Spine Imaging

Cervical Spine: 8-Channel Cervical Spine Coil

Caution
Do not carry the cervical spine coil by its bridge. The bridge contains sensitive electronics and should not be used as a handle.
1. Place pad A on the patient table at the head end of the magnet. This allows for optimal alignment in the A-P direction. Place other table pads as needed for patient comfort.

2. Place the base of the coil on pad A between the red arrows and the end of the patient table nearest the magnet.

3. Separate the bridge from the base of the coil by pushing the release locks (the two blue buttons on the bridge).

4. Turn on the lasers and center the coil under the sagittal alignment light.

5. Position the patient supine on the coil with the head toward the magnet as far into the coil as is physically possible, so that the shoulders are in contact with the bridge piers, or so that the level of the hyoid bone is centered under the transaxial laser light.

6. Attach the bridge of the coil by placing it on the base of the coil, using the alignment pins as a guide, then pressing down firmly on both sides.

7. Immobilize the patient’s head with wedge pads.

8. Turn on the lasers and position the transaxial and sagittal laser beams on the hyoid bone, which corresponds to the transaxial center line of the coil.

9. Connect the coil cable to the patient table connector.

10. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

Note:
If the patient is kyphotic, the cervical spine coil can be tilted up to better position the cervical spine, as shown in the photograph.
**Cervical Spine: 8-Channel CTL Coil**

![Cervical Spine: 8-Channel CTL Coil](image)

**Caution**

Do not carry the CTL coil by either of its bridges. The bridges contain sensitive electronics and should not be used as handles.

1. Remove all table pads.
2. Place the CTL coil on the patient table with the cervical portion closest to the magnet.
3. To remove the spine and cervical bridges, press the release locks and lift off the bridge.
4. Make sure the foot end of the coil is at or above the red arrow on the patient table.
5. Place the table pads at the foot end of the coil for patient comfort.
6. Position the patient supine on the coil, with the patient’s head toward the magnet and the shoulders in contact with the bridge piers. For smaller patients, center the level of the hyoid bone with the transaxial imaging line on the coil.
7. Attach the cervical bridge to the coil by placing it on the base of the coil, using the alignment pins as a guide, then pressing firmly on both sides. If only the cervical spine is to be imaged, the lower spine bridge does not need to be attached. However, the connector covers must be inserted.

**Caution**

Ensure that the connectors are tightly closed and that no hair, fabric or skin is caught between the connectors. Any foreign matter between the connectors will reduce the electrical signal and degrade the image.

---

**Note:**

The spine bridge has release locks on each side of the coil. You only need to press one lock to release the bridge. Press both release locks on the cervical bridge to remove it.

**Note:**

The transaxial line of the coil is indicated on the anterior portion of both bridge pieces.
8. Immobilize the patient’s head with wedge pads.

9. Turn on the lasers and position the transaxial laser beam with the imaging line on the cervical bridge.

10. Connect the coil cable to the patient table connector.

11. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Large Cervical Spine: 1-Channel Solenoid Coil**

This alternate spine imaging procedure is used with patients who cannot be accommodated by the cervical spine coil.

1. Position the pads on the patient table as necessary for patient comfort.
2. Place the coil on the table pads and unlatch it using the side button. The top of the coil will flip open.

3. Lay the patient down with the neck in the coil and close the coil.

**Caution**

Ensure that the connector is tightly closed and that no hair or fabric is caught in the connector. Any foreign matter in the connector will reduce the electrical signal and degrade the image.

4. Use the VELCRO positioning straps to immobilize the coil.

5. Turn on the lasers and position the hyoid bone under the transaxial laser, ensuring that the patient’s mid-sagittal plane is aligned with the sagittal laser.

6. Connect the coil cable to the patient table connector.

7. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Cervical-Thoracic Spine: 8-Channel CTL Coil**
Caution

Do not carry the CTL coil by either of its bridges. The bridges contain sensitive electronics and should not be used as handles.

1. Remove all table pads.
2. Place the CTL coil on the patient table with the cervical portion closest to the magnet.
3. To remove the spine and cervical bridges, press the release locks and lift the bridge off.
4. Make sure the foot end of the coil is at or above the red arrow on the patient table.
5. Place pads at the foot end of the coil for patient comfort.
6. Position the patient supine on the coil, with the patient’s head toward the magnet and the shoulders in contact with the bridge piers. For smaller patients, center the level of the hyoid bone with the transaxial imaging line on the coil.
7. Attach the cervical bridge to the coil by placing it on the base of the coil, using the alignment pins as a guide, then pressing firmly on both sides.
8. Attach the spine bridge in the same manner.

Caution

Ensure that the connectors are tightly closed and that no hair or fabric is caught between the connectors. Any foreign matter between the connectors will reduce the electrical signal and degrade the image.
9. Immobilize the patient’s head with wedge pads.

10. Turn on the lasers and position the transaxial laser beam on the patient’s sternal notch, which approximates the level of the third thoracic vertebrae.

11. Connect the coil cable to the patient table connector.

12. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Thoracic Spine: 8-Channel CTL Coil**

---

**Caution**

Do not carry the CTL coil by either of its bridges. The bridges contain sensitive electronics and should not be used as handles.
Selecting and Positioning RF Coils

1. Remove all table pads.

2. Place the CTL coil on the patient table with the cervical portion closest to the magnet.

3. To remove the spine and cervical bridges, press the release locks and lift off the bridge.

4. Make sure the foot end of the coil is at or above the red arrow on the patient table.

5. Place pads at the foot end of the coil for patient comfort.

6. Position the patient supine on the coil, with the patient’s head toward the magnet and the shoulders in contact with the bridge piers. For smaller patients, center the level of the hyoid bone with the transaxial imaging line on the coil.

7. Attach the cervical bridge to the coil by placing it on the base of the coil, using the alignment pins as a guide, then pressing firmly on both sides.

8. Attach the spine bridge in the same manner.

Caution
Ensure that the connectors are tightly closed and that no hair or fabric is caught between the connectors. Any foreign matter between the connectors will reduce the electrical signal and degrade the image.

9. Immobilize the patient’s head with wedge pads.

10. Turn on the lasers and press the IN button to move the patient table to position the transaxial laser beam with the patient’s sternal notch, which approximates the level of the third thoracic vertebrae.

11. Connect the coil cable to the patient table connector.

12. Press and hold the SET button until the patient table advances the patient to the magnet’s isocenter and stops. The cervico-thoracic region is now at the isocenter to obtain a sagittal vertebral count image. The longitudinal move counter display on the gantry will be 0.

13. After the sagittal vertebral count image has been acquired, remove the patient from the magnetic field using the OUT button on the gantry control panel.

14. Turn on the lasers again, and re-center the transaxial imaging line with the level of the fifth thoracic vertebral body (midway between the sternal notch and the xyphoid).

Note:
The spine bridge has release locks on each side of the coil. You only need to press one lock to release the bridge. Press both release locks to remove the cervical bridge.

Note:
For thoracic imaging, the CTL coil may be placed with the cervical bridge toward the head or foot of the patient table. Claustrophobic patients may prefer entering the magnet feet first.

Note:
The transaxial line of the coil is indicated on the anterior portion of both bridge pieces.
15. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Caution**

When the upper coil is not attached.
1. Cover the joint parts with the plates to avoid contact with patient. Failure to do so will expose the patient to an electrical shock hazard.

**Note:**

SNR is deteriorated by 50% when the upper coil is not attached.
**Thoracic Spine: 2-Channel Large or Extra Large Flexible Body Coil**

1. Position pads on the patient table as necessary to support the patient at the correct coronal alignment. The pad choice may change due to patient size.

2. Place the open coil on top of the pad(s) in the area between the red arrows and the end of the patient table nearest the magnetic field. Turn on the lasers and center the coil under the sagittal alignment light.

3. Position the patient supine on the coil so that the coil covers the patient from the top of the shoulders to the lower costal margins. The transaxial center line of the coil is approximately at the level of the fifth thoracic vertebrae.

4. Place the knee pad under the patient’s legs for comfort. Depending on the anatomical region to be imaged and the size of the coil used, the patient’s arms may be inside or outside of the coil, whichever arrangement is more comfortable. The patient’s arms also may be positioned above the head, away from the coil and the cable.

5. Turn on the lasers and position the patient with the sagittal alignment line. Make sure that the midline of the patient is centered with the laser.

6. Verify that the patient is positioned for proper coronal alignment.

7. Close the coil around the patient, ensuring that the connectors fit properly together. Push on the two locks to secure the coil.

**Caution**

While securing the locks on the coil, be careful not to apply pressure against the patient’s abdomen or chest.

*Note:*

Use VELCRO positioning straps to immobilize the coil.
8. Press the IN button to move the patient table to center the transaxial laser beam to the upper quarter of the coil.

9. Connect the coil cable to the patient table connector.

10. Press and hold the SET button until the patient table advances the patient into the magnetic field and stops. The cervical and upper thoracic region is now at the magnet’s isocenter for the sagittal vertebral count.

11. After the sagittal vertebral count series has been acquired, press the OUT button on the gantry control panel to remove the patient from the magnetic field.

12. Turn on the lasers again, and re-center the transaxial imaging line with the transaxial center of the coil, which is midway between the sternal notch and the xyphoid, approximating the level of the fifth thoracic vertebral body.

13. Press and hold the SET button until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region, T-5, centered under the lasers, is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Lumbar Spine: 8-Channel CTL Coil**
Selecting and Positioning RF Coils

**Caution**
Do not carry the multiple array CTL coil by either of its bridges. The bridges contain sensitive electronics and should not be used as handles.

1. Remove all table pads.
2. Place the CTL coil on the patient table with the cervical portion closest to the magnet.
3. To remove the spine and cervical bridges, press the release locks and lift off the bridge.
4. Make sure the foot end of the coil is at or above the red arrow on the patient table.
5. Place pads at the foot end of the coil for patient comfort.
6. Position the patient supine on the coil, with the patient’s head toward the magnet and the shoulders in contact with the bridge piers.
7. Attach the spine bridge to the coil by placing it on the base of the coil, using the alignment pins as a guide, then pressing firmly on both sides.

**Caution**
Ensure that the connectors are tightly closed and that no hair or fabric is caught between the connectors. Any foreign matter between the connectors will reduce the electrical signal and degrade the image.

8. Turn on the lasers and press the IN button to move the patient table so that the patient’s lower costal margin (L-3) is centered with the transaxial laser light.
9. Connect the coil cable to the patient table connector.
10. Press and hold the SET button on the gantry control panel until the patient table advances the patient to the magnet’s isocenter and stops. The imaging region centered under the lasers is now in the center of the magnetic field. The longitudinal move counter display on the gantry will be 0.

**Note:**
The spine bridge has release locks on each side of the coil. You only need to press one lock to release the bridge. Press both release locks to remove the cervical bridge.

**Note:**
The cervical bridge does not need to be attached when scanning the lumbar region. Be sure to use the connector covers in the C-spine portion when not using the cervical spine coil.
Lumbar Spine: 2-Channel Large or Extra Large Flexible Body Coil

1. Position pads on the patient table as necessary to support the patient at the correct coronal alignment. The pad choice may change due to patient size.

2. Place the open coil on top of the pad(s) in the area between the red arrows and the end of the patient table nearest the magnetic field. Turn on the lasers and center the coil under the sagittal alignment light.
3. Position the patient supine on the coil so that the lower costal margin (L-3) is centered on the transaxial (center) line of the coil. The patient may be positioned supine and either head or feet first.

4. Turn on the lasers and position the patient with the sagittal alignment line. Be sure to center the midline of the patient with the laser.

5. Place the knee pad under the patient’s legs for comfort. Depending on the anatomical region to be imaged and the size of the coil used, the patient’s arms may be inside or outside of the coil, whichever arrangement is more comfortable. The patient’s arms also may be positioned above the head, away from the coil and the cable.

6. Verify that the patient is positioned for proper coronal alignment.

7. Close the coil around the patient, ensuring that the connectors fit properly together. Push on the two locks to secure the coil.

**Note:**
Use VELCRO positioning straps to immobilize the coil.

**Caution**
While securing the locks on the coil, be careful not to apply pressure against the patient’s abdomen or chest.

8. Turn on the lasers and position the transaxial line of the coil with the transaxial laser beam.

9. Connect the coil cable to the patient table connector.

10. Press and hold the SET button until the patient table advances the patient to the magnet’s isocenter and stops. The longitudinal move counter display on the gantry will be 0.