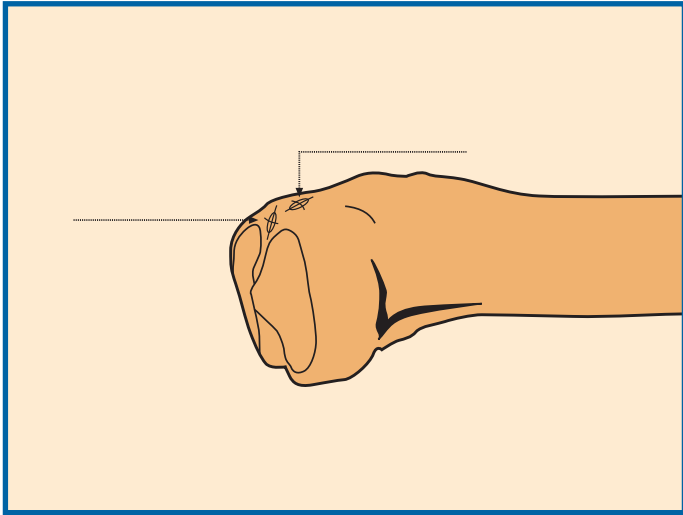




The Orthofix Tibial Nailing System

By Dr. W. C. Oppenheim



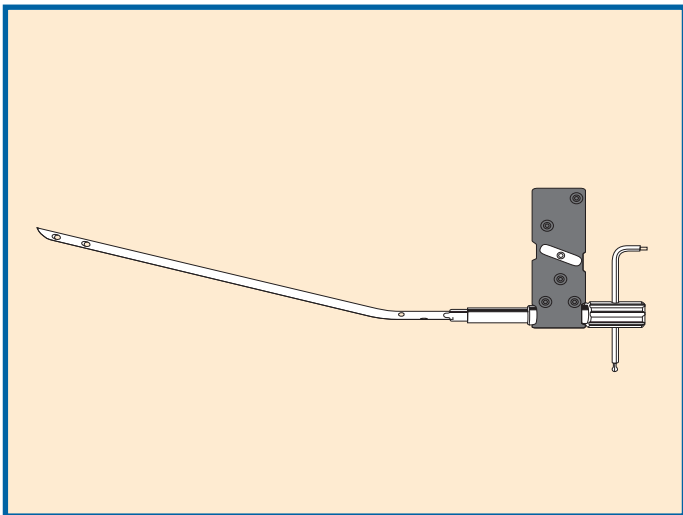
INSERTION SITE

- **Superior Approach**

The preferred entry point is the superior approach, since it allows easier alignment with the medullary canal.

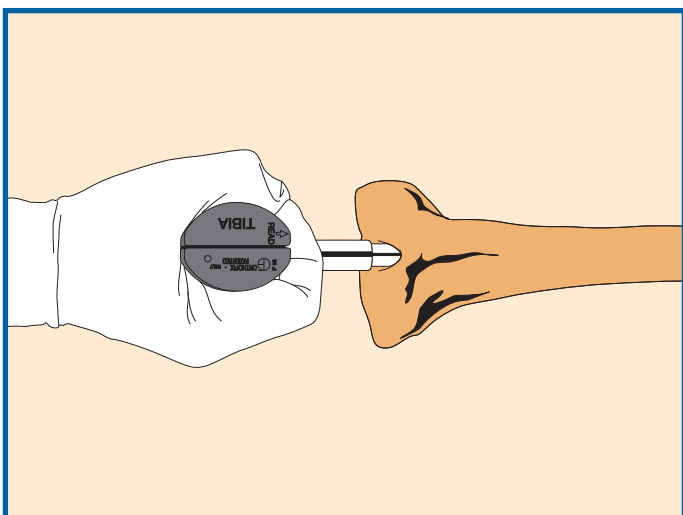
- **Anterior Approach**

When this approach is used, the entry portal must be very proximal, no more than 1 cm distal to the anterior edge of the tibial plateau. A more distal entry point may result in damage to the posterior cortex.

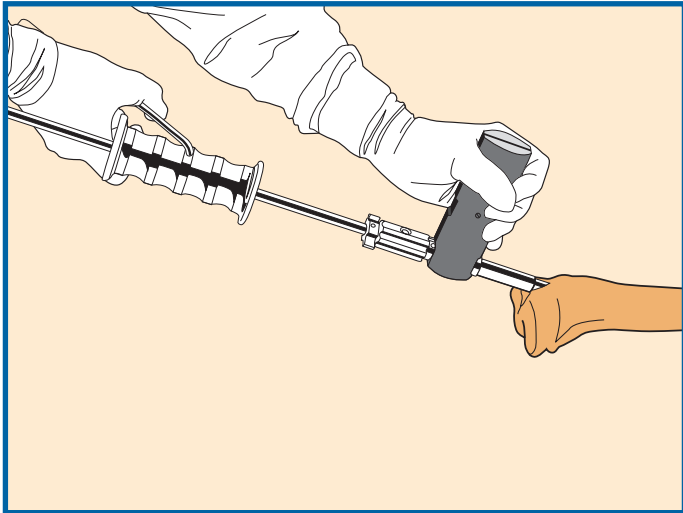


NAIL INSERTION: REAMED OR UNREAMED NAIL

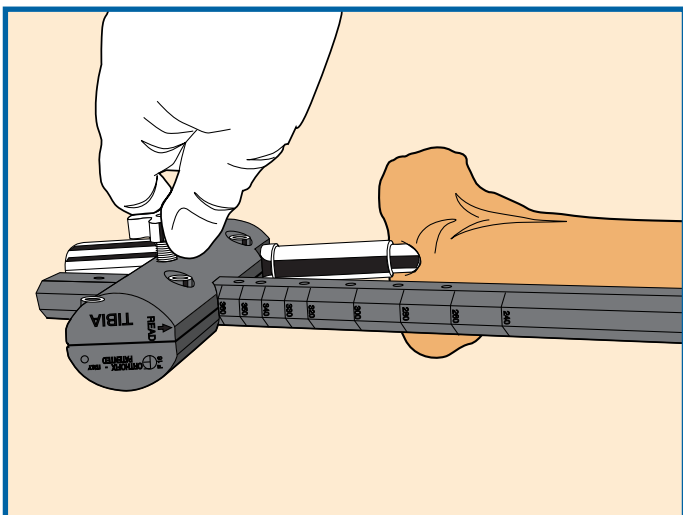
- Insert the Locking Rod into the back of the handle and the nail of correct diameter and length into the nail support, and tighten the locking rod with the 5 mm Allen wrench.



- Insert the nail, if reamed over the guide wire, under image intensification. Remove guide wire, if applicable, when its exit point from the nail is at the level of the entry portal. The nail is correctly inserted when the step of the nail support is flush with the surface of the bone.

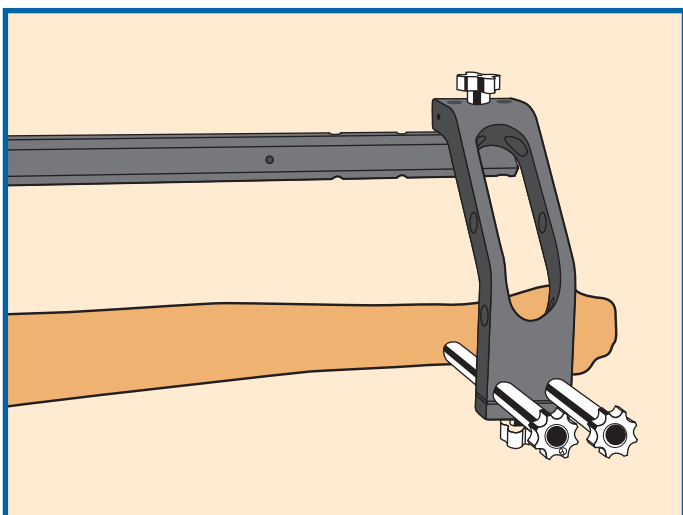


- The Sliding Hammer, attached to the end of the nail locking rod and **fully tightened**, may be used to insert the nail gently in the correct position. Check that the locking rod is tight after the hammer has been removed.

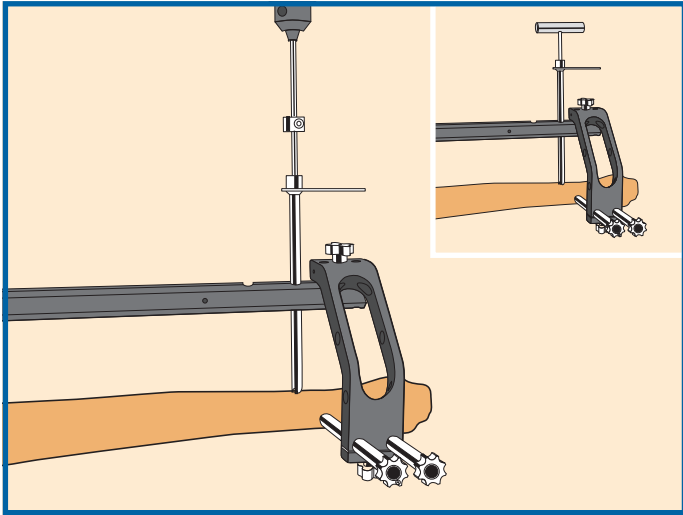


DISTAL LOCKING

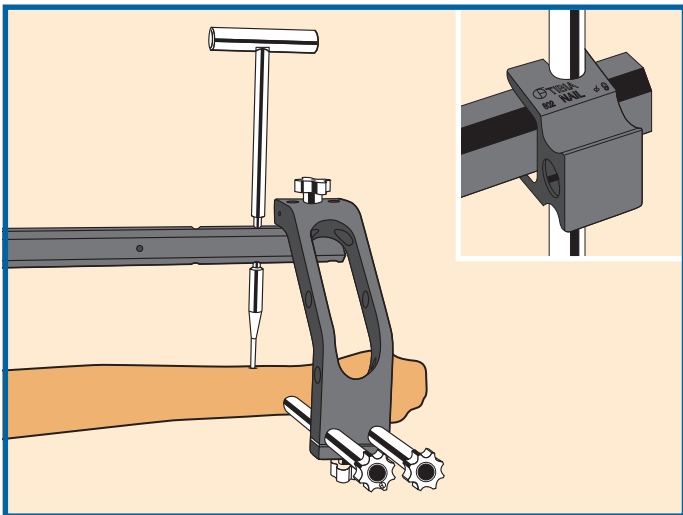
- Insert the guide bar into the handle, and adjust its position until the number corresponding to the selected nail length lines up with the **front** of the handle. Lock the guide bar firmly into place.



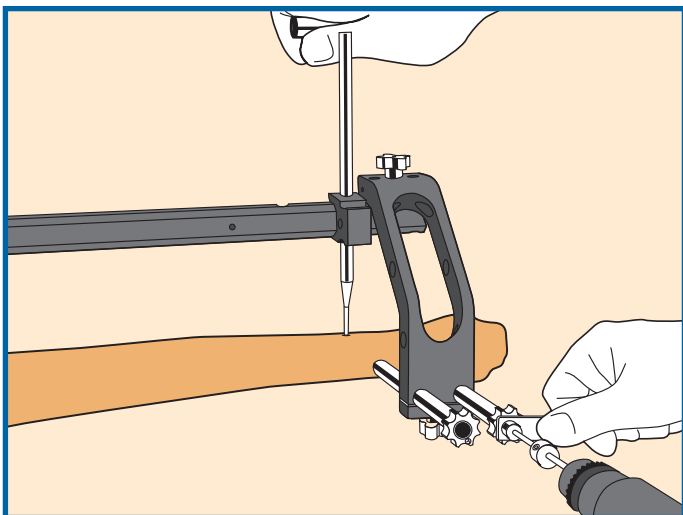
- Mount the distal outrigger on the guide bar so that it lies on the correct side of the tibia, usually medial. Insert the screw guides into the outrigger. **No incision is made yet.**



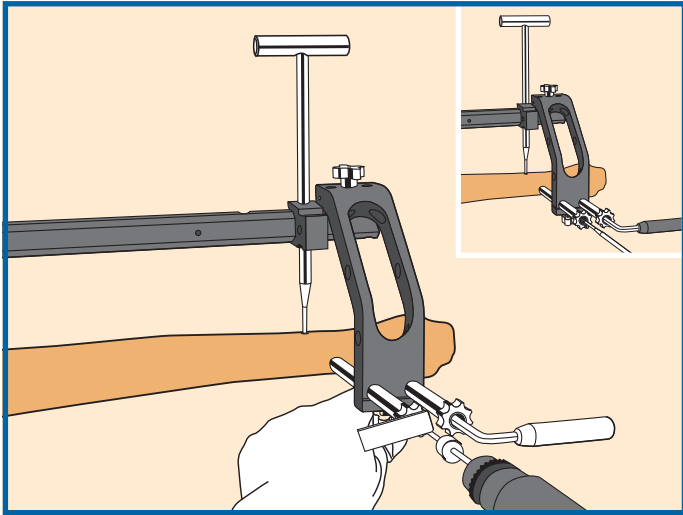
- Insert a drill guide into one of the holes in the guide bar just proximal to the distal outrigger so as to avoid the position of a distal fracture.
 Make an incision and advance the drill guide until its teeth are engaged in the tibia and stabilized on the **centre** of the tibial crest, avoiding soft tissue entrapment by blunt dissection.
 A 4 mm drill bit is used to drill the **anterior cortex only**. Clear the hole in the bone with the 4 mm T-handled Reamer until the reamer can be heard tapping the nail.



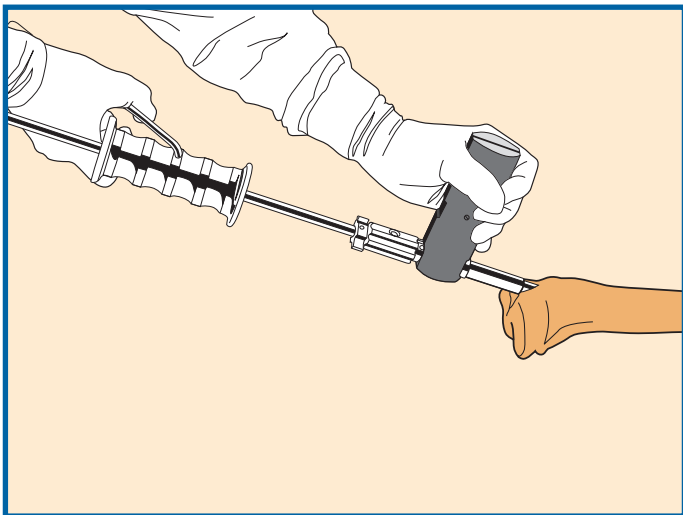
- Remove the 4 mm T-handled Reamer and drill guide, and insert the T-handled Stabilizing Rod down to the nail, again tapping the nail to ensure contact.
 Attach the correct Stabilizing Spacer for the diameter of the nail to the T-handled Stabilizing Rod.
 Position the Spacer so that the correct nail diameter is visible on the **upper** surface, facing towards the surgeon.



- Maintain contact between the tip of the T-handled Stabilizing Rod and the nail.
 The stabilizing rod may have to be lifted up or pushed down to establish correct contact with the nail. Make an incision beneath each screw guide. Advance the screw guides until they are in contact with the cortex. Tighten the clamp locking nut on the outrigger to hold them firmly in place. Insert the 4 mm drill guide into the most distal of the screw guides and drill the bone with the 4 mm drill bit. While the surgeon is drilling, the assistant must hold the T-handle of the Stabilizing Rod, keep its tip against the nail, and maintain this position throughout the drilling procedure.

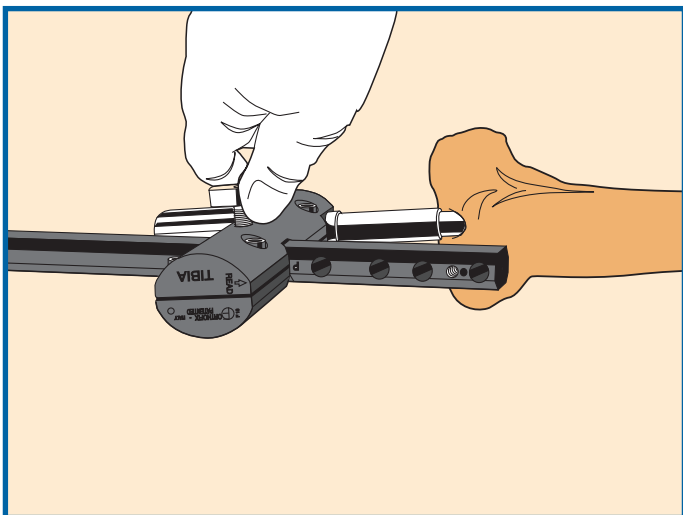


- Maintaining the position of the T-handled Stabilizing Rod, remove the drill bit and drill guide, and immediately insert the graduated angled trocar. Drill the second hole in the same way.
Insert locking screws of correct length.
Remove the distal outrigger and T-handled Stabilizing Rod.



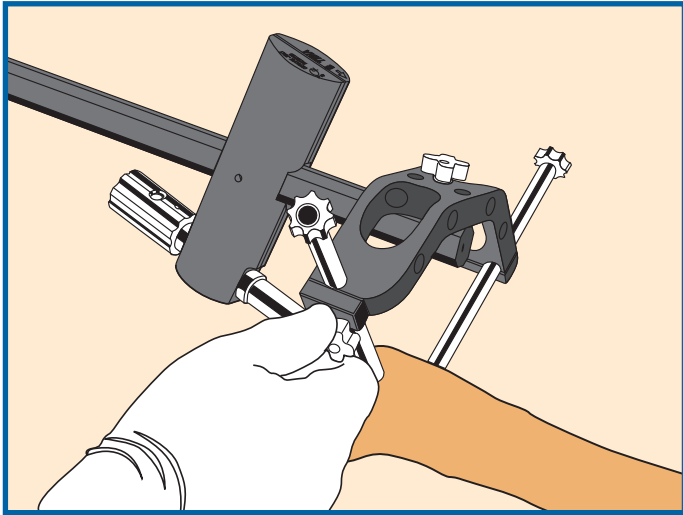
CHECK FOR FRACTURE DISTRACTION

- Check for any malrotation or distraction of the fracture site, before carrying out proximal locking.
If the fracture site is distracted, attach the sliding hammer to the locking rod and close the fracture gap by gentle reverse hammering.

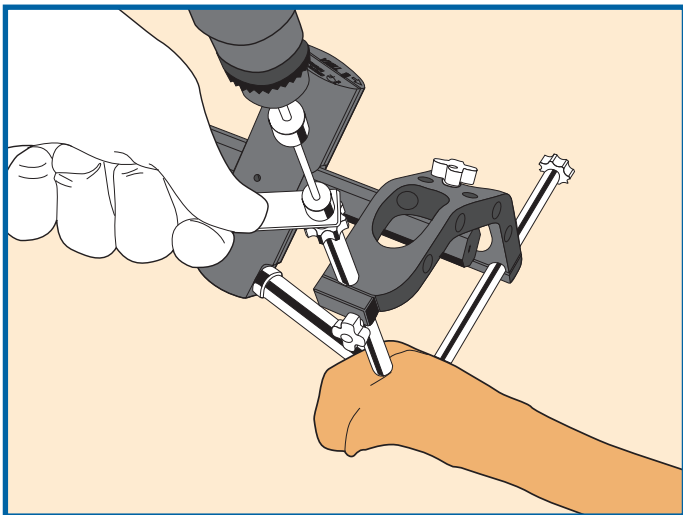


PROXIMAL LOCKING

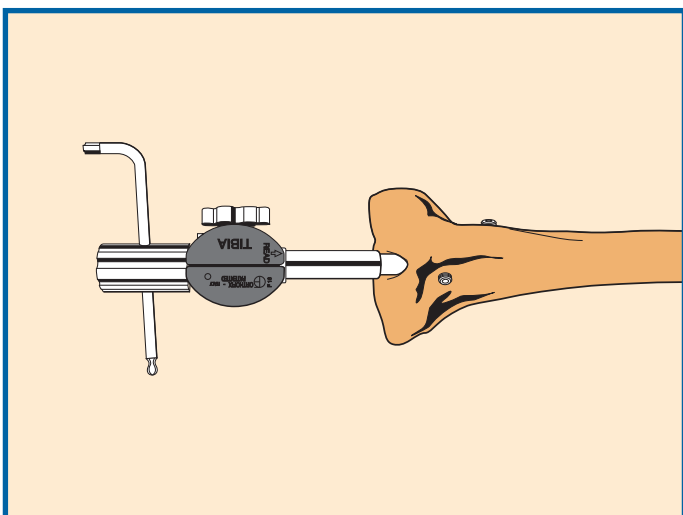
- Loosen the guide bar locking screw and move the guide bar until the P mark is level with the front surface of the handle.
Lock the guide bar firmly into position.



- Mount the proximal outrigger on the guide bar and insert two screw guides into the holes. Make an incision and advance the screw guides down to the cortex. Lock them into position with the clamp locking nuts.

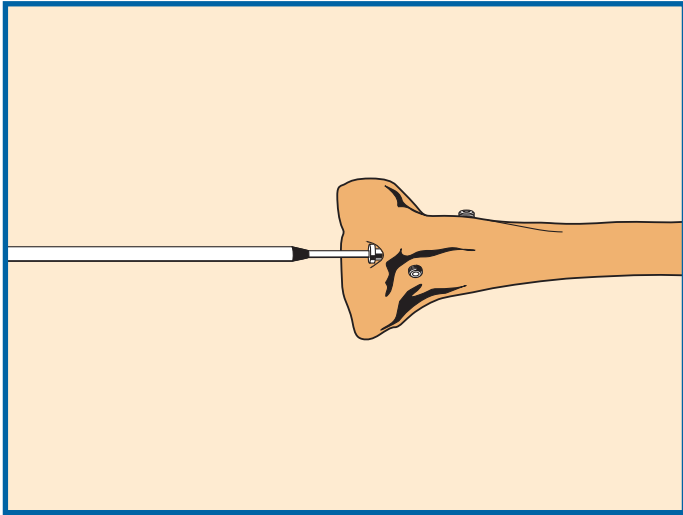


- **The medial hole is drilled first.** Insert the 4 mm drill guide into the screw guide and drill the bone with the 4 mm drill bit, taking care not to drill too far past the second cortex, to avoid any risk of damage to the popliteal nerve. After drilling, remove the drill bit and drill guide, and insert the graduated angled trocar. Drill the lateral hole and insert locking screws of correct length (lateral first).



REMOVAL OF THE JIG ASSEMBLY

- Remove the proximal outrigger and guide bar. Before removing the handle from the nail, check correct insertion of locking screws in both AP and lateral planes. Remove the locking rod and the handle.



- Insert the nail end cap.
This can be guided into position over a Kirschner wire.

The Orthofix Quality System has been certified to be in compliance with the requirements of:

- Medical Devices Directive 93/42/EEC, Annex II - (Full Quality System) as amended in 2007/47/EC
- International Standards ISO 13485 / ISO 9001 for external fixator devices, implants for osteosynthesis and related instruments.



⚠ See "Orthofix Internal Fixation System" instruction leaflet (PQ INF) and appropriate Operative Manual prior to use prior to use.

Manufactured by:
ORTHOFIX Srl
Via Delle Nazioni 9
37012 Bussolengo (Verona)
Italy

Telephone +39 045 6719000
Fax +39 045 6719380



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