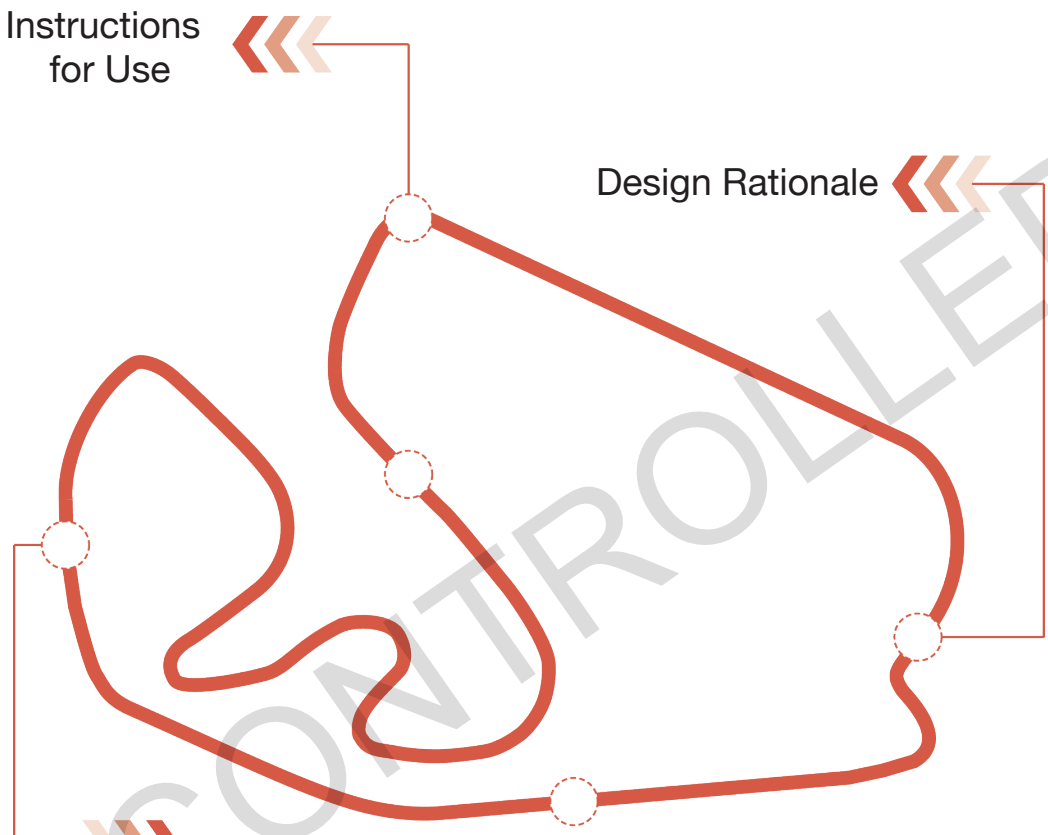
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Interlagos Retractor System Surgical Technique

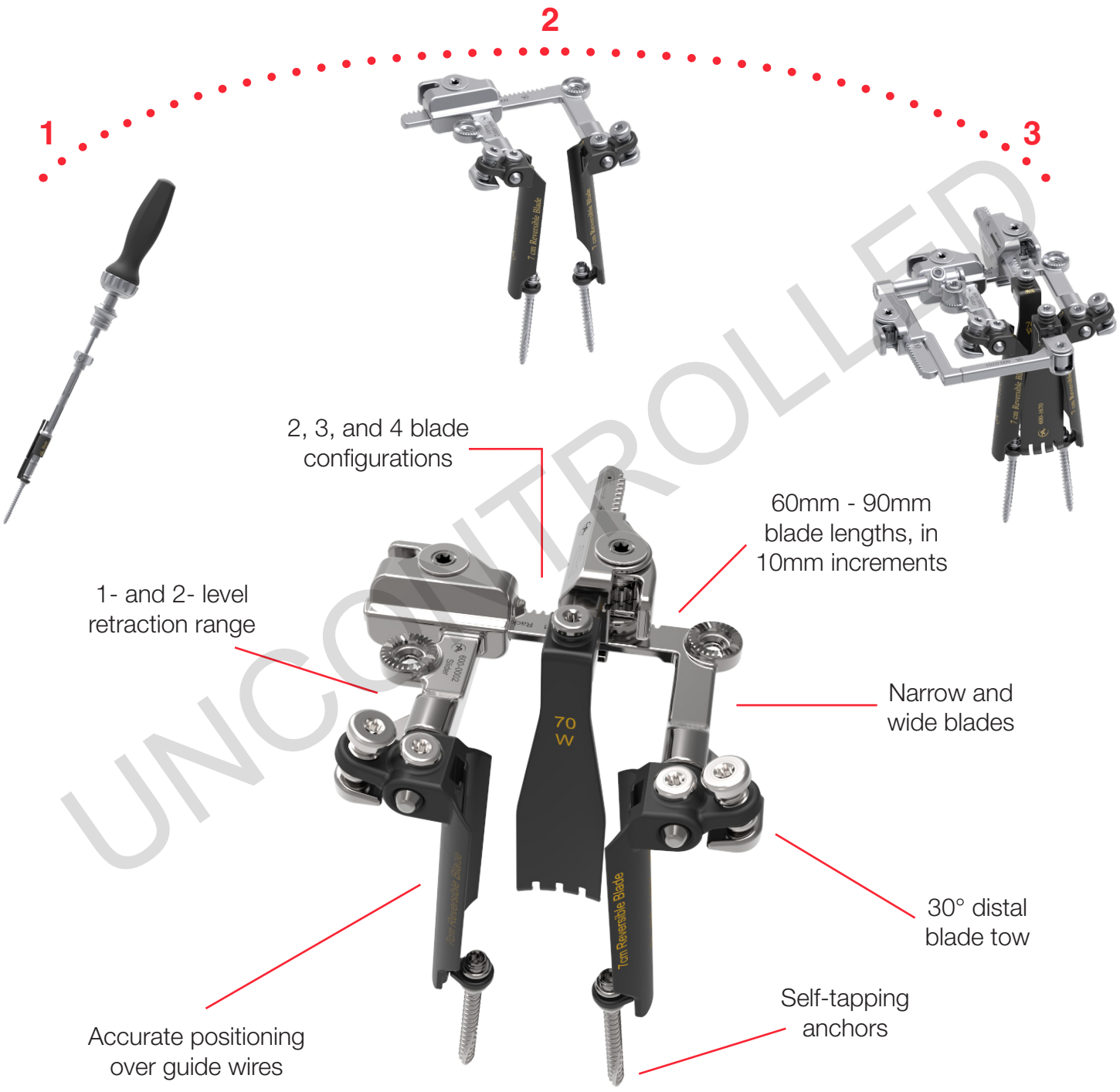
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DESIGN RATIONALE



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INDICATIONS FOR USE

The Altus Spine Interlagos Retractor System is intended to provide surgical access to the thoracic and lumbar spine from a posterior and posterior lateral approach. It helps in gaining access to the disc space and is designed for needs of various indications and/or surgical techniques.

Reference product insert (PI-003) for complete system indications for use, description, warnings and precautions

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1. PRE-OPERATIVE PREPARATION



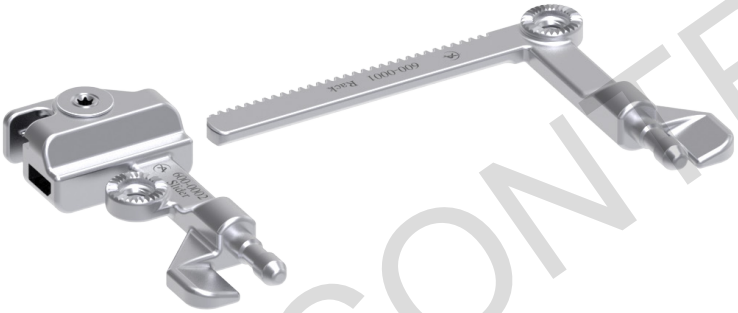
Assemble the T25 Shaft to the T-handle; pull back the plunger and insert the shaft until the “load line” is flush with the plunger, then release.

Assemble the Screw Driver shaft to the Straight Ratcheting Handle; pull back the plunger and insert the shaft until the “load line” is flush with the plunger, then release

Assemble 2nd Blade Ratchet to the L-Shaped Rack

Ensure the Jacking Screws on all of the blades are completely unthreaded

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Partially Threaded



Completely Unthreaded



2. PEDICLE PREPARATION

PEDICLE TARGETING

Locate pedicle using standard intraoperative techniques under fluoroscopy

Insert Cannulated Bone Probe through incision and dock the tip on the bony anatomy of the desired level

Confirm position using fluoroscopy

Advance the Cannulated Probe to desired depth; while ensuring the probe does not breach the pedicle during placement

Remove the inner trocar of the Cannulated Probe by rotating the impaction cap counterclockwise

Note: Based on surgeon preference, a Guide Wire Needle can also be used for targeting

GUIDE WIRE PLACEMENT

Insert the 1.5mm Guide Wire through the Cannulated Probe and advance to desired depth

Confirm placement with A/P and lateral fluoroscopy, prior to removing the Cannulated Probe

Note: For multi-level constructs it is recommended to place all guide wires prior to inserting pedicle screws

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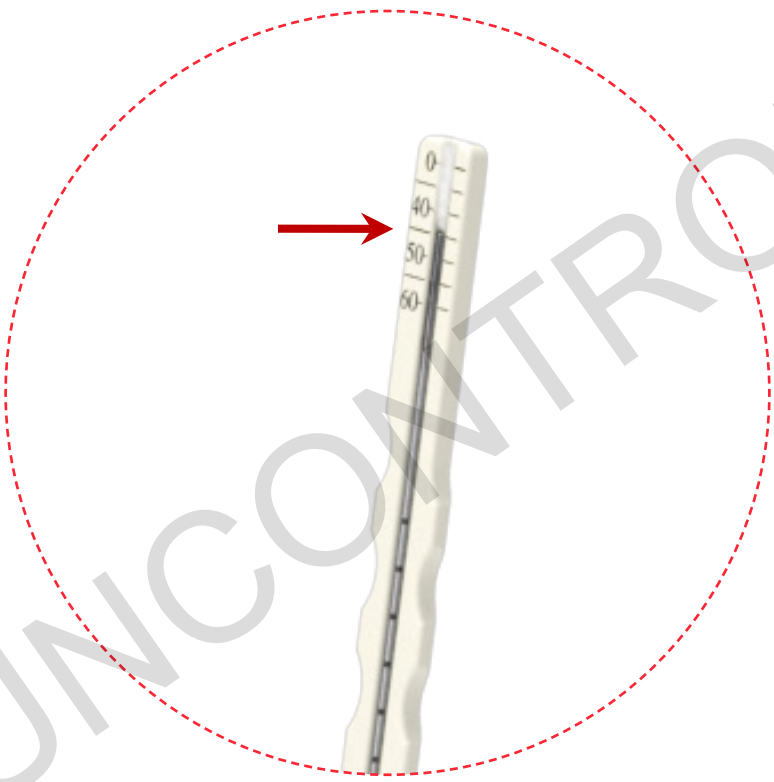


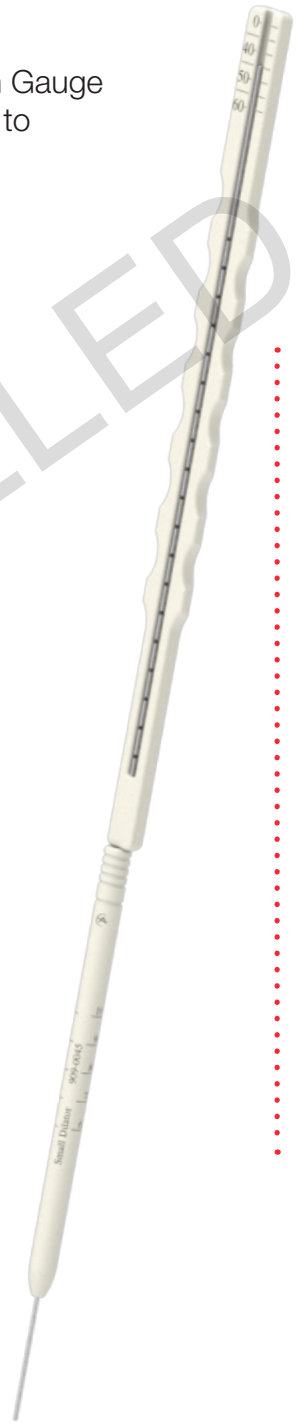
2. PEDICLE PREPARATION (CONT.)

DETERMINE LENGTHS OF BLADES AND ANCHORS

Place the Small Dilator over the Guide Wire and use the markings on the Dilator to determine the desired blade length

With the Small Dilator still in place, insert the Guide Wire Depth Gauge over the Guide Wire and use the marking on the Depth Gauge to determine the desired anchor length





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2. PEDICLE PREPARATION (CONT.)

ASSEMBLE BLADE/ANCHOR

Assemble the Blade Guide Collar to the Screw Driver Shaft, oriented as shown



Align Collar

Fully thread the Collar onto the end of the Screw Driver until it spins freely



Load Collar

Align the tip of the Bone Anchor with the slot of the Blade Guide Collar



Align Bone Anchor

Engage the Screw Driver into the Bone Anchor until it is fully seated



Load Bone Anchor

Lower the sleeve of the driver onto the threads of the screw body and rotate the knob clockwise until it is firmly attached



Turn knob to engage screw head

Engage the Screw Driver/Anchor Assembly into the slot of Blade

Note: The Bone Anchor will stop at the end of the Blade



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2. PEDICLE PREPARATION (CONT.)

INSERT BLADES

Note: Do not advance the Bone Anchor into the pedicle until confirming the Bone Anchor is aligned with the Guide Wire. Monitor the tip of the Guide Wire under fluoroscopy to ensure it does not penetrate the anterior wall of the vertebral body

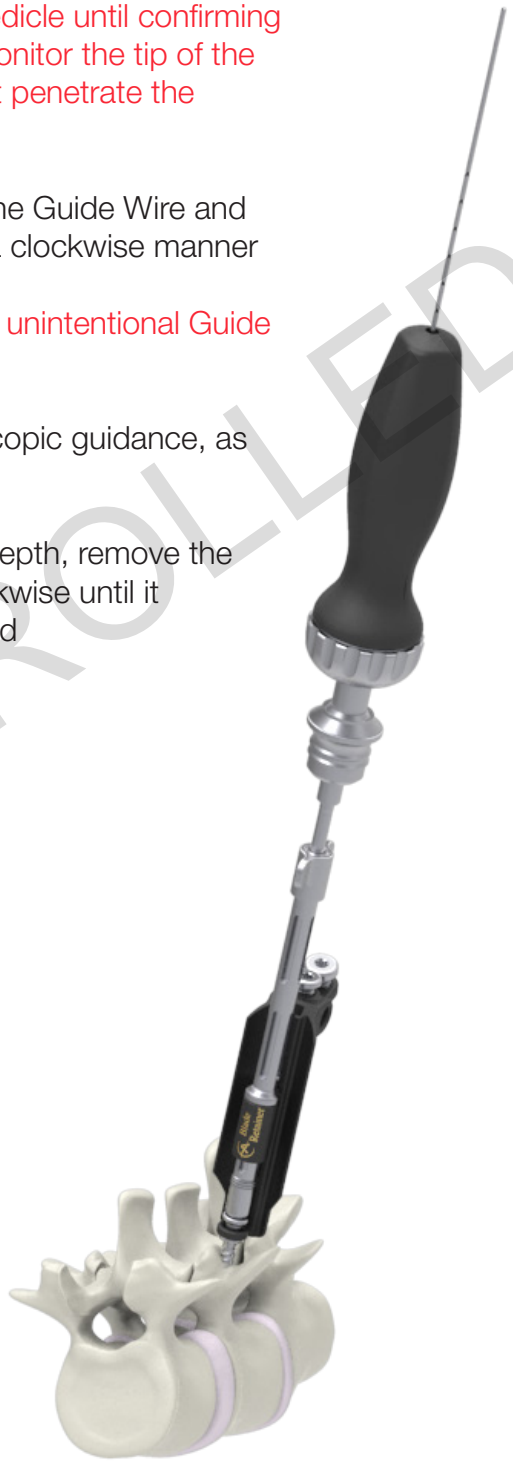
Insert the Blade-Tap-Driver assembly over the Guide Wire and into the pedicle by turning the assembly in a clockwise manner

Note: While tapping, care should be taken to avoid unintentional Guide Wire advancement

Continue to advance assembly with fluoroscopic guidance, as needed

Once the Anchor has reached the desired depth, remove the driver by turning the thumb tab counterclockwise until it completely disengages from the anchor head

Repeat previous steps for the next blade



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3. PRIMARY RETRACTION

INSERT FRAME

Holding the blades in place, connect the Retractor Frame to the blades from the medial side



Lock Frame to Blades using T25 Shaft



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3. PRIMARY RETRACTION (CONT.)

INSERT FRAME (CONT.)

The blades can be distracted by advancing the Slider along the Rack by using the T25 Shaft



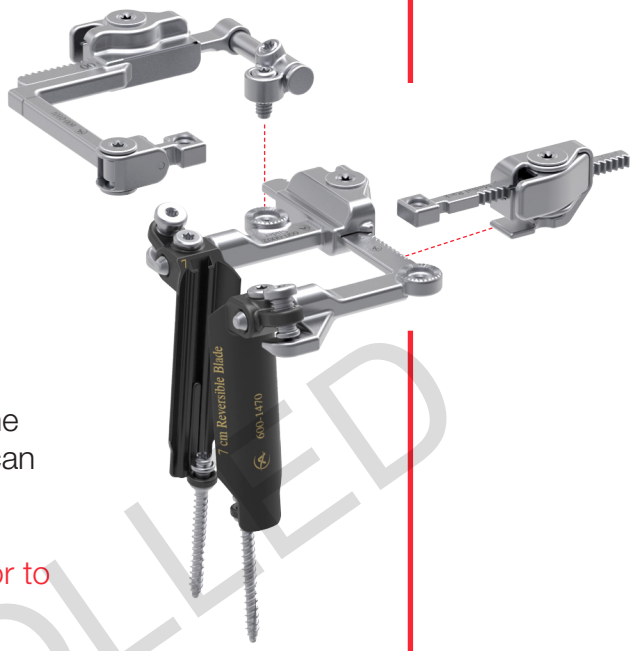
The angle of the blades can be adjusted bythe Jack Screws on either blade



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4. SECONDARY RETRACTION (OPTIONAL)

ATTACH MEDIAL BLADE



Assemble Medial Rack to Medial Slider assembly

Attach the Medial Rack to the Frame

Load the desired Medial Blade to the Blade Holder by pulling the trigger of the Blade Holder and inserting the Blade

Attach the Blade to the Medial Rack, and tighten the locking screw; once it is secure, the Blade Holder can be removed

Note: The Medial Blade can be assembled to the rack prior to frame attachment



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4. SECONDARY RETRACTION (CONT.)

ATTACH LATERAL BLADE

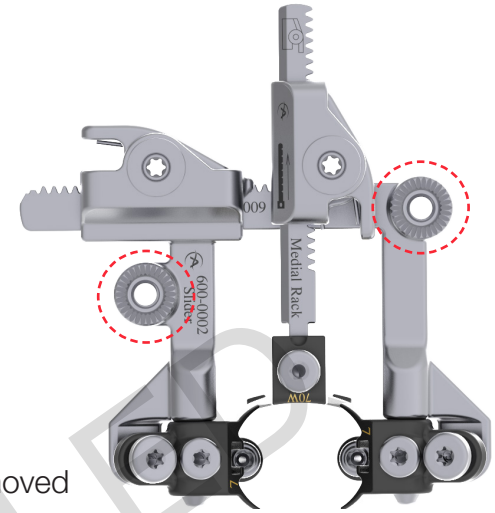
Assemble Lateral Rack

The Lateral Blade Holder can be mounted from either mounting feature on the Main Slider or Main Rack using the Screw Driver

Load the desired Lateral Blade to the Blade Holder by pulling the trigger of the Blade Holder and inserting the Blade

Attach the Blade to the Lateral Blade Rack, and tighten the locking screw; once it is secure, the Blade Holder can be removed

The angle of the blades can be adjusted by the Jack Screws on either blade; Jack Screws described in Section 3



Blade Attachment points



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5. EXTENDING STRUCTURE

To extend to an adjacent level, place the Blade and Anchor into the desired level, as described in Section 2

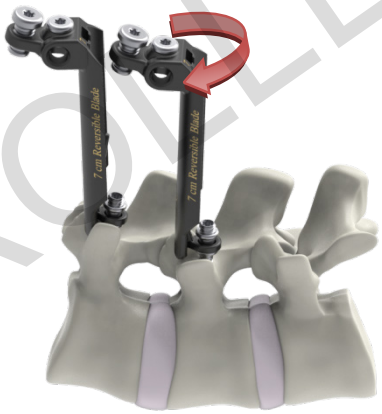
Detach the Frame from the blades at the first level

Pivot the center Blade

Re-attach the Frame over the new level



Detach Frame



Rotate Frame



Insert Third Blade



Re-Attach Frame

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6. REMOVING RETRACTOR

Use the Screw Driver on the Straight Handle to engage Bone Anchor

Note: Remove Collar from Screw Driver to make Bone Anchor engagement easier

Once the tip is properly seated in the screw, lower the sleeve of the driver onto the threads of the screw body

Rotate the knob clockwise to engage the screw head until it is firmly attached

Unthread the Bone Anchor

Remove the Bone Anchor by sliding it up through the blade, leaving the Blades in place

Repeat for each blade

Note: The resulting tapped hole prepares pedicle for screw insertion

Use Screw Driver to relieve retraction pressure and remove instrument from incision

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