

Identity™ Shoulder System

Fixed Angle Adapter

Surgical Technique



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Introduction

The Identity Shoulder System is a platform system that enables implantation in an anatomic or reverse total shoulder configuration. The system can also be revised from anatomic to reverse while preserving a well-fixed humeral stem. This technique focuses on the surgical steps to implant an anatomic total shoulder utilizing either of the fixed angle humeral adapters, 135° or 125° inclination. Where applicable, the technique highlights instances when certain instruments are differentiated based on which inclination adapter will be implanted. If implanting a 125° inclination adapter, confirm that the five 125° dedicated instruments have been added to the instrument sets.

Intended Use, Indications and Contraindications

The Identity™ Shoulder System implants are intended for shoulder joint arthroplasty. Instruments are intended to facilitate the implantation and explantation of the corresponding compatible Zimmer Biomet implants. Instruments cases/trays are intended to facilitate the organization, identification, storage, transportation, and sterilization reprocessing of the compatible Zimmer Biomet Instruments.

INDICATIONS

Hemiarthroplasty/Conventional Total Application:

- Non-inflammatory degenerative joint disease including osteoarthritis and avascular necrosis
- Rheumatoid arthritis
- Correction of functional deformity
- Fractures of the proximal humerus, where other methods of treatment are deemed inadequate
- Difficult clinical management problems, including cuff arthropathy, where other methods of treatment may not be suitable or may be inadequate

The assembled humeral component may be used alone for hemiarthroplasty or combined with a glenoid component for total shoulder arthroplasty. The humeral stems may be used cemented or uncemented (biological fixation).

The Titanium Humeral Head is indicated for patients with suspected cobalt alloy sensitivity. The wear properties of Titanium and Titanium alloys are inferior to that of cobalt alloy. A Titanium humeral head is not recommended for patients who lack suspected material sensitivity to cobalt alloy.

Optional use in revision: In some medical conditions (e.g. revision when healthy and good bone stock exists), the surgeon may opt to use primary implants in a revision procedure.

CONTRAINDICATIONS

This device is contraindicated for the following:

- Local/systemic infection
 - Presence of significant injury to the upper brachial plexus
 - Paralysis of the axillary nerve
 - Marked bone loss
 - Nonfunctional deltoid or external rotator muscles
- Any neuromuscular disease compromising the affected limb that would render the procedure unjustifiable

Surgical Technique Summary



1 - Ream



2 - Assemble resection guide



3 - Resect humerus



4 - Rasp



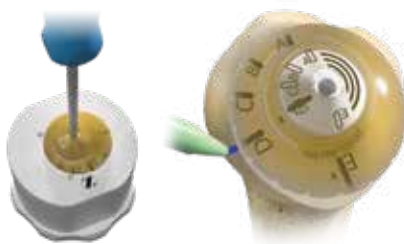
5 - Mate stem/adaptor implants



6 - Insert humeral construct



7 - Assemble head trial



8 - Trial head



9 - Assemble head implant



10 - Impact head

Pre-Operative Planning

Prior to surgery obtain patient imaging to evaluate bony anatomy for any deformities or acquired bone loss. Recommended x-rays include A/P, scapular Y and axillary views. A CT scan can be used to assess bone quality and identify any glenoid erosion patterns which may affect implant selection. The system includes x-ray templates to determine humeral stem and head sizes prior to surgery.

Patient Positioning

The arm and shoulder are prepped and draped free. Utilize a modified beach chair position at about 30 to 40 degrees of flexion.

Incision and Exposure

Utilize an extended deltopectoral anterior incision with an optional biceps tenodesis beginning immediately above the coracoid process and extending distally and laterally, following the deltopectoral groove along the anterior border of the deltoid. Laterally retract the deltoid muscle, avoiding release of the deltoid from the clavicle. The deltoid may be partially released from its distal insertion by subperiosteal dissection. Make a partial relaxing incision through the proximal coracoid tendon and medially retract the conjoined tendon.

Identify anterior structures and externally rotate the humerus. Make a longitudinal incision through the tendinous portion of the subscapularis muscle and capsule, just medial to the lesser tuberosity. In cases of severe contracture, subscapularis lengthening may be required.

Note: A lesser tuberosity osteotomy may also be performed in order to release the subscapularis.

Tag the subscapularis tendon with non-absorbent sutures for easy identification during closure. Externally rotate and extend the humerus to expose the humeral head, while protecting the axillary nerve.



Figure 1



Figure 2



Figure 3



Figure 4

Humeral Reaming & Resection

With the head exposed, remove any osteophytes to reveal the articular margin.

Attach a 4mm trocar-tipped Intramedullary Reamer to the T Handle (Figure 1). This system has standard and micro length humeral stems as well as dedicated Intramedullary Reamers for both lengths. Ensure Reamer length corresponds to the intended implant length. Place the trocar tip of the reamer at the superior-most portion of the humeral head and in line with the humeral axis. If necessary, use a mallet to penetrate the cortical bone. Bore through the humeral head until the Reamer teeth are just below the humeral head.

Use progressively larger reamers in 1mm increments until feeling initial resistance in the canal. Insert the Reamer until the engraved groove on the reamer shaft aligns to the humeral head cortical bone (Figure 2). Note the size of final Reamer used as this

will correspond to the final Rasp and humeral stem implant size.

Remove the T-handle, leaving the last Intramedullary Reamer in the canal.

To assemble the IM Humeral Resection Guide, do the following steps in order:

- a. There are 135° and 125° Resection Guide Carriage versions (Figure 3) that correspond to fixed angle humeral Adapter implants. The proper angle is the one that best matches the patient's articular margin inclination. Holding the chosen Resection Guide Carriage with the appropriate side etch ("R" for right shoulder, "L" for left shoulder) facing towards you, slide the Resection Block onto the Carriage such that the concave side of the Resection Block will face the humerus (Figure 4).

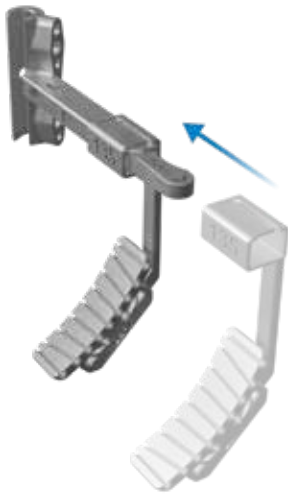


Figure 5



Figure 6



Figure 7

- b. Hold the Humeral Reamer Shaft Clamp with the appropriate side etch facing up. Slide the rectangular opening of the Resection Guide Carriage onto the Shaft Clamp arm (Figure 5).
- c. If assessing version prior to resection, then advance the threaded 30° Alignment Rod into the Version Rod Coupling. With the appropriate side engraving mark facing up (“R” for right shoulder, “L” for left shoulder) (Figure 6), thread the version guide assembly into the superior holes of the Humeral Reamer Shaft Clamp. The holes are polarized to ensure proper side orientation.
- d. Attach the assembled IM Resection Guide to the Reamer shaft (Figure 7).

Note: While establishing resection block positioning, ensure the cutting path will not violate the supraspinatus and infraspinatus insertions.

Resection height can be adjusted by sliding the IM Resection Guide assembly up or down the Reamer shaft until the top of the Resection Block aligns to the articular margin. The Reamer depth stop will prevent lowering the resection guide beyond that point. If the depth stop places the resection too high, then reattach the T Handle to the IM reamer and advance the reamer deeper into the canal. If the depth stop places the resection too low, then consider placing an IM reamer one size larger into the canal to enable proper height.



Figure 8



Figure 9



Figure 10



Figure 11

Humeral Reaming & Resection

To establish resection version, flex the forearm at 90° and rotate the resection guide assembly until it aligns to the forearm at the desired version (Figure 8). In this example the forearm aligns with the 30° retroversion rod. When the Resection Guide is in the desired position, lock the Shaft Clamp onto the reamer shaft (Figure 9) and slide the Resection Guide Carriage as close to the humerus as possible. Slide the Resection Block against the humerus. The Resection Block will self-adjust to the unique contours of the patient's humerus. If desired, place the wide end of the Angel Wing on the Resection Block to assess the planned resection (Figure 10). If resection height appears too shallow and the Shaft Clamp is bottomed out on the Reamer, then advance the Reamer deeper into the humerus as necessary.

If resection height appears too deep and the Shaft Clamp is abutting the top of the Reamer, then back out the Reamer enough to enable proper resection height.

The system has sterile, single-use Hex Pins of 70mm and 100mm lengths. Each box contains three Hex Pins. Place a Hex Pin into the Hex Pin Driver and insert at least three pins through the Resection Block slots until reaching the far cortical wall (Figure 11). Divergent pin slots should be used to maintain fixation against bone. If needed, there are two divergent pin holes below the pin slots in the Resection Block for additional stability. Note:

- Note:** If the lateral-most pin might interfere with Intramedullary Reamer removal, then temporarily back the lateral pin out enough to enable removal.

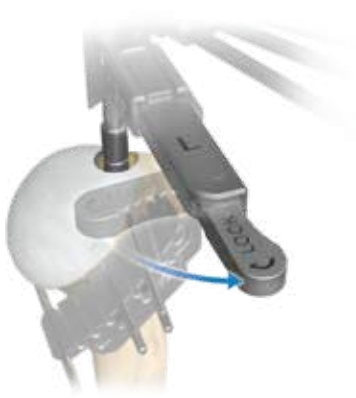


Figure 12



Figure 13



Figure 14

Humeral Reaming & Resection

With one hand on the Shaft Clamp and one on the Carriage, unlock the Shaft Clamp (Figure 12), simultaneously disengaging the Carriage from the Resection Block (Figure 13). Remove the shaft clamp from the reamer shaft. Remove the Intramedullary Reamer from the canal.

Resect the humeral head by cutting on top of the Resection Block and across the Hex Pins. If after resection, the pins are not visible across the entire resection surface, then resect enough bone to make them visible (Image 14).

- **Note:** A flush resection is important to ensure uniform contact with the Reference Foot which will be used in subsequent surgical steps. Remove the Resection Block from the resected humerus.



Figure 15



Figure 17a



Figure 16



Figure 17b

Humeral Rasping

To determine the appropriate Reference Foot, select the angle that matches the resection angle (135° or 125°) (Figure 15) and size based on the last Intramedullary Reamer used (Figure 16):

IM Reamer	Reference Foot
4-7	Small
8-16	Medium
17-20	Large

Prior to Rasping, note that the instrument set includes two Inserters with several common features (Figure 17a). The Rasp Inserter has an oval distal tip and lateral side latch to rigidly mate to the Humeral Rasps. The Stem Inserter has a distal lead pin and dynamic loop which rigidly mate to a humeral adapter. Both instruments have differentiating etch marks on the handle.

Attach the Reference Foot to the Humeral Rasp Inserter (Figure 17b). If desired, thread the Version Rod Coupling into the Rasp Inserter hole with the appropriate side etch (“R” for right shoulder, “L” for left shoulder) facing up (Figure 18). The holes are polarized to ensure proper side orientation.



Figure 18

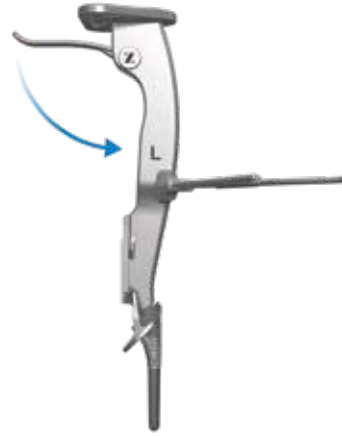


Figure 19



Figure 20



Figure 21



Figure 22

Humeral Rasping

Select a Humeral Rasp that is three sizes smaller than the last IM Reamer used. With the Inserter handle fully open (Figure 19), align the lateral side of the Rasp with the small hook on the Rasp Inserter tip, and attach the Rasp to the Rasp Inserter. Close the Inserter handle to rigidly affix the Rasp to the Inserter. Slide the Reference Foot down distally and introduce the Rasp into bone (Figure 20).

With the Reference Foot in uniform A/P contact with the resection surface (Figure 21), impact the Rasp while maintaining alignment with the bone. The Rasp is fully seated when the Reference Foot engraved arrow makes contact with the engraved arrow on the Rasp Inserter (Figure 22). The Reference Foot ensures Rasp seating 5mm below the line of resection while maintaining version alignment with the resected surface.



Figure 23



Figure 24

Humeral Rasping

Sequentially rasp the humerus in 1mm increments, ensuring each Rasp is fully seated. Beginning with the second Rasp, use two fingers to hold the Reference Foot in uniform contact with the resection during Rasp impaction (Figure 23). Rasp until the Rasp size is equal to the last Intramedullary Reamer size. If the final Rasp feels too tight and will not fully seat, then revert back to the previous size Rasp.

If the final Rasp feels unstable, then remove it from the canal and use an Intramedullary Reamer one size larger than previously used. Now rasp using one size larger Rasp.

Disengage the Rasp Inserter from the Rasp, leaving the Rasp in place (Figure 24).

Alternate head trialing: If trialing off the Rasp is desired, then open the 135° or 125° adapter implant and place it in the Humeral Rasp with its suture fin aligned laterally. Follow the head trialing steps detailed in the Humeral Head Trialing section. When all head trialing steps are complete, follow the Humeral Stem Insertion steps before implanting the final humeral head implant. **Be certain to thoroughly clean the adapter implant prior to implant assembly.**



Figure 25

Humeral Rasping

Place the appropriately-sized Humeral Protector over the resection during glenoid preparation (Figure 25). If necessary, gently use a mallet to achieve full seating.

Reference the Alliance Glenoid Surgical Technique or the Comprehensive Convertible Glenoid Surgical Technique posted on zimmerbiomet.com for glenoid preparation and implantation instructions.

- ⓘ **Note:** If complete back table assembly of the stem, humeral adapter and humeral head is desired, go to Appendix 1 for remaining surgical steps.



Figure 26



Figure 27



Figure 28

Humeral Component Implantation

After preparing the glenoid, remove the Humeral Protector. After removing the Reference Foot from the Rasp Inserter, attach the Rasp Inserter to the Rasp and remove it from the humerus. If the Rasp Inserter will not engage the Rasp, ensure the Rasp Inserter handle is fully open. If unable to engage the Rasp, then refer to Appendix 2 – Removing a Stuck Rasp/Stem.

If press-fitting, select a humeral stem implant size that matches the last Rasp used. If cementing, select a humeral stem two sizes smaller than the last Rasp used. Place the humeral stem into the appropriate hole in the Back Table Assembly Block (Figure 26). The assembly block has 3 holes each for Standard and Micro length stems, labeled with the humeral stem sizes that fit into each hole. Take care to place the stem in the correct hole for your desired stem length.

CAUTION: If the stem is inserted into a hole which is too small in diameter, the stem may get stuck in the Assembly Block.

Select a Humeral Stem Inserter that corresponds to the humeral resection angle (either 125° or 135°). With the Humeral Stem Inserter handle fully open, mate the appropriate humeral stem adapter implant (125° or 135°) to its corresponding Stem Inserter, then close the handle (Figure 27). Place the oval taper of the adapter implant into the oval hole of the humeral stem, ensuring the adapter suture hole tab is aligned laterally (Figure 28). Using a mallet, firmly strike the Stem Inserter until the taper junction is secure.



Figure 29



Figure 30



Figure 31



Figure 32

Humeral Component Implantation

With the humeral stem assembly still mated to the Stem Inserter, attach the previously used Reference Foot to the Inserter (Figure 29). If desired, thread the Version Rod Coupling into the Humeral Inserter hole with the appropriate side engraving (“R” for right shoulder, “L” for left shoulder). Slide the Reference Foot down and insert the humeral construct into the canal, keeping the Version Rod in line with the forearm (Figure 30). In this example the forearm aligns with the 30° retroversion rod.

With the Reference Foot in uniform A/P contact with the resection surface (Figure 31), impact the stem while maintaining alignment between the Reference Foot and bone (Figure 32). Similar to Rasp insertion, use two fingers to hold the Reference Foot in uniform contact with the resection during stem insertion.



Figure 33



Figure 34

Humeral Component Implantation

The Stem is fully seated when the Reference Foot engraved arrows make contact with Stem Inserter engraved arrows (Figure 33). The Reference Foot ensures Stem seating 5mm below the line of resection and maintenance of desired retroversion during stem insertion. Once the humeral construct is fully seated, disengage the Humeral Stem Inserter (Figure 34).



Figure 35



Figure 36

⊖ **Note:** Failure to use the Reference Foot can result in humeral construct seating depth and version malpositioning. This may lead to inability to mate a humeral head to the humeral construct or excessive gapping between the humeral head implant and bone (Figure 35).

If cementing, use lavage and suction to clean the humeral canal. Dry the canal and retrograde fill with cement. Insert the humeral construct into the canal as described immediately above. Remove all excess cement. Allow the cement to fully cure before proceeding further.

⊖ **Note:** The Resection Planer should not be used after cement has cured as this may create debris.

For press fit only: If desired, the resected surface can be refined using a Resection Planer after stem/adapter assembly insertion. Select the Resection Planer size that best matches diameter of the resection surface. If in between sizes, select the smaller Planer. Humeral planing can be done by hand or using power (Figure 36). Prior to making contact with the bone, begin rotating the Resection Planer. Carefully plane the surface.

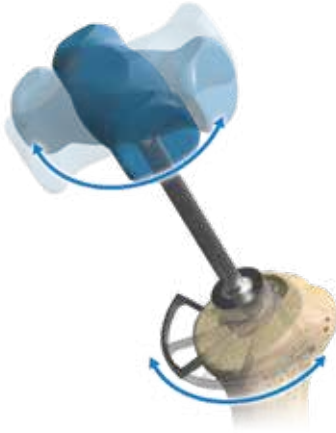


Figure 37

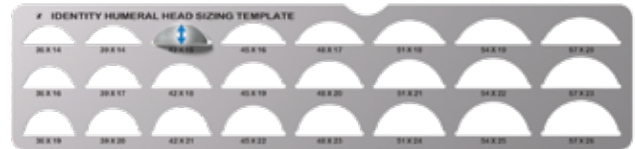


Figure 38



Figure 39a

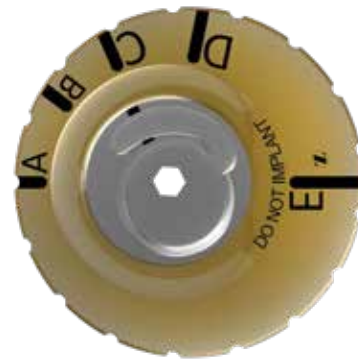


Figure 39b

Humeral Head Trialing

ⓘ **Note:** Care must be taken to avoid contact with the rotator cuff insertion. If the smallest Resection Planer will violate the cuff insertion, then do not use the Planer. In this situation either use Rongeurs or the knurled surface of a Darrach retractor to eliminate any bony prominence.

Optional: If, after planning, a ridge of medial bone remains, the Medial Planer can be used to remove it. Place the Medial Planer into the humeral adapter hole with the blade aligned medially (Figure 37). Rotate the planer back and forth until the planer bottoms out on the adapter.

Using the Humeral Head Sizing Template, determine the best size match by sliding the resected humeral head through the template slots (Figure 38).

Pay particular attention to head height. Once the proper height has been determined, confirm the best diameter size match. Humeral heads come in three heights for each of the eight different diameters. Alternately, use the resected humeral head and mate the resection surface to the underside of a Head Trial that best matches the head height and diameter.

To assemble the Offset Trial to the Humeral Head Trial, turn the Head Trial upside down (Figure 39a). Place the silver Offset Trial into the Head Trial and push down by hand until it snaps in place (Figure 39b).



Figure 39c



Figure 40



Figure 41



Figure 42

Humeral Head Trialing

Turn the Head Trial assembly right side up. Using the Hex Driver through the hole in the articular surface (Figure 39c), rotate the Offset Trial until the etch mark points to the letter “C” on the Head Trial. Note that offset letters are only on one side of the head trial. The other side has concentric semi-circle etch marks. Ensure the Offset Trial etch line is dialed on the side with letters.

Place the Humeral Head Trial assembly onto the Humeral Adapter implant until it is fully seated (Figure 40). Without touching the Head Trial, use the Hex Driver to rotate the trial assembly (both parts together) to see if it attains proper head coverage (Figure 41). Pay particular attention to ensure the superior portion of the head trial is above the superior portion of the greater tuberosity, and that it aligns to

the anterior and posterior borders of the humeral resection.

If the Head Trial tends to “overhang” the resected bone (Figure 42), then there is too much offset. To reduce the offset, hold the Head Trial in place while using the Hex Driver to rotate the Offset Trial to a lower letter (either “B” or “A”). Using only the Hex Driver, rotate the trial assembly (both parts together) until best fit is found. If the Head Trial will not rotate, check to ensure there is no bony prominence or soft tissue interference.

If the Head Trial tends to “underhang” bone, then there is not enough offset. To increase the offset, hold the Head Trial in place while advancing the Offset Trial to a higher offset letter (either “D” or “E”). Using only the Hex Driver, rotate the trial assembly (both parts together) until best fit is found.



Figure 43



Figure 44a



Figure 44b

Humeral Head Trialing

If necessary, use rongeurs to remove any medial bony prominence.

With the Head Trial in final position, reduce the joint and perform a trial range of motion.

Keeping the head trial assembly in final position, look through the translucent head trial to determine which letter ("A", "B", "C", "D" or "E") aligns with the Offset Trial etch mark (Image 43). Keep in mind the etch mark can be between two letters. Mark the proximal humerus in line with the Offset Trial etch mark (Figure 44a).

Remove the Head Trial assembly from the humeral stem/adapter implant.

To disassemble the Head Trial assembly, place the construct with flat surface facing down over the Assembly Block concave cavity. Place the Hex Driver into the Offset Trial hex hole (Figure 44b). Push down on the Hex Driver handle to disengage the Offset Trial.

Be certain to thoroughly clean the fixed angle adapter prior to humeral head mating.



Figure 45



Figure 46

Humeral Head Implantation

To replicate humeral head offset determined during trialing, reference the letter indicated from the Offset Trial. Select a humeral head implant that matches the diameter and height of the final head trial used. On a sterile field table that provides rigid support, place the Humeral Head into the concave surface of the Back Table Assembly Block (Figure 45).

The Humeral Head Adapter implant comes packaged with a disposable impactor to avoid contacting either taper surface. In the event of inadvertent contact, clean and dry all taper junctions. Prior to seating the Head Adapter into the humeral head, rotate the Head Adapter so that the etch mark aligns to the offset letter determined during trialing (Figure 46).

For example, if the Offset Trial etch mark points to "D," align the Head Adapter etch mark to point to "D." Or if the trial etch mark is in between "B" and "C," align the Head Adapter etch mark in between letters "B" and "C." Impact the Head Adapter into the Humeral Head.

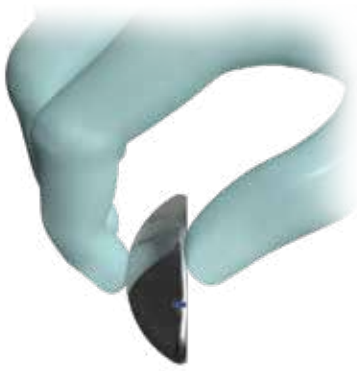


Figure 47



Figure 48



Figure 49

Humeral Head Implantation

Remove the assembled head from the Assembly Block. Use a marker to denote the chosen offset letter location on the articular surface (Figure 47). Place the Humeral Head construct onto the Humeral Adapter taper with the chosen offset letter mark aligned to the mark previously made on the proximal humerus (Figure 48). Prior to impaction, confirm maximum coverage of the resected surface.

Place the Head Impactor on the Humeral Head in perpendicular alignment to the plane of resection. Using a mallet, strike the Head Impactor until fully seated (Figure 49). Visually confirm uniform seating.



Figure 50

APPENDIX 1 - Back Table Assembly

Humeral Head Trialing

After preparing the glenoid, remove the Humeral Protector. Select a humeral adapter implant that matches the angle of resection. Place the adapter implant into the Rasp with the suture fin facing the lateral side of the Rasp (Figure 50).

Using the Humeral Head Sizing Template (Figure 38), determine the best size match by sliding the resected humeral head through the template slots. Pay particular attention to head height. Once the proper height has been determined, confirm the best diameter size match. Humeral heads come in three heights for each of the eight different diameters. Alternately, use the resected humeral head and mate the resection surface to the underside of a Head Trial that best matches the head height and diameter.

To assemble the Offset Trial to the Humeral Head Trial, turn the Head Trial upside down. Place the Offset Trial into the Head Trial and push down by hand until it snaps in place (Figure 39b). Using the Hex Driver through the hole in the articular surface, rotate the Offset Trial until the etch mark points to the letter “C” on the Head Trial.

Place the Humeral Head Trial assembly onto the adapter implant until it is fully seated (Figure 40). Without touching the Head Trial, use the Hex Driver to rotate the trial assembly (both parts together) to see if it attains proper head coverage. Pay particular attention to ensure the superior portion of the head trial is above the superior portion of the greater tuberosity, and that it aligns to the anterior and posterior borders of the humeral resection (Figure 41).

APPENDIX 1 - Back Table Assembly (Continued)

Humeral Head Trialing

If the Head Trial tends to “overhang” the resected bone (Image 42), then there is too much offset. To reduce the offset, hold the Head Trial in place while using the Hex Driver to rotate the Offset Trial to a lower letter (either “B” or “A”). Using only the Hex Driver, rotate the entire construct (both parts together) until best fit is found. If the Head Trial will not rotate, check to ensure there is no bony prominence or soft tissue interference.

If the Head Trial tends to “underhang” bone, then there is not enough offset. To increase the offset, hold the Head Trial in place while advancing the Offset Trial to a higher offset letter (either “D” or “E”). Using only the Hex Driver, rotate the entire construct (both parts together) until best fit is found.

With the Head Trial in final position, reduce the joint and perform a trial range of motion.

Keeping the head trial assembly in final position, look through the translucent head trial to determine Offset Trial etch mark position (“A”, “B”, “C”, “D” or “E”) (Figure 43). Keep in mind the etch mark can be between two letters. Mark the bone in line with the Offset Trial etch mark adjacent to the selected offset letter (Figure 44).

Remove the Head Trial assembly from the adapter, keeping the adapter in the Rasp.



Figure 51

Humeral Head Assembly

To replicate humeral head offset determined during trialing, reference the letter indicated from the Offset Trial. Select a humeral head implant that matches the diameter and height of the final Head Trial used. On a sterile field table that provides rigid support, place the Humeral Head into the concave surface of the Back Table Assembly Block (Figure 45).

The Humeral Head Adapter implant comes packaged with a disposable impactor to avoid contacting either taper surface. In the event of inadvertent contact, clean and dry all taper junctions. Prior to seating the Offset Ring into the Humeral Head, rotate the Offset Ring so that the etch mark aligns to the offset letter determined during trialing (Figure 46). For example, if the Offset Trial etch mark points to “D,” align the Offset Ring etch mark to point to “D.” Or if the trial

etch mark is in between “B” and “C,” align the Offset Ring etch mark in between letters “B” and “C.” Impact the Head Offset Ring into the Humeral Head.

Remove the assembled head from the Assembly Block. Use a marker to denote the offset letter position on the articular surface (Figure 47). Place the humeral head assembly onto the humeral adapter in situ. Ensure that the chosen offset letter mark on the humeral head aligns to the mark previously made on the proximal humerus (Figure 48). Confirm the final head position provides optimal coverage of the resected surface.

Place the Humeral Head Impactor on the humeral head, then use a mallet to secure the humeral head/adapter taper junction. Remove the humeral head/adapter implant assembly from the humerus (Figure 51)



Figure 52a



Figure 52b



Figure 53

APPENDIX 1 - Back Table Assembly (Continued)

Final Construct Assembly

Remove the humeral head/adapter implant assembly from the Rasp and place it articular surface down into the concave surface of the Back Table Assembly Block (Figure 52a). Place the tip of the Pin Impactor into the adapter dimple (Figure 52b). Using a mallet, firmly strike the Pin Impactor to definitively engage the Offset Ring/Adapter taper junction. Remove the humeral head/adapter assembly and turn over the Assembly Block.

If press-fitting, select a humeral stem implant size that matches the last Rasp used. If cementing, select a humeral stem two sizes smaller than the last Rasp used. Place the humeral stem implant into the appropriate hole in the Assembly Block. The assembly block has 3 holes labeled with the humeral stem sizes that fit into each hole. Take care to place the stem in the correct hole.

Place the oval taper of the humeral head/adapter assembly into the oval taper of the stem, ensuring the adapter suture hole tab is aligned laterally to the stem (Figure 53). Using a mallet, strike the Humeral Head Impactor to secure the oval taper junction.



Figure 54



Figure 55



Figure 56

Final Implant Insertion

Using the Rasp Handle, remove the Rasp from the canal.

If press-fitting, place the humeral construct into the humeral canal by hand. Ensure stem rotation aligns to the humeral preparation. After hand insertion, there should be a uniform 3-5mm gap between humeral head underside and bone (Figure 54).

Place the Humeral Head Impactor in axial alignment to the stem (Figure 55). Using a mallet, impact until the underside of the humeral head sits flush with the resected surface (Figure 56).

If cementing, use lavage and suction to clean the humeral canal. Dry the canal and retrograde fill with cement. Insert the humeral construct into the canal as described immediately above. Remove all excess cement. Allow the cement to cure before proceeding further.



Figure 57



Figure 58

APPENDIX 2 – Removing a Stuck Rasp/Stem

In the event a Rasp or humeral stem implant gets stuck in the humerus, it can be removed using the Rasp/Stem Extractor from the Revision Instrument case. Thread the Extractor Bolt through the Rasp/Stem Extractor (Figure 57).

Thread the Rasp/Stem Extractor to the Rasp or Stem and tighten using the Hex Driver (Figure 58). Using a mallet, strike the underside of the Rasp/Stem Extractor to remove the Rasp or Stem.

If greater force is required to remove the stem, the Comprehensive Shoulder System Slide Hammer can be threaded into the Extractor.

Magnet Usage and Symbols

MAGNET USAGE

Warning: Some instruments in the Identity Shoulder System contain magnets. These include the 135° and 125° Resection Guide Carriages, Resection Block Extension Post and Hex Pin Driver. All magnetic instruments should be kept at a safe distance from a patient's active implantable medical device(s) (i.e. pacemaker). These types of devices may be adversely affected by magnets. Instruments containing magnets should be kept on an appropriate table or stand when not in use at the surgical site.

SYMBOLS

Symbols have been established for the following:

SIZE	SZ
VARIABLE	VA
SMALL	S
MEDIUM	M
LARGE	L
MICRO	MIC
STANDARD	STD

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