

The Dry Lab:

In this exercise, the instructor and the residents will be introduced to the appropriate terminology for each component of the robotic platform, in addition to the role of each component and the correct terminology of communicating troubleshooting various issues that occur during any surgical procedure.

The resident is introduced to the following components with emphasis on using the correct terminology:

Vision Cart

Surgeon Console

View port

Master controls

Headrest

Stereo viewer

Left and right side pods house the user interface controls

Touch pad for audio, video and settings control

Arm rest

Footswitch panel

Side handles (used for moving the surgeon console)

Patient Cart

Throttle (switch and rotation to move the cart)

The Drive (D) and Neutral (N) positions

Camera arm

Camera arm set up joints

Camera arm clutch button

Camera arm port clutch

Camera arm cannula mount

Camera arm mount molding

Instrument arm

Instrument arm set up joints

Instrument arm clutch button

Instrument arm port clutch button

Instrument arm cannula mount

Instrument arm cannula mount molding

Instrument arm LED's

Solid white: Not ready for surgeon console control

Alternate side-to-side blinking green and white: Guided tool change

Alternate side-to-side blinking white: Clutching

Bright blue: Ready for surgeon console control

Yellow: Intervention required

Red: System fault

Fast blinking green: System start up and new instrument line information downloading

Basic Port Placement

Maintain the Sweet spot

Place the camera port so it aligns with the center column of the patient cart and the target anatomy

Use the 20-10-5 rule as follows:

Place the camera port about 10-20 cm away from the target organ

Maintain at least 8-10 cm spacing between the da Vinci ports

The instruments should be 10-20 cm away from the target anatomy

Accessory ports should be at least 5 cm away from the other ports

Docking

Ensure camera arm elbow and "Sweet Spot" are set and instrument arms are in position to maximize range of motion and minimize collisions

Align the endoscope port with the target anatomy and with the Patient Cart's center column

With arms positioned high enough to clear the patient, drive the Patient Cart in, maintaining the "Sweet Spot" and alignment with endoscopy ? 3rd elbow ? Patient Cart's center column

Position the cart using two people: one to drive the cart and one to direct cart movement

Stop the Patient Cart when the camera cannula mount is in position over the camera port cannula incision

Dock the camera arm using the port clutch buttons, making sure that both of the quick click cannula mount wings are closed

Insert the endoscope into the cannula and assess the surgical site

Dock the instrument arms using the port clutch buttons, making sure that both of the quick cannula mount wings are closed

Note: If the System is in Drive (D), as soon as any cannula is attached to an arm, the Patient Cart motor drive brakes automatically engage

Surgeon Console Overview

Right Side Pod

Power button

Emergency stop

Touchpad: Contains video, audio, utilities and surgeon log in tabs

Left Side Pod: Ergonomic controls for the stereo viewer height and tilt controls, arm rest height, foot switch panel depth (the distance between the foot switch panel and the chair)

Stereo viewer

Foot switch panel:

Surgeon Console brakes: Both should be engaged during procedure

Arm swap pedal: A quick side tap of the pedal allows the master controllers to switch control to a different instrument arm

Camera control pedal: Pressing and holding the pedal allows the masters to control movement of the camera and endoscope

Master clutch pedal: Pressing and holding the pedal decouples the master controllers from instrument control, and allows the surgeon to reposition the masters for ergonomic comfort

Energy control: Two sets of primary (blue) and secondary (yellow) pedals provide expanded control of energy devices allowing surgeons to use instruments with more than one energy modality (e.g. For monopolar instruments CUT is enabled in addition to COAG)

Always take a look in the stereo viewer and verify foot location on the foot switch panel before activating the energy pedals

Master Controls

Repositioning the masters by either using the foot or finger clutches

Match Grips

When a new instrument is inserted, the match grips icons will appear

The match grip icons will indicate the action needed to match master grip angle to the instrument grip angle (open or close masters, or slightly rotate the grips on the masters)

Repositioning camera

Press and hold the camera control pedal

Move the masters to reposition the image

Focusing the camera: Press and hold the camera control pedal, then roll a single master to focus the image (NOTE: Camera focus can be controlled independently by either/or both master controllers, as long as one of both of the masters moves enough to indicate an intentional movement by the user.)