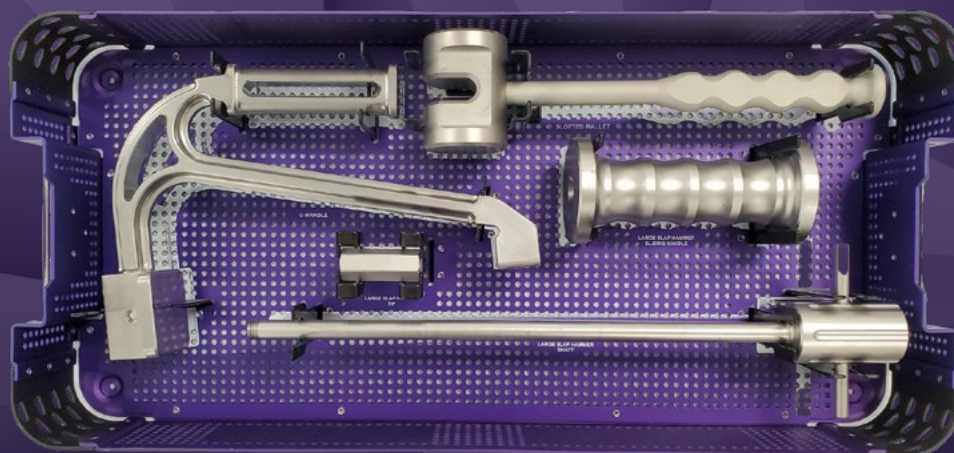
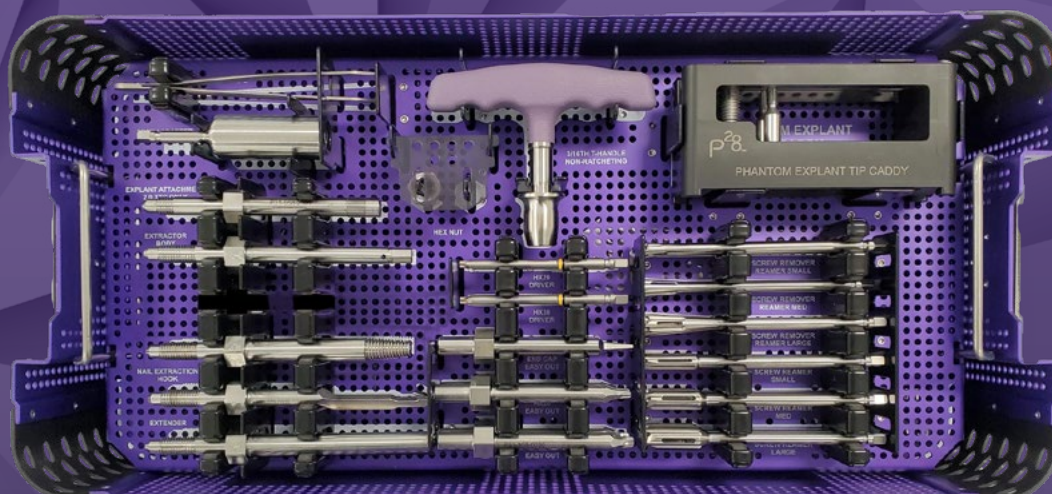


# SURGICAL TECHNIQUE GUIDE

# Phantom<sup>®</sup> Explant System



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## FEATURED INSTRUMENTATION



Long TTC Explant Attachment



Cross Thread Explant Attachment



ActivCore Inner Nail Explant Attachment



Conical Explant Attachment



Nail Extraction Hook



Extender



Extractor Body



End Cap Easy Out

Screw Easy Out  
TX-20Screw Easy Out  
TX-30

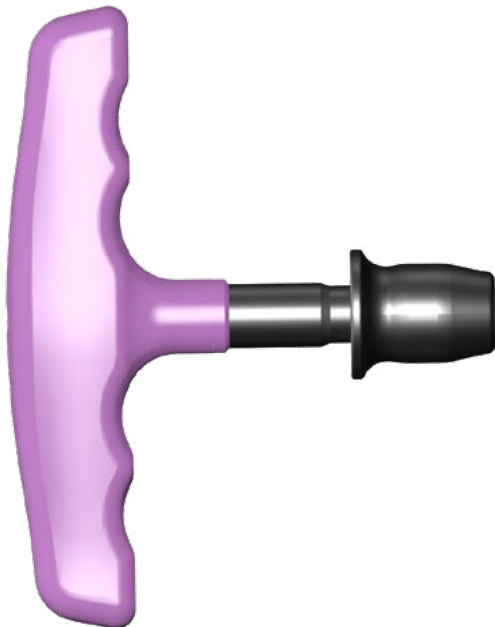
Screw Reamer Large



Screw Reamer Medium

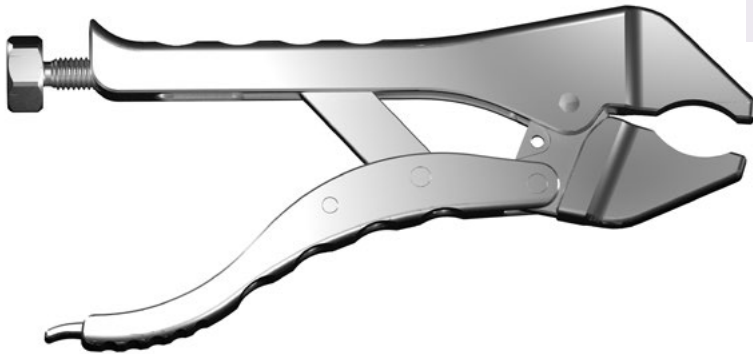


Screw Reamer Small

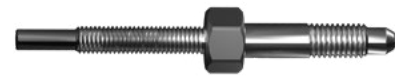
Screw Remover Reamer  
LargeScrew Remover Reamer  
MediumScrew Remover Reamer  
SmallNon-Ratcheting  
T-handleT-handle  
Hex Adaptor

## FEATURED INSTRUMENTATION

**NOTE:** Vice Grip attachment can thread into the end of the Vice grip and the other end can thread into the slap hammer and U Handle + 17mm Nut.



Vice Grips



Vice Grip Attachment



17 mm Nut



17 mm Wrench



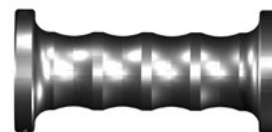
8 mm Wrench



U Handle



Slotted Mallet

Slaphammer  
ShaftSlaphammer  
Sliding WeightSlaphammer  
TipSlaphammer  
Assembled

# NAIL EXPLANT OPTIONS



OPTION	TTC	ACTIVCORE
1	Long Explant Attachment (Direct Nail Thread Engagement)[Page 9]	N/A
2	N/A	ActivCore Inner Nail Explant Attachment (Direct Nail Inner Core Thread Engagement) [Page 10]
3	Nail Extraction Hook (Hooks into distal slot of Nail) [Page 11]	Nail Extraction Hook (Hooks into distal slot of Nail) [Page 11]
4	Cross Thread Explant Attachment (Cross Threads into Nail) [Page 12]	Cross Thread Explant Attachment (Cross Threads into Nail) [Page 12]
5	Conical Explant Attachment (Cross Threads into Nail) [Page 13]	N/A



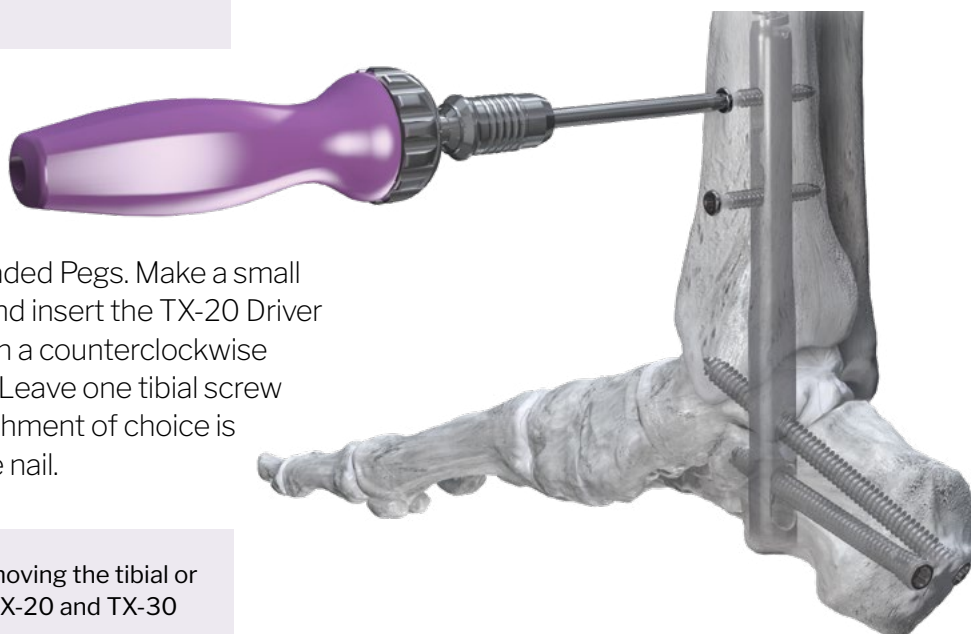
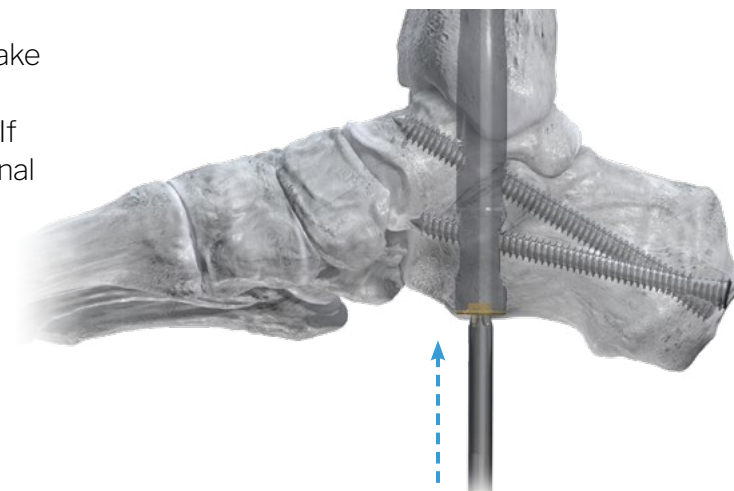
# IMPLANT REMOVAL – BOTH NAILS SURGICAL APPROACH

**NOTE:** It is recommended to clean out the plantar nail threads with a forceps and saline to remove in growth and soft tissue before attempting to insert explant attachment.

Attach the TX-30 Driver to the appropriate Handle. Using fluoroscopy, locate the plantar insertion point of the Nail, and make a small incision. If an end cap was implanted, insert the TX-30 Driver into the end cap and rotate counterclockwise to remove. If no end cap was implanted, insert the TX-30 Driver into the Internal Compression Screw and rotate counterclockwise to remove.

**NOTE:** If the surgeon is having difficulty removing the end cap, use the provided end cap easy out.

**NOTE:** If compression screw is not able to be removed, advance screw superiorly to maximum depth after removing calcaneal crossing screws.



Using fluoroscopy, locate the Tibial Threaded Pegs. Make a small incision at each Threaded Peg location and insert the TX-20 Driver into the head of the Threaded Peg. Turn in a counterclockwise direction until Threaded Peg is removed. Leave one tibial screw engaged in the nail until the explant attachment of choice is connected with the inferior portion of the nail.

**NOTE:** If the surgeon is having difficulty removing the tibial or calcaneal threaded pegs, use the provided TX-20 and TX-30 easy outs.

Utilizing the same TX-30 Driver and Handle construct as described above, remove the Subtalar Threaded Peg and Calcaneal Threaded Peg. Confirm removal of all Threaded Pegs, using fluoroscopy prior to attempting to remove the Phantom<sup>®</sup> TTC Nail.

Continue with implant removal with the chosen explant attachment per surgeon preference.



# IMPLANT REMOVAL – BOTH NAILS

## TIBIAL/CALCANEAL THREADED PEG AND END CAP REMOVAL

### EASY OUTS

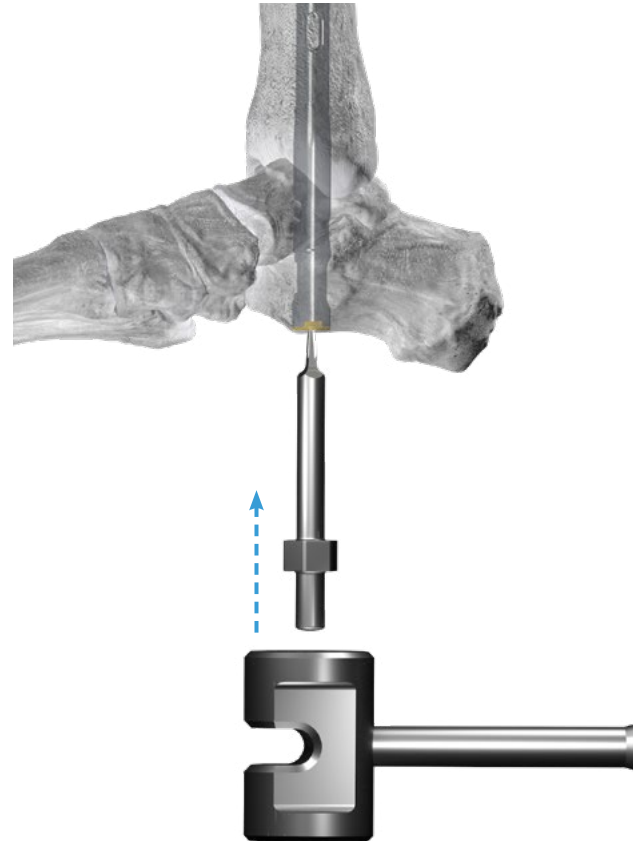
If there are issues removing any of the tibial threaded pegs, calcaneal threaded pegs, or the end cap in the nail. Easy outs are provided to expedite removal.

PART TO BE REMOVED	EASY OUT TO USE
Tibial Threaded Peg	TX-20 Easy Out
Subtalar/Calcaneal Threaded Peg	TX-30 Easy Out
End Cap	End Cap Easy Out TX-30 Easy Out

Align the easy out with the hex feature of the pegs or end cap and tap into the peg or end cap with a mallet.

After firmly seating the easy out in the peg/end cap, use the provided 17 mm wrench or T-handle with the hex adaptor to turn the easy out/peg counterclockwise.

Continue turning it counterclockwise until the peg is fully removed.



## IMPLANT REMOVAL – BOTH NAILS

### TIBIAL/CALCANEAL THREADED PEGS, SCREW REAMERS

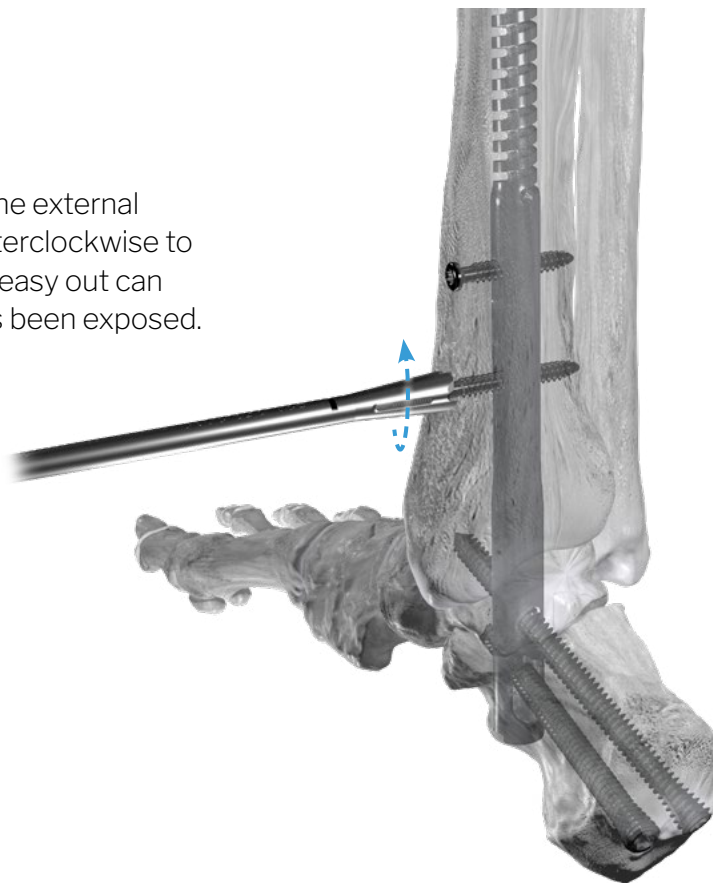
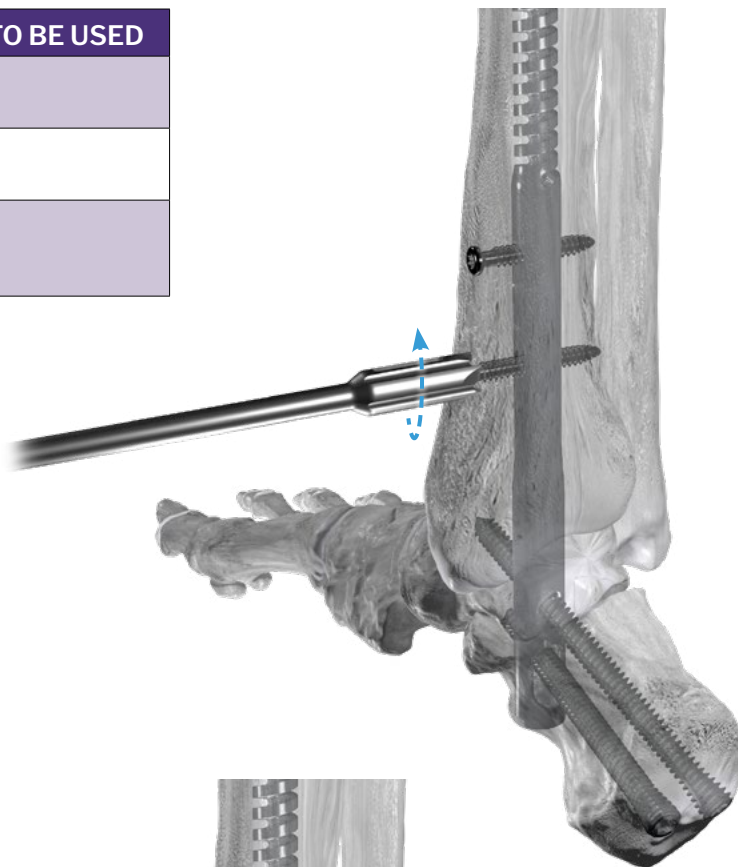
If there are any issues removing any of the tibial or calcaneal threaded pegs, Screw Reamers are provided to expedite removal.

PART TO BE REMOVED	REMOVER/REAMER TO BE USED
Tibial Threaded Peg	Medium
Subtalar/Calcaneal Threaded Peg	Large
Head of Peg broken off	Small

Locate the pegs using the fluoroscopy and center the reamer over the peg location.

Turn the reamer counterclockwise to cut into the bone until it exposes the external portion of the peg head or body.

Utilize the screw remover and place over the external portion of the peg. Turn the remover counterclockwise to remove the peg. The appropriate driver or easy out can also be used to remove the peg after it has been exposed.





# IMPLANT REMOVAL – TTC NAIL ONLY

## OPTION 1: LONG EXPLANT ATTACHMENT

Thread the long explant attachment into the end of the nail until secure.



**NOTE:** If the surgeon is still having difficulty, proceed to option 3 (Nail Extraction Hook) on page 10.

Assemble the Slaphammer by sliding the weight down the shaft and threading the tip onto the end.



Thread the Slaphammer onto the extractor body. Upon being securely attached, remove any remaining tibial or calcaneal threaded pegs. Use the sliding weight of the Slaphammer to back the nail out of the foot in an inferior direction until the Nail is removed.

**NOTE:** If preferred, the extractor body can be used with the U handle as shown on page 9.

**NOTE:** If necessary, the sliding weight of the Slaphammer can be removed so that the slotted mallet can be used with the shaft of the Slaphammer instead.

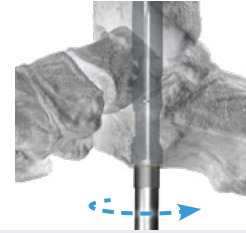


Slotted Mallet

Slaphammer Tip

Slaphammer Shaft

Slaphammer Weight



**NOTE:** Confirm using fluoroscopy that the long explant attachment has advanced into the calcaneal slots of the nail.

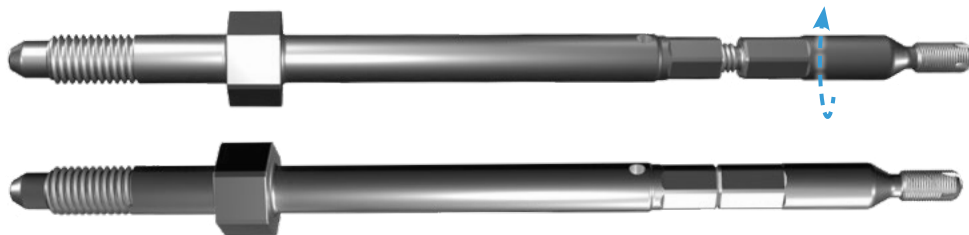
**NOTE:** If necessary, the provided T-handle and Hex adaptor can be used to provide more force to thread the explant attachment into the end of the nail.



## IMPLANT REMOVAL – ACTIVCORE NAIL ONLY

### OPTION 2: ACTIVCORE INNER NAIL EXPLANT ATTACHMENT

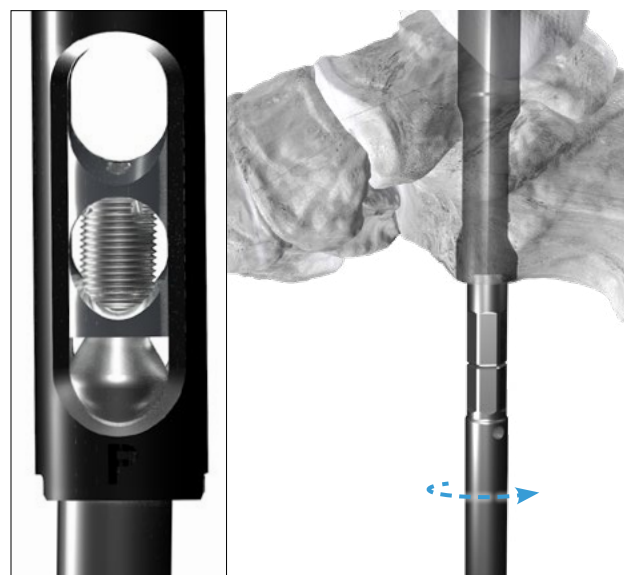
Thread the ActivCore Inner Nail explant attachment into the extractor body until secure. The 8 mm wrench can be used to secure it as well.



Thread the constructed explant attachment into the inner nail until secure. Do not go past hand tightness when securing in the nail, as excessive force may break extractor tip or inner nail. Advance the tip until it bottoms out inside the nail or until it is visible inside the most distal calc hole of the nail.

**NOTE:** If the surgeon is still having difficulty, proceed to option 3 (Nail Extraction Hook) on page 10.

**NOTE:** Threading into the inner nail can help compress the proximal coil and can disrupt boney ongrowth that may be present.



Place the extractor body through the hole on the U handle and secure with the 17 mm nut and provided wrench.

After securing, remove any remaining tibial or calcaneal threaded pegs. Use the provided mallet to strike the strike plate of the U handle. Continue striking until the nail is removed.

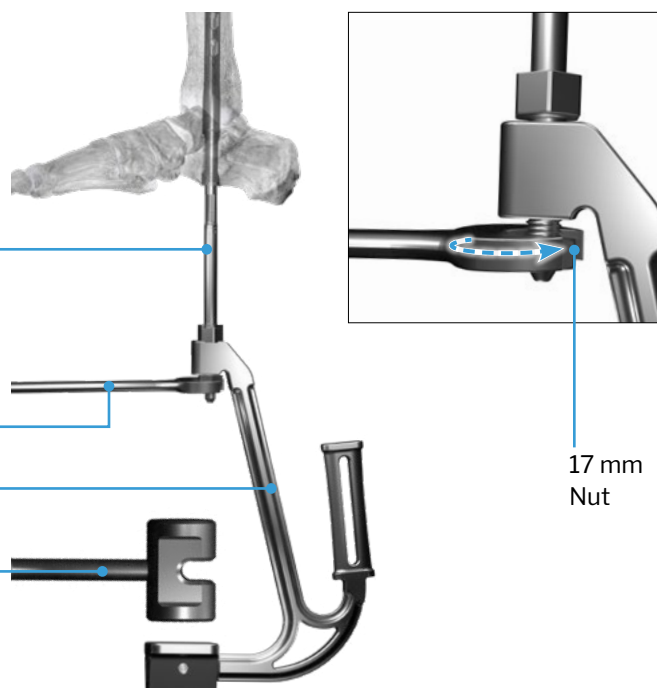
**NOTE:** If preferred, the extractor body can be used with the Slaphammer as shown previously.

Extractor Body

17 mm Wrench

U Handle

Slotted Mallet

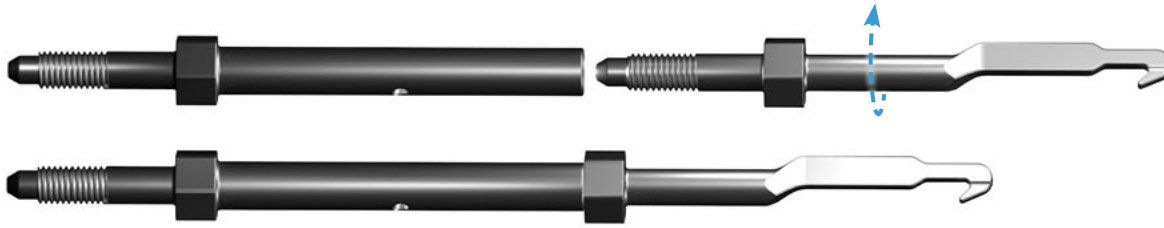


17 mm  
Nut

## IMPLANT REMOVAL – BOTH NAILS

### OPTION 3: NAIL EXTRACTION HOOK

Optional: Thread the Nail Extraction Hook attachment onto the end of the extender.



Thread the extender or the extraction hook directly onto the Slaphammer. Use the Slaphammer construct or use the Nail Extraction Hook and the provided T-handle and Hex adaptor to place the hook into the nail. Aim the hook posteriorly and grab one of the distal slots in the nail.

It may be necessary to clean out bone around the calcaneal slot of the nail to engage the hook into the nail.

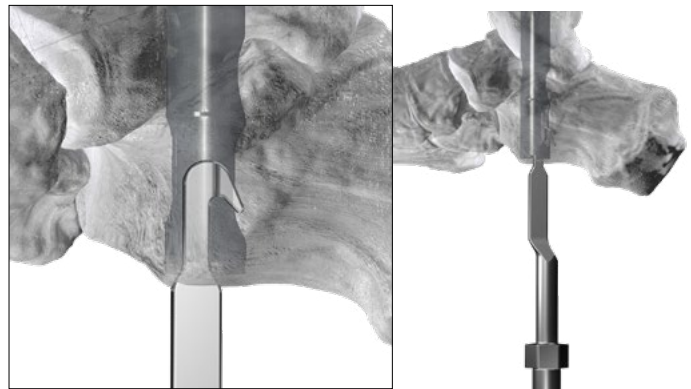
**NOTE:** If the surgeon is still having difficulty, proceed to option 4 (Cross Thread Explant Tip) on page 11.

**NOTE:** Use of the extender is optional and only needs to be used when more distance is needed between the bottom of the fat pad of the foot and the removal device (Slaphammer or U Handle).

**NOTE:** The hook can grab the calcaneal slot of the nail from outside the nail as well.

Assemble the Slaphammer by sliding the weight down the shaft and threading the tip onto the end. Thread the Slaphammer onto the extractor body.

Remove any remaining tibial or calcaneal threaded pegs. Use the sliding mechanism of the Slaphammer to back the nail out of the foot in an inferior direction until the Nail is removed.



**NOTE:** If preferred, the extractor body can be used with the U handle as shown previously.

**NOTE:** If necessary, the sliding weight of the Slaphammer can be removed so that the slotted mallet can be used with the shaft of the Slaphammer instead as shown on page 8.



# IMPLANT REMOVAL – BOTH NAILS

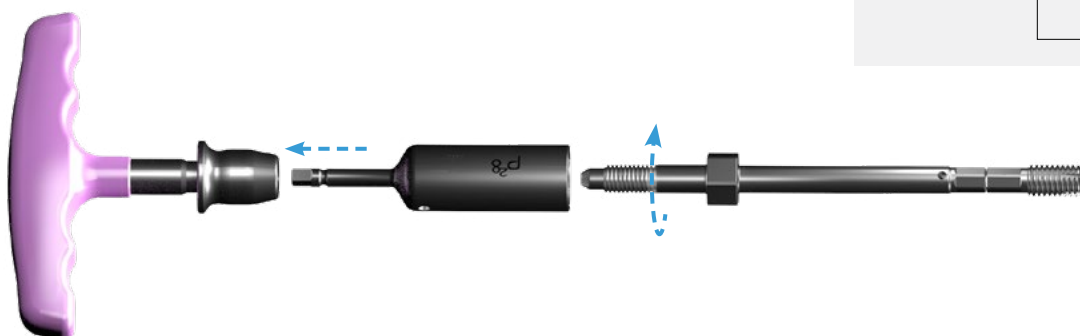
## OPTION 4: CROSS THREAD EXPLANT ATTACHMENT

Thread the Cross Thread Explant attachment onto the end of the extractor body.



Thread the extractor body onto the Slaphammer. Use the Slaphammer construct or use the extractor construct and the provided T-handle and Hex adaptor to thread the tip into the nail. Engage 1-2 threads and continue spinning until squealing is heard to confirm the threads have been engaged.

**NOTE:** For best engagement confirm 2 complete threads have been engaged before attempting to remove the nail.

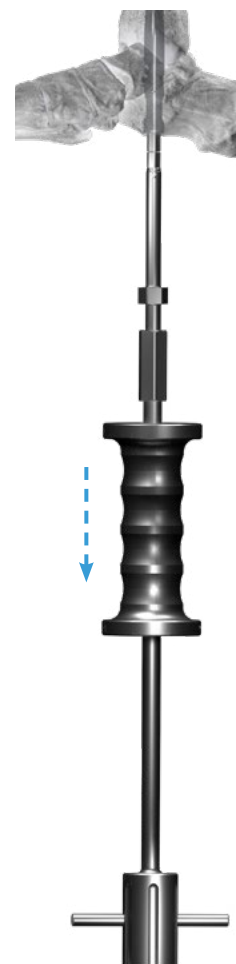


Assemble the Slaphammer by sliding the weight down the shaft and threading the tip onto the end. Thread the Slaphammer onto the extractor body.

Remove any remaining tibial or calcaneal threaded pegs. Use the sliding mechanism of the Slaphammer to back the nail out of the foot in an inferior direction until the Nail is removed.

**NOTE:** If preferred, the extractor body can be used with the U handle as shown previously.

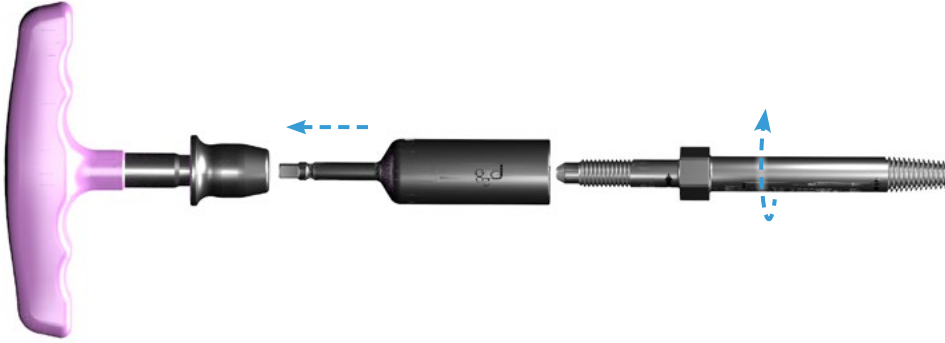
**NOTE:** If necessary, the sliding weight of the Slaphammer can be removed so that the slotted mallet can be used with the shaft of the Slaphammer instead.



## IMPLANT REMOVAL – TTC NAIL

### OPTION 4: CONICAL EXPLANT ATTACHMENT

Thread the Conical Explant attachment onto the Slaphammer. Use the Slaphammer construct or use the Conical Explant attachment with the provided T-handle and Hex adaptor to thread the tip into the nail in a counterclockwise direction. Continue spinning counterclockwise until squealing is heard to confirm the threads have been engaged.



**NOTE:** For best engagement confirm 2 complete threads have been engaged before attempting to remove the nail.

Assemble the Slaphammer by sliding the weight down the shaft and threading the tip onto the end. Thread the Slaphammer onto the threaded end of the Conical Explant attachment.

Use a wrench to provide counter torque while attaching Slaphammer or U Handle to prevent tip from loosening from implant during final assembly.

Remove any remaining tibial or calcaneal threaded pegs. Use the sliding mechanism of the Slaphammer to back the nail out of the foot in an inferior direction until the Nail is removed.

**NOTE:** If preferred, the extractor body can be used with the U handle as shown previously.



**NOTE:** If necessary, the sliding weight of the Slaphammer can be removed so that the slotted mallet can be used with the shaft of the Slaphammer instead as shown on page 8.





## PHANTOM EXPLANT SYSTEM CASE

PART #	DESCRIPTION	USE
P31-958-2001	TTC Explant Attachment	Single-use
P31-958-0002	Nail Removal Extractor Tip	Single-use
P31-958-0003	ActivCore Inner Nail Extractor Tip	Single-use
P31-958-0004	Conical Extractor Tip	Single-use
P31-958-0006	Nail Extraction Hook	Single-use
P31-958-0007	Extender	Reusable
P31-958-0008	Extractor Body	Reusable
P31-958-0010	End Cap Easy Out	Single-use
P31-958-0020	Hx 20 Easy Out	Single-use
P31-958-0030	Hx 30 Easy Out	Single-use
P31-958-1001	Wrench 17 mm	Reusable
P31-958-1002	Wrench 8 mm	Reusable
P31-958-1003	Hex Nut	Reusable
P31-958-300[1-3]	Screw Reamers	Single-use
P31-958-301[1-3]	Screw Remover Reamers	Single-use
P99-000-316B	3/16ths Adapter	Reusable
P99-000-316C	3/16th T-handle Non-ratcheting	Reusable
P99-150-2008	Vice Grip	Reusable
P99-150-2008-10	Vice Grip Threaded Attachment	Reusable
P99-191-TX20-09	Hx 20 Driver	Reusable
P31-190-TX30-09	HX 30 Driver, Cannulated	Reusable
P99-150-134[0/1]	Curved Osteotome	Reusable
P99-150-124[1/3]	Straight Osteotome	Reusable
P99-150-0001	Forceps	Reusable
P99-150-2005	Large Slaphammer Shaft	Reusable
P99-150-2005-05	Large Slap Hammer Sliding Handle	Reusable
P99-150-2005-06	Large Slap Hammer Tip	Reusable
P99-150-2006	Slotted Mallet	Reusable
P99-150-2007	U Handle	Reusable

## INSTRUCTIONS FOR USE

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### **INSTRUCTIONS FOR USE: PHANTOM® HINDFOOT TTC/TC NAIL SYSTEM**

INDICATIONS, CONTRAINDICATIONS, WARNINGS AND PRECAUTIONS RELEVANT TO THE PHANTOM® HINDFOOT TTC/TC SYSTEM ARE CONTAINED IN THE INSTRUCTIONS FOR USE DOCUMENT OF THE PHANTOM® HINDFOOT TTC/TC SYSTEM P31-IFU-1001.

**REFER TO [WWW.PARAGON28.COM/IFUS](http://WWW.PARAGON28.COM/IFUS) FOR THE COMPLETE AND MOST CURRENT INSTRUCTIONS FOR USE DOCUMENT.**

**PHANTOM<sup>®</sup>**  
HINDFOOT TTC/TC SYSTEM

**PHANTOM**  
ACTIVCORE<sup>™</sup> NAIL SYSTEM

PATENTED, DESIGNED & EXCLUSIVELY DISTRIBUTED BY

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**EC REP**

## DISCLAIMER

The purpose of the Phantom<sup>®</sup> Explant Surgical Technique Guide is to demonstrate the optionality and functionality of the Phantom<sup>®</sup> Explant System. Although variations in placement and use of the Phantom<sup>®</sup> Explant System can be performed, the fixation options demonstrated in this technique were chosen to demonstrate the functionality of the system and for simplicity of explanation. Other uses for the Phantom<sup>®</sup> Explant System can be employed, appropriate for the size of the device. Federal law (U.S.A.) restricts this device to sale and use by, or on order of, a physician.

[www.Paragon28.com](http://www.Paragon28.com)