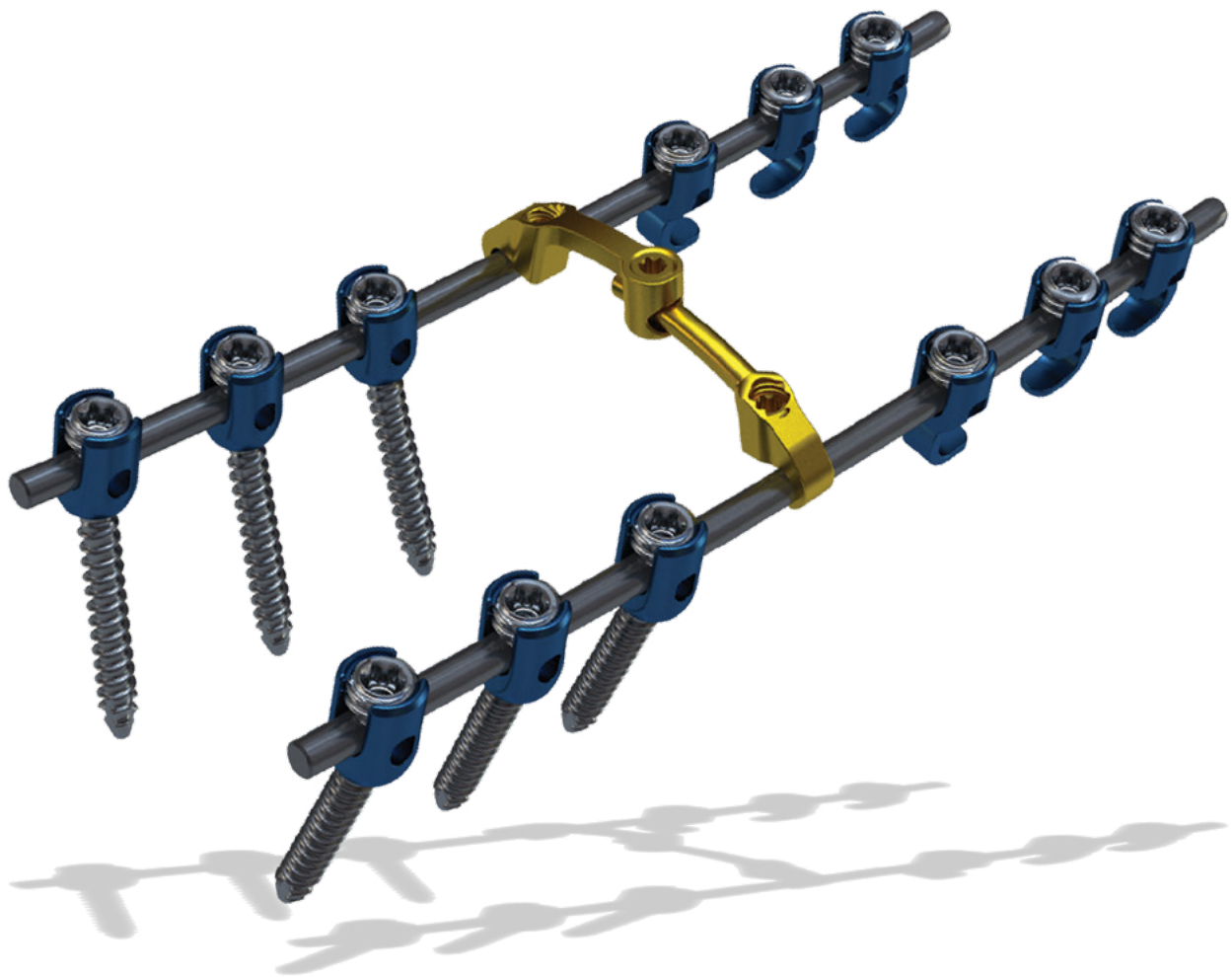


BLACKBIRD™

Posterior Cervical-Thoracic Fixation System





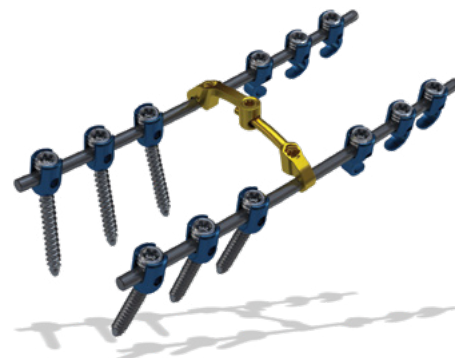
choicespine.com

Table of Contents

Introduction	4
System Features	4
Positioning and Exposure	5
Placement of Hooks	5
Screw Hole Preparation	6
Screw Insertion	8
Rod Insertion	8
Set Screw Insertion	9
Rod Reduction	10
Compression/Distracton	11
Set Screw Final Tightening	12
Connector Placement	12
Rod to Rod Connectors	12
Lateral Offset Connectors	13
Inline & Domino Connectors	13
Removal	13
Implant and Instrument Trays	14

BLACKBIRD™

Posterior Cervical-Thoracic Fixation System



Introduction

The ChoiceSpine BLACKBIRD™ Posterior Cervical Thoracic Spinal Fixation System is a 3.5mm rod system offering a versatile and simplified solution for posterior fixation of the cervico-thoracic regions of the spine.

The use of polyaxial screws is limited to the thoracic spine (T1-T3) “for anchoring the construct only” and not intended to be placed in the cervical spine. The use of the rods and hooks are intended to provide stabilization and promote fusion in the cervical/upper thoracic (C1-T3) spine. This system can be linked to a Ø6.0 mm rod system such as the ChoiceSpine Starfire™ Pedicle Screw System.

System Features

- Polyaxial head: non-biased 70° of conical angulation
- Multiple screw options: 3 diameters; fully threaded and smooth shank
- Dovetail set screw: minimizes head splaying and cross-threading
- Variety of connectors: allows for variations in anatomy and technique
- Multiple connector and hooks available



Part Description	Diameter	Lengths
Polyaxial Screws	3.5mm	10-32mm
Polyaxial Screws	4.0mm	10-32mm
Polyaxial Screws	4.5mm	18-34mm
Polyaxial Screws - Smooth Shank	3.5mm	18-22mm
Rods (Straight, Prebent, and Transition)	3.5mm	Prebent: 40-120mm Straight: 80, 120, and 240mm Transition: 350 and 560mm
Connectors include rod to rod, lateral offset, and rod transition connectors		
Multiple Hook sizes are included		

NOTE: Screw lengths are in 2mm increments.

Positioning and Exposure

- Place patient in prone position in preparation for posterior fixation approach
- Target the appropriate spinal segments clinically and using fluoroscopy
- Ensure adequate visualization for procedure

Placement of Hooks

- Prepare the lamina for cervical Hook (LT30-H05 / L730-H06) placement
- Select the appropriate hook size based on thickness of the lamina
- Insert the Hook using Hook Holder (L070-0049) into the appropriate position (Fig. 1)
- Repeat for remaining hooks (Fig. 2)

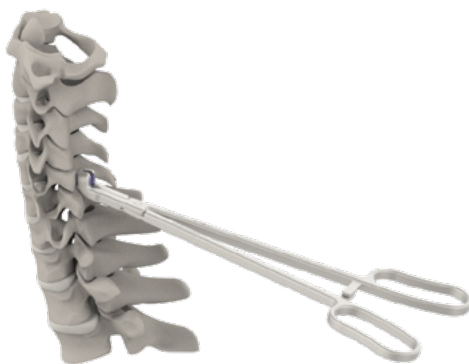


Figure 1



Figure 2

Screw Hole Preparation

- Determine the appropriate screw diameter and length for patient anatomy in the thoracic spine (T1-T3)
- Determine the trajectory of the screw and create a pilot hole using the Awl (L070-0051)



Figure 3

- Prepare the Drill Guide (L070-0002) by adjusting the rotating knob at the proximal end of the barrel to the desired drilling depth. Each stop on the barrel indicates a depth change of 2 mm (Fig. 4 and 5).



Figure 4



Figure 5

- Attach Drill (3.5mm L070-0003 or 4.0mm L070-0004) to Axial AO Handle (L070-0029) and insert into Drill Guide
- Position the Drill Guide in the desired trajectory and advance the Drill until the stop makes contact with the Drill Guide (Fig. 6)



Figure 6

- Confirm depth of drill hole using Ball Tip Probe (L070-0026)
- Attach the Axial AO Handle to the 3.5 Tap (L070-0005) and attach the Tap Sleeve (L070-0017) (Fig 7 and 8)
- Tap the Tap to the appropriate depth.

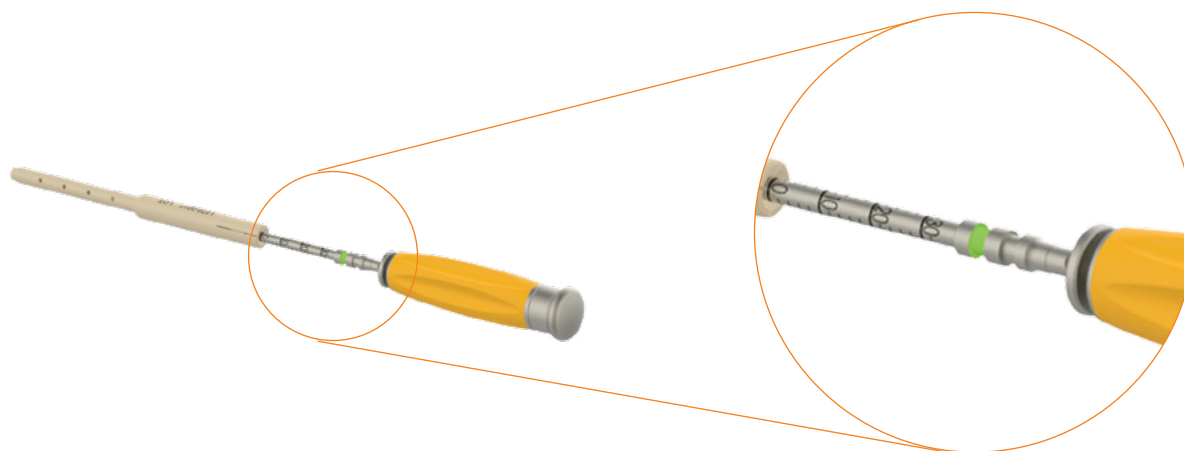


Figure 7

Figure 8

NOTE: The Tap Sleeve (L070-0017) is designed for tissue protection during tapping. The sleeve is spring loaded and will retract from the tip as the tap advances. Tap depth is indicated on the tap at the top of the Tap Sleeve.

Screw Insertion

- Attach the Driver (L070-0001) to the Axial AO Handle (L070-0029)
- Load the Screw on the tip of Driver to ensure Screw is fully engaged (Fig. 9)



Figure 9

- Slide outer sleeve distally until it reaches the tulip, rotate the sleeve until it engages tulip threads, and hand tighten. (Fig. 10)



Figure 10

- Drive the Screw into pedicle to desired depth

Rod Insertion

- Cut the Rod (LT40-9040 - LT40-120) to determined length using Rod Cutter (L070-0020) (Fig. 11)



Figure 11

- The Rod Cutter Ruler (L070-0042) can be attached to the Rod Cutter to cut the rod to the appropriate length

- Rotate dial on **Rod Cutter** to ensure the arrows are aligned (Fig. 12). Pass rod through **Rod Cutter**, align end of **Rod** with desired length marked on **Rod Cutter Ruler**, and squeezes handles to cut **Rod**.



Figure 12

- Bend rod to desired contour using **Rod Bender** (L070-0021),
- Insert **Rod** into **Hooks and Screws** (Fig. 13)



Figure 13

Set Screw Insertion

- Choose the **Single End** (L070-0012) or **Double End** (L070-0011) **Set Screw Starter** (Fig. 14) to provisionally tighten the **Set Screw** (LT10-0001) (Fig. 15)



Figure 14



Figure 15

NOTE: If the rod is not fully seated in the bottom of the screw tulip, rod reduction must be performed.

Rod Reduction

- Reduce the Rods as needed using the **Tower Reducer** (L070-0009), or the **Rod Rocker** (L070-0007).
- Rotate the winged knob on the **Tower Reducer** counter clockwise to extend the inner sleeve.
- Connect the **Tower Reducer** to the screw tulip (Fig 16).



Figure 16

- Verify that the **Tower Reducer** is seated correctly on the screw tulip & rotate the winged knob clockwise to reduce the rod (Fig 17).



Figure 17

- Provisionally tighten the **Set Screws** once the **Rod** has been reduced (Fig 18)

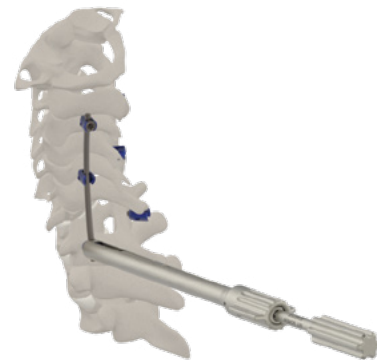


Figure 18

- The rocker mates with the screw or hook on the outside of the tulip.

NOTE: There is an optional **Pistol Reducer** (L070-0008) available to assist with rod reduction. Contact ChoiceSpine Sales Support if wanting to request.

WARNING: The rod must be fully seated into the bottom of the screw tulip to avoid possible damage to the set screw and screw

NOTE: Set screws may be inserted through the tower reducer or pistol reducer.

Compression/Distraction

- Ensure at least one **Set Screw** is final tightened prior to compression or distraction see "Set Screw Final Tightening" section.
- To compress, place **Compressor (L070-0024)** over **Rod** on the outside of the **Screws** or **Hooks**
- Squeeze handle until desired compression is achieved (Fig. 19)

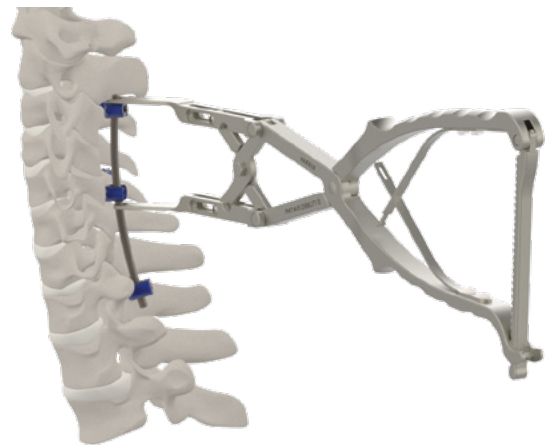


Figure 19

- To distract, place **Distractor (L070-0025)** over **Rod** on inside of **Screws** or **Hooks**
- Squeeze the handle until desired distraction is achieved (Fig. 20)

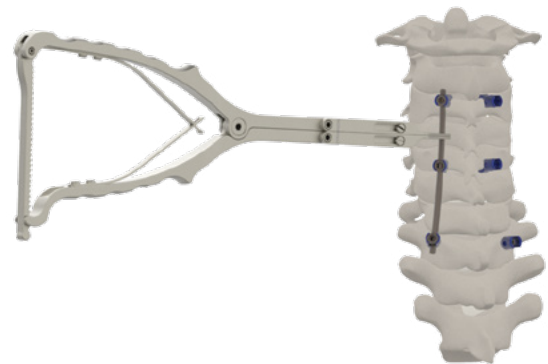


Figure 20

- Once desired compression or distraction is achieved, provisionally tighten the remaining **Set Screws**

Set Screw Final Tightening

- Place Countertorque (L070-0013) over the Screw/Hook/Lateral Connector
- Assemble Final Driver (L070-0015) to the orange 30 in-lb T-handle (L070-0027)
- Pass Final Driver through the Countertorque and seat the Driver into the Set Screw (Fig. 21)
- Rotate T-handle clockwise until the handle provides tactile click when the 30 in-lb torque limit is reached.
- Repeat for all Set Screws (Fig. 22)



Figure 21



Figure 22

Connector Placement

CAUTION: BEFORE INSERTING ANY CONNECTORS VERIFY THE POSITION OF THE SETS SCREWS TO ENSURE THEY DO NOT RESTRICT SEATING.

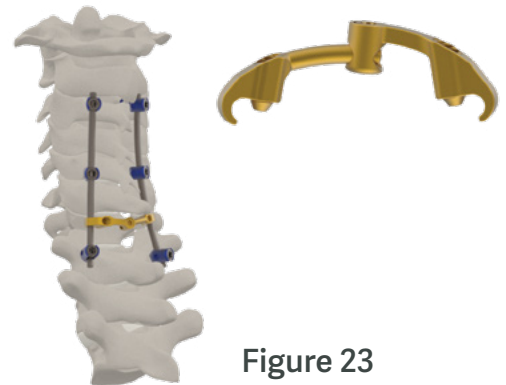


Figure 23

Rod to Rod Connectors

- Measure the distance between Rods using the Cross Connector Caliper (L070-0031) and select appropriate sized Connector
- Place connector on Rods at the appropriate spinal location and provisionally tighten lateral Set Screws followed by central Set Screw using the Connector Driver (L070-0038)
- Final tightening lateral to lateral Set Screws followed by the medial Set Screw using the Connector Driver and the yellow 25 lb-in T-handle (L070-0053)
- Rotate T-handle clockwise until the handle provides a tactile click when the 25 in-lb torque limit is reached.

Lateral Offset Connectors

- **Lateral Connectors** may be used when an offset is warranted or anatomy requires medial-lateral flexibility
- Determine the amount of offset and select the appropriate sized **Lateral Connector**



Figure 24

NOTE: The lateral connectors accept the same set screw as the polyaxial screws and are final tightened using the 30 in-lb T-handle (L070-0027). See "Set Screw Final Tightening" section

Inline & Domino Connectors

- There are multiple styles of connectors to connect the BLACKBIRD system with other ChoiceSpine spinal systems. These connectors should be carefully selected to match the correct existing rod diameters.
- Final tighten the Connector Set Screws using the Connector using the **Connector Driver** and the orange 30 in-lb T-handle.
- Rotate the T-handle clockwise until the handle provides a tactile click when the 30 in-lb torque limit is reached.
- Use the inline **Countertorque** to aid in final tightening of the inline transition connector.



Figure 25

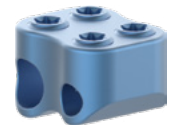
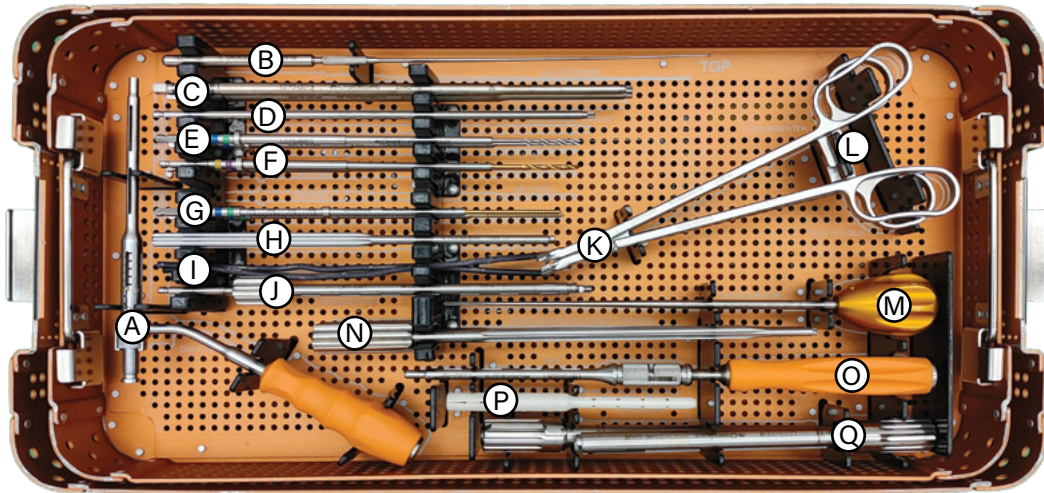


Figure 26

Removal

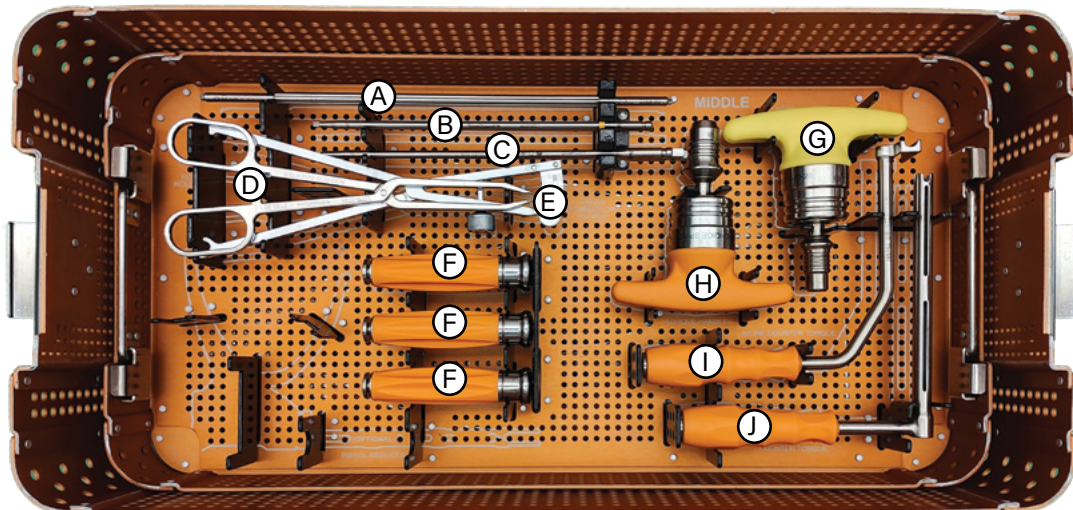
- To remove the device components, first remove all **Connectors** using a **Cross Connector Driver** (L070-0032) attached to a **Axial AO Handle** (L070-0029)
- Lateral Connectors are loosened using a **Set Screw Starter** (L070-0011 or L070-0012) attached to a **Axial AO Handle**
- Remove the **Rods**
- Remove **Polyaxial Screws** by mating a **Driver** (L070-0001) to the base of the **Screw**, back out the **Screw**
- Carefully manipulate **Hooks** for removal

Blackbird Top Instrument Tray



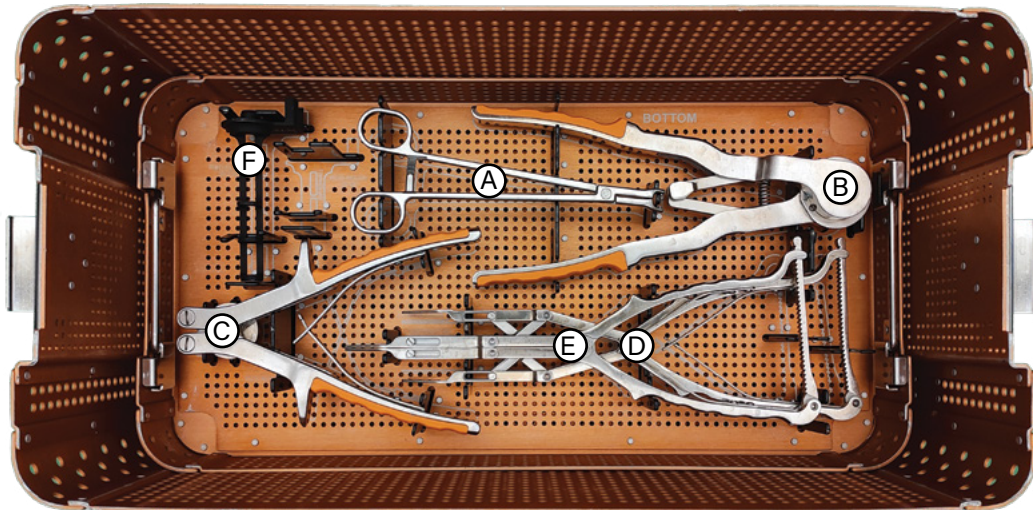
- | | | |
|---|---|--|
| (A) Drill Guide (L070-0002) | (G) 3.5mm Tap (L070-0005) | (L) Hook Holder (L070-0049) |
| (B) Ball Tip Probe (L070-0026) | (H) Tulip Adjuster (L070-0010) | (M) Pedicle Probe (L070-0046) |
| (C) Set Screw Final Driver (L070-0015) | (I) Rod Template (L070-0019 or L070-0054) | (N) Cross Connector Driver (L070-0038) |
| (D) Transition Connector Driver (L070-0050) | (J) Screwdriver (L070-0001) | (O) Awl (L070-0051) |
| (E) 3.5mm Drill (L070-0003) | (K) Rod Holder (L070-0047) | (P) Tap Sleeve (L070-0017) |
| (F) 4.0mm Drill (L070-0004) | | (Q) Tower Reducer (L070-0009) |

Blackbird Middle Instrument Tray



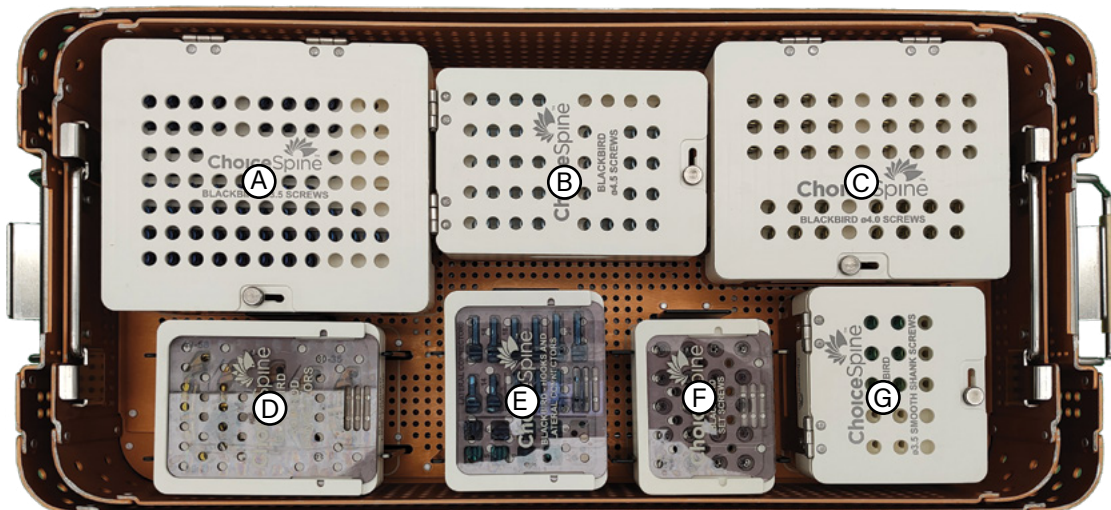
- | | |
|--|--|
| (A) Double Set Screw Starter (L070-0011) | (F) Axial AO Handle (L070-0029) x3 |
| (B) Single Set Screw Starter (L070-0012) | (G) 25in-lb T-Handle (Cross-Connector) (L070-0053) |
| (C) Adjustment Driver (L070-0032) | (H) 30in-lb T-Handle (Set Screw) (L070-0027) |
| (D) Rod - Rod Connector Inserter (L070-0034) | (I) Inline Countertorque (L070-0014) |
| (E) Cross Connector Caliper (L070-0031) | (J) Countertorque (L070-0013) |

Blackbird Bottom Instrument Tray



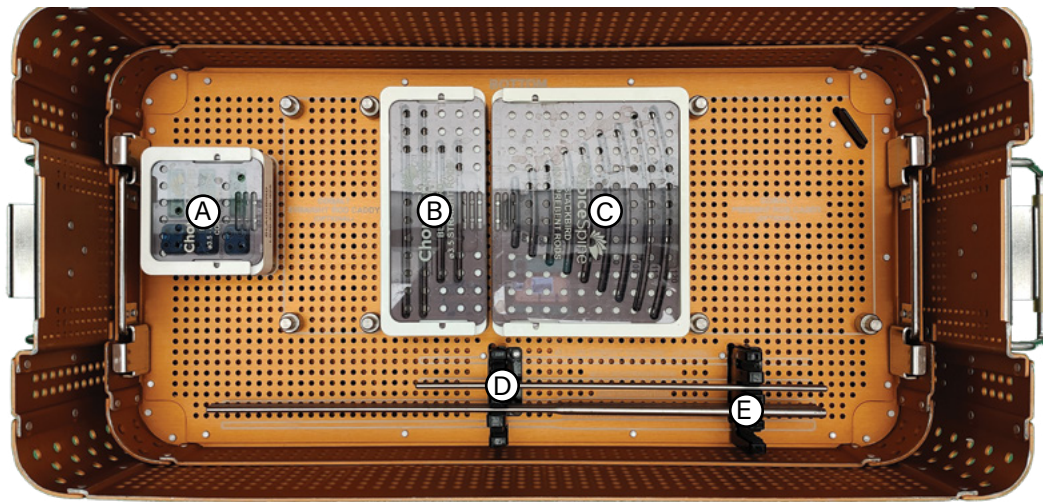
- Ⓐ Rod Rocker (L070-0007) Ⓒ Rod Bender (L070-0021) Ⓔ Distractor (L070-0025)
- Ⓑ Rod Cutter (L070-0020) Ⓓ Compressor (L070-0024) Ⓕ 35-130 Rod Cutter Ruler (L070-0042)

Blackbird Upper Implants Tray



- Ⓐ 3.5mm Screws Ⓔ Hooks & Lateral Connectors
- Ⓑ 4.5mm Screws Ⓕ Set Screws
- Ⓒ 4.0mm Screws Ⓖ 3.5mm Smooth Shank Screws
- Ⓓ Rod to Rod Connectors

Blackbird Lower Implants Tray



- Ⓐ 03.5-05.5mm Transition Connectors
- Ⓑ 03.5mm Straight Rods
- Ⓒ 03.5mm Prebent Rods
- Ⓓ 3.5mm x240mm Straight Rod
- Ⓔ 360mm Transition Rod

[illegible]

For Instructions for Use please visit <https://choicespine-eifu.com/>



BLACKBIRD™

Posterior Cervical-Thoracic
Fixation System

Spine the Right Way.™



400 Erin Drive, Knoxville, TN 37919 | O: 865.246.3333 | F: 865.246.3334 | choicespine.com