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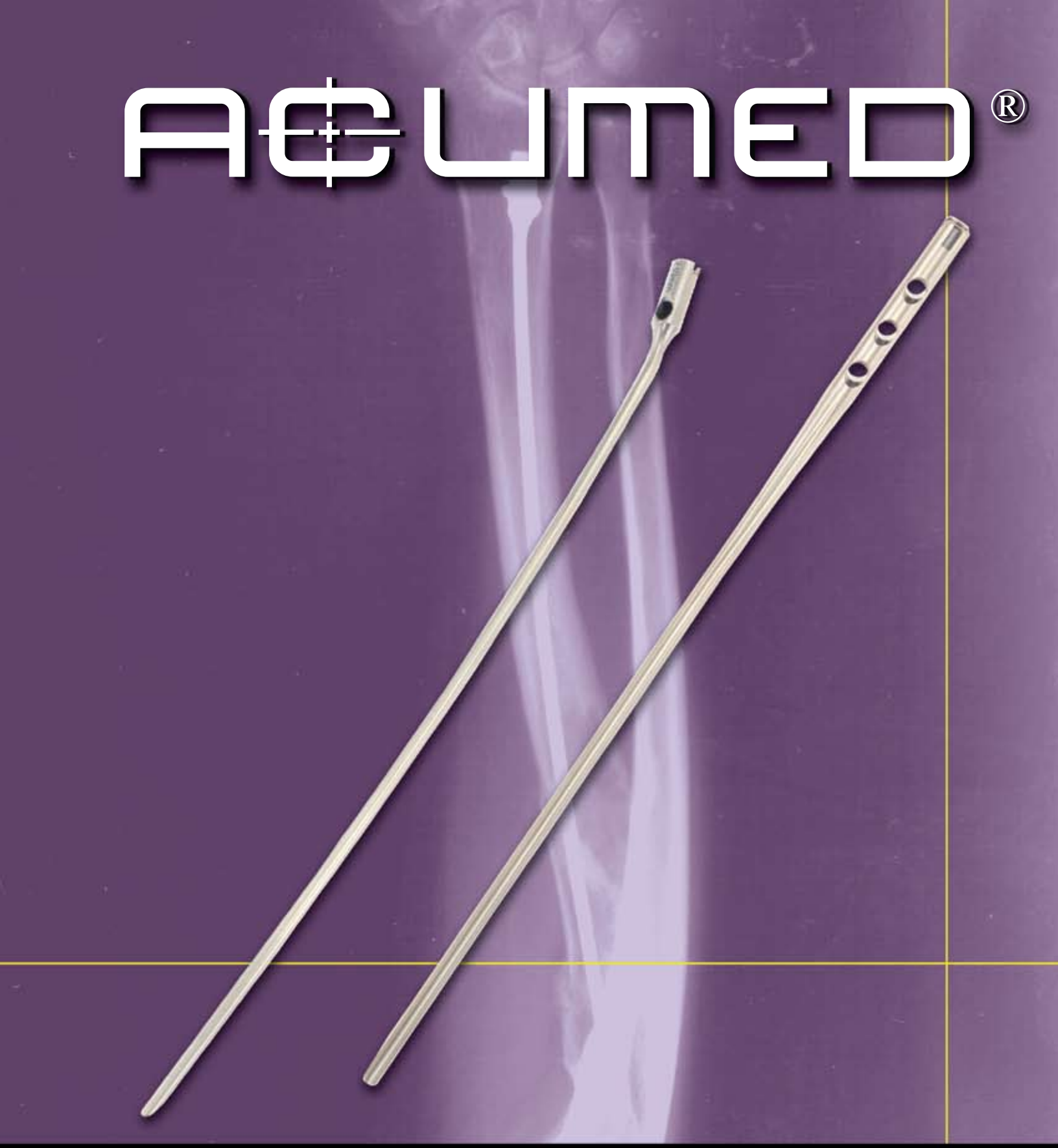

FOREARM ROD SYSTEM

FOREARM ROD SYSTEM

Since 1988 Acumed has been designing solutions to the demanding situations facing orthopedic surgeons, hospitals and their patients. Our strategy has been to know the indication, design a solution to fit, and deliver quality products and instruments.

With the anatomically designed Forearm Rod System, Acumed offers surgeons a different option for the stabilization and treatment of diaphyseal forearm fractures.

Acumed's goal when designing the Forearm Rods was to provide minimally invasive fixation options for certain indications where plating may not be optimal. Acumed strives to provide multiple, innovative solutions for indications to provide the best means of treatment for the patient.

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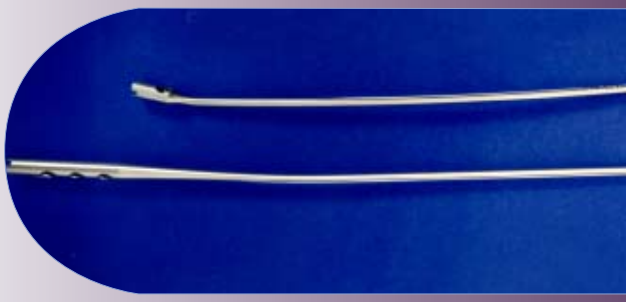
Acumed's Forearm Rod System offers the surgeon a unique array of features designed to rotationally stabilize and provide fixation for a variety of diaphyseal forearm fractures. Each fluted rod is designed to be flexible enough to insert through a small incision with minimal canal reaming. A targeted interlocking screw, combined with a paddle blade tip design, locks and rotationally secures the bone segments to promote fracture union.

Indications include:

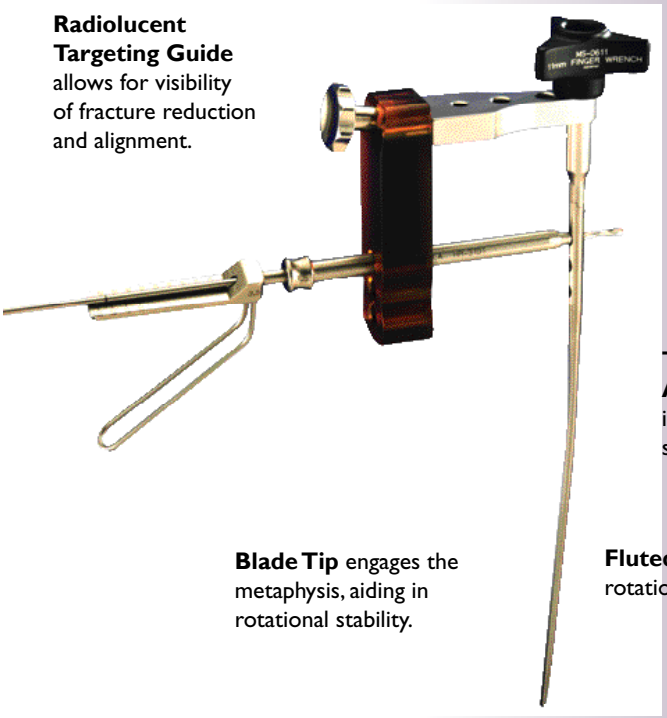
- Both bone forearm fractures
- Comminuted diaphyseal fractures
- Segmental fractures
- Polytrauma
- Fixation for fractures occuring above or below an existing plate
- Revisions (existing hardware failure)
- Patients concerned about excess scarring
- High contact sports athletes
- Patients unable to tolerate an extensive, highly invasive procedure

Rotational Stability is achieved by three key features. The rods are fluted, have a blade tip to engage the metaphysis and interlock with 3.5mm bicortical screws. Both the Radius and Ulna Rods are anatomically contoured to ease insertion and closely match the geometry of the radial and ulnar canals.



Minimally Invasive procedures are important for certain indications and patients. With reduced scarring and anesthesia time compared to traditional plating procedures forearm rodding is an excellent option for patients with both bone fractures and polytrauma, as well as elderly patients with other ailments

Straightforward Procedure is facilitated by the system's calibrated drill and drill guide, radiolucent targeting jig and canal reamers that aid in templating length and appropriate rod diameter. OR time is reduced, providing benefits in both cost and duration of anesthesia time for the patient.



Radiolucent Targeting Guide allows for visibility of fracture reduction and alignment.

3.5mm Interlocking Bicortical Screws facilitate rotational stability.

Calibrated drills and drill guides reduce surgical steps, saving valuable OR time.

Tapered Profile and Anatomic Shape ease insertion and minimize stress concentrations.

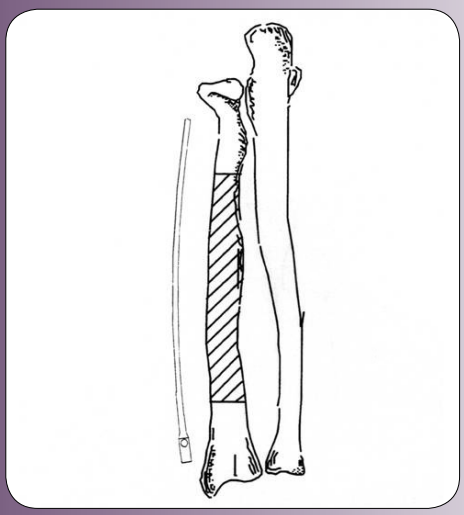
Blade Tip engages the metaphysis, aiding in rotational stability.

Fluted Design promotes rotational stability.

Ulna Rod shown.

RADIUS ROD SURGICAL TECHNIQUE

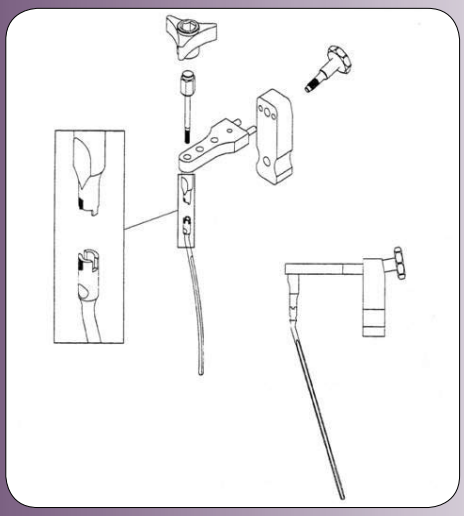
This section offers Acumed's suggested method for implanting the Radius Rod. For specific questions not addressed here, please contact your local Acumed representative or Acumed at 888-627-9957 or on the web at www.acumed.net.



Step 1: Pre-operative Planning & Evaluation

Using x-ray, evaluate positioning of the fracture(s). The x-ray template is at 10% magnification and can be utilized to establish optimal rod length and diameter. Check that the rod diameter will pass down the canal with minimal reaming. Choosing a diameter that is too large may cause the rod to become impacted during insertion and difficult to remove. Estimate screw length for reference during the procedure. It may be necessary to template the uninjured radius to more accurately estimate length.

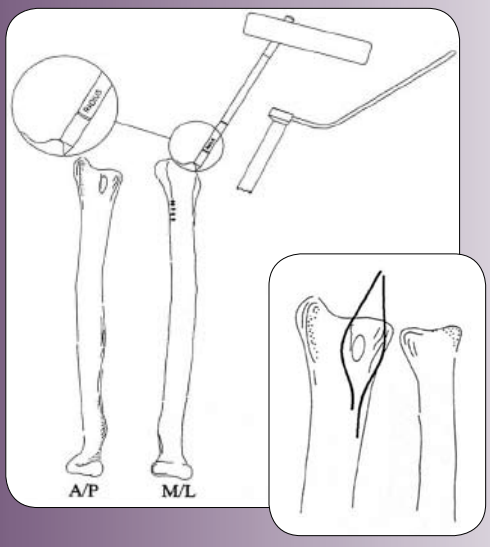
The patient may be placed in the supine position. Both a traction device and a radiolucent table may be required to aid in reduction and evaluation. Acumed Radius Rods should be implanted under fluoroscopy to enable the evaluation of both the rod and screw position. Radiographs in both the A/P and M/L planes will contribute to the success of the procedure.



Step 2: Assemble Targeting Guide

Assemble the targeting guide by first sliding the locking bolt (MS-0621) through the base plate (MS-0620) and thread it into the rod. Line up the laser mark on the base plate barrel with the corresponding laser mark on the distal end of the radius rod (shown on the left). This will ensure proper orientation when implanting the rod. Tighten the locking bolt with the finger wrench (MS-0611).

Slide the radiolucent dorsal targeting guide (RA-0622) onto the base plate pins. Lock it into place with a rosette knob (MS-0100).



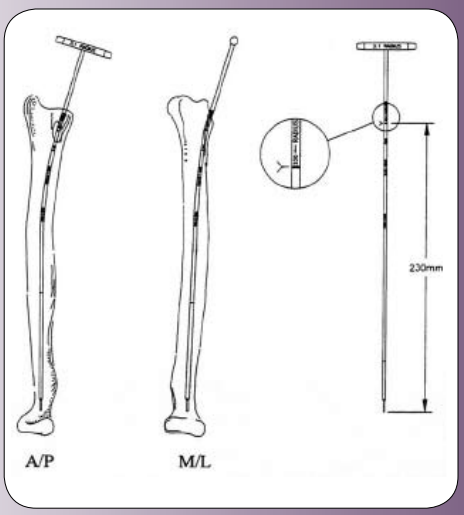
Step 3: Surgical Approach & Cortex Perforation

To expose the implant entry site, a 2-3mm incision is made longitudinally along the distal radius over the forth extensor compartment. Dissection is carried down bluntly through the subcutaneous tissues. It is important to note that the method in which the surgeon approaches the insertion site is at their discretion. Variations in individual anatomy may alter the technique.

Establish the implant insertion point by using the awl and cannula to perforate the cortex just ulnar to Listor's tubercle approximately 5mm from the articular surface. The awl should be directed down the canal and inserted to the first depth groove labeled "RADIUS". Care should be taken to avoid accidental penetration of the adjacent cortex. The cannula may be used in conjunction with the awl as a tissue protector. Fluoroscopy is helpful when verifying proper alignment.

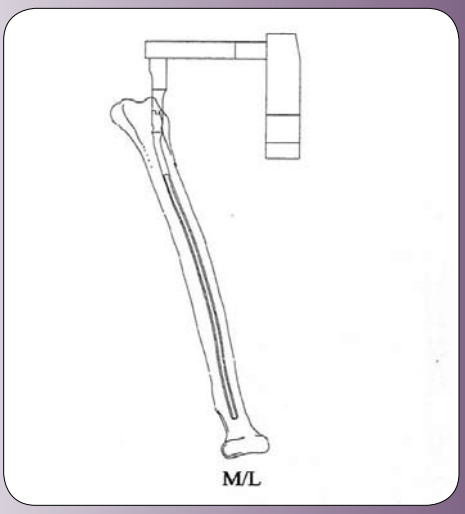
Step 4: Canal Preparation & Rod Selection

Insert the selected reamer (3.0 or 3.6mm) down the length of the radial canal until it reaches the metaphysis. Rod length can be read directly off of the side of the reamer shaft labeled "RADIUS" (shown). The reamer should always be used to ensure that the rod will pass down the canal without becoming impacted upon insertion. The reamers are intended for single use only and should be discarded after each use.



Step 5: Implant Insertion

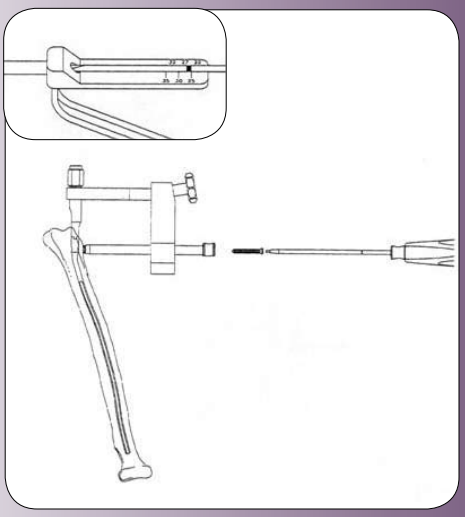
Insert the Radius Rod down the canal and across the fracture site. The rod should be aligned so that the screw is inserted from a dorsal-to-volar direction. Under fluoroscopy, gently glide the rod tip past the fracture site and up to the proximal metaphysis. The rod should pass easily down the canal without impaction. If resistance is met, the rod should be withdrawn and the canal checked again with the appropriate reamer. Verify in two directions that the rod has successfully crossed the fracture(s) and gained reduction. Check that the distal end of the rod has been inserted below the surface of the bone.



Step 6: Interlocking Screw Insertion

Insert the 3.5mm cannula (HR-3101) and probe (HR-3102) into the targeting guide hole. Lightly tap the probe against the bone to create a dimple. The 3.5mm drill guide (HR-3104) is then inserted through the cannula. Using the 2.8mm drill (HR-D105), drill through both cortices. Use fluouroscopy to verify drill depth, which is read off of the drill guide. Ensure that the drill guide is flush to the bone when measuring depth to allow an accurate reading. Remove the drill guide and cannula.

Insert the appropriate length 3.5mm screw through the cannula with the 2.5mm hex driver (HD-2500). Verify screw position under fluoroscopy. The screw should not extend past the dorsal cortex by more than 3mm. As the screw is being inserted, a groove on the driver shaft indicates that the screw is fully seated against the bone when the groove aligns with the back of the cannula. Be sure that the cannula is fully seated against the bone if this method is used. If dense bone is encountered, a T-handle tap (MS-T35S) is included in the system.



ULNA ROD SURGICAL TECHNIQUE

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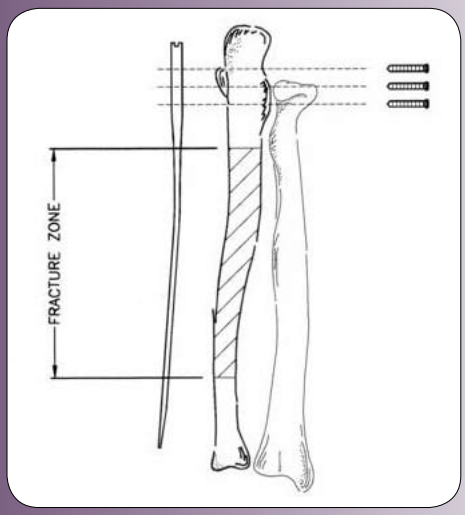
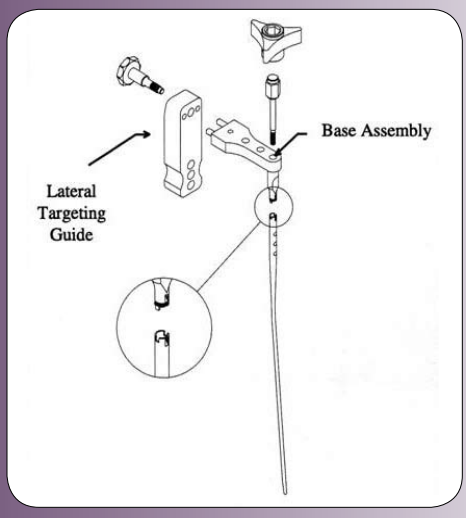


Step 1: Pre-operative Planning & Evaluation

Using x-ray, evaluate positioning of the fracture(s). The x-ray template is at 10% magnification and can be utilized to establish optimal rod length and diameter. Check that the rod diameter will pass down the canal with minimal reaming. Choosing a diameter that is too large may cause the rod to become impacted during insertion and difficult to remove. Estimate screw length for reference during the procedure. It may be necessary to template the uninjured ulna to more accurately estimate length.

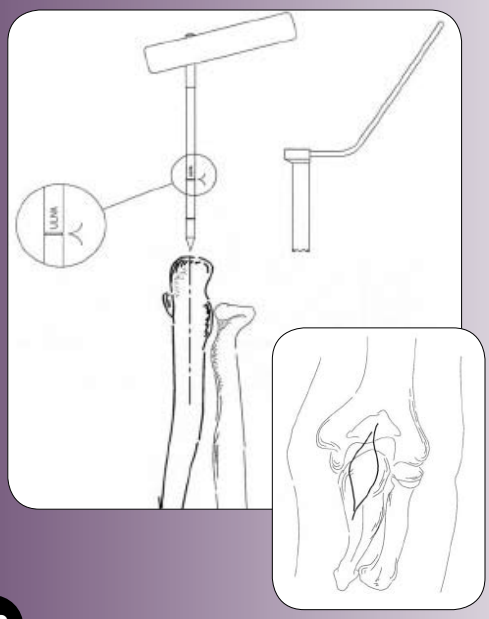
The patient may be placed in either the supine or the lateral position. Both a traction device and a radiolucent table may be required to aid in reduction and evaluation. Acumed Ulna Rods should be implanted under fluoroscopy to enable the evaluation of both the rod and screw position. Radiographs in both the A/P and M/L planes will contribute to the success of the procedure.



Step 2: Assemble Targeting Guide

Assemble the targeting guide by first sliding the locking bolt (MS-0621) through the base plate (MS-0620) and thread it into the rod. Line up the laser mark on the base plate barrel with the corresponding laser mark on the proximal end of the ulna rod (shown on the left). This will ensure proper orientation when implanting the rod. Tighten the locking bolt with the finger wrench (MS-0611).

Slide the radiolucent targeting guide (MS-0622) onto the base plate pins. Lock it into place with a rosette knob (MS-0100).



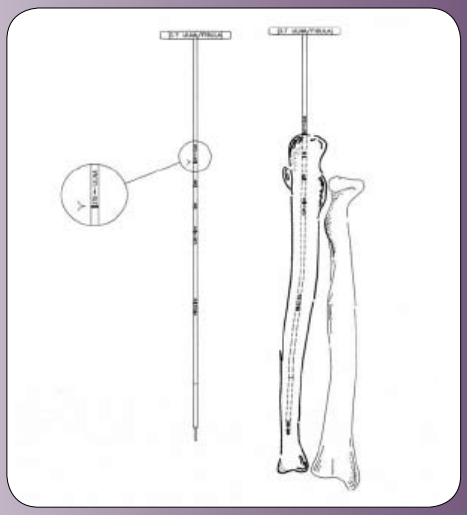
Step 3: Surgical Approach & Cortex Perforation

To expose the implant entry site, a 1-2mm incision is made longitudinally along the tip of the olecranon. Dissection is carried down sharply through the subcutaneous tissues and the triceps tendon. Care should be taken to avoid the ulnar nerve, which sits medial to the olecranon. Note that the method with in the surgeon approaches the insertion site is at their discretion. Variations in individual anatomy may alter the technique.

Establish the implant insertion point by using the awl to perforate the cortex. The cannula may be used in conjunction with the awl as a tissue protector. Start the awl in the center of the olecranon process, directly in line with the proximal intramedullary canal of the ulna. Bury the awl to the depth groove on the shaft labeled "ULNA". Fluoroscopy is helpful when verifying proper alignment.

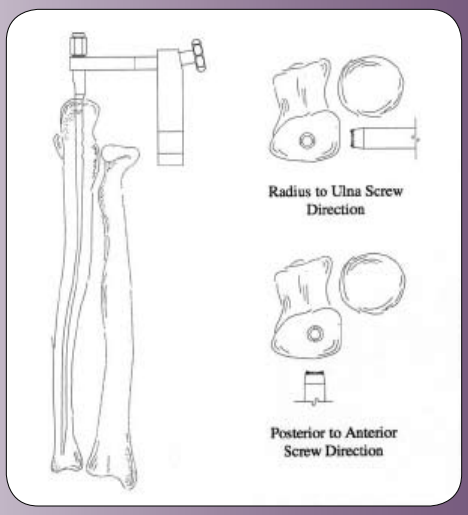
Step 4: Canal Preparation & Rod Selection

Insert the selected reamer (3.0 or 3.6mm) down the length of the canal until it reaches the metaphysis. Rod length can be read directly off of the side of the reamer shaft labeled "ULNA" (shown). The reamer should always be used to ensure that the rod will pass down the canal without becoming impacted upon insertion. The reamers are intended for single use only and should be discarded after each use..



Step 5: Implant Insertion

Insert the Ulna Rod down the canal and across the fracture site. The rod should be aligned so that the screw is inserted from either a M/L or A/P direction, based on the surgeon's preference. Under fluoroscopy, gently glide the rod tip past the fracture site and down to the distal metaphysis. The rod should pass easily down the canal without impaction. If resistance is met, the rod should be withdrawn and the canal checked again with the appropriate reamer. Verify in two directions that the rod has successfully crossed the fracture(s) and gained reduction. Check that the proximal end of the rod has been inserted below the surface of the bone.



Step 6: Interlocking Screw Insertion

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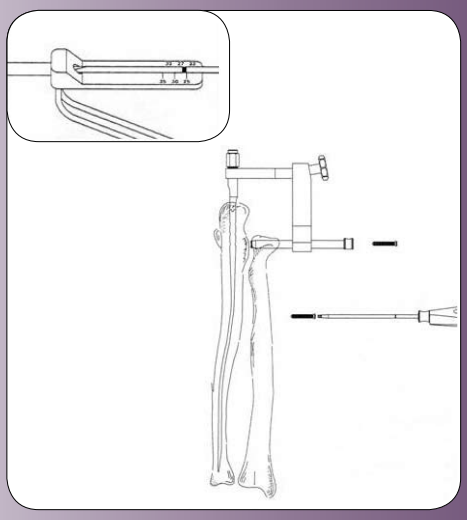

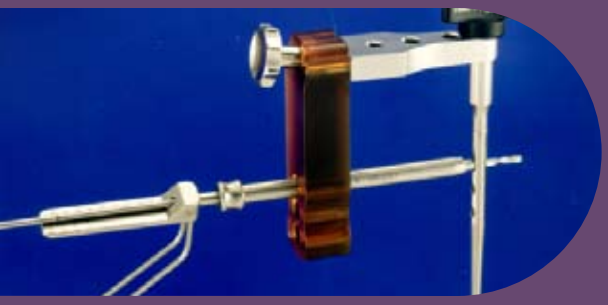

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