the guide has been secured. This facilitates the handling of bone defects in the proximal tibia. Initially set the cutting platform in the middle of its range of travel so it can be adjusted up or down.

Place the foot of the Extramedullary Tibial Cutting Guide over the distal tibia pointing to the center of the ankle (Fig. 23). The center of the talus (the true center of the ankle) is about 5–10mm medial to the midpoint between the subcutaneous palpable medial and lateral malleoli. Another accurate landmark is the subcutaneous tibial crest about 3 inches above the ankle joint. This usually corresponds with the true center of the ankle.

Adjust the slide at the foot of the guide so that the cutting head is parallel to the proximal tibial plateau (Fig. 24).

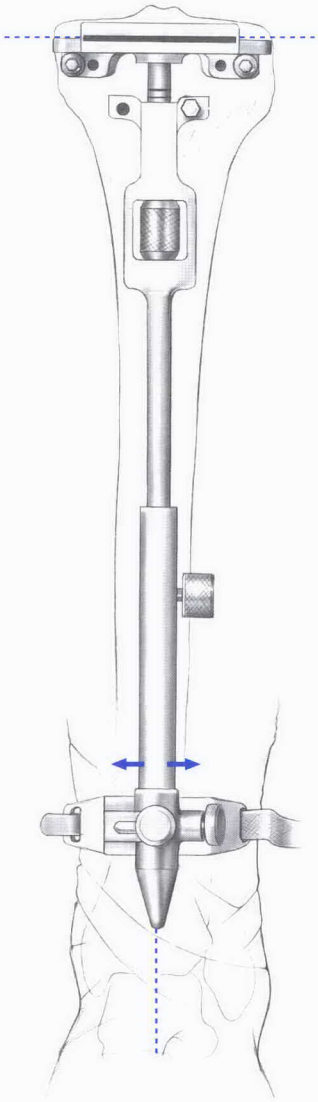


Fig. 23

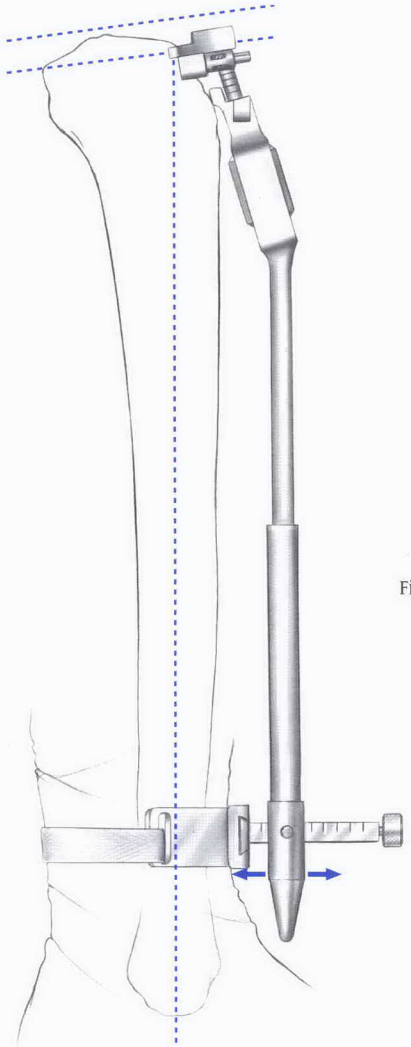


Fig. 24

Position the guide at the proximal tibia so it is proximal to the tibial tubercle beneath the infrapatellar ligament. Center the guide over the proximal tibia in the mediolateral direction so it parallels the mechanical axis of the tibia. The longitudinal axis of the guide will usually lie just medial to the midpoint of the tibial tubercle and be centered over the intercondylar eminence.

Hold the guide in position and pin it to the proximal tibia with one pin on the lateral side. Fine tune all the distal guide positions. Then, insert a second pin in the proximal portion to secure the guide.

Adjust the cutting platform to the desired level of tibial resection (Fig. 25).

A Tibial Depth Resection Gauge is available to help determine the position of the cutting platform. Place the 10mm tab into the cutting slot, and adjust the platform until the arm of the gauge rests on the cartilage of the good condyle (Fig. 26). This will allow the removal of the same amount of bone that the thinnest tibial component would replace.

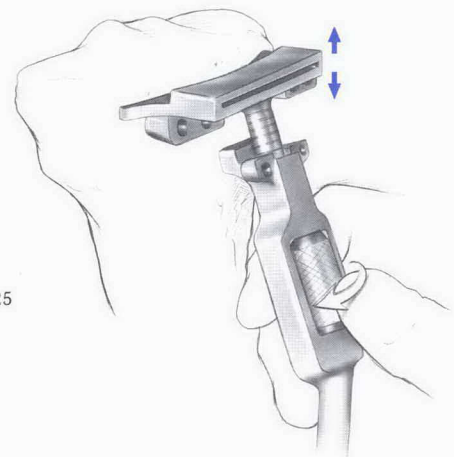


Fig. 25

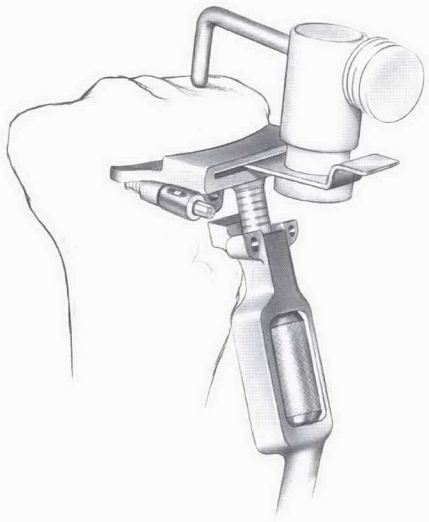


Fig. 26

Before pinning the cutting platform to the bone, check the location of the cut on the posterior tibia by placing the Tibial Resection Guide through the cutting slot (Fig. 27).

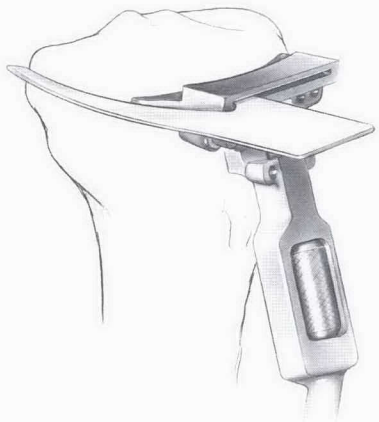


Fig. 27

Secure the cutting platform by inserting two 1/8" fixation pins or two Silver Spring Pins. The cutting platform is designed so the tibial cut can be made either on top of the guide or through the slot in the guide. If the Tibial Depth Resection Gauge was used to determine the amount of resection, the slot should be used to make the cut.

Use a 1.27mm (.050") oscillating sawblade to cut the upper surface of the tibia flat (Fig. 28). Remove the Extramedullary Tibial Cutting Guide when the tibial preparation is complete.

Fig. 28

If the first cut of the proximal tibia is not deep enough, lower the cutting platform to the desired level. Secure the telescoping portion of the guide using different pin holes on the cutting platform and recut the tibia. Calibrations on the telescoping portion of the guide are 2mm apart.

Optional Techniques:

When there is a need to resect additional tibial bone, use the 2mm Recutter. If varus/valgus correction is required, use the 2° Varus/Valgus Recutter. Both recutters reference the existing cut and are secured to the bone with 1/8" pins.

Insert tension spreaders and clean out the intercondylar notch. The cuts should appear parallel.

Perform the final ligament balance.

MEASURE THE FLEXION AND EXTENSION GAPS

With the knee flexed, insert the thinnest Spacer/Alignment Guide between the resected surfaces of the femur and tibia. Insert progressively thicker Spacer/Alignment Guides until the proper soft tissue tension is obtained (this is defined as very limited A/P motion when pushing and pulling on the tibia). Center the arm of the guide over the tibial tubercle and insert the Alignment Rod with Coupler through the hole in the arm. The rod should be parallel to the anatomic axis of the tibia (Fig. 29), and the distal end of the rod should be near the center of the ankle, but slightly closer to the medial malleolus.

Remove the Spacer/Alignment Guide and extend the knee. Reinsert the Spacer/Alignment Guide and the Alignment Rod with Coupler. With the knee fully extended and the foot dorsiflexed, the distal end of the rod should be slightly closer to

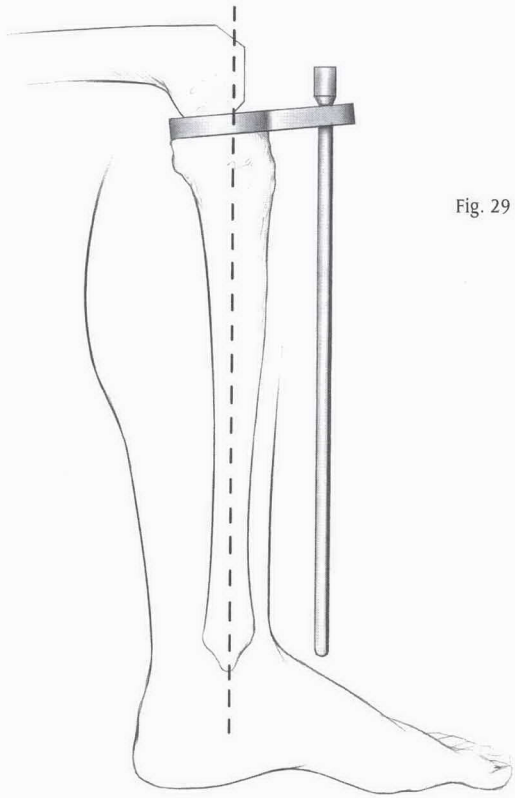


Fig. 29

the medial malleolus. Attach the Alignment Rod extension to the Coupler. The proximal end of the rod should be over the center of the hip joint (Fig. 30).

If the knee is too tight in flexion and extension with the thinnest spacer, the proximal tibia should be recut. If the knee is tight only in extension, the distal femur should be recut. If the knee is tight only in flexion, the femoral component should be downsized.

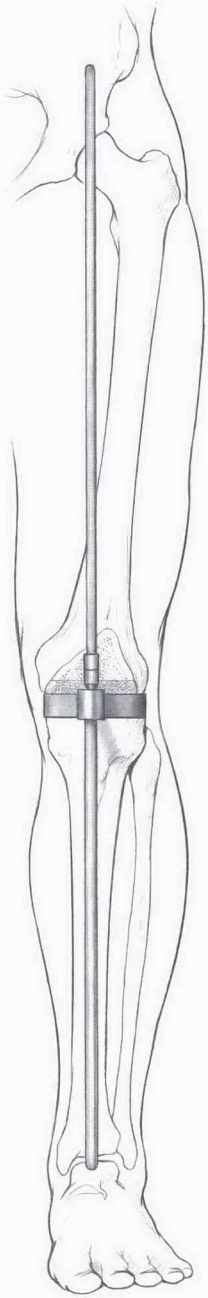


Fig. 30

DISTAL FEMORAL RECUTTING

The Spacer/Alignment Guide that was selected for the flexion space should fit comfortably in extension. If the extension space will not accommodate this size of spacer, the distal femur should be recut using the Distal Femoral Recutter.

Note: When the extension space is too tight, it is incorrect to solve this problem by using a thinner spacer block in flexion (i.e., a thinner tibial component when this option is available). A thinner tibial component will give a looser flexion fit that could result in flexion instability or dislocation.

The amount of additional distal femoral resection is determined by using thinner spacer blocks in extension. (Use Minus Spacer Blocks if necessary.)

The Distal Femoral Recutting Guide provides quick, reproducible results to recut 3 or 5mm of bone. Lay the guide on the anterior cut surface of the femur with the engraving facing up. Place pins through the appropriate holes for the amount of additional resection desired (3 or 5mm) and slide the guide proximally until the pins contact the existing distal cut surface. Pin the recutting guide in place with standard or silver spring pins and recut through the slot (Fig. 31).

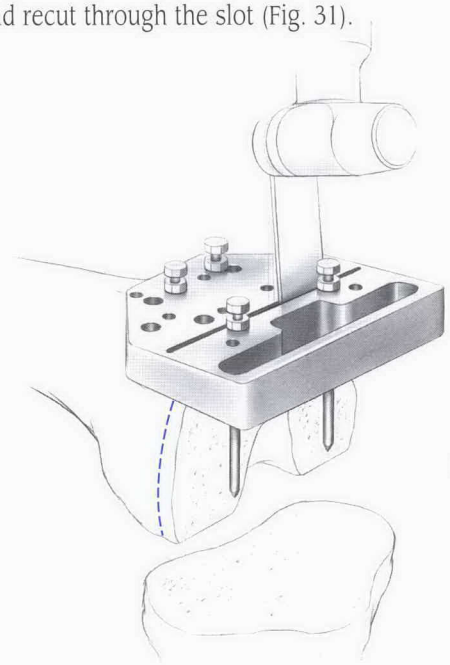


Fig. 31

FEMORAL COMPONENT DOWNSIZING

When the flexion space is smaller than the extension space, consideration should be given to downsizing the femoral component. To downsize, reinsert the smaller size A/P Cutting Guide into the A/P slot on the femur. The additional bone resection can be divided between anterior and posterior femur or be completely posterior, according to the surgeon's judgment. The exact position is determined by moving the fin of the A/P Cutting Guide within the femoral slot, using the anterior boom or the Posterior Resection Gauge to verify A/P position.

Downsizing can also be accomplished by using the Epi Notch/Chamfer Guide of the next smaller femoral size in the next step. The posterior aspect of the guide can be used as a cutting block to recut the posterior condyles for that femoral size (Fig. 32). This results in 4mm of additional bone resection posteriorly and none anteriorly.

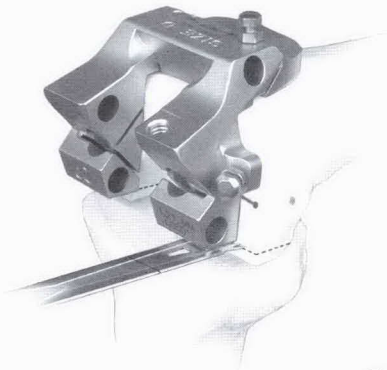


Fig. 32

FINISH THE FEMUR

Select the Epi Notch/Chamfer Guide that is the same size as the A/P Cutting Guide used in the previous step. Place the Epi Notch/Chamfer Guide flush with the anterior and distal surfaces of the femur (Fig. 33).

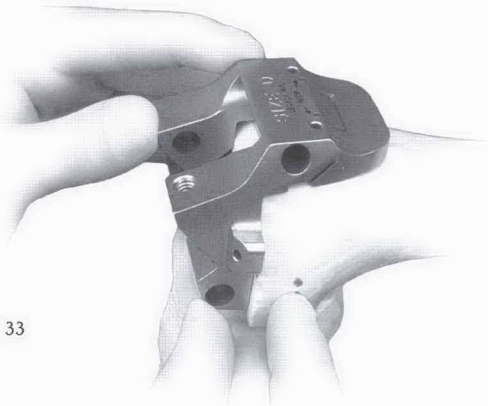
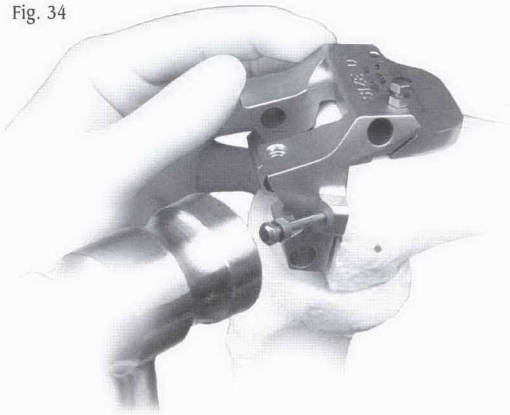


Fig. 33

Position the guide mediolaterally, using the anterior portion of the guide to replicate the location for the anterior lateral flange of the femoral component. This is important because it dictates the mediolateral positioning of the femoral component. Also, the width of the guide equals the distal width of the *Legacy* LPS femoral component. Ensuring that the guide does not move, insert two to three pins to secure the guide to the femur (Fig. 34). (Pin the anterior flange first to stabilize the M/L position.)

Fig. 34



Insert the corresponding Notch Slot Attachment into the Epi Notch/Chamfer Guide. Using the same oscillating blade marked to a 30mm depth, cut the sides of the intercondylar notch for the cam of the femoral component (Fig. 35). It is important to cut to the 30mm mark to ensure proper depth of the box cut. Finish the box cut by cutting the base of the intercondylar notch with a reciprocating or narrow oscillating sawblade (Fig. 36).

Remove the Notch Slot Attachment.

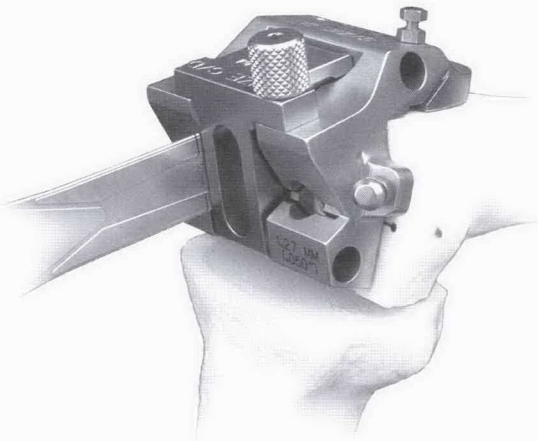


Fig. 35

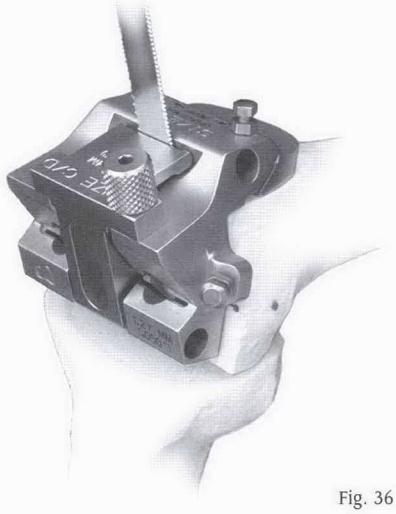


Fig. 36

Make the anterior and posterior chamfer cuts through the slots in the guide (Fig. 37).

Use a reciprocating sawblade or narrow oscillating blade to first cut the base of the trochlear recess (Fig. 38). Do not angle or fan the blade medially or laterally. Then, cut the sides of the trochlear recess through the slot with a reciprocating sawblade (Fig. 39).

Drill the holes for the two femoral pegs (Fig. 40).

Remove the Notch/Chamfer Guide.

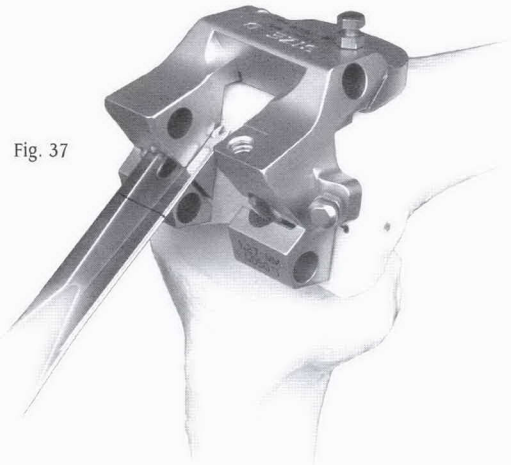


Fig. 37

Fig. 39

Fig. 38

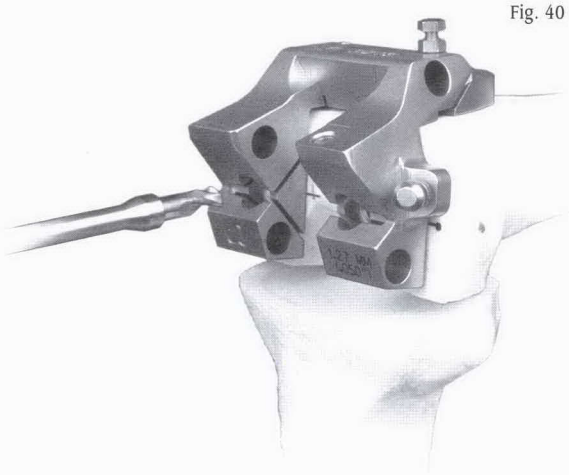


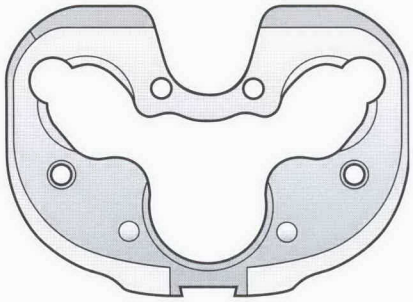
Fig. 40

FINISH THE TIBIA

The tibia can be finished prior to trial reduction if the implant position will be chosen based on anatomic landmarks. Alternatively, the provisionals, in combination with the sizing plate, can be used to perform a trial range of motion to aid in tibial location.

Position Based on Anatomic Landmarks

Select the Stemmed Tibial Sizing Plate Provisional* that provides the desired tibial coverage (Fig. 41).



Fluted Stem Tibial Sizing Plate

Fig. 41

Compare the selected color code designation on the tibial sizing plate provisional to the color code designations on the anterior flange of the selected femoral provisional. At least one of the colors listed on the femoral trial must match at least one color on the sizing plate to ensure that the components in combination with the articular surface will be kinematically matched. The colors must match exactly. For example, Yellow = Yellow. The striped colors are not the same as the standard colors (Yellow ≠ Striped Yellow) and should not be viewed as a match. If there is no match between the femoral provisional and sizing plate, adjust the size of the sizing plate being used to yield a match.

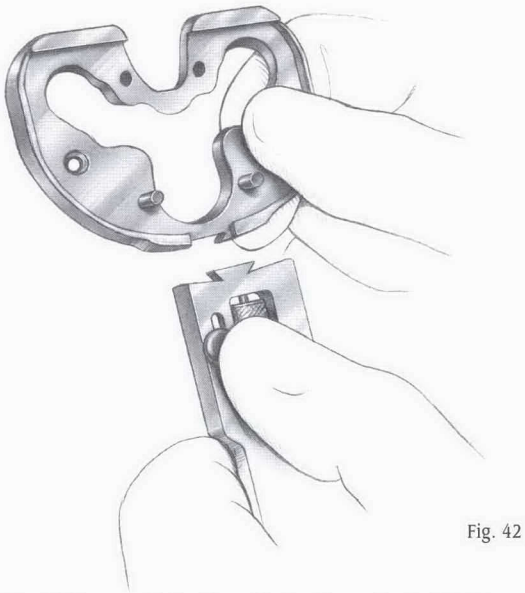


Fig. 42

Attach the modular handle to the selected sizing plate by depressing the button on the handle and engaging the dovetail on the handle with the dovetail on the sizing plate. Secure by tightening the thumb screw (Fig. 42).

Align the handle with the anterior aspect of the tibia. Rotate the sizing plate so the handle points at, or slightly medial to, the midpoint of the tibial tubercle (Fig. 43). The alignment rod can be used to aid in confirming proper varus/valgus alignment.

Pin the plate in place with two Short Head Holding Pins.

Fig. 43

* Do not use the Pegged Tibial Tray with the *NexGen* LPS System.

Position Based on Trial Range of Motion

If using the provisionals and performing a range of motion to determine tibial component placement, complete the patella preparation first. Then, select the proper size of tibial sizing plate provisional. Ensure that the plate chosen provides the desired tibial coverage. Again, a color match with the femoral provisional must occur for a proper kinematic match.

Insert the proper femoral provisional, patella, sizing plate and articular surface. Select the color of articular surface that is the same as the color match chosen for the femoral provisional and sizing plate. Ensure that soft tissue balance is appropriate.

Flex and extend the knee with the provisionals in place. With proper soft tissue balancing complete, the tibial component tends to seat itself in the position where it best articulates with the femur (Fig. 44).

After this self-centering process has occurred, mark the position of the component with methylene blue or electro-cautery (Fig. 45).

Fig. 44

Fig. 45

TIBIAL PLATE PREPARATION

Once the sizing plate is pinned in position, place the Cemented Stem Tibial Drill Guide on the sizing plate and drill for the stem with the Cemented Stem Tibial Drill (Fig. 46). Drill until the first engraved line on the drill is in line with the top of the guide (Fig. 47).

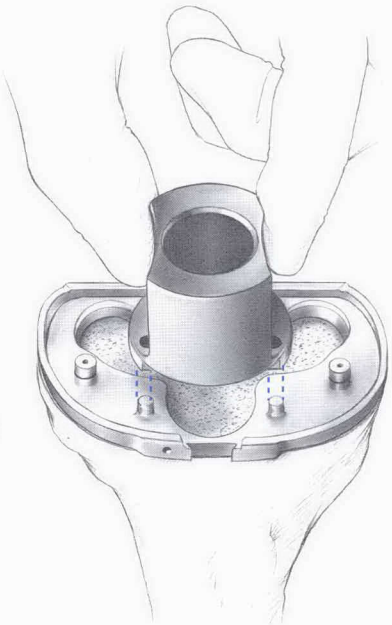


Fig. 46

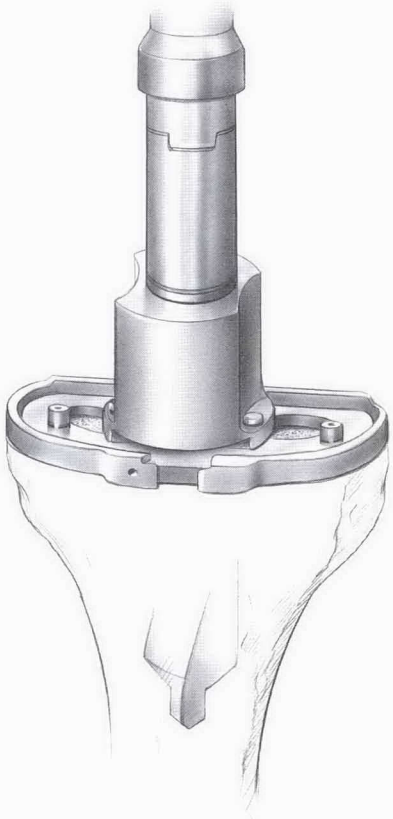


Fig. 47

Assemble the proper size Tibial Broach to the Broach Impactor (Fig. 48). **The broach can only be assembled from the front.**

Fig. 48

Seat the impactor on the sizing plate and impact the broach to the proper depth indicated by the etched groove on the shaft aligning with the impactor handle. The broach has a built-in stop so it cannot be over-impacted (Fig. 49).

Remove the Broach Impactor assembly using the built-in slaphammer, then remove the sizing plate.

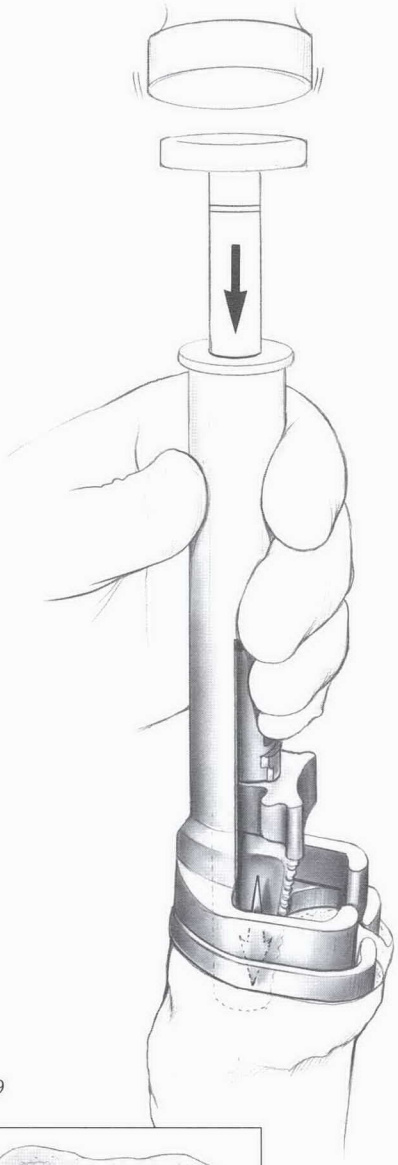
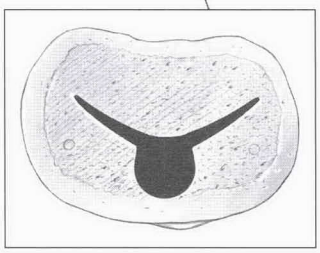


Fig. 49



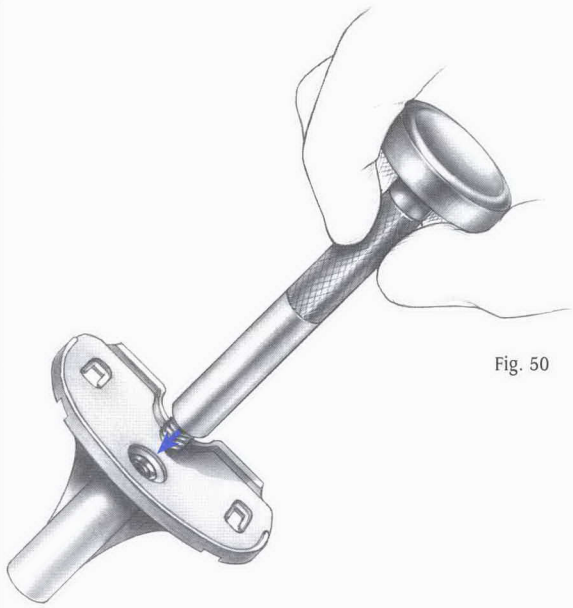


Fig. 50

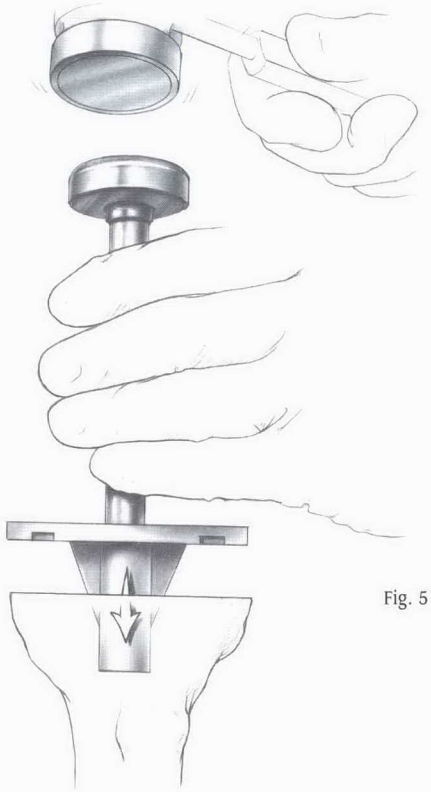


Fig. 51

Use the correct size Stemmed Tibial Provisional to ensure proper fit before implanting the final components. Assemble the impactor onto the tibial provisional until completely seated (Fig. 50). Impact the provisional (Fig. 51).

Be sure that the provisional is fully seated against the resected proximal tibia.

PREPARE THE PATELLA

Sharply dissect through the pre-patellar bursa to expose the anterior surface of the patella. This will provide exposure for affixing the anterior surface into the patella clamp and assures accurate bone resection.

Remove all osteophytes and synovial insertions from around the patella. Be careful not to damage tendon insertions onto the bone. Use the caliper to measure the thickness of the patella (Fig. 52). Subtract the implant thickness from the patella thickness to determine the amount of bone that should remain after resection.

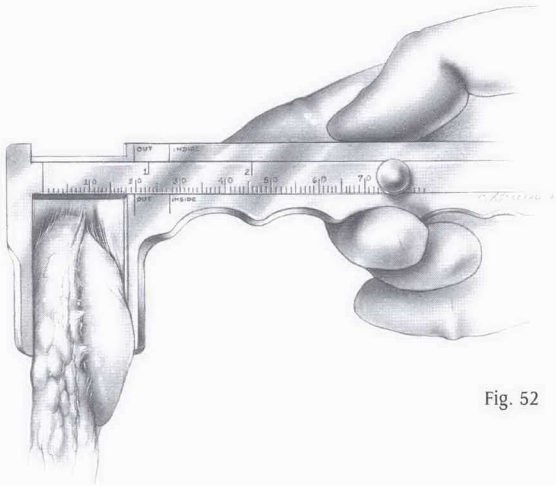


Fig. 52

PATELLA THICKNESS - IMPLANT THICKNESS = BONE REMAINING

ALL-POLY IMPLANT THICKNESSES*

	Micro	Standard
26mm	—	7.5mm
29mm**	—	8.0mm
32mm**	—	8.5mm
35mm	—	9.0mm
38mm	—	9.5mm
41mm	—	10.0mm

* Do not use metal-backed patellar components with the *NexGen Legacy* LPS System.

**Do not use 26mm, 29mm and 32mm patellas with *NexGen Legacy* LPS size G and H Femoral Components.

Note: At least 11mm of total bone will remain to allow for implant pegs if the Patella Reamer is used.

PATELLA REAMER TECHNIQUE

TOTAL SURFACING PROCEDURE

Use the Patella Reamer Surfacing Guides as templates to determine the appropriate size guide and reamer. Choose the guide which fits snugly around the patella, using the smallest guide possible (Fig. 53). If the patella is only slightly larger than the Total Surfacing Guide in the mediolateral dimension, use a rongeur to remove the medial or lateral edge until the bone fits the guide.

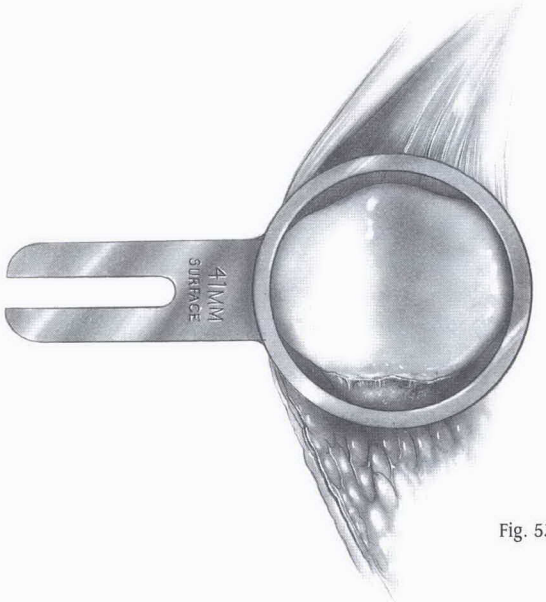


Fig. 53

Insert the appropriate size Patella Reamer Surfacing Guide into the Patella Reamer Clamp (Fig. 54). Turn the locking screw until tight.

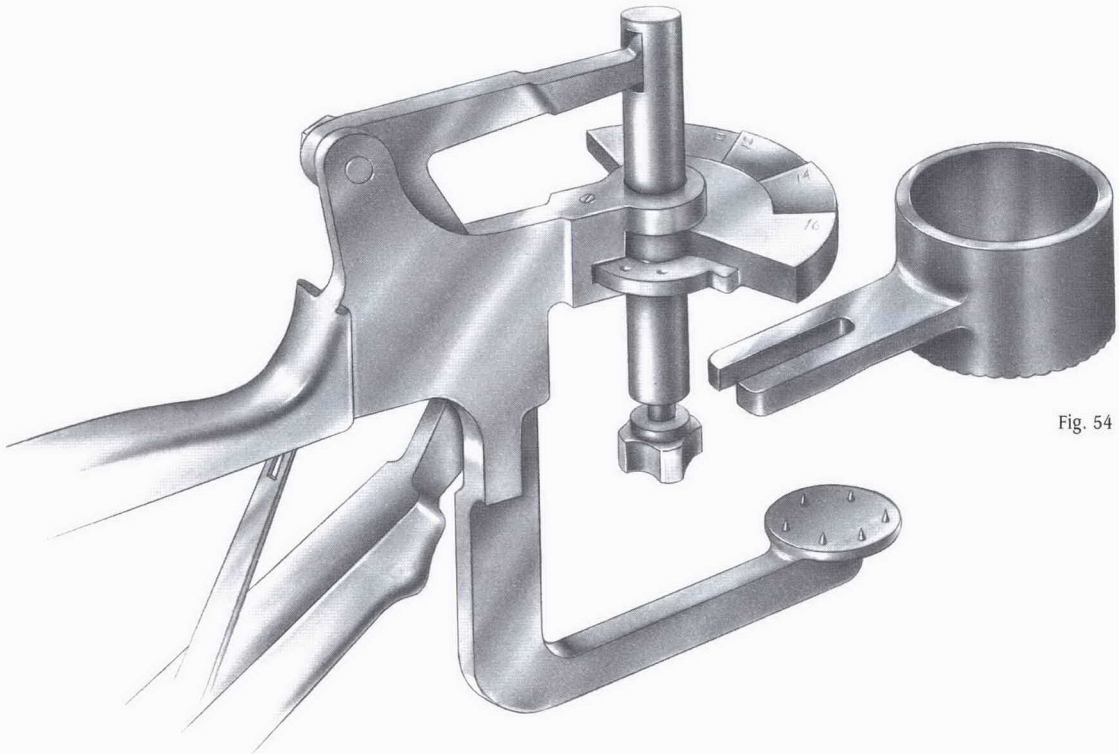


Fig. 54

Apply the Patella Reamer Clamp at a 90° angle to the longitudinal axis with the Patella Reamer Surfacing Guide encompassing the articulating surface of the patella. Squeeze the clamp until the anterior surface of the patella is fully seated against the fixation plate (Fig. 55). Turn the clamp screw to hold the instrument in place. The anterior surface must fully seat upon the pins and contact the fixation plate.

Turn the clamp wing to the proper indication for the correct amount of bone that is to remain after reaming (Fig. 56).

Attach the appropriate size Patella Reamer Blade to the appropriate size Patella Reamer Shaft (Fig. 57). Use only moderate hand pressure to tighten the blade. Do not overtighten the blade. Insert the Patella Reamer Shaft into a Drill/ Reamer. Insert the reamer assembly into the Patella Reamer Surfacing Guide. Raise the reamer slightly off the bone and bring it up to full speed. Advance it slowly until the prominent high points are reamed off. Continue reaming with moderate pressure until the step on the reamer shaft bottoms out on the clamp wing. Remove the reamer clamp assembly.

Fig. 55

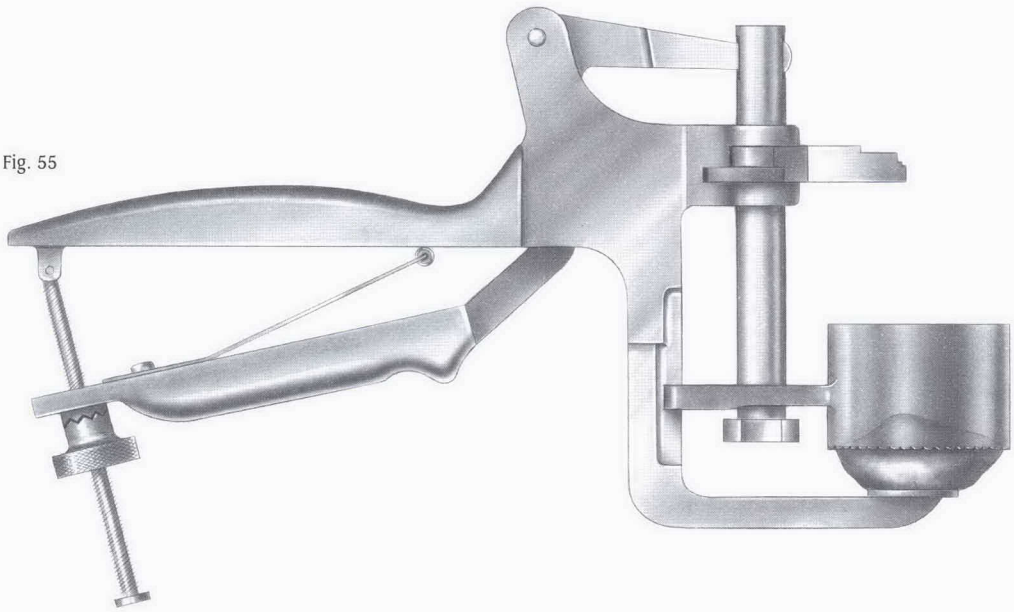


Fig. 56

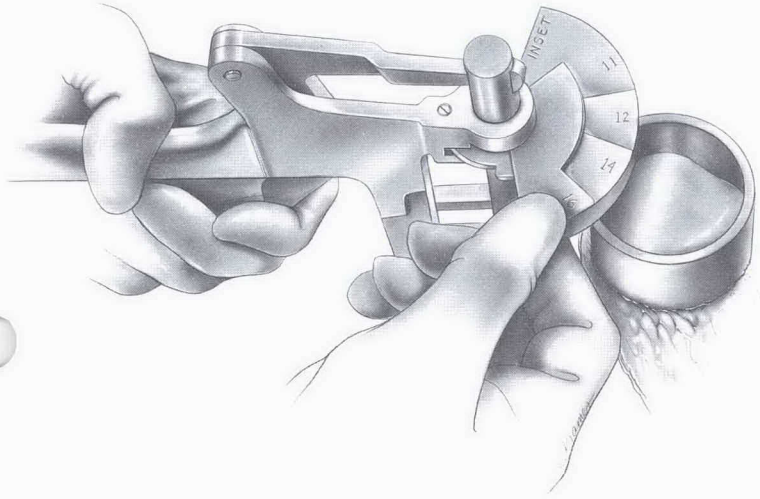
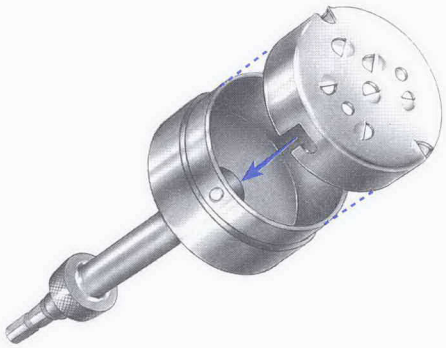


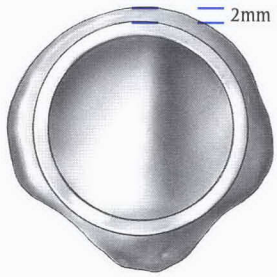
Fig. 57



INSETTING PROCEDURE

Use the Patella Reamer Insetting Guides as templates to determine the appropriate size guide and reamer. Choose the guide which will allow approximately 2mm between the superior edge of the patella and the outer diameter of the guide (Fig. 58).

Fig. 58



Insert the appropriate size Patella Reamer Insetting Guide into the Patella Reamer Clamp. Turn the locking screw until tight.

Apply the Patella Reamer Clamp at a 90° angle to the longitudinal axis with the Patella Reamer Insetting Guide on the articulating surface. Squeeze the clamp until the anterior surface of the patella is fully seated against the fixation plate. Turn the clamp screw to hold the instrument in place. The anterior surface must fully seat upon the pins and contact the fixation plate.

Turn the clamp wing to the "inset" position.

Attach the appropriate size Patella Reamer Blade to the appropriate size Patella Reamer Shaft. Use only moderate hand pressure to tighten the blade. Do not overtighten the blade (Fig. 59).

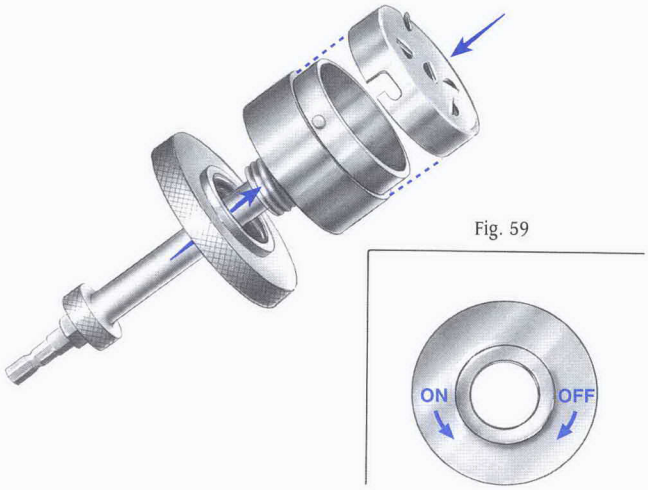


Fig. 59

Use the Patella Reamer Depth Stops to control the amount of bone to be removed based on the thickness of the implant chosen. The Depth Gauge Wing can be used instead of the stops to control the amount of bone remaining, rather than the amount of bone removed. The procedure is then the same as that described under total surfacing.

Insert the reamer assembly into the Patella Reamer Insetting Guide. Raise the reamer slightly off the bone and bring it up to full speed. Advance it slowly until the prominent high points are reamed off. Continue reaming with moderate pressure. Remove the Reamer Clamp assembly.

*Note: See your local Zimmer representative for a detailed surgical technique on the Zimmer® Patella Reamer System.**

* U.S. Patents 5,129,907; 5,129,908

UNIVERSAL SAW GUIDE TECHNIQUE

Apply the Universal Patellar Saw Guide in line with the patellar tendon. Push the patella up between the jaws of the saw guide. Level the patella within the saw guide jaws and use the thumbscrew to tighten the guide.

The amount to be resected across the top of the saw guide jaws should be approximately the same on all sides. Check to be sure that the 10mm gauge does not rotate beneath the anterior surface of the patella. If the gauge hits the anterior surface of the patella as it is rotated, this indicates that at least 10mm of bone stock will remain after the cut (Fig. 60).

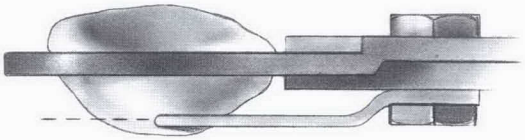


Fig. 60

Cut the patella flat so that a smooth surface remains (Fig. 61).

FINISH THE PATELLA

Center the appropriate Patellar Drill Guide over the patella with the handle on the medial side of the patella and perpendicular to the tendon. Holding the drill guide firmly in place, drill the three peg holes using the Patellar/Femoral Drill Bit (Fig. 62)

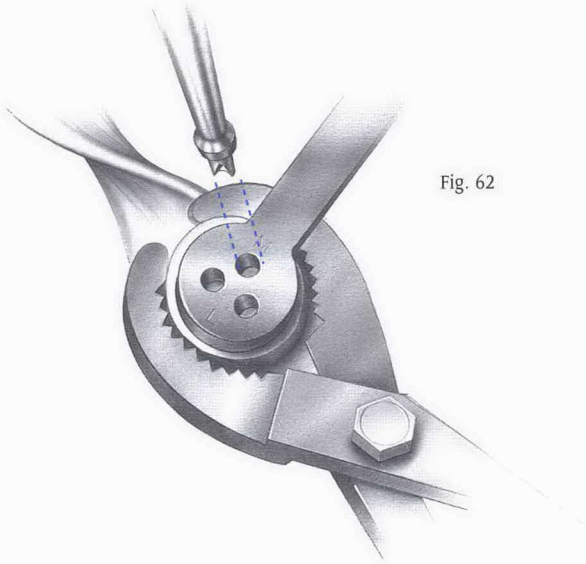


Fig. 62

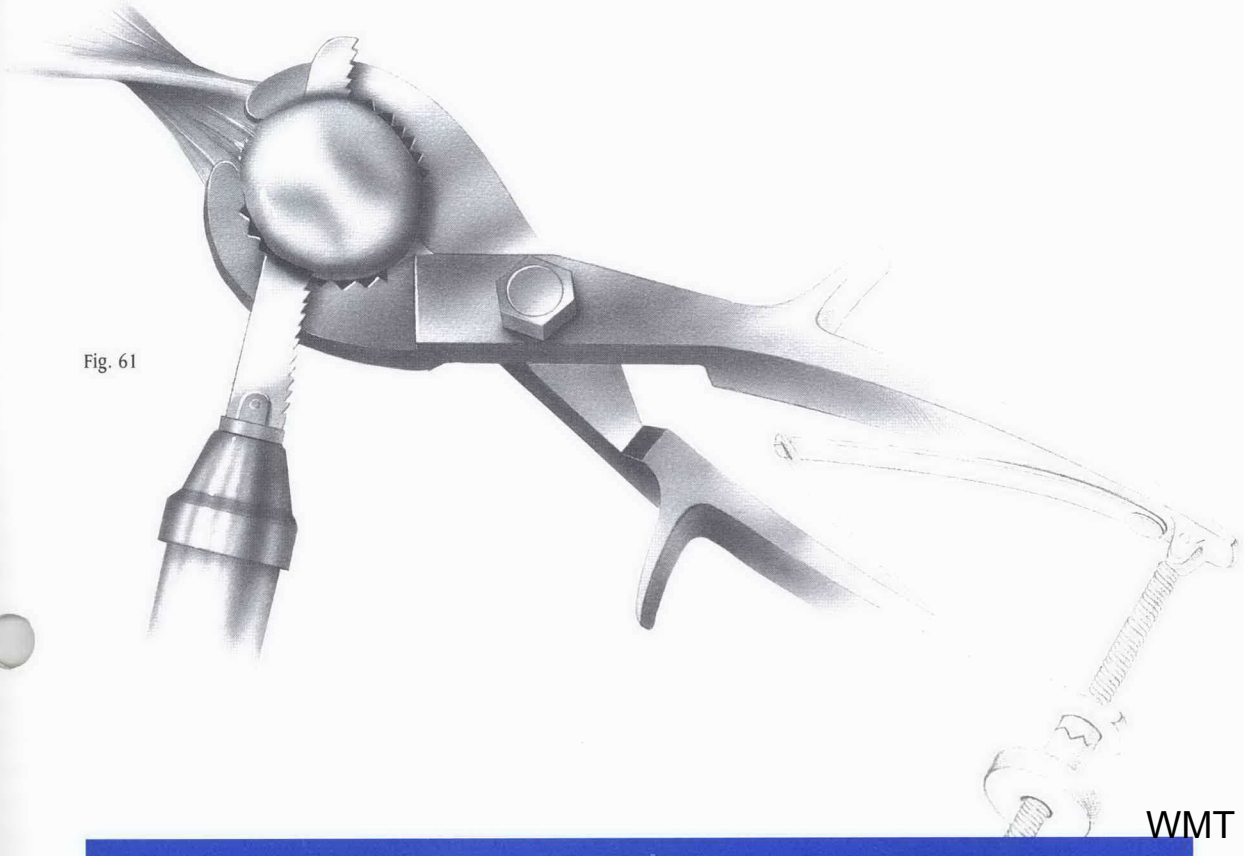
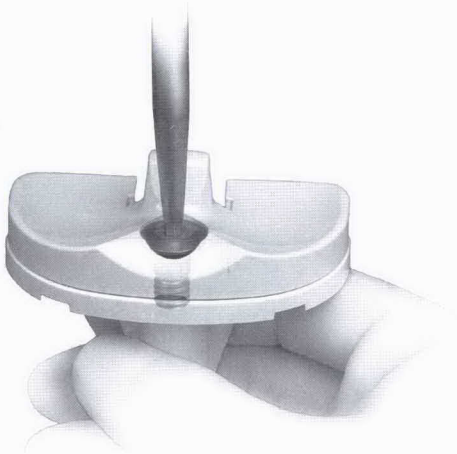


Fig. 61

TRIAL REDUCTION

Insert the femoral and patellar provisional components and the correct size stemmed tibial provisional. Remember that at least one color designation on the tibial plate provisional should match one of the color designations listed on the femoral provisional, and this color should be the same color of the articular surface family being used. If a three-of-a-kind color match is not obtainable, the incorrect tray size has been selected and another tray size and articular surface family should be selected. Insert the proper height articular surface.

Fig. 63



The *Legacy* LPS Articular Surface Provisional can be secured to the Stemmed Tibial Plate Provisional with the Articular Surface Provisional Locking Screw (Fig. 63).

Check the range of motion and ligament stability. Perform any final soft tissue releases if necessary. (Ideally the knee should be in balance by this stage.) The Femoral Extractor can be used to remove the femoral provisional.

COMPONENT IMPLANTATION

After the implants have been chosen, make one last check to ensure that the femoral, tibial and articular surface components match. There are colored squares on each box. There should be a three-of-a-kind color match. If there is, the components are matched.

ARTICULAR SURFACE INSERTION

The Articular Surface Inserter applies both downward and rearward forces to aid in the insertion of the articular surface into the tibial tray. Push the lever on the inserter fully to either side. Engage the hook on the insertion tool with the mating slot in the front of the plate and close the lever with your index finger. This should lock the insertion tool to the tray (Fig. 64). Place the articular surface onto the implant tray, engaging the dovetails. Steady the surface on the tray with one hand by applying downward pressure near the posterior cruciate cutout. Squeeze the handles of the insertion tool to seat the articular surface (Fig. 65). Open the lever and remove the insertion tool. Only insert an articular surface once. Never reinsert the same articular surface into a tibial tray.

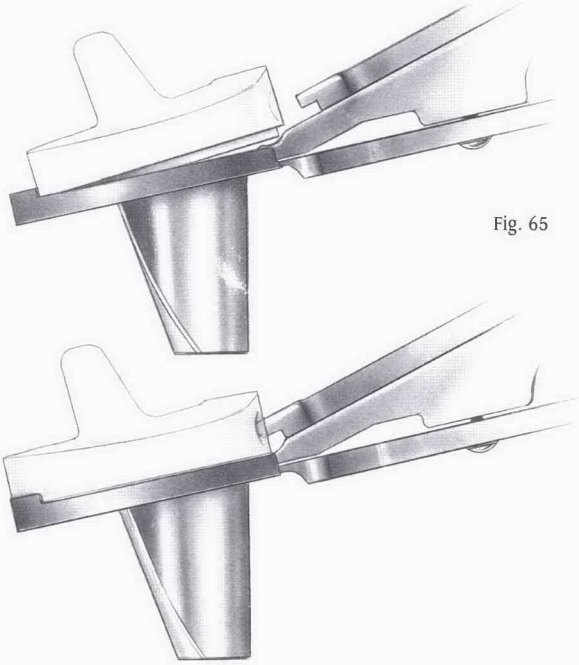


Fig. 65

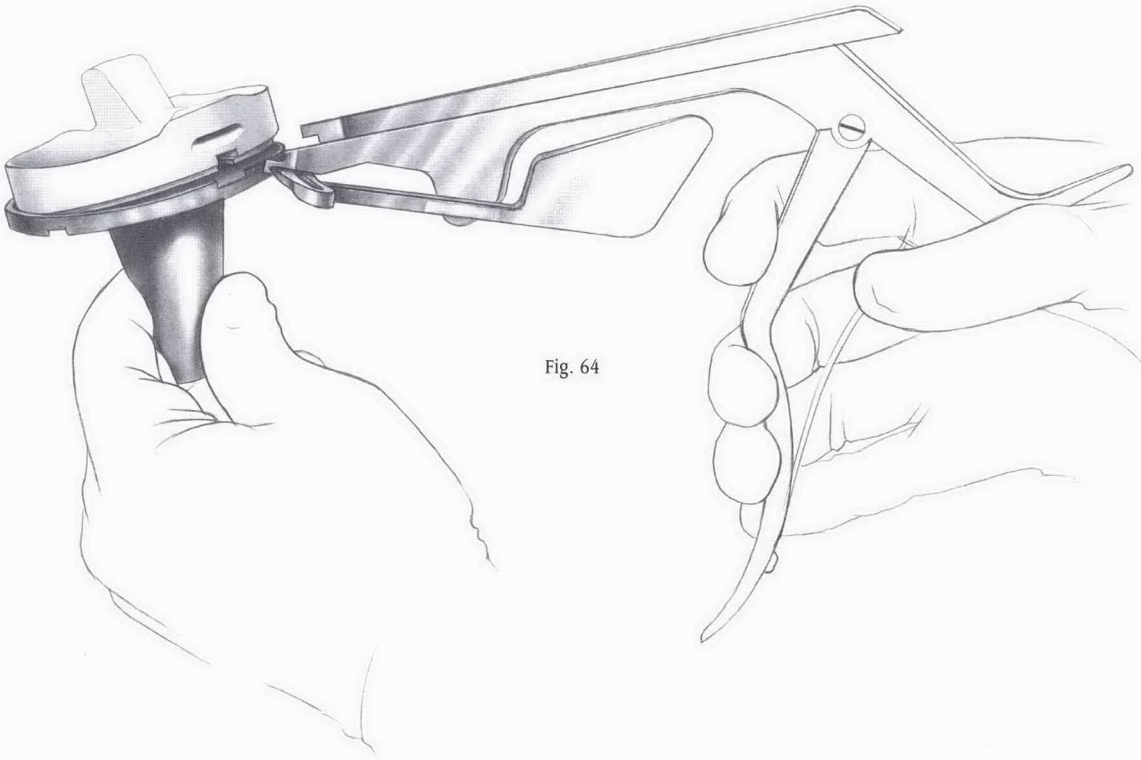


Fig. 64

Please refer to the package inserts for complete product information, including contraindications, warnings, precautions, and adverse effects.

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