Quantum MEDICAL IMAGING
Division of Carestream

Model QT-711-EV

Elevating Mobile Float-Top Radiographic Table

Operator's Manual

Manual Part No. DC30-035 Revision H

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Revision History

REVISION	DATE	TYPE OF MODIFICATION
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B	2004-09-03	Added UL mark, ECO 1468B, 1516
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F	2008-09-08	Added Directive 2006/66/EC compliance information
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H	2012-02-15	Changed EU Representative

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i - iv	H				
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Revision History

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Chapter 1

SAFETY NOTICES

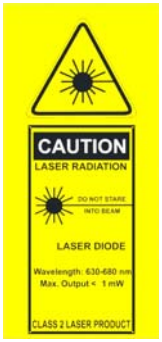
GENERAL SAFETY INFORMATION

Follow the safety instructions in this manual and all warnings and cautions printed on the warning labels. This manual, along with system components' manuals, must be read and understood before using the system. Below is a definition of the warning signs used throughout this document:

WARNING Indicates injury or death is possible if the instructions are not obeyed.

CAUTION Indicates that damage to equipment is possible if the instructions are not obeyed.

NOTE Indicates essential information that should be read to avoid incorrect operation.



CAUTION! This unit utilizes a low power (1 mW 650 nm) Class II Laser to produce an alignment beam. DO NOT STARE DIRECTLY INTO THE BEAM OR VIEW WITH OPTICAL INSTRUMENTS.

WARNING! Quantum Medical Imaging, LLC disclaims all responsibility from any injury resulting from improper use or application of this equipment.

This equipment is designed to be used exclusively under the prescribed direction of a person who is licensed by law to operate equipment of this nature. This equipment must be used in accordance with all safety procedures described in this manual and must not be used for purposes other than those herein described.

Quantum Medical Imaging, LLC assumes no responsibility for any malfunctioning of this equipment resulting from the improper operation, maintenance, or repair, nor from damage to or modification of its components.

Failure to observe these warnings may result in serious injury.

X-RAY PROTECTION

X-rays are hazardous to both patient and operator unless established safe exposure factors and operating instructions are observed.

It is important that everyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from: NCRP Publications, 7910 Woodmont Avenue, Suite 800, Bethesda, Maryland 20814-3095 (www.ncrp.com), and of the International Commission on Radiological Protection (www.icrp.org), and take adequate steps to protect against injury.

X-ray equipment may cause injury if used improperly. The instructions contained in this manual must be read and followed when operating this unit. Personal radiation monitoring and protective devices are available. You are urged to use them to monitor exposure to, and protect against unnecessary exposure to x-ray.

DISPOSAL OF BATTERIES AND ACCUMULATORS (DIRECTIVE 2006/66/EC)

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances.

REGULATORY COMPLIANCE

This certified medical device has been designed, manufactured, and calibrated to comply with governing Federal Regulations 21 CFR Subchapter J and the performance standards attendant thereto. Upon installation, all certified products require the filing of Form FD-2579 "Report of Assembly of a Diagnostic X-ray System" by the assembler (i.e., the installer) with the appropriate agencies; the "Installation Quality Assurance Checklist" must also be completed and properly distributed upon installation. A copy of each form (pink copy) is provided to the user. The installation report is completed by the installer and returned to Quantum Medical Imaging, LLC.

Those responsible for the planning of x-ray equipment installations must be thoroughly familiar and comply completely with NCRP Report No. 49, "Structural Shielding Design and Evaluation for Medical Use of X-Rays and Gamma Rays of Energies up to 10 MeV", as revised or replaced in the future. Those authorized to operate, test, participate in or supervise the operation of the equipment must be thoroughly familiar and comply completely with the currently established safe exposure factors and procedures described in publications such as Subchapter J of Title 21 of the Code of Federal Regulations, "Diagnostic X-Ray Systems and Their Major Components," and NCRP Report No. 102, “Medical X-Ray, Electron Beam and Gamma Ray Protection for Energies Up to 50 MeV—Equipment Design and Use” as revised or replaced in the future.

Scheduled maintenance is essential to the assurance of continued integrity of this equipment with respect to regulatory compliance. The continuance of certified performance to the regulatory standard is incumbent upon the user's diligent conformance to recommended maintenance instructions.

This product has been classified as Type B, Class I internally powered by Underwriters Laboratories, Inc. This equipment is not suitable for use in the presence of a flammable anesthetic mixture of air with oxygen or with nitrous oxide. Protection against Electric Shock (Class I - Type B applied parts); Protection against Harmful Ingress of Water (Ordinary).

MEDICAL ELECTRICAL EQUIPMENT
WITH RESPECT TO ELECTRIC SHOCK, FIRE,
MECHANICAL HAZARDS ONLY IN ACCORDANCE
WITH UL 60601-1 AND
CAN/CSA C22.2 NO. 601.1
98UA

The following symbols may be used for marking on this equipment or equipment documentation:


Earth (ground)


Type B Equipment


Protective Earth (ground)


Attention, consult accompanying documents

APPLICABLE STANDARDS

The Model QT-711-EV Elevating Mobile Float-Top Radiographic Table complies with the following regulatory standards:

- FDA Center for Devices and Radiological Health (CDRH) - Title 21 CFR Subchapter J
- IEC 60601-1, 2nd Edition
- IEC 60601-2-32: 1994(E)
- CAN/CSA C22.2 No. 601.1 M90
- UL 60601-1, 1st Edition
- IEC 60601-1-2: 2001(E)
- IEC 60825-1 Edition 1.2, 2001-08
- This Class A digital apparatus complies with Canadian ICES-003.
  Cet appareil numérique de la classe A est conforme á la norme NMB-003 du Canada.

  Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pusuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- EC Directive 93/42/EEC for Medical Devices
- Directive 2006/66/EC - Disposal of Batteries and Accumulators

EC REP

Carestream Health France
1, rue Galilée
93192 NOISY-LE-GRAND CEDEX
France

ASSOCIATED DOCUMENTS

This Operator's Manual is incomplete without Model QT-711-EV Elevating Mobile Float-Top Radiographic Table Service Manual, document number DC30-038.

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Chapter 2

GENERAL INFORMATION

SYSTEM OVERVIEW

This manual provides needed information for operating and maintaining the Model QT-711-EV Elevating Mobile Float-Top Radiographic Table referred to herein as the Radiographic Table.

NOTE

The user should read this manual in its entirety prior to using this equipment. It should be kept in a location near the equipment and readily accessible to the those that operate it.

NOTICE! It is imperative that all procedures described in this manual be strictly adhered to, in order to ensure the safety of patients, operators, and service personnel.

The intended Operator and Servicer of this equipment must read this manual in its entirety prior to use.

This Operator's Manual and the companion QT-711-EV Service Manual must be located adjacent to the equipment, and be kept readily accessible to all those that would operate or service it.

INTENDED USE

The Radiographic Table is intended for use solely as a patient support device during the performance of general purpose radiographic examinations.

KEY FEATURES

The key features of this Radiographic Table are as follows:

- Cordless Mobile X-Ray Table with On-board Rechargeable Battery
- Dual-Motorized Telescopic Lifts for fast, easy patient positioning
- 85" x 28" Examination Table provides a generous platform
- 700 lb. Patient Weight load capacity (evenly distributed)
- 4-Way Floating Tabletop provides precise final positioning, then locks
- 5" Precision Swivel Casters with One-Foot 'Steer & Lock' Pedal
- Twin Lift Column design, perfect for use with Digital Image Receptors
- Laser and Mechanical Obstruction Sensors guard sensitive components
- Approximately 100 lifts between charges (depending on patient weight)
- Sleep Mode insures long idle periods without the need to recharge
- Heavy-duty charger provides rapid recharge capability

MAIN COMPONENTS - MODEL QT-711-EV

See Figures 2-1 and 2-2

ITEM	DESCRIPTION
1	Patient Hand Grips
2	Floating Tabletop
3	Wheel Lock/Neutral/Steer Pedal
4	Float-Top Lock/Unlock Brake Lever
5	Dual-Motorized 3-Section Telescoping Lift Actuators
6	Emergency Stop Switch
7	Emergency Indicator Red LED
8	Foot Pedal Control Assembly
9	Table-Up Foot Switch
10	Table-Down Foot Switch
11	Programmed Height Switch
12	Programmed Height Indicator Green LED
13	Battery Charge Level Indicator & Error Enunciator
14	Compliance Label
15	Laser Warning Label
16	Laser Emitter and Shutter Hood
17	Laser Sensor
18	Steer/Neutral/Lock Pedal Label
19	Locking/Steering Caster (Right Front Only)
20	Power Input Socket
21	The External Base Charging Power Supply
22	Load Disconnect Switches - Access Cover Plugs
23	Total Lock Caster (1 of 3)
24	SonAlert (error enunciator)

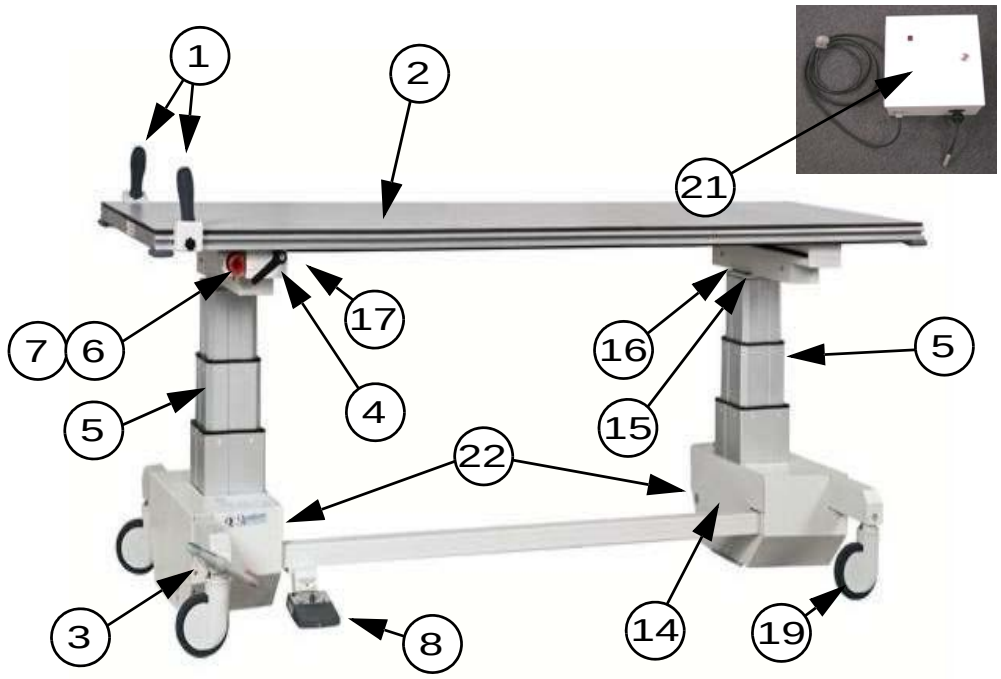


Figure 2-1. Model QT-711-EV Elevating Radiographic Table - Major Components

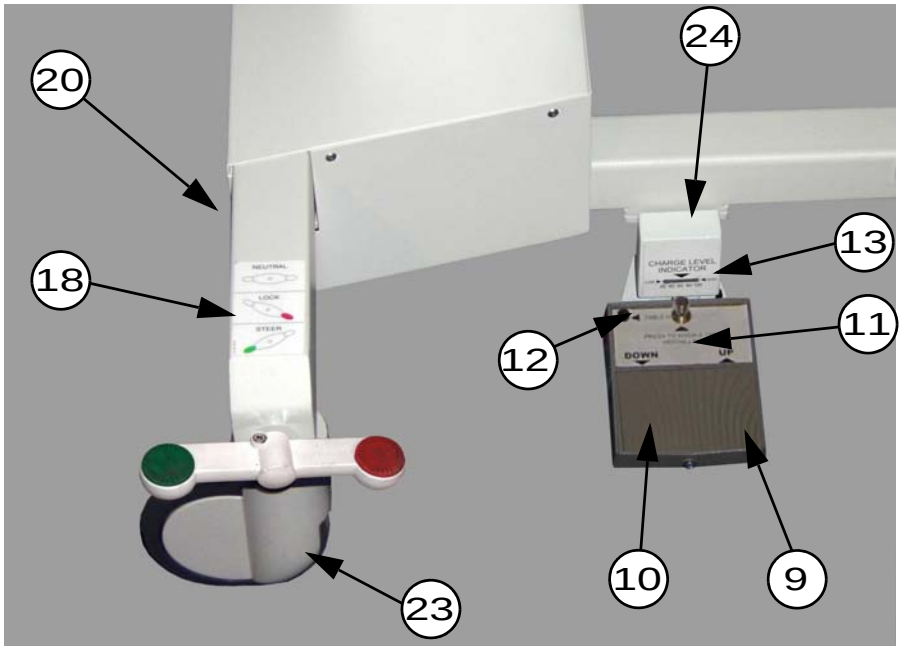


Figure 2-2. Model QT-711-EV Elevating Radiographic Table - Major Components

PHYSICAL SPECIFICATIONS

Table Specifications (See Figure 2-3)

• Length	2159.0 mm (85.0 in.) standard 1981.2 mm (78.0 in.) minimum*
• Width	718.0 mm (28.3 in.)
• Height	574.8 mm (22.6 in.) minimum 854.2 mm (33.6 in.) maximum
• Material Type	Phenolic Fiber Resin
• Density	Less than 0.95 mm Aluminum
• Maximum Patient Load	317.6 kg (700.0 lb), evenly distributed
• Gross Table Weight	174.6 kg (385.0 lb)

PERFORMANCE SPECIFICATIONS

Table Top Travel Specifications

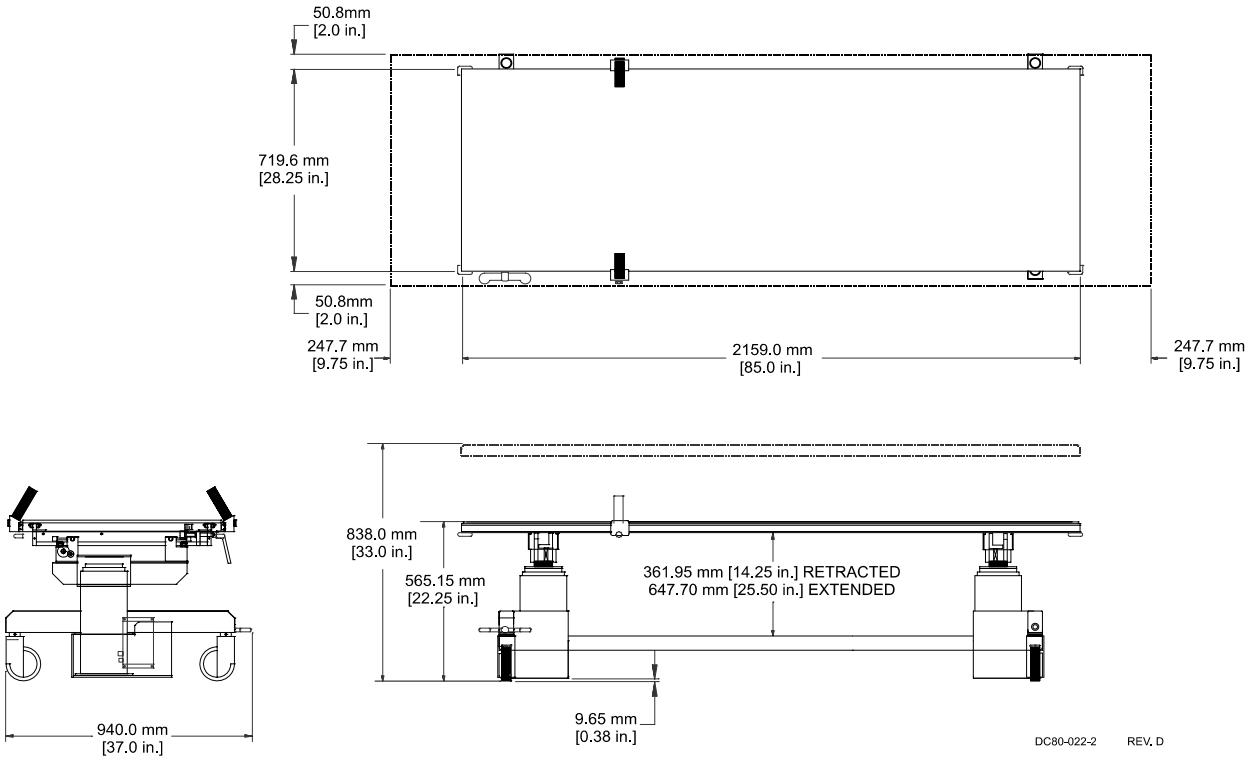
• Longitudinal Travel**	355.6 mm (14.0 in.) maximum 177.8 mm (7.0 in.) minimum
• Transverse Travel**	104.8 mm (4.1 in.)
• Vertical Travel	279.4 mm (11.0 in.)
• Vertical Travel Speed	~25.4 mm/sec. (~1.0 in. per sec.)

CHARGER & TABLE ELECTRICAL SPECIFICATIONS

• Charger Dimensions Height x Width x Length	381.0 mm (15.0 in.) x 317.5 mm (12.5 in.) x 158.8 mm (6.25 in.)
• Charger Input Power	115 VAC/3 A 50/60 Hz 230 VAC/1.5 A 50/60 Hz
• Charger Output & Cord	+29 VDC/6 A, 9.15 m (30 ft)
• Table Input Power	+29 VDC/5.0 A
• Battery Type	Internal Sealed Lead-Acid Gel Cells
• Battery Capacity Provides	10 Ampere-Hours @ 24 VDC 100 Lift Cycles (minimum)
• Battery Charge Time	3.5 hr (maximum)
• Duty Cycle	40 up/down cycles/hr

* Note: Available reduced-length tabletops reduce longitudinal travel by one inch for each one inch of reduced table length.

** Note: Longitudinal/transverse travel divides equally about the table center.



NOTE: TABLE WEIGHT (NO LOAD): 174.6 KG (385 LB)

Figure 2-3. Model QT-711-EV Elevating Radiographic Table Dimensions

ENVIRONMENTAL SPECIFICATIONS

System Operating Environment

- Ambient Temperature: 10-40 °C (50-104 °F)
- Relative Humidity: 30-75 %, non-condensing
- Atmospheric Pressure: 700-1060 hPa

Non-Operating Environment

- Ambient Temperature: -18 to +65 °C (0-149 °F)
- Relative Humidity: 20-95 %, non-condensing
- Atmospheric Pressure: 500-1060 hPa

COMPATIBILITY STATEMENT

The Model QT-711-EV Table is fully compatible with all Quantum Tube Stands, Wallstands, and High Frequency X-ray Generators; and is suitable for use with other manufacturers' equipment which incorporate equivalent means of SID indication and perpendicularity.

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Chapter 3

OPERATION

RADIOGRAPHIC TABLE OPERATION

NOTE

When using the QT-711-EV Float-Top Table in conjunction with the QMI Model QW-420-T or QW-420-T-D Wall Stand:

Always adjust the Image Receptor's height to the TABLE Position and tilt the Image Receptor to the 90° Position before moving the Float-Top Table over the Image Receptor.

Please refer to the QMI Model QW-420-T or QW-420-T-D Installation and Operation Manuals.

CAUTION! All movable components of this equipment must be operated with reasonable care. To ensure maximum effectiveness of the wheel locks, the Radiographic Table must only be operated on a smooth level floor.

WARNING! Patient loads placed upon the table must be distributed as evenly as possible over the table top's support surface. Never seat a patient at the extreme ends of the table when the tabletop is not centered.

Patients should always be transferred to or from the table at the front side and only at the center. Please see Figure 3-1 below.

Use care to keep the patient's feet away from the Wheel Lock Pedal and the Foot Control Pedal when moving the patient on or off the table. Prior to transferring a patient, make certain the Tabletop Float Lock is fully engaged and the Wheel Lock Pedal is in the Locked position.

Do not raise or lower table with patient in seated position on the table top; patient should be in prone or supine position (i.e., horizontal) during motion.

QMI requires strict observance of these basic, sensible procedures to prevent damage to the Float-Top System and to assure patient and operator safety.

OPERATIONAL OVERVIEW

This chapter describes the proper use of the Radiographic Table System.

The Radiographic Table is delivered fully assembled, along with one or more companion Base Charging Power Supplies, which must be permanently wall-mounted in the general vicinity of the table.

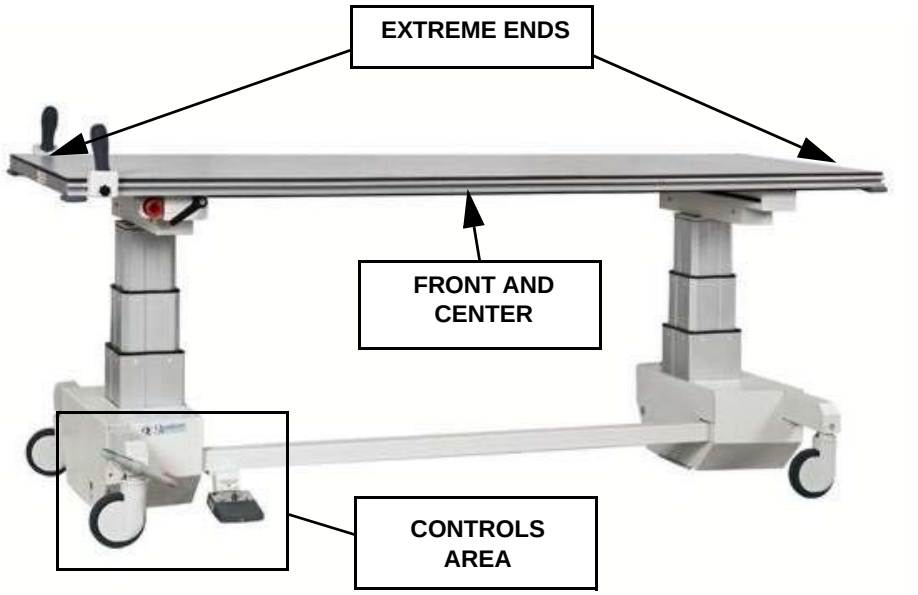

Figure 3-1. Wheel Lock and Foot Pedal Locations

The Table includes:

- Patient Table & Base with Wheeled, Swiveling Casters
- Foot Switch Control Pedal Assembly; a part of the Base
- Twin Telescopic Lift Actuators; an integral part of the Base
- Removable Phenolic Tabletop
- Two Removable Patient Hand Grips

The Charger includes:

- Base Charging Power Supply Housing Assembly
- AC Power Input Cord
- Retractable 29 VDC Charging Cord with Locking Connector

Manuals:

- Operator's Manual
- Service Manual

SETTING UP THE TABLE FOR USE

Following proper installation as detailed in the Service Manual, clinical setup requires no more than:

- Mounting the Patient Hand Grips
- Positioning and Locking the Table Base and Float-Top
- Connecting the Charger
- Charging the Table Battery

MOUNTING AND USING THE PATIENT HAND GRIPS

The Radiographic Table is equipped with two adjustable, cushioned Patient Hand Grips. These serve as stabilizing grips for the patient to grasp when mounting and dismounting the table. They also serve when the patient is required to keep hands clear of the imaging area during a radiological examination.

When they are positioned at the Table Left End as shown in Figure 3-2 below, they act as control handles enabling the operator to drive and steer the table in conjunction with the STEER and NEUTRAL Wheel Lock Positions.

To install the Patient Hand Grips, loosen the black thumbscrew on each Hand Grip and insert the rectangular locking plate on the rear side of the Hand Grip into the accessory rail on either side of the tabletop.

Slide each Hand Grip into the desired position along the rails, then hand-tighten the thumbscrews.

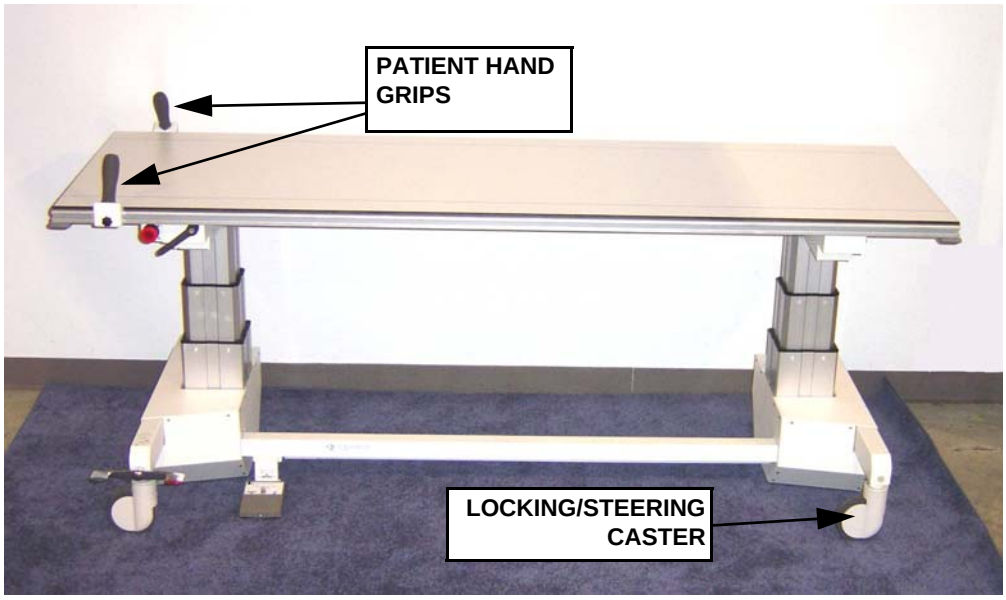

Figure 3-2. Patient Hand Grips (Installed)

UNDERSTANDING THE TABLE WHEEL LOCK OPERATIONS

The Radiographic Table is equipped with a Wheel Lock Pedal located on the Front-Left corner of the table, as shown in Figure 3-3 below. To operate the wheel locks, refer to Figure 3-3 and proceed as follows:

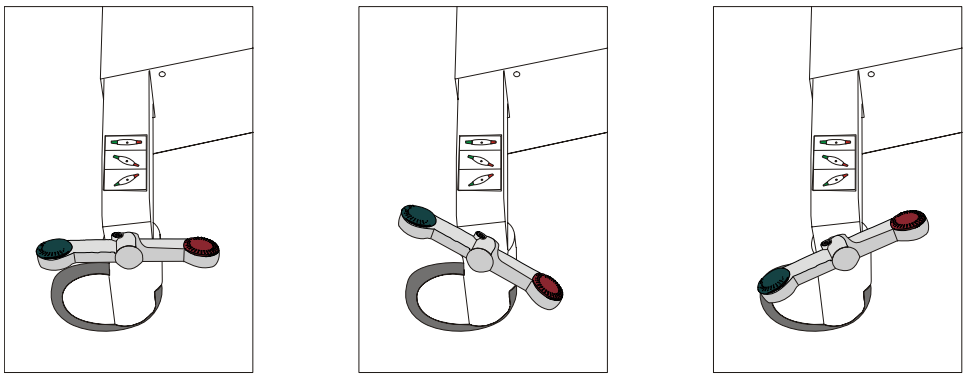

Figure 3-3. Wheel Lock Pedal Operation

Unlocked - NEUTRAL Position: Placing the Pedal in the Horizontal or Neutral position, causes all four wheels and casters to be *Unlocked*. In this position all wheels and casters will roll and swivel at will.

Locked - STATIONARY Position: Pressing down firmly on the Right, RED Pedal until it reaches the Locked position causes all four wheels and casters to *Lock*. In this position the wheels will neither roll nor swivel.

Steer - SWIVEL LOCK Position: Pressing down firmly on the Left, GREEN Pedal until it reaches the *Steer* position causes the Right-Front caster to snap into a locked position once it becomes aligned with the longitudinal axis of the table. All four wheels plus the other three casters remain free to roll and swivel at will. This permits the operator to rotate the table about the one Locked Caster and drive the table from the Left End with ease.

CAUTION! The Operator must ensure that the wheels are Locked before transferring a patient to or from the table.

The Table must never be used as a patient transport.

The mobility feature described here is provided solely as an aid to final patient positioning during a radiological exam.

UNDERSTANDING THE FLOAT-TOP TABLE MOTION

The Float-Top Lock Release Lever is used to lock and release the Tabletop to facilitate easy patient positioning during general radiographic examinations. See Figure 3-4.

When the Lock Release Lever is in the Unlocked position, the Tabletop will glide both Longitudinally (left & right) and Transversely (front to back).

To unlock the Float-Top Tabletop, grasp and rotate the Float-Top Lock Release Lever about one-eighth turn counterclockwise.

Move the Tabletop to the correct position, then rotate the Float-Top Lock Release Lever one eighth turn clockwise until tight.

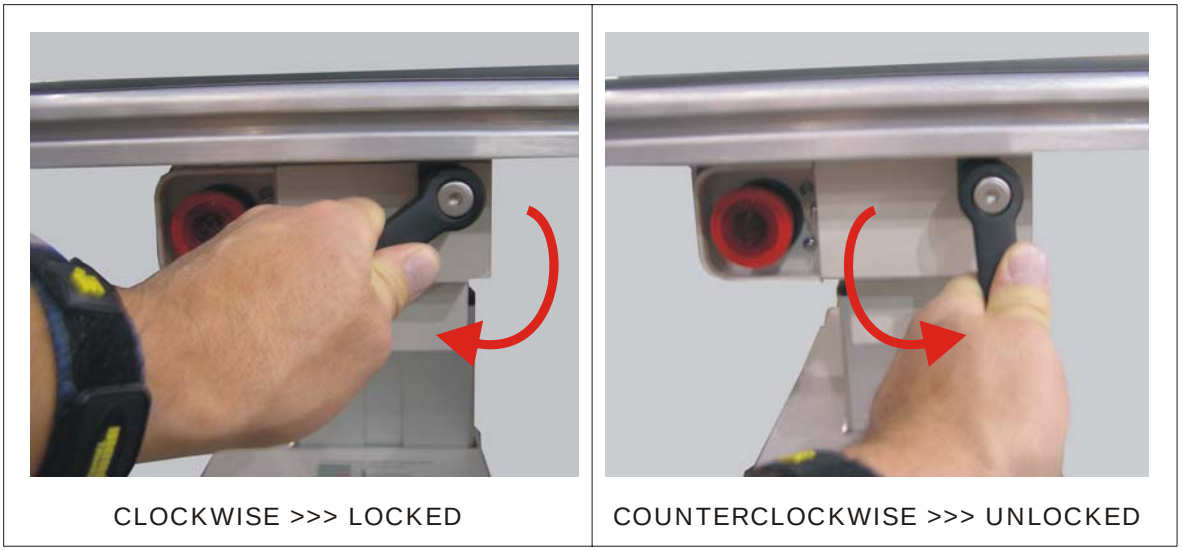

Figure 3-4. Float-Top Lock Release Lever - Locked Position

THE FLOAT-TOP LOCK RELEASE LEVER ADJUSTMENT PROCEDURE

The Float-Top Lock Release Lever shown in Figure 3-6, is fitted with a Range Adjustment feature.

Upon Installation and again after considerable use, the lever may require minor readjustment to restore it to the ideal angle of alignment with respect to the Table. Should it become awkward, the following procedure details how to adjust the lever for the best alignment.

The Float-Top Lock Release Lever can be adjusted through a 180° range.

To set the lever position, proceed as follows:

1. With the Float-Top Lock Release Lever in the Locked position, pull the spring-loaded Lock Release Lever outward along the length of its shaft to disengage the splines from those on the shaft. See Figure 3-6.
2. With the Lever extended, rotate it to your preferred angle for the Locked position, then slowly release it to re-engage the shaft.
3. Re-check the operation of the lever and re-adjust as necessary.

Figure 3-5. Model QT-711-EV Radiographic Table (Front View)

Figure 3-6. Float-Top Lock Release Lever - Engaged

UNDERSTANDING THE BASE CHARGING POWER SUPPLY

The Radiographic Table System is equipped with one or more External Base Charging Power Supply(s) which convert locally available 115 VAC or 230 VAC to 29 VDC for use in charging the Internal Table Battery.

The External Base Charging Power Supply consists of:

- Mounting Box
- AC Power Switch & Indicator
- AC Power Input Cord w/Plug
- DC Charging Cord
- Power Connector

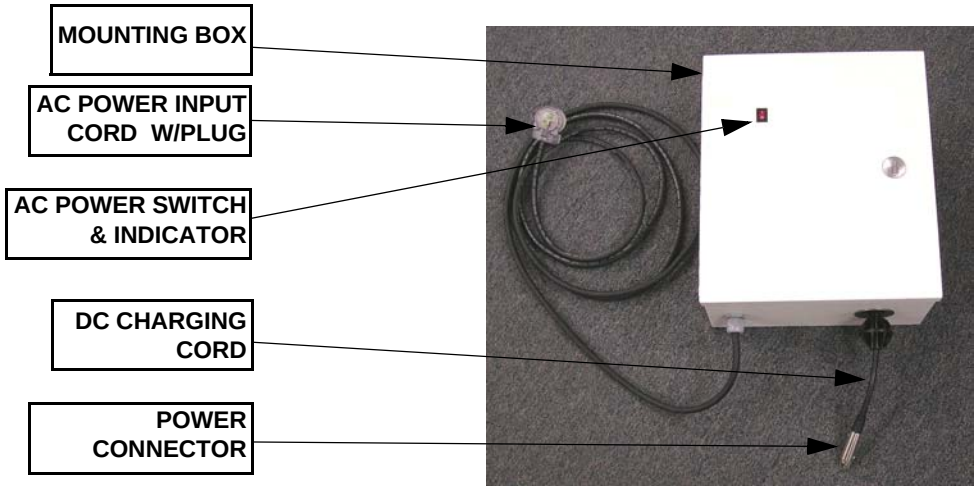

Figure 3-7. External Base Charging Power Supply

The Charger must be wall-mounted. For reasons of safety it is not suitable to be left free to accommodate use at multiple locations.

For those situations, QMI makes available additional External Base Charging Power Supplies as optional accessories for your convenience if needed. Contact your QMI Sales Representative for additional information.

For 115 VAC installations the supply is equipped with a hospital grade AC Power Plug, as a permanent connection to the AC Mains is not required.

CHARGING THE TABLE INTERNAL BATTERY

Once wall-mounted and set-up by your Servicing Dealer, the External Base Charging Power Supply is ready for use. Extend the retractable 30 foot DC Charging Cord as needed to engage the Power Connector with the DC Power Input Socket located on the Table Base, as shown in Figure 3-8.

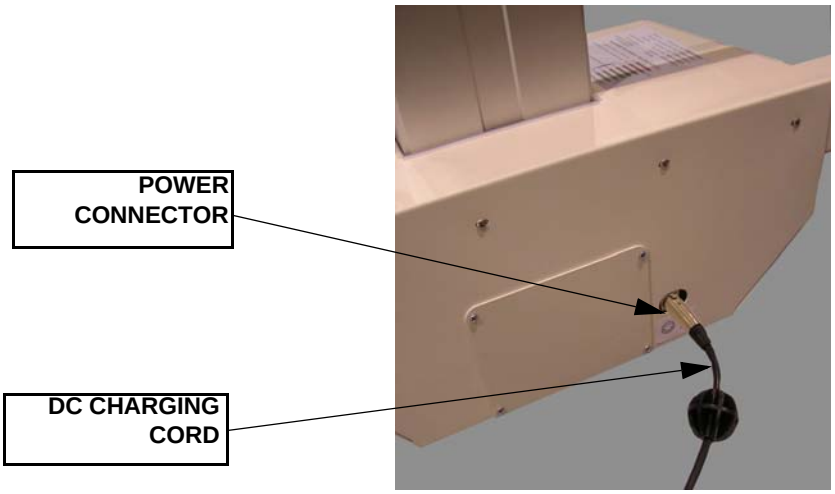

Figure 3-8. DC Charging Cord Plugged in to Table Base

Plug-in the Base Charging Power Supply and turn the Power Switch **ON**. The AC Power Switch will illuminate when power is present, and the charging process will take place automatically. A full-charge will be achieved in less than 3.5 hours from a fully discharged condition. The table becomes ready for use when a minimum 10% charge has been achieved.

Once fully charged, turn the Power Switch **OFF**, unplug the Charging Cord Power Connector (see Figure 3-8). Snapping the Charging Cord will prompt the Charging Cord Reel to retract and store the cord safely.

Caution! Do not use the table with the Charging Cord connected; someone could trip over it causing personal injury and/or equipment damage.

The Table Internal Battery is designed to energize the table for approximately 120 lift and descent cycles before recharging is again necessary.

It is not necessary to wait for full discharge before initiating a recharging session. The Table Internal Battery cannot be over-charged by leaving the system connected to the Charger with power **ON**.

To facilitate this process the table is equipped with a 5-Segment LED Indicator designed to inform the operator of the State of the charging system and the Level of Charge currently available (see Figure 3-9).

THE TABLE BATTERY CHARGE INDICATOR AND ERROR ENUNCIATOR

BATTERY CHARGE INDICATOR

The five segment LED Indicator located just above and behind the Foot Pedal Controls displays both the state and level of charge as follows:

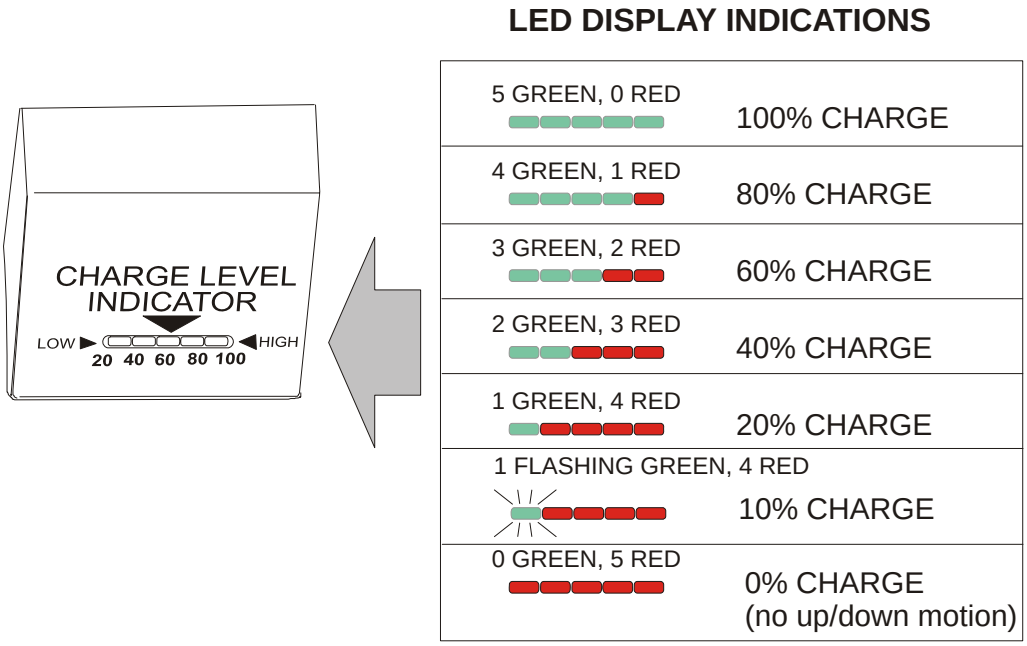

Figure 3-9. Battery Charge Level Indicator LED Display

As charging progresses, the LEDs will one-by-one, turn from Red to Green following the sequence shown in Figure 3-9. When charging is underway, or where the battery is steadily discharging during normal use, the display will be Steadily Illuminated.

As the battery drains, the sequence is reversed until only one LED remains Green. As the battery level drops past 10%, the last remaining Green LED will blink alternately Red then Green, as a warning that a Charging session should now be initiated.

To maximize the useful life of the batteries, it is recommended that the table's batteries be charged whenever the Battery Charge Level Indicator LED Display falls below 40% (i.e., more than two red LEDs are illuminated.

ERROR ENUNCIATOR

If the LED display exhibits any pattern other than shown in Figure 3-10, or any segment appears as a blinking Yellow/Orange, an error condition exists. In the event an error condition exists, refer to Chapter 4 - USER MAINTENANCE for basic troubleshooting instructions.

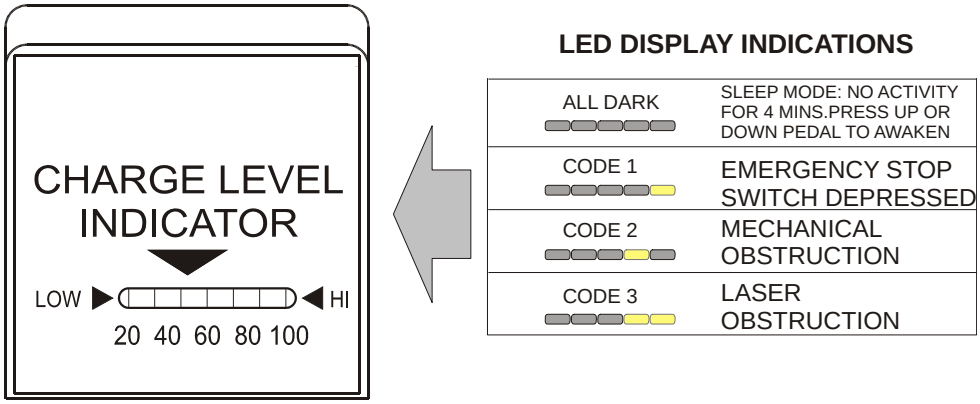

Figure 3-10. Error Enunciator LED Display

UNDERSTANDING THE EMERGENCY SWITCH

The Radiographic Table is equipped with an Emergency Stop Switch and Red LED Indicator (see Figure 3-11).

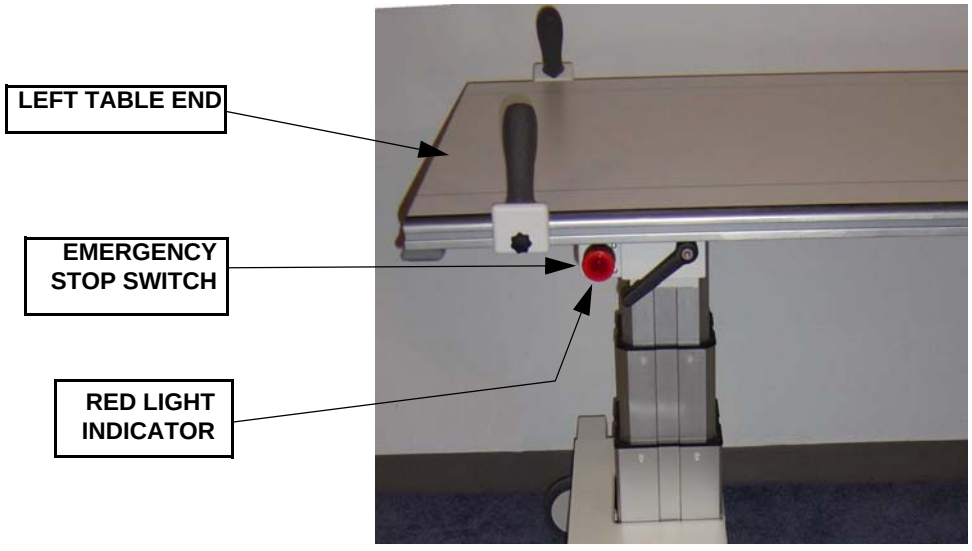

Figure 3-11. Error Enunciator LED Display

For *Normal Operation*, this switch must be extended by twisting the red knob clockwise to release the latch. Power is then made available to the Left and Right Table Lift Actuators within the table.

Should a patient emergency arise or an operational control problem occur, the table operator can quickly depress the red knob and enter the *Emergency Stop condition*. Power is immediately removed from the motorized actuators and all vertical motion will cease. Simultaneously, a red LED Indicator will illuminate the Emergency Switch to notify the operator that it has been depressed.

The Emergency Switch's internal latch must again be released by rotating the red knob clockwise, before normal operation can resume.

AUTO SHUTOFF - THE SLEEP AND AWAKE MODES

To conserve battery power, the table will enter *Sleep Mode* when it receives no vertical motion commands for four minutes. While asleep all indicators, including the Emergency Stop LED, will be extinguished. Depressing the Table Up or Table Down foot switch, or attaching the DC Charging Cord, will automatically *Awaken* the system; however, the Emergency Stop Switch must still be manually reset.

UNDERSTANDING THE TABLE MOTION CONTROLS

The Radiographic Table is equipped with two Motorized Lift Actuators each containing two motors. All four motors must work in consort to produce a smooth, level, controlled-speed lift and descent. This action is commanded by the operator and closely monitored by the table's internal controller.

Vertical motion is initiated by using the Table Foot Pedal Controls located near the floor and just inside the Left-Front Caster (see Figure 3-12).

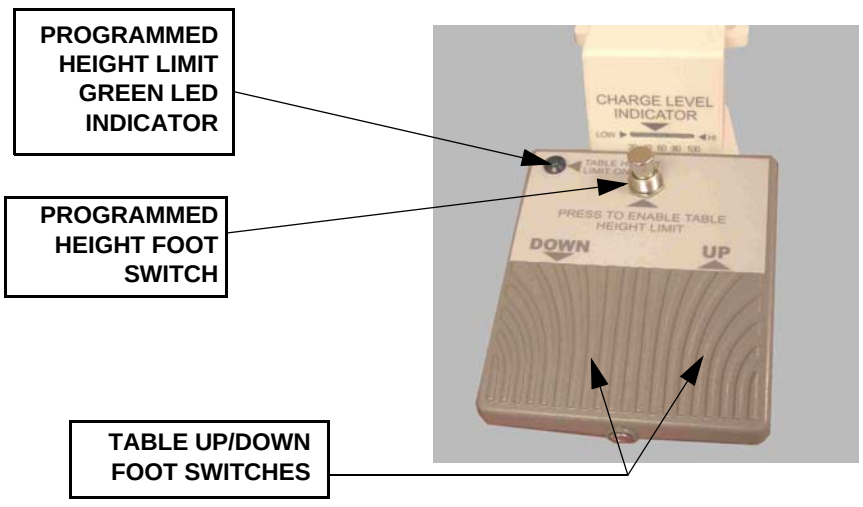

Figure 3-12. Error Enunciator LED Display

Depressing the Right, **Table-Up** foot switch directs the system to raise the Tabletop; the Left, **Table-Down** foot switch lowers the Tabletop.

Under normal conditions the Tabletop will drive up to the Upper Limit or down to the Lower Limit where the controller will stop the motion automatically, as does releasing the Foot Pedal Controls. Lift and descent from limit-to-limit will require approximately 11 seconds to traverse the full range of 11 inches and should not vary appreciably with battery charge level, direction of travel, or patient load.

Programmed Height Operation

Depressing the *Programmed Height foot switch* (see Figure 3-12) alters the upper limit of the tabletop travel to a user-programmable upper limit. This feature is particularly useful when the table is used in conjunction with fixed position receptor systems; it aids the operator in quickly achieving the proper tabletop height relative to the image receptor and x-ray tube, at the chosen SID.

When used with moveable receptor systems, it provides an initial pre-set to which the patient is raised as a starting point for final positioning.

When this mode is activated, the green *Programmed Height Limit LED* indicator on the Foot Control will illuminate and the controller is instructed to not allow upward travel when the table top is above the programmed height. Once this position has been achieved, the only allowable vertical motion is down. This has the effect of trapping the table top between the lower limit and the “Programmed Height Limit”.

De-activate the “Programmed Height Limit” feature by depressing the Programmed Height foot switch a second time; the green Programmed Height Limit LED is extinguished and the table is returned to full travel operation.

The procedure to set the “Programmed Height Limit” is as follows:

1. Press the Programmed Height foot switch if necessary to extinguish the green Programmed Height Limit LED.
2. Use the Table Up and/or Table Down foot switches to position the table top to the height which is to be the “Programmed Height Limit”.
3. Push in and activate the Emergency Stop Switch
4. Press the Programmed Height foot switch once. The green Programmed Height Limit LED is now illuminated.
5. Within 30 seconds, press the Table Up foot switch six times. A beep will be sounded to signify that the new height limit has been successfully programmed.
6. Release the Emergency Stop Switch (turn red knob clockwise one-quarter turn).
7. The table now has a new height limit.

THE LASER AND LASER SENSOR

To protect the Image Receptor the Radiographic Table is equipped with a Class II Solid-State Laser. While the table is Awake a visible red beam travels just below and parallel to the table, from Column-to-Column (see Figure 3-13).

When interrupted an Alert will Sound, and the controller will Stop and Inhibit further downward table motion before contact with the receptor can be made. Once activated, only upward motor drive is permitted.

Caution! This unit utilizes a low power Class II Laser to produce an alignment beam. Do not stare directly into the beam.

THE TABLE MECHANICAL OBSTRUCTION SWITCHES

In addition to the Laser and Laser Sensor, the radiographic table is equipped with three Mechanical Obstruction Switches located at the Left-Rear, Right-Rear and Right-Front corners, just below the Tabletop as shown in Figure 3-14.

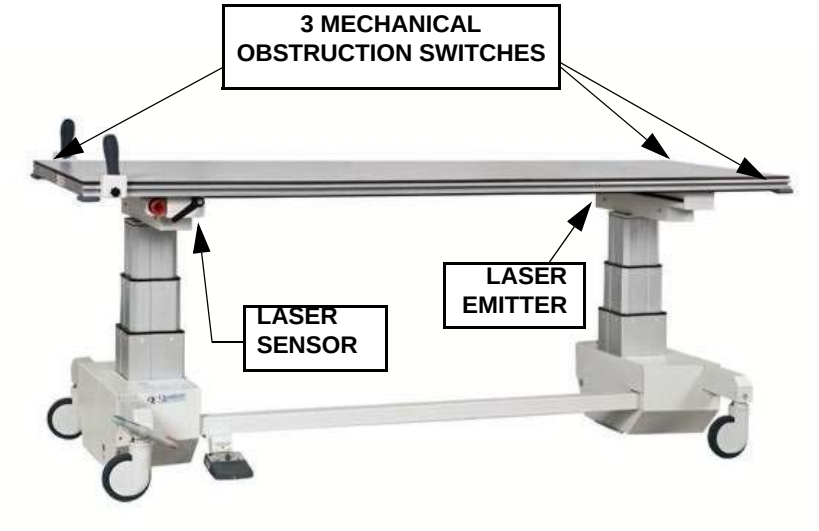

Figure 3-13. Table Laser and Mechanical Obstruction Sensors

If the table is lowered onto an object causing the removable Tabletop to lift from the Float-Top Frame, an alert will sound, and the Mechanical Obstruction Switches will stop and inhibit any further downward motion. Only upward motor drive is then permitted.

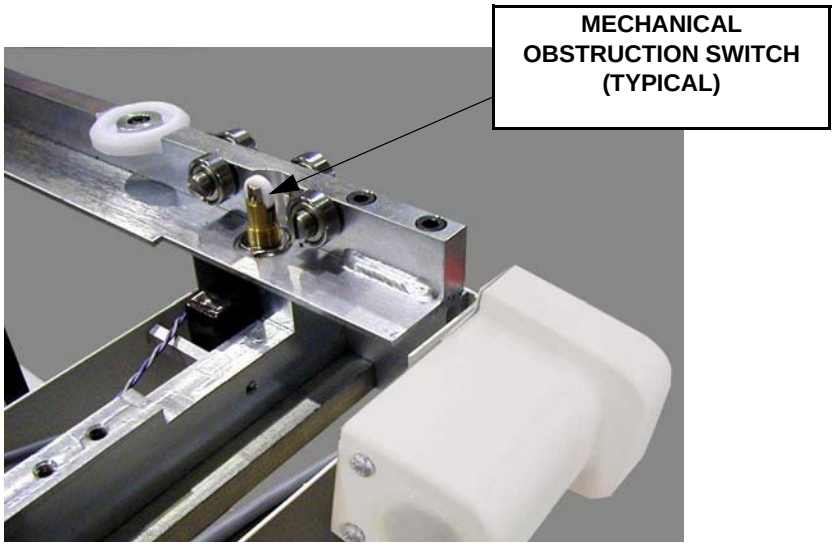

Figure 3-14. Table Top Removed to Show Mechanical Obstruction Sensor

TABLE OPTIONS

Refer to the user instructions provided with the Lateral Cassette Holder (QT-LCH) and Abdominal Compression Band (R90-CB) to use these optional accessories with the Radiographic Table.

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Chapter 4

USER MAINTENANCE

MAINTENANCE OVERVIEW

The Radiographic Table is designed to function reliably for many years with minimal attention from the user. Scheduled Maintenance procedures are prescribed in the QT-711-EV Service Manual. Scheduled service is a basic requirement for maintaining the warrantee and is the responsibility of both the end user and your local Servicing Dealer.

WARNING! Only properly trained medical systems service personnel should service or maintain this equipment. Failure to follow QMI recommendations may result in serious bodily injury.

WARNING! Do not remove table covers or open the Base Charger; NO USER-SERVICEABLE PARTS INSIDE. Refer servicing to qualified personnel.

USER MAINTENANCE

CAUTION! Never use an abrasive polish on this equipment.

The user is solely responsible for maintaining the cleanliness of this equipment. The Phenolic Tabletop surface is non-porous and should be continuously wiped clean and sanitized after each use. The painted metal surfaces of the table may be cleaned using a cloth lightly moistened in warm mild soapy water, then wiped with a clean wet cloth and dried.

The exterior surfaces of the Table External Base Charger may be wiped down with a damp cloth. Unplug the Base Charger from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleansers. When not in use, the charging cord should be fully retracted.

SCHEDULED MAINTENANCE

Regular inspection and maintenance of the Radiographic Table should be performed by qualified service personnel on an annual basis, in accordance with the engineering procedures specified in the Installation and Service Manual.

Generally Recommended Adjustments and Procedures:

- Check operation of the Wheels, Casters, Wheel Locks, and Caster Locks.
- Confirm operation of Steering, all Foot Pedal Controls, and Indicators.
- Inspect the entire table for loose hardware or loose fit.
- Inspect all bearings and bearing surfaces for corrosion and cleanliness.
- Visually inspect the Lift Actuators for signs of wear or damage.
- Check operation of Float-Top Table Lock and Lock Release Lever.
- Confirm operation of Laser Sensor and Mechanical Obstruction Switches.

- Confirm operation of the Emergency Switch and Indicator.
- Inspect the Table External Base Chargers, Charging Cords & Connectors, and the Table DC Power Input Socket.

BATTERY MAINTENANCE

If it is anticipated the table will not be used for an extended period of time, the following guidelines should be followed to improve battery life and, hence, reliability:

- Fully charge the table batteries at least once every 8 to 10 weeks
- Elevated temperatures during storage (or use) seriously affect the battery life; temperature during storage should be between 10°C (50°F) and 45°C (113°F).

BASIC TROUBLESHOOTING

If for any reason the table should fail to elevate or descend properly:

- Examine the area for Mechanical Obstructions, and
- Take note of any Audible Alerts

A single alert accompanied by a yellow error pattern "**00011**" on the Battery Charge Indicator indicates the laser beam has been interrupted. Until the receptor or other obstruction between the Lift Actuators is removed or lowered, only upward motor drive is permitted.

A continuous alert accompanied by a yellow error pattern "**00010**" on the Battery Charge Indicator indicates one of the Mechanical Obstruction Switches has been activated. Raise the table and clear the obstruction. If the tabletop was dislodged, it may need to be repositioned squarely upon its frame and firmly pressed down along the edges onto its seal, to restore normal operation.

If no audible alerts were heard and no obstructions exist: Examine the Emergency Stop Switch and confirm the status of the Red LED Indicator, as shown in Figure 3-11. If it is:

ON - and steadily illuminated, accompanied by a yellow error pattern "**00001**" on the Battery Charge Indicator, the system is in the Emergency Stop Position. Grasp the switch's knob and twist it clockwise and allow it to spring outward to release. The Red LED should extinguish and normal functions be restored.

OFF - attempt to Awaken the system by briefly depressing one of the Table Foot Control Switches, then confirm the state of the Battery Charge Indicator:

1. If all the LEDs are Red or all segments are dark, the battery is nearly discharged and the system is intentionally inhibiting motion. Attach the Charger and commence a charging session to restore normal operation. Verify the External Base Charging Power Supply is plugged-in, turned ON and its AC

switch is illuminated. The Charge Level Indicator will illuminate steadily while charging, and display the current level of charge.

2. If the Indicator shows the battery is ready, by conforming to one of the allowable patterns illustrated in Figure 3-9:

   a. Confirm the status of the Programmed Height Mode Switch by observing the Programmed Height - Green LED Indicator. If the LED is ON - Depress the Programmed Height Mode Switch once to extinguish the LED and restore the maximum range of vertical table motion. It should now be possible to raise the tabletop to the Upper Limit, away from the object inhibiting motion. Remove the obstruction or relocate the Image Receptor to a lower height before re-enabling the Programmed Height Mode. If the LED is OFF - Proceed with step 3, below.

3. If any LED segment is yellow, or the display exhibits a pattern that fails to conform to one of the allowable patterns illustrated in Figure 3-9, an *Error Condition* exists.

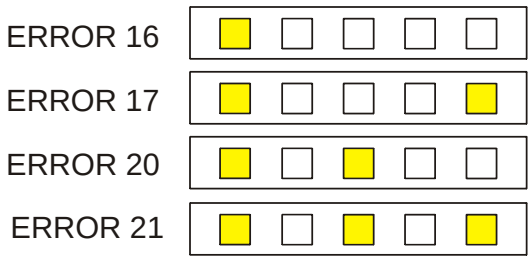

Figure 1-1. Error Codes Correctable by Lift Calibration

In the event an error code pattern shown in Figure 4-1 is displayed, perform the Lift Calibration Procedure as follows:

WARNING! Do not perform the following procedure with a patient on the table or with any objects under the table top.

Depress the Table Down foot switch and hold it until Lift Calibration begins, approximately 10 seconds after the lower limit is reached. Lift Calibration executes automatically and completes in less than two seconds. It is indicated by a short beep followed by a short up-down calibration motion, then a long beep which signals completion. Release the foot switch and verify normal operation has been restored.

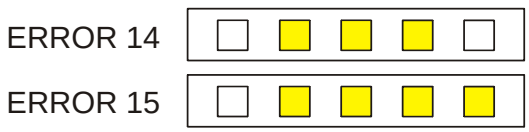

Figure 1-2. Error Codes Correctable by Extended Calibration

In the event an error code pattern shown in Figure 4-2 is displayed, perform the Extended Calibration Procedure as follows:

WARNING! Do not perform the following procedure with a patient on the table or with any objects under the table top.

Within 30 seconds, alternately press the Programmed Height foot switch then the Table Up foot switch a total of six consecutive times, then press and hold the Table Down foot switch. For example:

- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Up foot switch
- Press the Programmed Height foot switch
- Press the Table Down foot switch and hold for 10 seconds

Activation of Extended Calibration is signaled by a single short beep. The table top will lower to the bottom limit of downward travel, then elevate to the top travel limit (while the down switch is held). When it reaches the top, a beep will sound to indicate the end of Extended Calibration. Release the foot switch and verify normal operation has been restored.

4. If All of these steps fail to restore normal operation, or you experience any aberrant behavior, please contact your local Servicing Dealer for Field Service assistance and/or the QMI Technical Support and Service Department for more information.

Quantum Medical Imaging, LLC.
2002-B Orville Drive North
Ronkonkoma, NY 11779 USA
(631) 567-5800 (x2) (631) 567-5074 fax
service@qmiteam.com

Chapter 5

WARRANTY INFORMATION

WARRANTY STATEMENT

Quantum Medical Imaging, LLC (herein after known as "QMI") warrants to the buyer that any new product manufactured by QMI will be free from defects in material and workmanship, and will substantially conform to the applicable specifications in effect on the date of shipment when subjected to normal, proper and its intended use by properly trained personnel. QMI shall be the sole judge in determining whether said equipment or component is defective by reason of manufacture.

All QMI products shall be so warranted for a period of 12 months from the date of original installation, such date to be evidenced by means of a completed Warranty Registration Form provided in the Operator's Manual, and returned to QMI within 30 days of installation. In no case shall the warranty extend beyond 15 months from the date of shipment. If the warranty registration form is not so returned to QMI, the warranty period will be deemed to have commenced on the date of shipment (Invoice Date) and extend for a period of twelve months. The buyer should submit only one such form per system or major component purchased.

Replacement components furnished by QMI to the Buyer/Dealer during the warranty period shall be warranted for the remainder of the original product warranty or 90 days, whichever is longer. This warranty extends only to the original purchaser and is not transferable unless expressly authorized in writing by Quantum Medical Imaging, LLC.

Products manufactured by parties other than QMI, whereby QMI acts solely as distributor or reseller, are warranted exclusively by their manufacturers according to each of their independent warranty terms and conditions.

Warranty consideration can only be given for defective QMI products properly returned to the factory in accordance with the QMI Returned Materials Procedure. Please refer to the Dealer Price Book or contact QMI Customer Service for more information at:

Quantum Medical Imaging, LLC
2002-B Orville Drive North
Ronkonkoma, N.Y. 11779 USA

631 567-5800 voice
631 567-5074 fax
service@qmiteam.com

WARRANTY EXCLUSIONS

The foregoing warrantees are exclusive, and in lieu of all other warrantees, whether written, oral, express, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. Quantum Medical Imaging, LLC Warranty is exclusive of:

1) Failure of the Buyer/Dealer to prepare the site and operating environment in accordance with applicable instructions and recommendations of QMI.

2) Failure of Buyer/Dealer to provide the proper incoming power required to support the equipment in accordance with the requirements of QMI.

3) Modification of QMI products performed by a party other than QMI.

4) Combining products deemed by QMI to be incompatible.

5) Improper or extraordinary use of a product, improper maintenance of the product, or failure to comply with any applicable instructions and recommendations of Quantum Medical Imaging, LLC.

6) Misuse, abuse, tampering, or negligent storage or handling of a product by the Buyer, its employees, agents, or contractors.

7) Fuses, glassware, high voltage cables and other items deemed by QMI to be expendable.

Acts of God, fires, floods, power failure or electrical power surges. Strikes, sabotage, labor disturbances, war, riots, acts of civil or military authority, or other causes beyond the reasonable control of QMI.

Installation, routine troubleshooting, and repair, are also excluded from warranty. Technical service and maintenance is the responsibility of the Dealership selling the equipment.

The Manufacturer is hereby relieved of all responsibility for damage during shipment of the product following the freight carrier's pick-up for transportation to the delivery point.

EQUIPMENT IN TRANSIT

QMI assumes no responsibility for equipment damaged in transit to or from QMI. To protect the Buyer/Dealer, the receiver of any equipment should examine all cartons and crates carefully at the time of delivery. If damage is apparent, make a notation on the delivery receipt, request an inspection by the freight carrier, and if applicable, file an appropriate carrier claim. Should concealed damage be detected, immediately notify the carrier and request an inspection. The purchaser (Buyer/Dealer/Customer) is fully responsible for the filing of freight damage claims with the freight carrier.

QMI assumes no responsibility for any loss or damage to products once they have been shipped from our factory. As such, the Buyer/Dealer and Customer remain fully responsible for payment to QMI of all invoices, according to our standard payment terms, regardless of freight damage or processing of an insurance claim, by the dealer or customer.

WARRANTY RETURN PROCEDURE

A fully completed Field Returned Material Evaluation Form must be returned with any defective product or any returned item. All returns must include the Serial Number of the Equipment and the Specific Part Number written on the Field Returned Material Evaluation Form. All freight charges resulting from Warranty Returns are the responsibility of the Buyer/Dealer.

BUYER'S REMEDIES

If QMI determines that a product fails to meet any specification during the applicable warranty period, QMI shall correct any such failure as follows:

A) By repairing, adjusting, or replacing any defective or non-conforming component or product.

B) By making available any necessary repair or replacement parts or assemblies for exchange.

Quantum Medical Imaging, LLC shall have the option to furnish either new or rebuilt replacement parts or assemblies for exchange. All returned parts shall become the property of Quantum Medical Imaging, LLC upon exchange.

The preceding paragraphs set forth the Buyer's sole remedies and QMI's sole liability for claims based upon failure of the product to meet any warranty, whether the claim is on contract, warranty, tort (including negligence and strict liability) or otherwise, and however instituted.

Upon the expiration of the applicable warranty period, all such liability shall terminate. In no event shall QMI be liable for special or consequential damages arising out of the use of, or inability to use its equipment, whatsoever.

The warranties and remedies available to the buyer are conditioned upon claims under this warranty being made in accordance with the aforementioned warranty statement.

VOIDING WARRANTY

Tampering with, or any attempt at installation, maintenance, repair, service, relocation, or alteration of or to a QMI product, when performed by any person or entity other than Quantum Medical Imaging, LLC or its Certified Dealer without the written approval of an Authorized Person at Quantum Medical Imaging, LLC, shall immediately Void and Cancel all warrantees with respect to the affected product.

Chapter 5 Warranty Information

Please complete the Warrantee Registration Form on the opposite page >>>

Mail or fax it to:

Quantum Medical Imaging, LLC
2002-B Orville Drive North
Ronkonkoma, N.Y. 11779 USA

567-5800 voice
567-5074 fax
service@qmiteam.com

WARRANTY REGISTRATION FORM

Name of Owner _____

Name of Facility _____

Address 1 _____

Address 2 _____

City _____ **State** _____

Country _____ **Zip** _____

Telephone ___ (___) _____ **Fax** ___ (___) _____

E-mail _____ @ _____

Dealer/Distributor _____

Date of Installation _____

Please Identify the Equipment Installed:

	Model	Serial
☐ HV Generator	_____	_____
☐ HV Cables	_____	_____
☐ X-Ray Tube	_____	_____
☐ X-Ray Tube Stand	_____	_____
☐ Collimator	_____	_____
☐ Table	_____	_____
☐ Wall Stand	_____	_____
☐ Image Receptor	_____	_____
☐ _____	_____	_____

Please complete the Warrantee Registration Form and Mail or Fax to:

Quantum Medical Imaging, LLC
2002-B Orville Drive North
Ronkonkoma, N.Y. 11779 USA

631 567-5800 | 631 567-5074 fax

Chapter 5 Warranty Information

Complete the Warranty Registration Form on the Reverse Side of This Page