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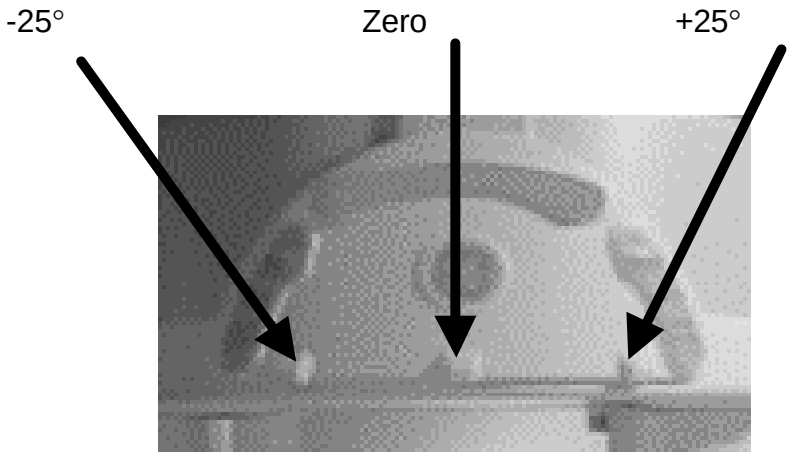
1- ALIGNMENT LIGHT CALIBRATION

1-1 Tools Required

- Head Coil with Mount
- Non-magnetic screwdriver
- Non-magnetic 0.050 in. Allen wrench
- Nonmagnetic open-end wrench
- Multimeter
- Protective eyewear
- Nonabrasive gloves

1-2 Description

The Laser Diode Lights are mounted on the front magnet display/enclosure as shown in Illustration 1-1. The three lights are functionally identical and are located directly above the table cradle while docked at the +25°, -25°, and center (0°) table docking locations.



ALIGNMENT LIGHT LOCATIONS
ILLUSTRATION 1-1

1-3 Center Docking Position

1. Place the table at the center docking position (If it is not already at center, check the Off-Center Position section for table rotation procedures).

2. Turn on the power to the table and laser lights by switching on the SSM circuit breaker on the PDU.

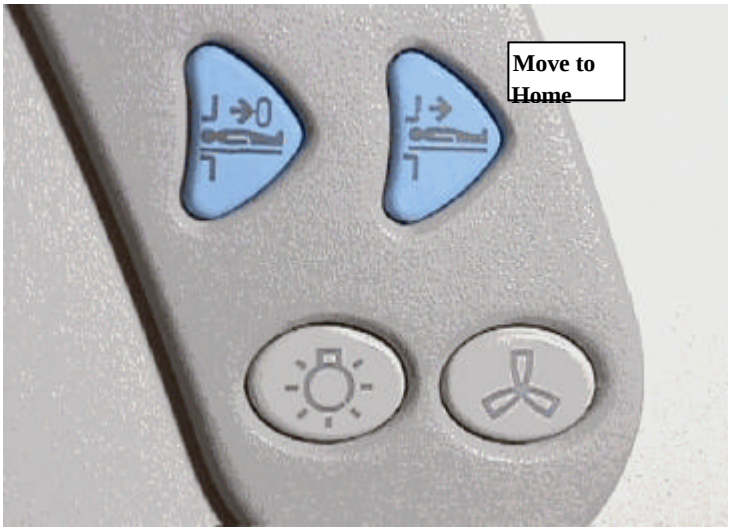
3. Fully withdraw the cradle from the patient aperture (Home position) using the Move to Home position control on the overhead display (See Illustration 1-2).

Note

The cradle must be raised to its vertical limit for the longitudinal drive to operate.

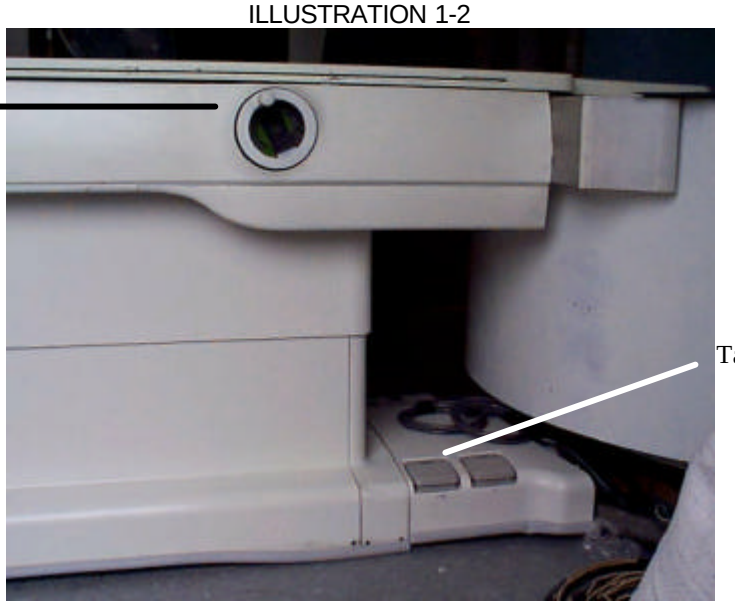
4. Install the head coil mount in the cradle detents located closest to the patient aperture. Slide the head coil over the head coil mount until it stops to ensure the alignment of the head coil with the cradle. The cross hairs located on the head coil are parallel with the magnet's sagittal and transverse planes.

5. Center the cradle at the center (0 mm) lateral position using the lateral position displays and positioning crank located on the table (see Illustration 1-3). Landmark the cradle by pressing the patient landmark button on the overhead display (see Illustration 1-4). Advance the cradle 463 mm longitudinally into the patient aperture using the cradle longitudinal drive controls (see Illustrations 1-5) to bring the cross hairs on the coil into alignment with the vertical plane of the patient entrance.



THE TOP RIGHT BUTTON SHOWN IS THE MOVE TO HOME CONTROL.

ILLUSTRATION 1-2

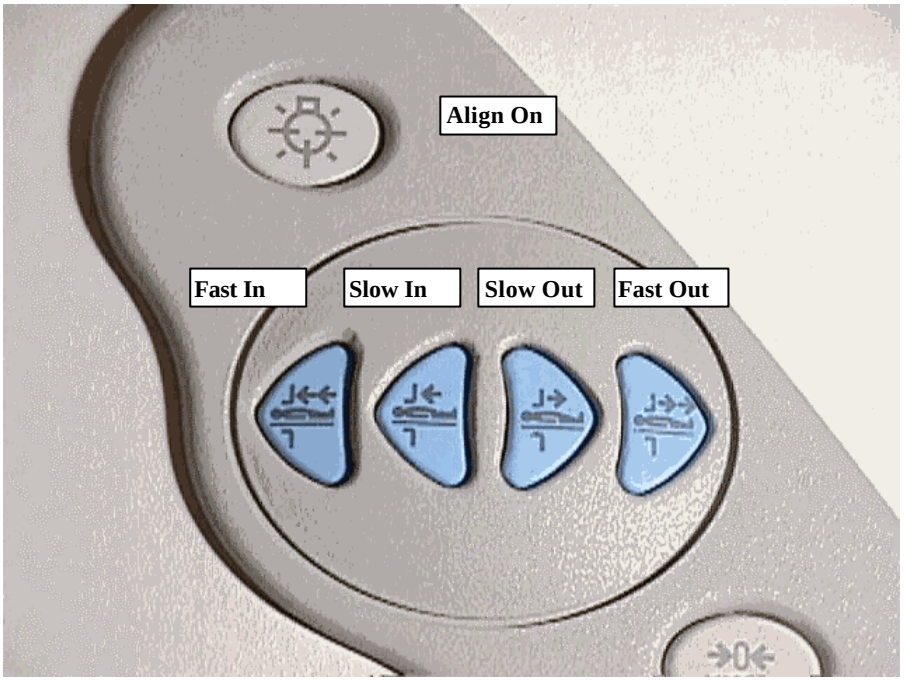


LATERAL POSITION ADJUSTMENT CRANK IS SHOWN AT TOP. VERTICAL POSITION CONTROL PEDALS

ARE SHOWN AT BOTTOM RIGHT.
ILLUSTRATION 1-3

THE TOP BUTTON SHOWN IS THE LANDMARK CONTROL.
ILLUSTRATION 1-4

6. Press the Align On pushbutton on the magnet display (see Illustration 1-5).

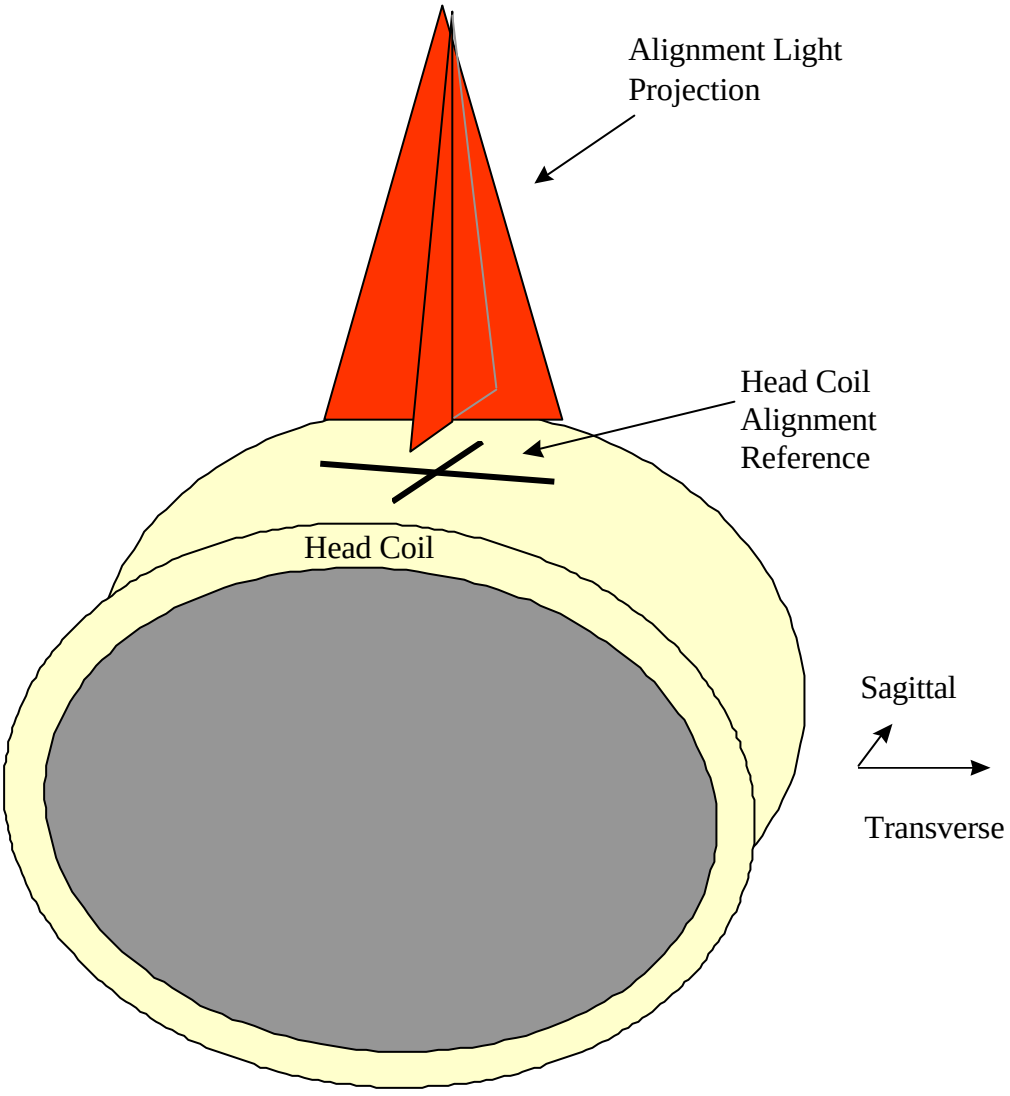


THE TOP LEFT BUTTON SHOWN IS THE ALIGN ON CONTROL THAT TURNS ON THE ALIGNMENT LIGHT.

THE FOUR CENTER ROW BUTTONS ARE FAST AND SLOW, IN AND OUT CONTROLS FOR THE PATIENT CRADLE.
ILLUSTRATION 1-5

7. Observe the light beam at the top of the patient aperture. Verify that the light beam is unobstructed.

8. Check the laser alignment to verify that the light beam cross hairs coincide with the coil reference cross hairs at the patient entrance as shown in Illustration 1-6.



ALIGNING BEAM CROSS HAIRS TO HEAD COIL REFERENCE
ILLUSTRATION 1-6

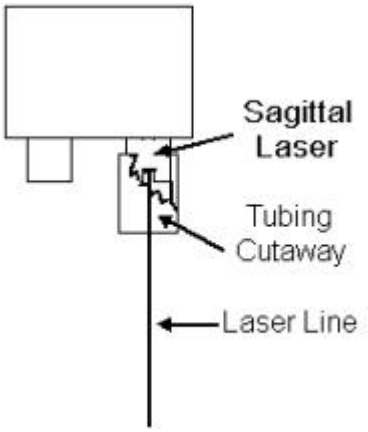
9. First, check the orientation of the laser lines to ensure they are parallel with the corresponding cross hairs on the head coil. Move the cradle longitudinally using the cradle in/out controls until the intersection of the light beam cross hairs lies along the transverse line located on the head coil. The cross hairs should not deviate beyond +/- 2 mm along the entire length of the coil cross hairs (parallel within +/- 1^{o}).

10. If the alignment needs to be rotated, remove the alignment light bezel cover with a nonmagnetic screwdriver, then turn the laser diode (See Illustration 1-8) by loosening the set screw and rotating the diode housing gimbal. Tighten the set screw when the adjustment is complete.

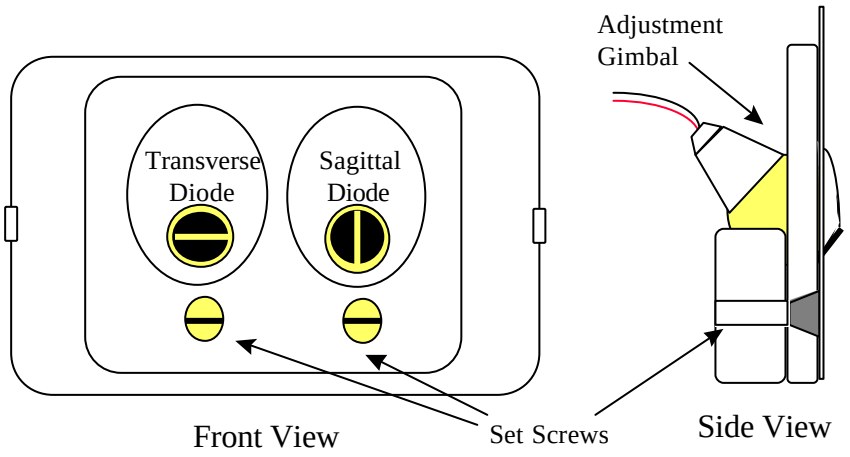
CAUTION

DO NOT adjust the lasers by using a screwdriver in the aperture slot. The plastic aperture is not designed for the torque pressure. You may damage the laser.

Recommendation: Loosen the set screw just enough to move the laser. The friction will help you adjust the laser to exact position. Use a small piece of clear tubing that fits snug over the laser aperture. Use this tubing as an extension to adjust the laser light in all directions.



LASER ADJUSTMENT
1-7



LASER DIODE ASSEMBLY DETAIL
ILLUSTRATION 1-8

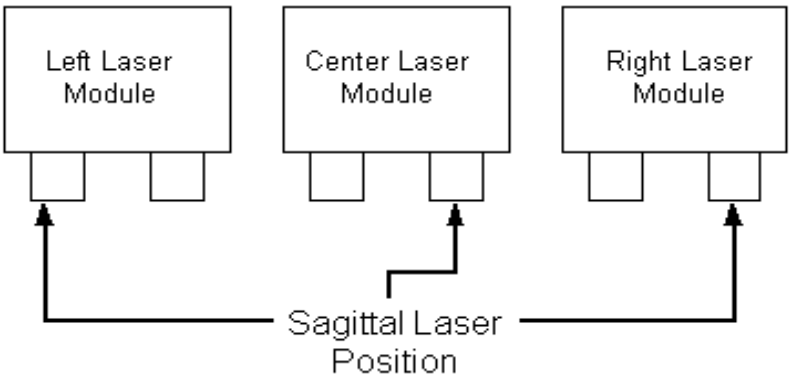
11. Then check the coincidence of the transverse beam with the vertical plane of the patient entrance. Move the cradle back to the 463 mm location (if it had to be moved for the preceding procedure). If the beam alignment line is greater than 1 mm from the coil transverse line in either direction, loosen the set screw and gently move the laser light until the beam is aligned to within +/- 1mm. Retighten the rear set screw.

Note:

If you cannot adjust the Center Laser to achieve a straight line down the center, it may be necessary to remove the entire laser light enclosure assembly and adjust the mount holes to allow for its movement to the left and right.

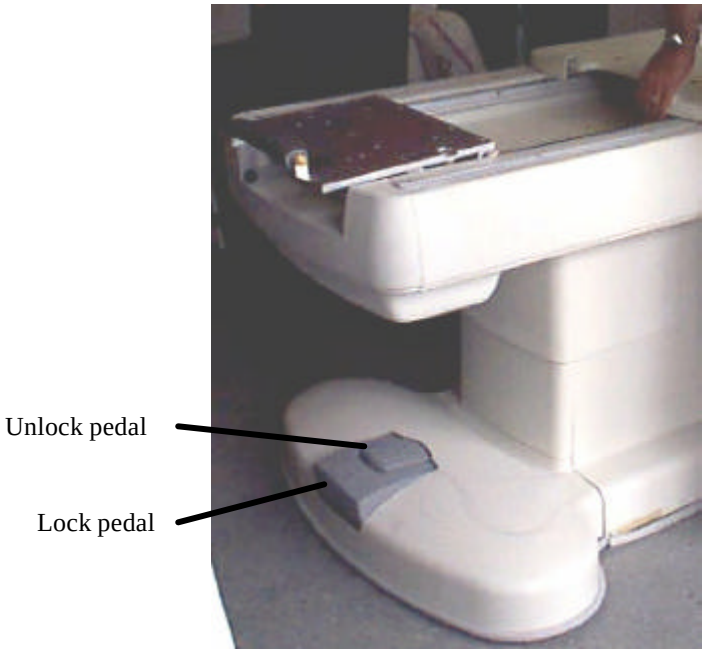
12. Remove all tools and restore the alignment light bezel cover.

1-4 Off Center (+25^{o} and -25^{o}) Docking Positions



LASER POSITIONS
1-9

13. Release the table docking brake by pressing the unlock pedal at the bottom end of the table (See Illustration 1-10). Grab the table and rotate it into the desired +25^{o} or -25^{o} docking position. Verify the table is properly docked by feeling for the positioning detent. Press the lock pedal to secure the table in place.



LOCK/UNLOCK PEDALS FOR CHANGING DOCKING LOCATION OF TABLE
ILLUSTRATION 1-10

NOTE:

The table design requires that at the off-center docking positions, the cradle must be driven 12 cm toward the proximal (closest) post before the cradle can be driven longitudinally into the patient aperture. For this procedure, it is necessary to drive the cradle back to the center (0 mm) lateral position once the head coil is advanced to the vertical plane of the patient aperture entrance in order to align the coil reference cross hairs with the alignment laser cross hairs.

14. Laterally move the cradle 12 cm to the proximal (closest) post (i.e., right post for right docking position, left post for left docking position) using the lateral crank and displays located on the table (See Illustration 1-3).

15. Landmark the cradle by pressing the patient landmark button on the overhead display (see Illustration 1-4). Advance the cradle 463 mm longitudinally using the cradle longitudinal drive controls (see Illustrations 1-5) to bring the cross hairs on the coil into alignment with the vertical plane of the patient entrance. Laterally drive the cradle 12 cm away from the proximal post (back to the 0 mm lateral position/center line) using the lateral crank to bring the sagittal line on the head coil in coincidence with the sagittal plane of the magnet (for that docking position).

16. Follow steps 6 through 12 to adjust the laser alignment lights. However, if the head coil longitudinal position needs to be changed (e.g., to adjust the laser line orientation) then the lateral position of the table must be repositioned to the 12 cm detent (closest to the proximal post) to allow the cradle longitudinal position to be changed using the longitudinal drive controls and then the cradle must be returned to its center lateral position for the alignment check and adjustment.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	Sept. 25, 2000	D. Hofstetter	Initial version.