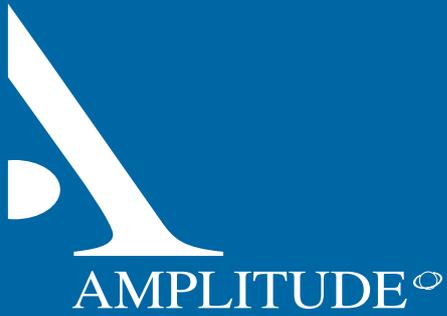


# AMPLIVISION®

Advanced Knee Navigation Version 2.0



AMPLITUDE®



AMPLITUDE is an internationally renowned orthopaedic company that has built a reputation for exceptional engineering, reliable clinical results, and cohesive collaboration with the world's leading surgeons.

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## AMPLIVISION® AKN SYSTEM

Amplivision® is Amplitude's proprietary computer assisted surgical navigation system for Total Knee and Total Hip Replacement. Launched in 2004, the system has been used by hundreds of surgeons around the globe and is now a third generation platform, providing enhanced intraoperative detail and a range of contemporary features.

### INTRA-OPERATIVE ACCURACY

The AMPLIVISION® pointer, together with the infrared cameras and LCD touchscreen, delivers real time feedback to the surgeon during the surgical plan, offering optimal implant positioning.

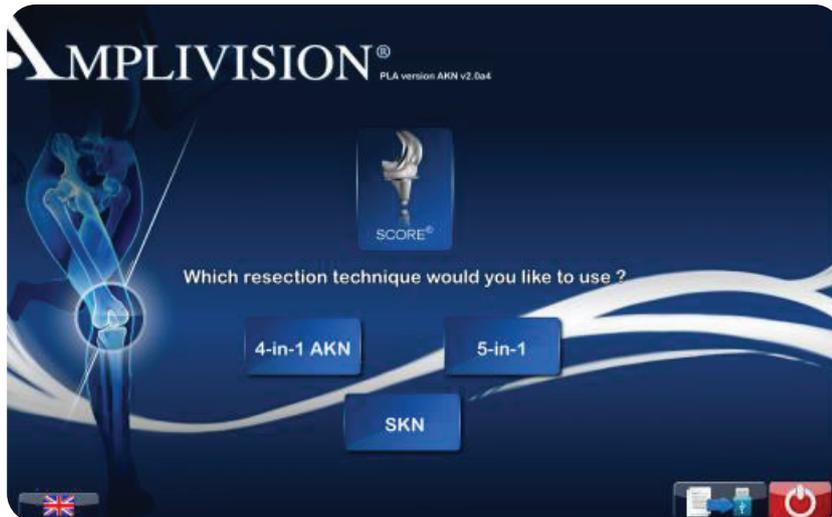
### PORTABLE CONVENIENCE

Offering easy user profile setup, instrument calibration, and a minimal footprint within the operating theatre, AMPLIVISION® allows surgeons to efficiently and reliably operate to their specific preferences.



## STARTING THE SOFTWARE

1. Press the touch screen to select the preferred system language.
2. Select 'Knee', then select the implant and the AKN protocol.



On the 'Information' page, input the required information using the virtual keyboard.

- Surgeon name
- Patient name
- Patient date of birth (optional)
- Operated side (select right or left)

To go to the next step, press the blue pedal or the blue arrow on the screen.

To go to the previous step, press the yellow pedal or yellow arrow on the screen.



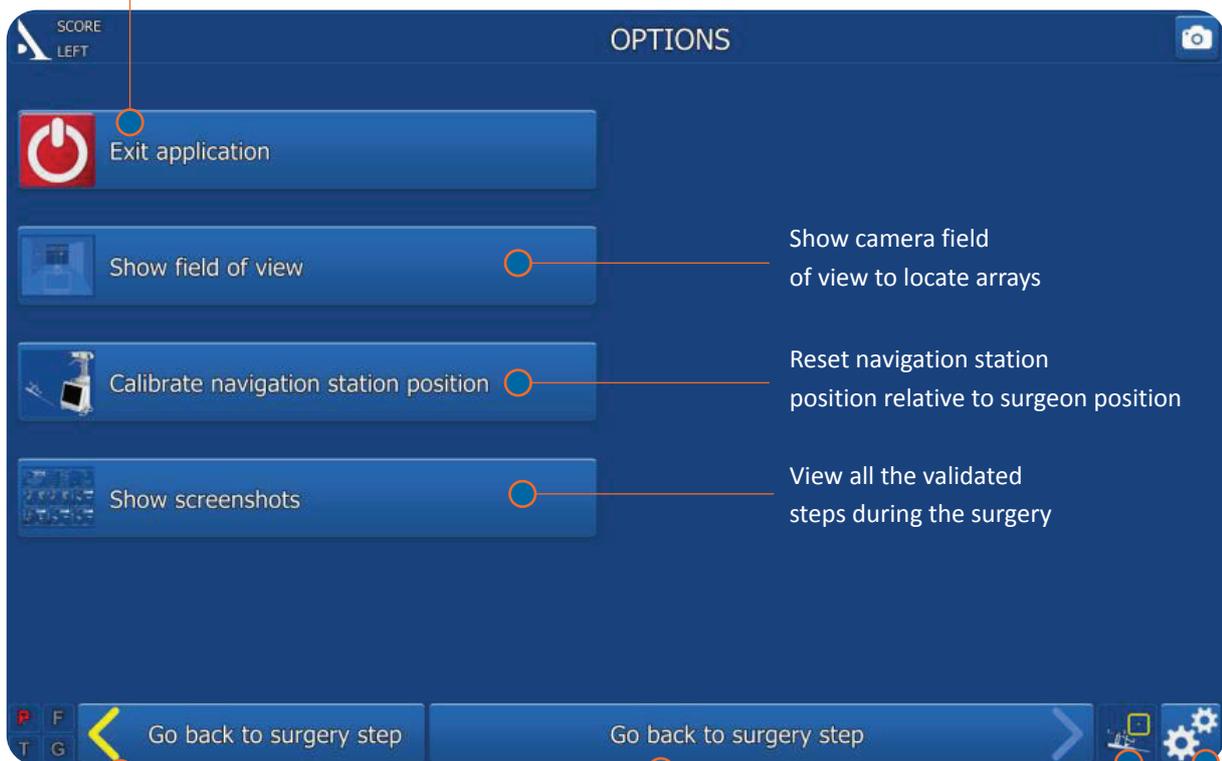
# CONTROLS & SCREEN NAVIGATION

The screenshot shows a software interface for a tibial baseplate trial. The main window is titled "TRIAL TIBIAL BASEPLATE: FIRST POINT". At the top left, it says "SCORE LEFT". In the top right corner, there is a camera icon for "Screenshot capture" and the text "Lat.". The central area displays a 3D model of a tibial baseplate with a yellow porous layer and green circular markers. Above the model, a box indicates "Size planned" with the value "3". On the left side, there is a vertical "Operating workflow" menu with several icons, the top one labeled "Med.". At the bottom, there is an "INFORMATION AREA AND BUTTONS" bar. It includes a "Previous" button, a status message "Probe and Tibia not visible" (highlighted with a red box), and an "Active area" indicator. On the far left of this bar are "P" and "F" labels, and on the far right are navigation arrows and a settings gear icon. A legend at the bottom left explains the visibility of arrays: "Green - visible" and "Red - not visible".

Annotations in the image include:

- Title of current step**: Points to the main window title "TRIAL TIBIAL BASEPLATE: FIRST POINT".
- Screenshot capture**: Points to the camera icon in the top right corner.
- Operating workflow**: Points to the vertical menu of icons on the left side.
- Visibility of each array:**
  - Green - visible
  - Red - not visible
- INFORMATION AREA AND BUTTONS**: Points to the bottom navigation bar.
- Active area**: Points to the "Probe and Tibia not visible" status message.

Exit application - return to home screen



Yellow pedal: indicates action carried out when pedal is pressed

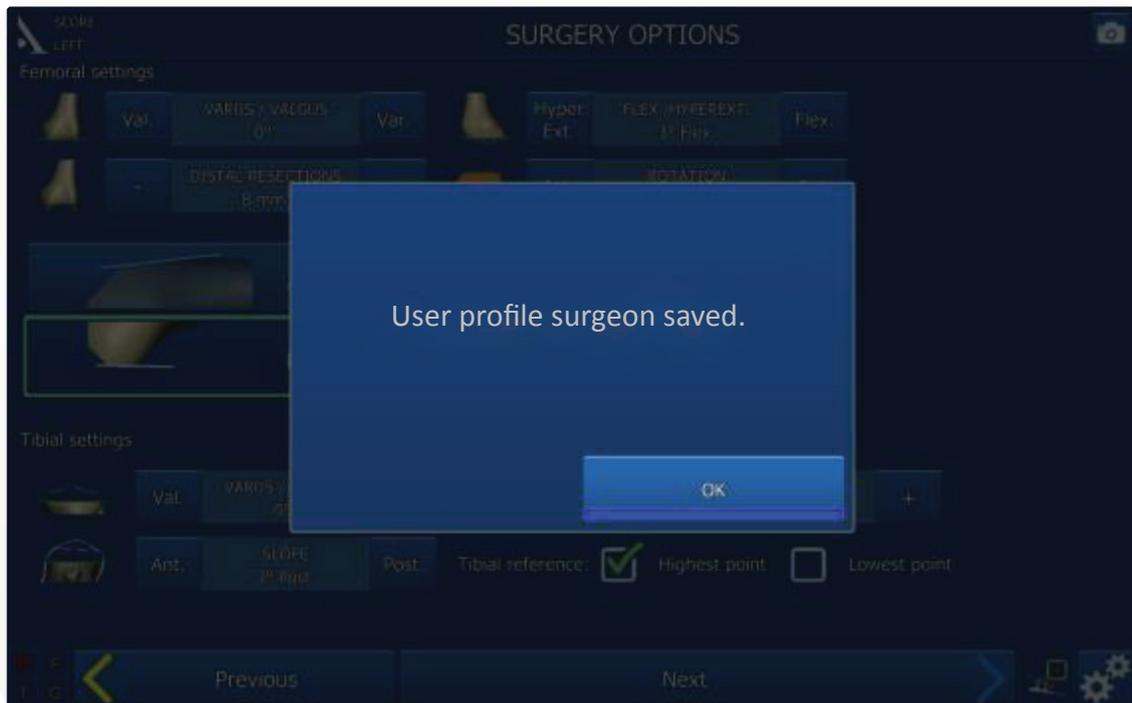
Blue pedal: action carried out when pedal is pressed

Indicates if pointer can be used as a mouse on screen

Menu Options

# PROFILE SETUP

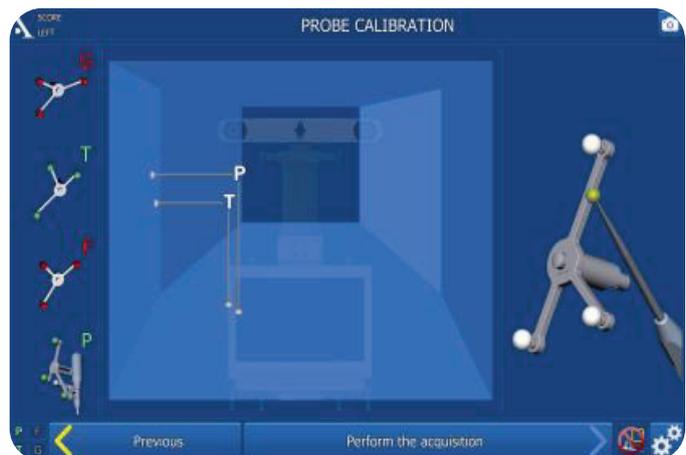
## SAVING A USER PROFILE



1. Once the surgery-related options have been selected, a user profile can be created by pressing the 'Save User Profile' button
2. The following information will be saved to a USB drive:
  - Surgeon name
  - Selected workflow and cuts order
  - All selected surgical preferences

## WORKING WITH USER PROFILES

1. Once a surgeon profile has already been created, plug in the USB drive to automatically load the surgeon's name and preferences.
2. At this point, the software will go from the «Information» page to the 'Camera Setup' page and will skip the 'Surgery-related options' page.
3. To change a saved parameter, press the button at the lower right corner of the 'Information' screen to take you back to the preferences setup.





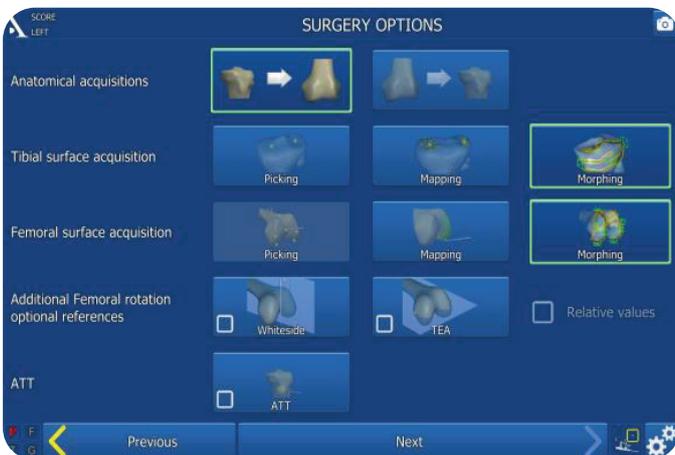
# SURGICAL PROTOCOL SELECTION



## CONFIGURING THE SURGERY

Three workflow options can be chosen:

- **Independent cuts:** allows independent cuts to be made based on bone references.
- **Dependent cuts:** allows the distal femoral cut, the tibial cut and then measure the gaps in flexion and extension in order to guide the 4-in-1 cuts.
- **Dependent cuts with planning:** allows surgeon to perform the tibial resection and next to simulate the position of the femoral component with a virtual plan, before making the distal femoral and 4-in-1 resections.



## SURGERY OPTIONS

### Anatomical Acquisitions

- Tibial cut first then distal cut.
- Distal cut first then tibial cut.

### Tibial and Femoral Surface Acquisitions

Three ways to identify landmarks:

- **Picking:** only one point is acquired for each landmark.
- **Mapping:** a series of 50 points is acquired for each landmark.
- **Morphing:** a complete acquisition of the bone builds a representation of the femoral and tibial parts.

### Additional femoral rotation references

Enable the surgeon to view the angle between the Posterior Condyles Line, The Whiteside Line and the Trans Epicondylar Axis.

### ATT

Acquisition of the Anterior Tibial Tuberosity.

## Confidence Points

Acquisition of one point on each array to check their position all along the surgery.

## Calibrate Navigation Station Position

Select this option to manually calibrate the probe position relative to the screen. If the option has not been ticked, the calibration will be done automatically.

## HKA with Varus/Flexion Analysis

This option allows to test the ligament laxity before cuts, and to compare it at the end of the surgery trials and/or definitive implants.

## Trial Acquisitions

Assessment of the position of the trial implants.



## Femoral Settings

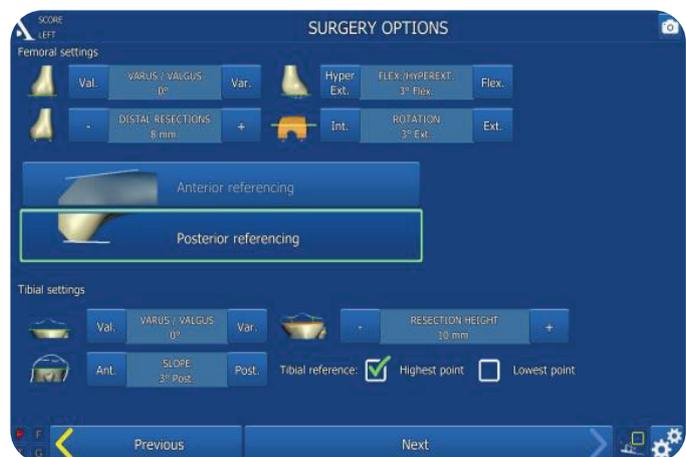
Values of the Distal Resection, Flexion, Thickness and External Femoral Rotation can be adjusted according to surgeon's preferences.

Choice between Anterior or Posterior referencing.

## Tibial Settings

Values of the varus/valgus, posterior slope and tibial resection height can be adjusted according to surgeon's preferences.

The reference point for the tibial resection can be either the lowest point or the highest point.



To go to the next step, press the blue pedal or the blue arrow on the screen.

### NOTE

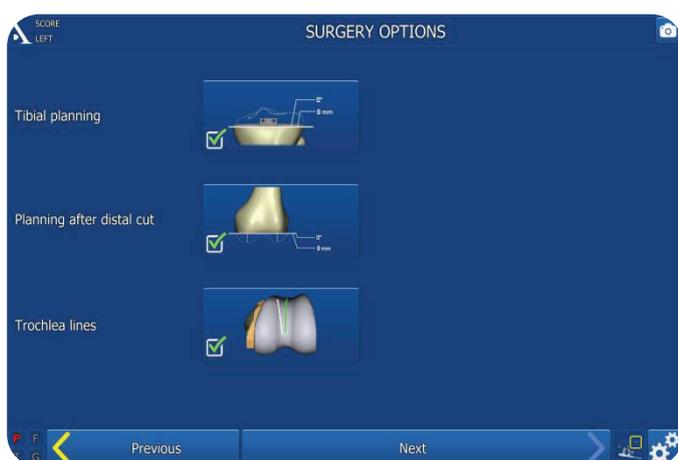
All these settings can be saved on a USB stick at the end of this step.

Plugging the stick at the beginning of the surgery will directly set the chosen values for the surgery.



# SURGERY OPTIONS

This step is only accessible in the protocol 'Dependent Cuts with Planning'.



## TIBIAL PLANNING

1. This option allows you to plan the tibial cut after selecting the cutting height reference points.

## PLANNING AFTER DISTAL CUT

2. If this option is selected, the software returns to femoral planning after the distal resection, allowing the planning to be refined by taking into account the distal cut made and not the planned one.

## TROCHLEA LINES

3. This option allows the display of the anatomical trochlea line during femoral morphing. It also allows the display in the femoral planning step of a trochlear view, allowing visualisation of overthickness at different angles.

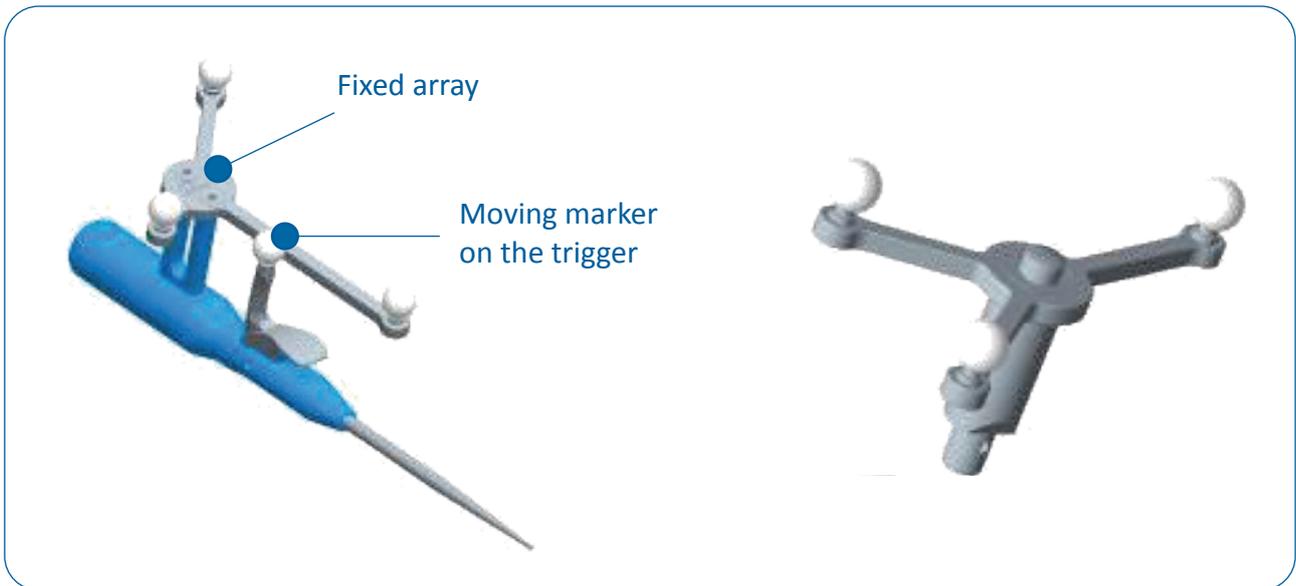
### IMPORTANT:

In order to be able to view the trochlea line, you must use the femoral morphing option and collect points on the trochlea surface until the white line appears.

## INSTRUMENTATION SETUP

### PROBE

This instrument is used to acquire specific points and areas on the patient's anatomical structures. It is also used to remotely control certain active elements on the screen. The probe must be fitted with four markers, one of them being on the trigger.



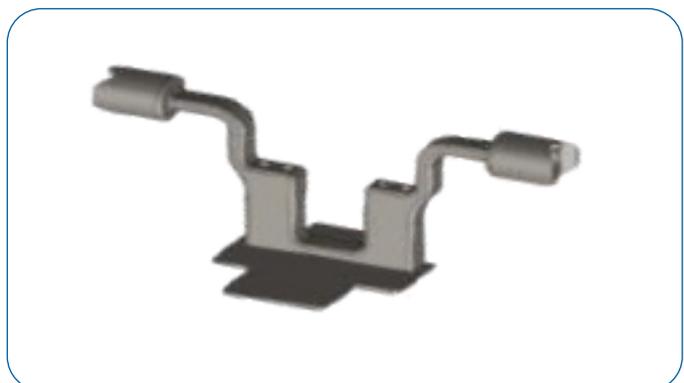
### SEMI-ASSISTED RESECTION GUIDE

The semi-assisted resection guide is used to make the distal cut and the tibial cut, once its position has been established. There are two attachment points for the G array (one on each).



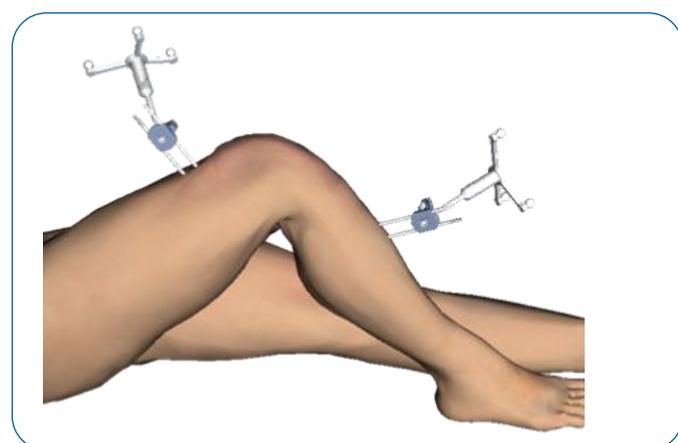
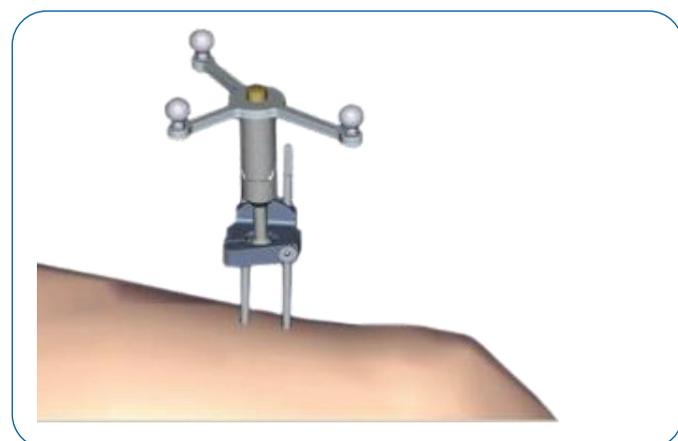
### UNIVERSAL GUIDE

The universal alignment guide is inserted into slots in the resection guide to navigate the position of these guides. It is also used to acquire the cuts once they have been made. There are two attachment points for the G array (one on each side). The array can only be assembled in one direction into each attachment point.





## ACQUISITION PREPARATION



### PIN INSERTION

Clip the round markers to the arrays:

- 3 for the Tibia (T) array
- 3 for the Femur (F) array
- 4 for the Pointer (P) array
- 3 for the Guide (G) array

The pins must be placed on the anteromedial side of the femur and tibia (when the surgeon stands on the lateral side) and must not interfere with tap placement. They can be inserted either percutaneously or through an incision.

1. Insert the first pin: go through the proximal cortex and then into, but not through, the distal cortex.
2. Place the array fixation support on the first pin to get the proper spacing for the second pin.
3. Clip the F array on the moveable part of the support, making sure the arrows are aligned correctly.
4. If the array needs to be removed during the procedure, it can be returned to the same position on the support.
5. Orient the array towards the camera head and lock the fixation support.
6. Position and secure the arrays so they are always visible.

### IMPORTANT

- Once the knee joint has been opened and exposed with the retractors, be sure to remove any osteophytes to acquire correct joint surfaces; otherwise the implant selected may be too large or small.
- If the femoral pin is being inserted percutaneously, make sure the knee is flexed to prevent damaging muscle fibres.

## CAMERA SET UP & PROBE CALIBRATION

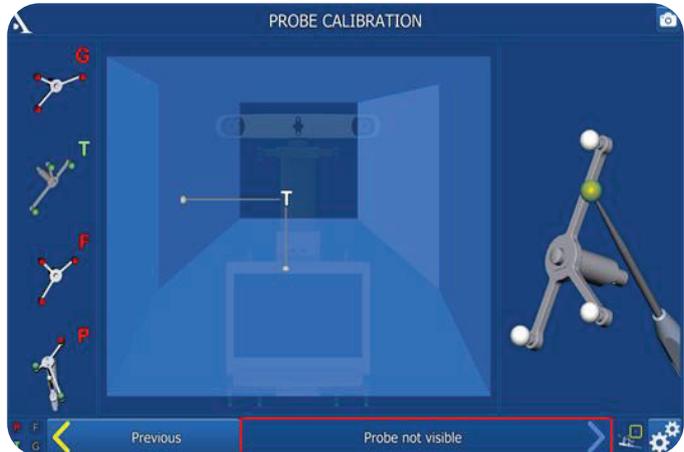
1. Position the camera head so that the letters corresponding to the F and T arrays are in the middle of the field of view - the laser located in the positioning handles on the camera head (V2 Workstation) or between the two optical sensors (V3 Workstation) makes this adjustment easier.
2. Confirm that the P array is visible. On the left side of the screen, a 3D view of the arrays indicates why an array may not be visible:
  - Any marker that is not visible on an array will be red, as will the letter associated with this array.
  - The array will be green if it is visible.
  - Visibility may be compromised by interfering infrared sources (sunlight, hot lights, dirty markers).

From this step on, AMPLIVISION® can be controlled with the pointer, the pedal, or the touchscreen.

When using the probe, it is possible to use the default calibration or to calibrate it manually for greater ease of use.

## MANUAL OPERATION

1. Aim the pointer at the centre of the screen and press the trigger to confirm.
2. Make sure the arrays used are fully visible.



### NOTE

To define exactly the position of the pointer tip:

- Calibrate the pointer by placing its tip in the conical calibration mark on one arm of the T array and press trigger to confirm.
- Without lifting the pointer tip, change the pointer's orientation slightly and confirm again.



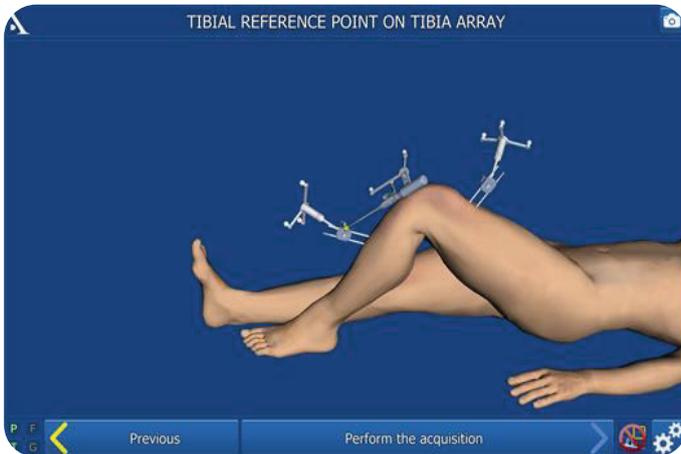
### NOTE

The camera position may be recalibrated at any time:

- Press the 'Options' button.
- Press the 'Calibrate workstation position' button.
- Validate the new position; the system will automatically return to the current surgical step.

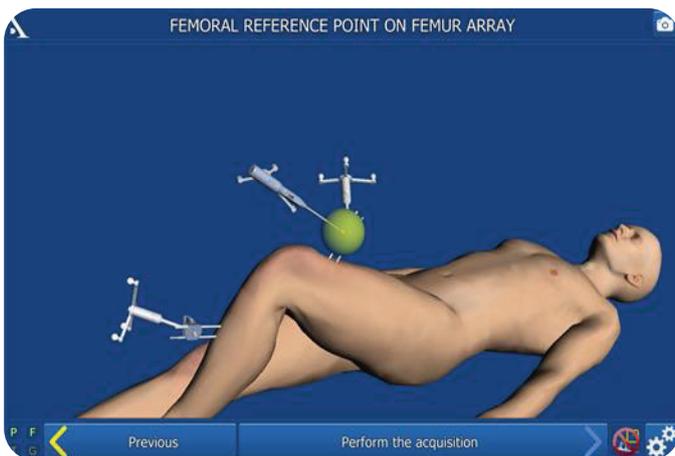


## CALIBRATING ARRAYS



### TIBIA REFERENCE POINT ON ARRAY (OPTIONAL)

1. This step validates the final position of the T array on its fixation support. At any point during the procedure, the surgeon can check if the array position has changed by using this reference point.
2. Place the pointer tip in one of the two conical calibration marks on the T array support and confirm.



### FEMUR REFERENCE POINT ON ARRAY (OPTIONAL)

1. Repeat these same steps with the F array support.
2. At any time during the procedure, place the pointer tip on the previously acquired tibia and/or femur reference point. The words « Femur OK » and/or « Tibia OK » will appear in the lower right corner of the screen if the array has not moved relative to its support.
3. If the array has moved, the surgeon can continue the procedure without navigation or return to the reference point step.

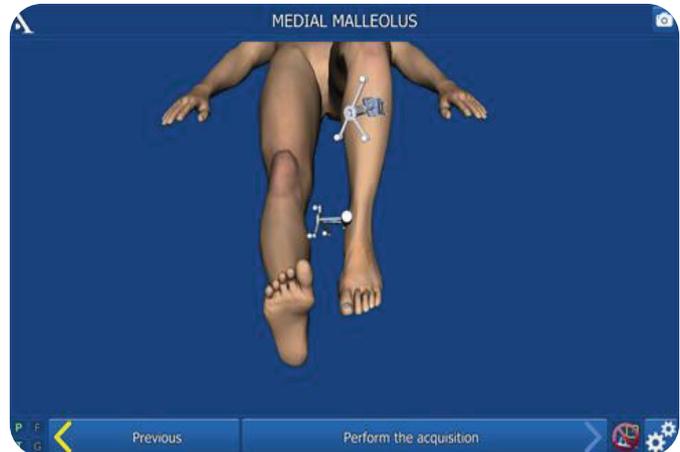
#### NOTE

There is no way to check if the array/fixation support combination has moved. If in doubt, continue the procedure without navigation.

## ANKLE CENTRE ACQUISITIONS

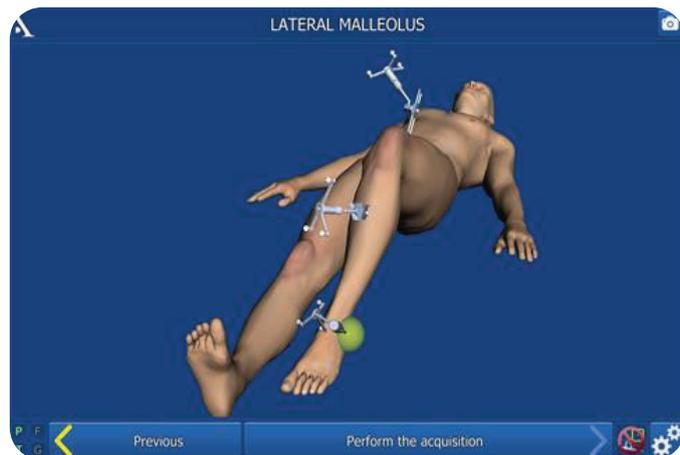
### MEDIAL MALLEOLUS

1. Place the pointer tip on the most medial point of the medial malleolus.
2. Press the trigger on the pointer to confirm.



### LATERAL MALLEOLUS

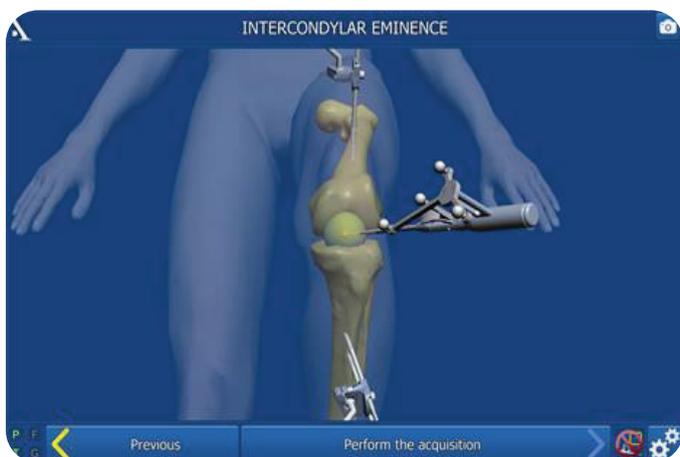
1. Place the pointer tip on the most lateral point of the lateral malleolus.
2. Press the trigger to confirm.



#### TIP

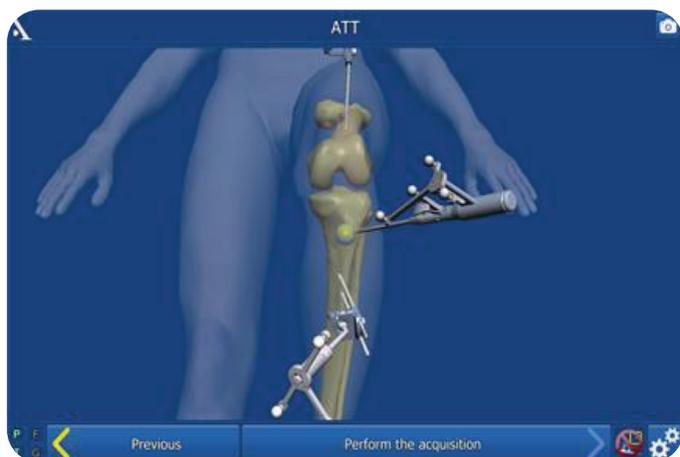
When making anatomical acquisitions with the pointer, place your finger over the end of the pointer on the landmark when pressing the trigger to increase stability and limit movement.

# TIBIAL ACQUISITIONS



## CENTRE OF TIBIA

1. Place the pointer tip on the posterior aspect of the ACL tibial insertion point.
2. Press the trigger to confirm.

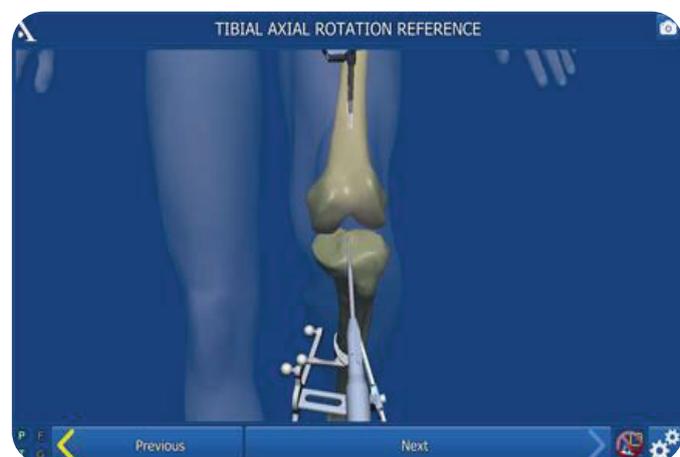


## ANTERIOR TIBIAL TUBEROSITY

Register one point on the medial aspect of the tibial tuberosity.

### NOTE

The point registered on the tibial tuberosity will be shown in green on the tibial views.



## SAGITTAL AXIS REGISTRATION

1. Place the pointer tip on the intercondylar eminence and turn the body of the pointer.
2. Once it corresponds to the desired sagittal plane orientation, press the trigger to confirm its position.

## PICKING MODE

Only one point is acquired for each landmark.

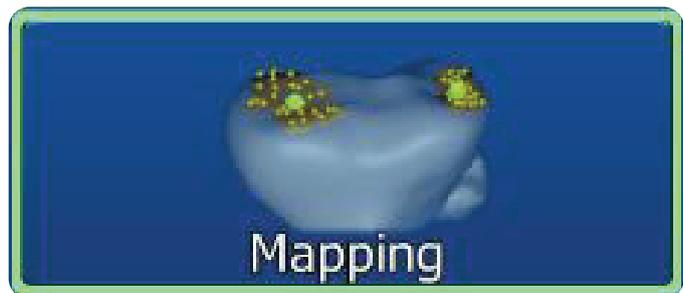
1. Palpate one point on the plateau and validate by pressing the trigger.
2. Repeat on the contralateral plateau.



## MAPPING MODE

A series of 50 points is acquired for each anatomical landmark.

1. On each plateau, place the pointer tip on the bone surface. Press and hold trigger while moving the tip along the surface being acquired.
2. At any time, the surgeon may release the trigger, move the pointer tip to another location and then press and hold the trigger again to continue the acquisition.
3. The last 20 acquired points can be deleted by pressing the yellow pedal.
4. Press and hold down the yellow pedal (for at least 2 seconds) to erase all the acquired points
5. The system determines the highest and the lowest point from all the data collected.





#### NOTE

At least 10 points are collected in each of the red boxes indicated on the screen. The box turns to green when sufficient points have been collected.

## MORPHING MODE

The goal of this mode is to acquire the contours of the tibial bone surface and then verify its accuracy via a complete representation of the entire tibia.

1. The acquisition process is initiated by pressing the trigger on the pointer and ends when the trigger is released. The system will beep to indicate the start and end of the acquisition.
2. Place the pointer tip on the bone surface. Hold down the trigger while moving the tip along the surfaces that need to be acquired:
  - Medial and lateral articular surfaces (used to determine height of cut).
  - Contour of tibial plateau at the articular surface (used to estimate implant size), as well as at the level of the planned tibial cut (anterior cortex, medial and/or lateral). This provides a good representation of the contact area between the chosen tibial baseplate and bone cut.
3. At any time, the surgeon may release the trigger, move the pointer tip to another location and then press and hold the trigger again to continue the acquisition.
4. The system will continuously acquire points and draw a contour map of the surface in real time. A counter in the upper-left corner shows how many points have been acquired.
5. The software will not proceed to the next step until the anterior part and one of the two lateral parts are green.

## Verification of Contours

Release the trigger and place the pointer tip on the acquired bone surface. The **DISTANCE TO SURFACE** value is shown: this distance is the error between the palpated point and the same point on the digitised 3D model (accuracy of contours). The number will be green if this distance is equal to or less than 1 mm, and red if it is not.

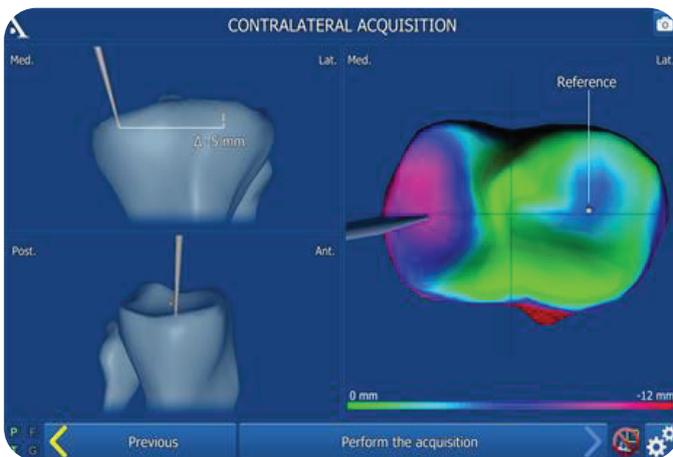
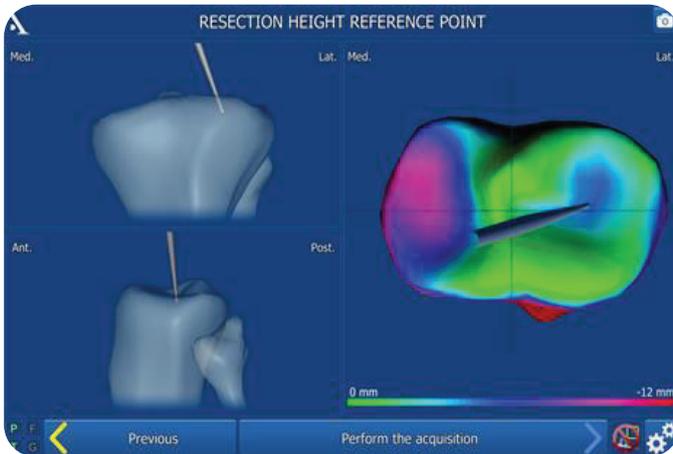
## Removal of Acquired Points

1. The last 20 acquired points can be deleted by pressing the yellow pedal.
2. Press and hold down the yellow pedal (for at least 2 seconds) to erase all the acquired points.
3. If the contour accuracy is satisfactory, confirm this step and go to the next step.



### IMPORTANT

Make sure the pointer tip is always in contact with the tibial bone surface when the trigger is pressed, it may help to keep one finger over the end of the pointer to provide more stability when moving the pointer over the anatomical surfaces.



## TIBIAL REFERENCE

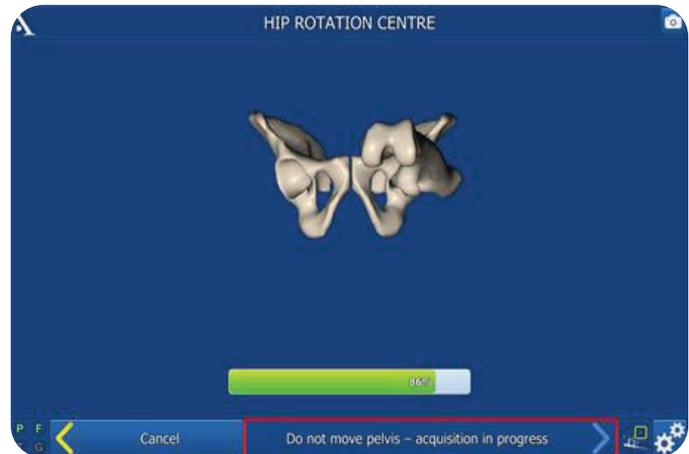
1. Select and acquire the cutting height reference point with the probe. The reference point will depend on the surgeon preference settings for tibial height; highest point (reference healthy cartilage) or lowest point (reference worn cartilage).
2. Select and acquire a control point for which you want to know the distance from the cutting height reference point.
3. It will display the difference between the two points in millimetres.
4. These same points will be used to process the gaps between the tibia and femur during the pre-operative HKA sequence.

### WARNING

If tibia planning is selected, these reference points will only be used to calculate the gaps during the HKA sequence. The cutting height reference points will be selected during tibial planning.

## HIP CENTRE ACQUISITION

1. Extend the patient's leg and grasp the ankle.
2. Move the leg in a small circle (15 cm knee displacement), the registration will automatically start.
3. Once the registration is 100% finished, the system will calculate the hip centre.
4. If the result is acceptable, the system automatically goes to the next step. If it is not acceptable, the system will prompt the user to restart the acquisition. During this step, the system will beep once when the acquisition starts and once when it ends. A status bar shows the progress being made during the acquisition.



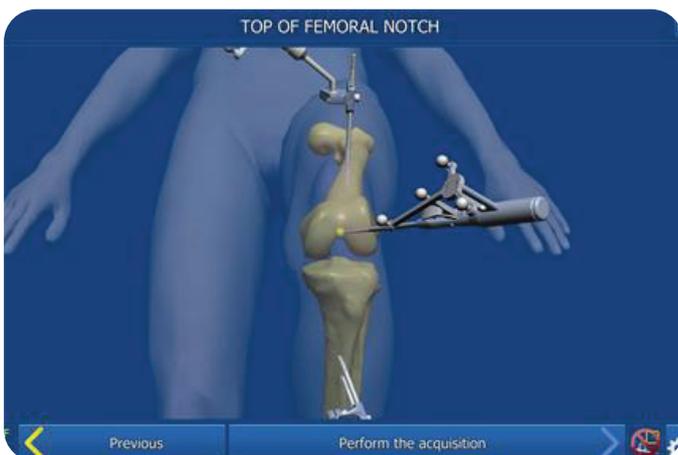


## FEMORAL ACQUISITIONS



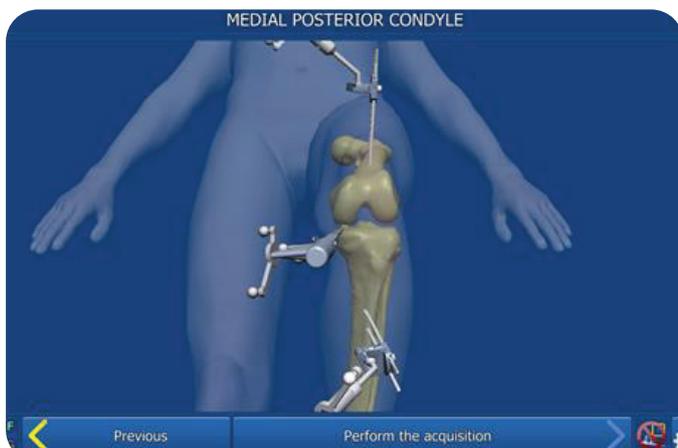
### ANTERIOR CORTEX

Place the pointer tip on the anterior femoral cortex and confirm.



### TOP OF INTERCONDYLAR NOTCH

Place the pointer tip at the top of the femur's intercondylar notch and along the femoral shaft axis, then confirm. (The femoral mechanical axis is calculated using the hip centre and top of the intercondylar notch).



### MEDIAL AND LATERAL POSTERIOR CONDYLES

Place the pointer tip at the top of the medial posterior condyle and confirm; do the same for the top of the lateral posterior condyle.

The posterior condylar axis will be calculated using these two points.

#### NOTE

Using the femoral mechanical axis and the posterior condylar axis, the system calculates the frontal femoral plane and estimates the sagittal and transverse planes

## PICKING MODE

Place the tip of the pointer on each femoral distal and posterior condyle and press the trigger to register the femoral landmarks.

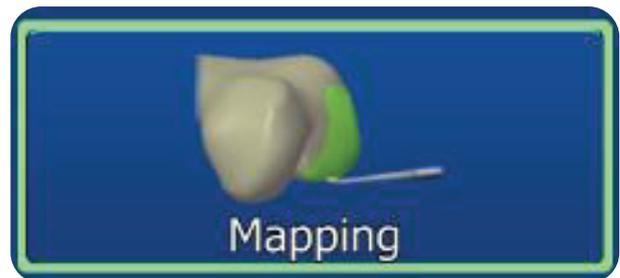
1. These points will then be the reference points for the distal femoral cutting height and the calculation of posterior resections.

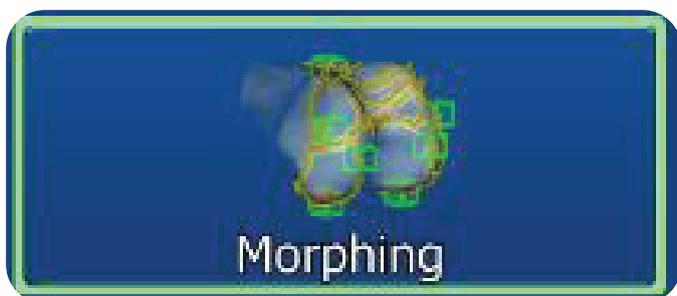


## MAPPING MODE

On each plateau, place the pointer tip on the bone surface. Press and hold trigger then move the tip along the surface being acquired.

1. At any time, the surgeon may release the trigger, move the pointer tip to another location and then press the trigger again to continue the acquisition.
2. The last 20 acquired points can be deleted by pressing the yellow pedal.
3. Press and hold down the yellow pedal (for at least 2 seconds) to erase all the acquired points.
4. The system determines the most distal or posterior point from all the data collected.

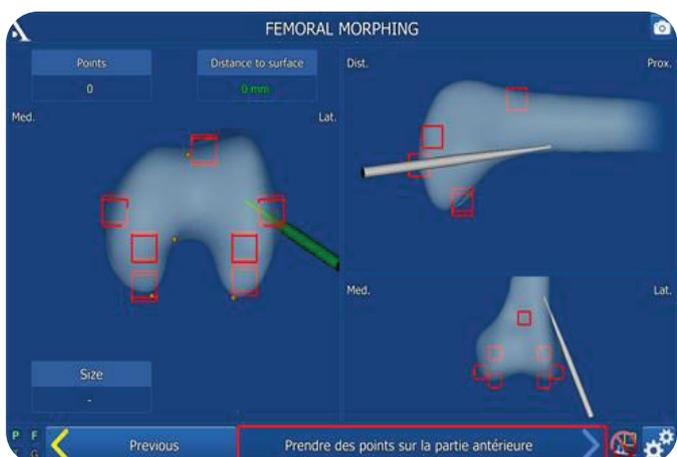




## IF MORPHING MODE HAS BEEN CHOSEN

The goals of this step are to acquire the femoral bone surface and verify its accuracy.

1. Place the pointer tip on the bone surface. Press and hold trigger then move the tip along the surface being acquired.
2. At any time, the surgeon may release the trigger, move the pointer tip to another location and then press the trigger again to continue the acquisition.
3. The acquisition process is initiated by pressing the trigger on the pointer and ends when the trigger is released. The system will beep to indicate the start and end of the acquisition.
4. A counter in the upper-left corner shows how many points have been acquired.
5. Once the minimum number of points needed for the seven « regions of interest » (anterior, distal medial, distal lateral, posterior medial, posterior lateral, medial epicondyle, lateral epicondyle) have been acquired, the red cubes will become green.
6. The system will continuously acquire points and draw a contour map of the surface in real time.
7. The matching femoral component size is shown in the lower left part of the screen.



## VERIFICATION OF CONTOURS

1. Release the trigger and place the pointer tip on the acquired bone surface. The **DISTANCE TO SURFACE** value is shown: this distance is the error between the palpated point and the same point on the digitised 3D model (accuracy of contours). The number will be green if this distance is equal to or less than 1 mm, and red if it is not.

## REMOVAL OF ACQUIRED POINTS

1. The last 20 acquired points can be deleted by pressing the yellow pedal.
2. Press and hold down the yellow pedal (for at least 2 seconds) to erase all the acquired points.
3. If the contour accuracy is satisfactory, confirm this step and go to the next step.

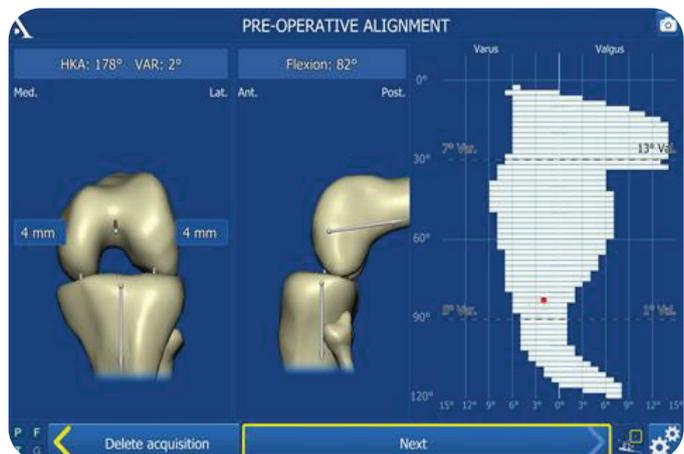
## PRE-OPERATIVE ALIGNMENT

1. The software allows you to visualise the pre-operative HKA. If the selected options allow it, the spaces between the tibia and femur are displayed.

## LIGAMENT ANALYSIS

The software allows the surgeon to assess the ligament deformities all along the Range Of Motion (ROM).

1. Start with the knee in extension, press 'start acquisition' and force the varus until the full flexion, force the valgus and return to extension.
2. The maximum range of varus and valgus given by the ligament will be represented by the graphic. The median values will be indicated by a yellow line.





## TIBIAL NAVIGATION

**This step allows the surgeon to guide the tibial resection and to validate it.**

The workflow Dependent cuts with Planning automatically starts with the Tibial resection. The workflows 'Dependant cuts' or 'Independent cuts' start either by Proximal Tibial resection or Distal Femoral resection.

This step can be performed using either: The Universal Alignment Guide or The Semi-Assisted Resection Guide.



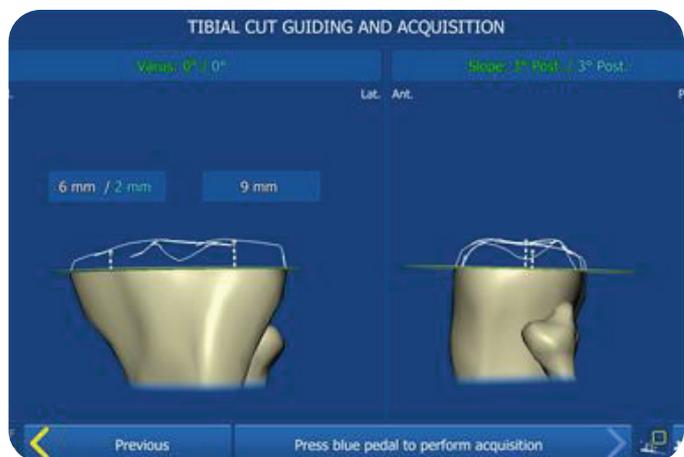
### UNIVERSAL ALIGNMENT GUIDE

1. Secure the G array to the universal alignment guide.
2. Position the alignment guide's plate in the tibial resection guide's slot.
3. Adjust the positioning until the guide is in the position needed to perform the tibial cut.
  - Blue values correspond to the targets based on user settings.
  - White values correspond to real-time values.
  - Values turn green when they are closed to the targets ( $\pm 1$  deg. or mm).
4. Once the resection guide's position is set, put two pins in the guide's '0' holes.
5. Remove the universal alignment guide from the slot in the resection guide.
6. Secure the resection guide with three headed pins, and then perform the tibial cut.
7. Once it is performed, place the G array and the Universal Plate on the resection, check the tibial cut and press the blue pedal to validate and go to the next step.



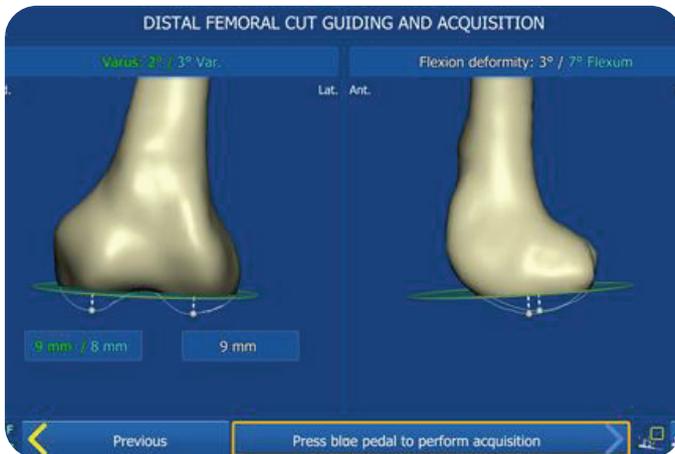
## SEMI-ASSISTED RESECTION GUIDE

1. Secure the G array to the semi-assisted resection guide.
2. Adjust the positioning to get close to the position needed to perform the tibial cut. Place a headless pin in the alignment hole to stabilise the guide.
3. Adjust the parameters to obtain the desired settings.
4. Once the resection guide's position is set, put two pins in the guide's 'O' holes.
5. Secure the semi-assisted resection guide, perform the tibial cut and remove the guide.
6. Once it is performed, place the Universal Plate with G array on the resection, check the tibial cut and press the blue pedal to validate and go to the next step.





# FEMORAL NAVIGATION



## DISTAL FEMORAL RESECTION

This step allows the surgeon to guide the distal femoral resection and to validate it.

- Blue values correspond to the targets based on user settings.
- White values correspond to real-time values.
- Values turn green when they are close to the targets (+/-1 deg. or mm).



## FEMORAL DISTAL RESECTION GUIDING

1. Insert the G array in the distal resection guide according to the chosen side.
2. Position the distal resection guide until the values displayed correspond to the targets.
3. Introduce two headless pins into the 0 holes.
4. Check the values.
5. Introduce a headed pin into the oblique hole to secure the guide against the bone.
6. Perform the resection. Retire the cutting guide without validating the current step.

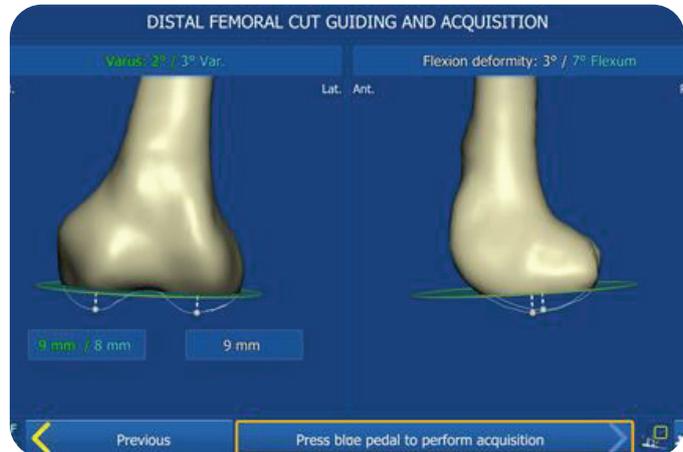


## FEMORAL DISTAL RESECTION VALIDATION

Once it is performed, place the G Array and the universal plate on the resection and press the blue pedal to validate. It automatically goes to the next step.

## DISTAL FEMORAL RESECTION WITH SEMI-ASSISTED GUIDE

- Blue values correspond to the targets based on user settings.
- White values correspond to real-time values.
- Values turn green when they are close to the targets (+/-1 deg. or mm).



## FEMORAL DISTAL RESECTION GUIDING

1. Insert the G array in the semi-assisted guide according to the chosen side.
2. Position the semi-assisted cutting guide so that the desired distal cut settings are obtained. Then place a headless pin in the swivel hole to have a fixing point for the guide.
3. Check the values.
4. Introduce a headed pin into the oblique hole to secure the guide against the bone.
5. Perform the resection. Retire the semi-assisted guide without validating the current step.



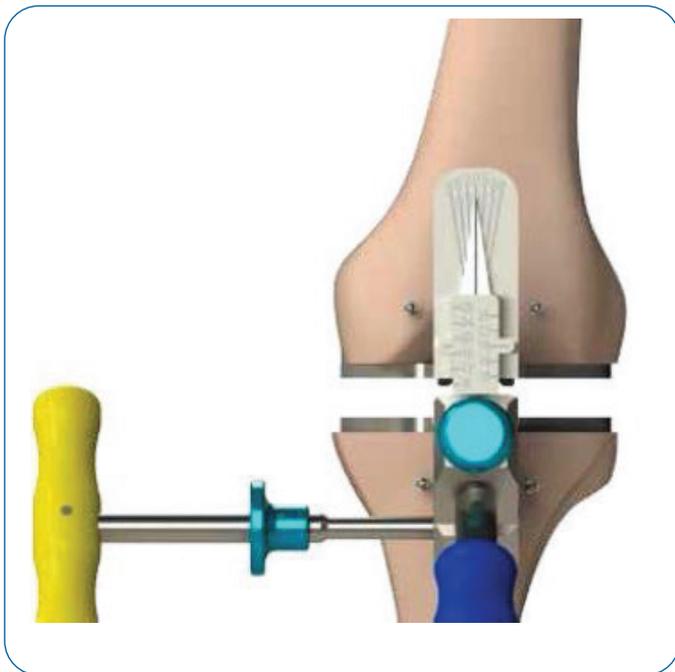
## FEMORAL DISTAL RESECTION VALIDATION

1. Once it is performed, place the G array and the universal plate on the resection and press the blue pedal to validate. It automatically goes to the next step.

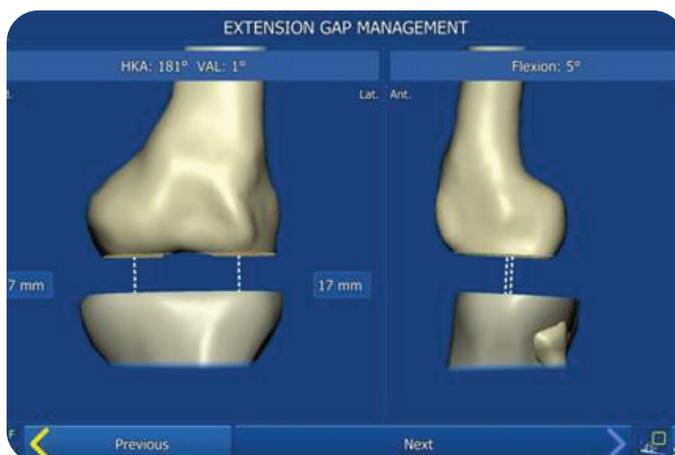


## EXTENSION GAP MEASUREMENT

This step is accessible within the workflow 'Dependant Cuts'



1. Insert the ligament balancer into the knee joint with the knee extended.
2. Insert the H5 ratcheting screwdriver into the balancer's cog wheel.
3. Turn the H5 screwdriver to operate the distraction mechanism and apply the desired amount of tension.
4. The goal is to have a well balanced gap on both medial and lateral compartments of 18mm for a 10mm Tibial Insert. The surgeon can adjust all the following values: Size, VAR/VAL, Thickness of resection, Rotation, Ant/Post position and Flexion (of the distal resection).
5. Once the desired alignment and gaps are obtained, register it by pressing the blue pedal.
6. Release the ligament balancer by pushing the blue button, remove it and put the knee in flexion.



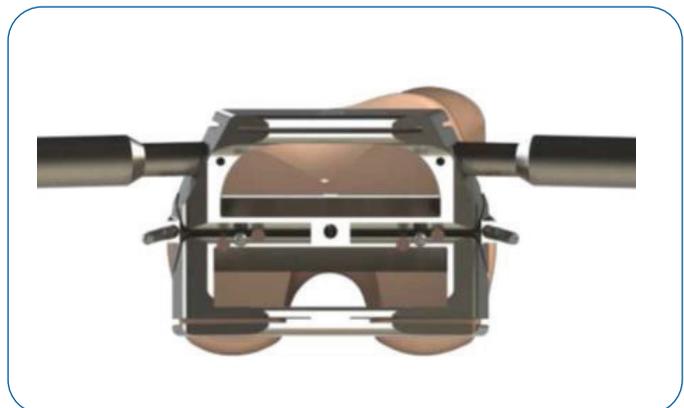
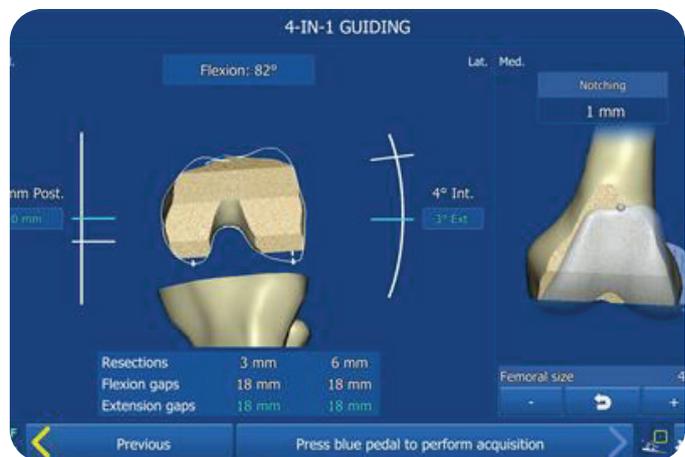
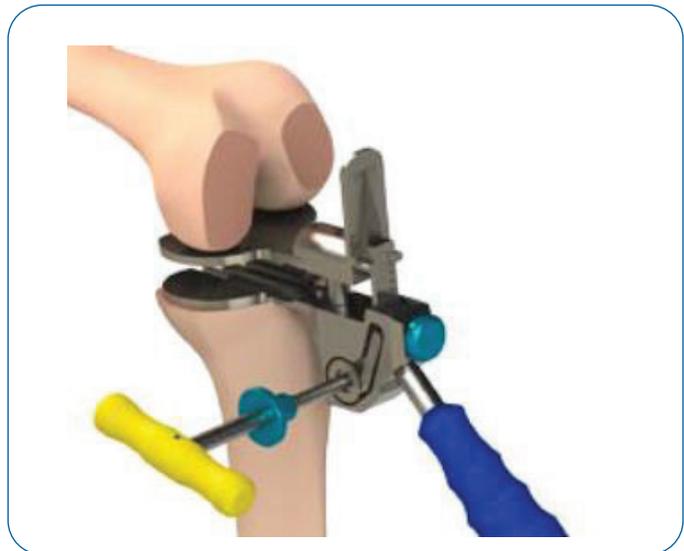
### NOTE

Do not apply excessive distraction, otherwise the knee will flex. The knee must stay extended during the measurements.

## FLEXION GAP MANAGEMENT & 4-IN-1 FEMORAL RESECTIONS

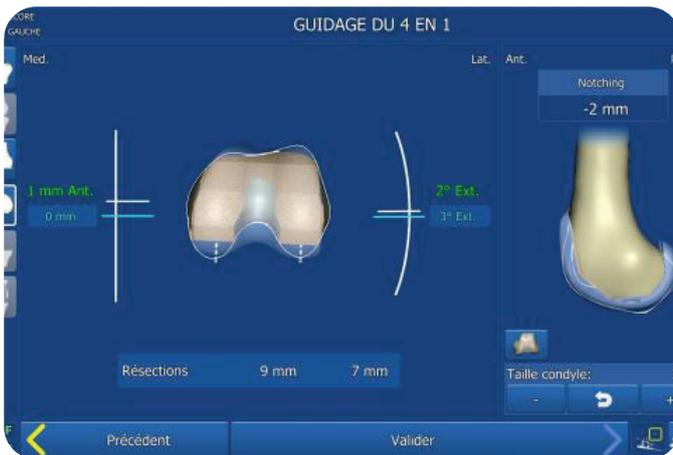
This step is accessible within the workflow ‘Dependant Cuts’

1. With the knee in flexion, insert the ligament balancer into the joint.
2. Insert the H5 ratcheting screwdriver into the balancer’s cog wheel.
3. Turn the H5 screwdriver to operate the distraction mechanism and apply the desired amount of tension.
4. Choose the 4-in-1 femoral cutting guide according to the size given by the AMPLIVISION® system.
5. Insert the universal plate with the G array into the anterior Slot of the femoral guide.
6. Put the guide on the distal resection.
7. Adjust the rotation and the AP position of the guide to have flexion gaps identical to extension gaps.
8. Once the position matches the planning, insert 2 headless pins into the 0 holes.
9. Check the anterior resection with the resection gauge.
10. Insert 2 headed pins into the lateral and medial holes.
11. Perform the resections:
  - Anterior resection
  - Posterior resection
  - Anterior chamfer
  - Posterior chamfer
12. Check the result by positioning the universal plate on the anterior cut.
13. Press the blue pedal to validate.



# EXTENSION GAP MANAGEMENT

This step is accessible within the workflow 'Independent Cuts' and 'Dependent cuts with planning'.

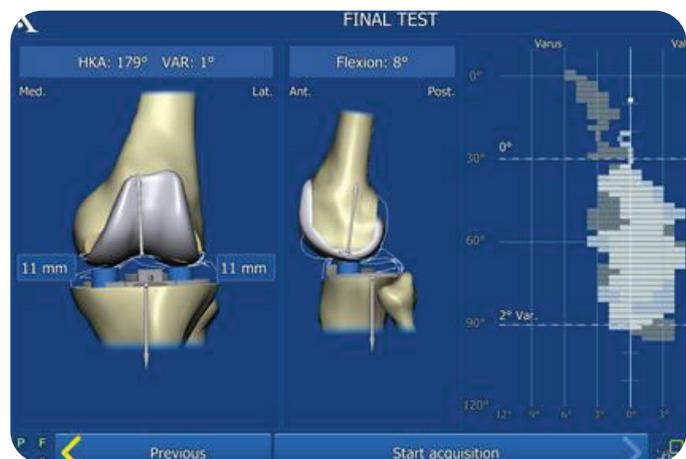
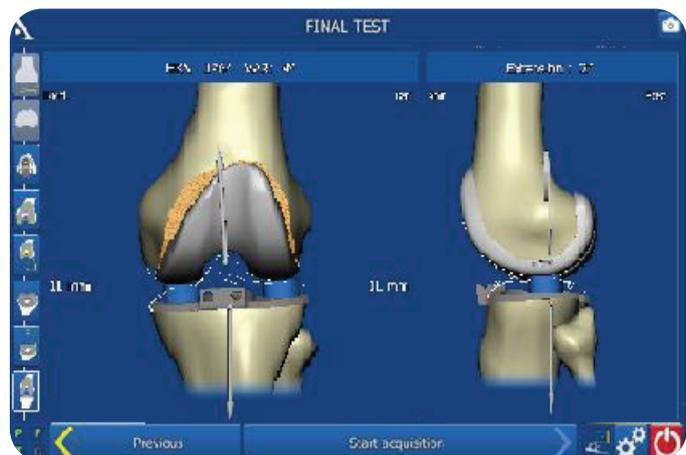


1. Choose the 4-in-1 femoral cutting guide according to the size given by the AMPLIVISION system.
2. Insert the universal plate with the G array into the anterior slot of the femoral guide.
3. Put the guide on the distal resection.
4. Adjust the rotation and the AP position of the guide to have flexion gaps identical to extension gaps.
5. Once the position matches the planning, insert 2 headless pins into the 0 holes.
6. Insert 2 headed pins into the lateral and medial holes.
7. Perform the resections:
  - Anterior resection
  - Posterior resection
  - Anterior chamfer
  - Posterior chamfer
8. Check the result by positioning the universal plate on the anterior cut.
9. Press the blue pedal to validate.

## POST OPERATIVE LIGAMENT ALIGNMENT

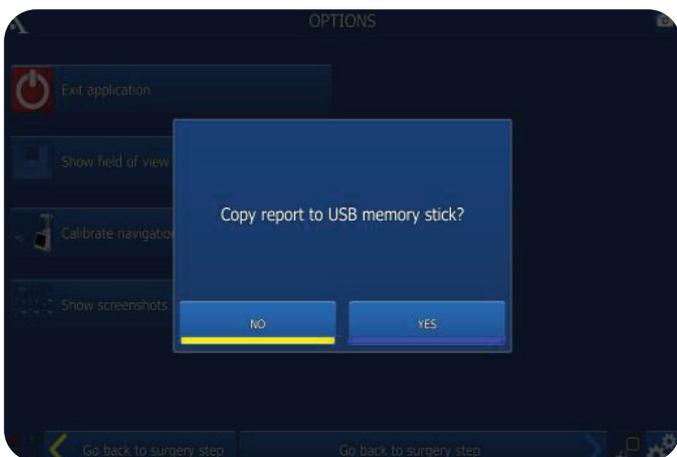
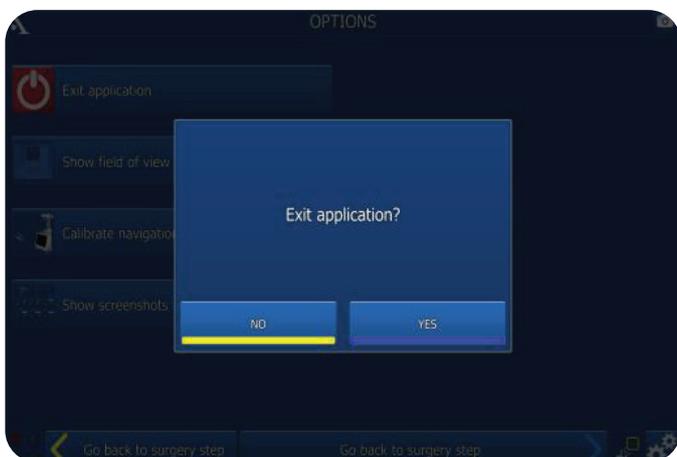
At this step, the surgeon can check the HKA, varus values in real time. If the trial implants have been acquired, gaps are also displayed. The software allows the surgeon to assess the ligament deformities all along the Range Of Motion (ROM) with trial or definitive implants.

1. Start with the knee in extension, force the varus until the full flexion, force the valgus and return to extension.
2. The maximum range of varus and valgus given by the ligament will be represented by the graphic and superimposed to the pre-operative alignment.





## SOFTWARE SHUTDOWN



### SAVING THE SURGERY REPORT

1. Press 'Exit application' button: It will appear immediately after the last step but can also be found on the 'Options' page at any point during the procedure.
2. The message 'Do you really want to exit' will appear. Press 'Yes' to confirm.
3. The message 'Copy report to USB drive' will appear. Indicate whether you want to create a backup copy of the surgery report by pressing the 'Yes' or 'No' button.
4. You will be asked to insert a USB drive in the slot close to the screen and confirm that you would like to backup the report.
5. In the surgery report, a file named 'report.html' contains the following:
  - Patient name and surgeon name
  - Proximal resection height references
  - Proximal cut guiding
  - Distal resection height references
  - Distal cut guiding

### POWERING DOWN THE WORKSTATION

1. Press the button at the lower right corner of the screen.
2. Confirm that you want to shut down the system.
3. The system will shut down.
4. Refer to the AMPLIVISION® NO114 User Manual for instructions on how to store the workstation.

## INSTRUMENTATION

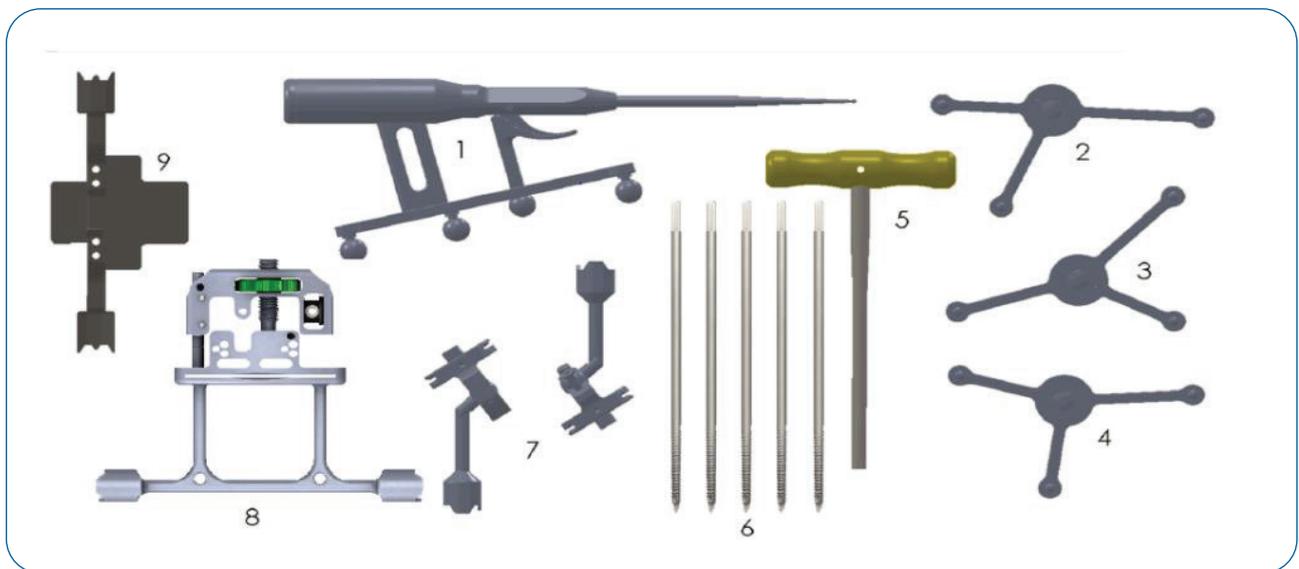


In addition to the mechanical instrumentation described in the SCORE® and ANATOMIC® Surgical Techniques, the following are required:

- AMPLIVISION® Navigation Station
- Sterile, single-use markers (14 per pack)
- The Universal Navigation Set

### STERILE MARKERS

The arrays must be equipped with markers to be visible to the camera. These markers are attached through the nipples on the array (3 for the F, T and G arrays and 4 for the pointer P).

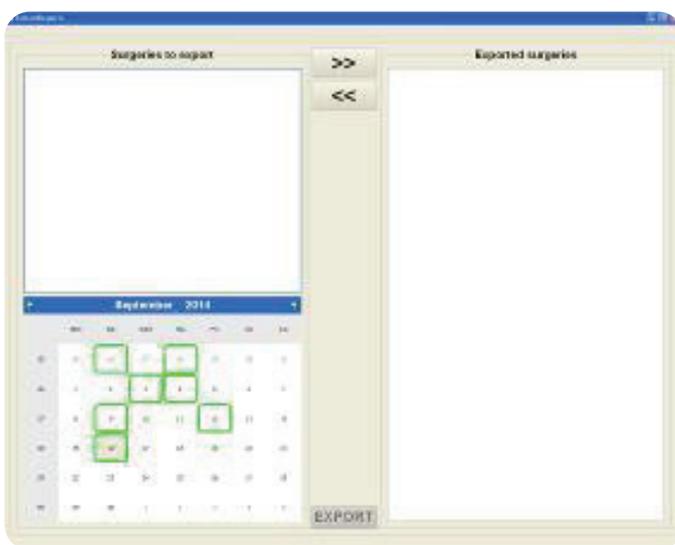


KEY	DESCRIPTION	REFERENCE	QTY
1	Probe, Knee Navigation	2-0215700	1
2	T array, Tibia Navigation	2-0215800	1
3	F array, Femur Navigation	2-0117400	1
4	G array, Instrumentation Navigation	2-0117500	1
5	H5 Screwdriver	2-0200800	1
6	Conical Threaded Pins AMPLIVISION Ø4 length 150mm	2-0235500	5
7	Inclined Fixation System, Navigation Geometry	2-0117200	2
8	Semi-assisted Resection Guide	2-0232500	1
9	Universal Guide	2-0229000	1

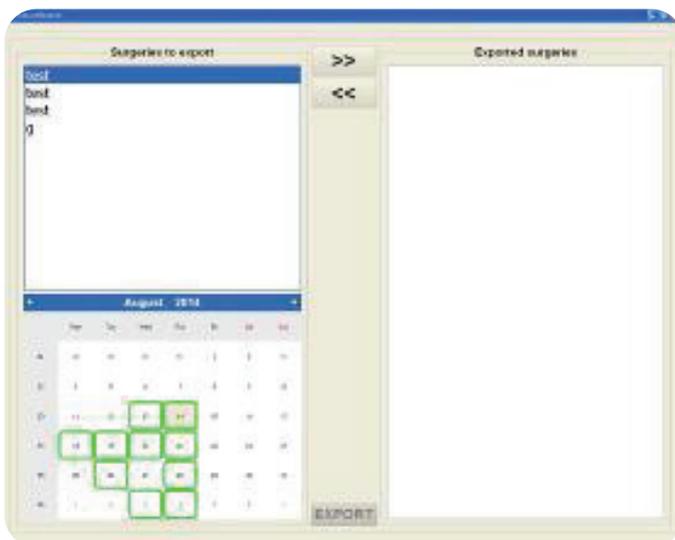
## APPENDIX A - OPENING A SAVED REPORT

If a saved surgery report is not transferred to a USB drive, it can still be retrieved at a later date.

- Turn on the AMPLIVISION® workstation
- When the AMPLIVISION® welcome screen appears, press the button on the lower right of the screen.
- The message 'Do you want to extract patient data?' will appear. Press 'OK'.

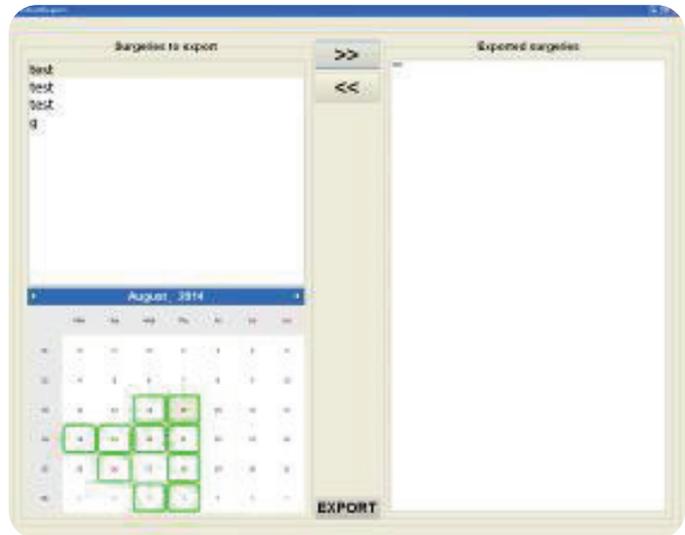


1. A calendar will appear. The dates on which surgery reports were saved will be highlighted in green. Select the dates corresponding to the procedure(s). For each date, AMPLIVISION® lists available reports in the 'Surgeries to export' window.

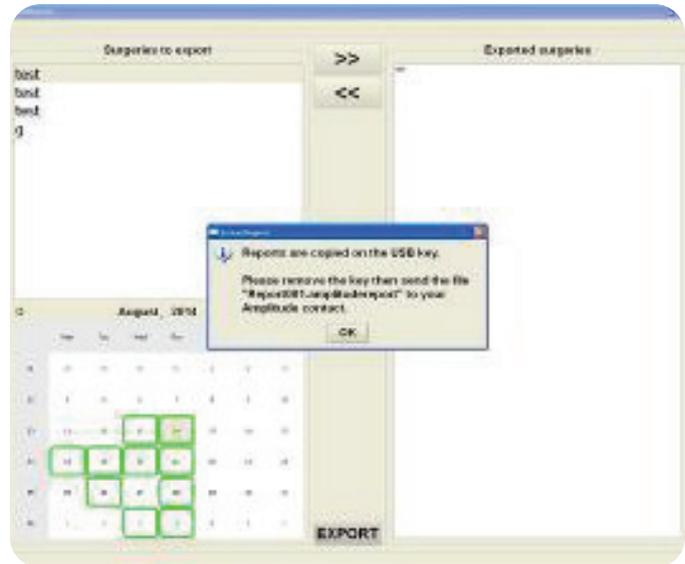


2. Use the touch screen to select the reports to be exported

3. Press the button to move them to the 'Exported surgeries' window.



4. Insert the USB drive and press the button to copy these reports to it. A message will appear when the operation is complete.



## NOTE

To ensure confidentiality, the exported reports are saved in an encrypted file format: 'Report001.amplitudereport'.



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