



*Surgery Exam Chairs & Tables*

**Installation and Operation  
Manual  
for  
MTI 409/410 Exam/  
Treatment Tables**



*Model 410*



*Model 409*

# CONTENTS

|   |    |
|---|----|
| <b>GENERAL INFORMATION</b> .....            | 2  |
| Purpose of this Manual .....                | 2  |
| Intended Use of this Product .....          | 2  |
| Explanation of Symbols .....                | 2  |
| Transportation and Storage Conditions ..... | 2  |
| <b>INSTALLATION</b> .....                   | 2  |
| Unpacking.....                              | 2  |
| General .....                               | 3  |
| Upholstery Installation .....               | 4  |
| Controls and Features.....                  | 5  |
| Explanation of Controls.....                | 5  |
| <b>OPERATION</b> .....                      | 5  |
| Manual Back Release.....                    | 5  |
| Electrical Lock-Out.....                    | 6  |
| Coded Lock-Out.....                         | 6  |
| Foot Controls: Standard.....                | 6  |
| Foot Controls: Programmable.....            | 6  |
| <b>CLEANING AND DISINFECTION</b> .....      | 6  |
| Upholstery.....                             | 7  |
| Painted Surfaces.....                       | 7  |
| Plastic Components.....                     | 7  |
| <b>FUSE REPLACEMENT</b> .....               | 7  |
| <b>MAINTENANCE</b> .....                    | 7  |
| <b>TROUBLE SHOOTING</b> .....               | 7  |
| <b>SPECIFICATIONS</b> .....                 | 8  |
| <b>ACCESSORIES</b> .....                    | 10 |
| <b>WARRANTY</b> .....                       | 11 |

# GENERAL INFORMATION

## Purpose of this Manual

This manual covers the instructions for the installation and safe operation of this power exam and procedure table. It is intended that it be used by the person(s) installing the equipment and by the medical professionals using it. No repair information is included with this manual, because no operator repairs are intended.

## Intended Product Use

This chair/table is intended to be used as a chair or a table for general examinations and procedures performed by medical professionals.

## Symbols and Warnings

This manual contains Notes, Cautions and some Danger information which are meant to call attention to particular parts or sections of this manual. Since, safety is our first concern, this manual should be read by all personnel who will be operating or placing patients in this chair.

◆ **NOTES:** are used to call attention to a condition, practice or procedure.

▼ **CAUTIONS:** are meant to call attention to a condition, practice or procedure which could cause product damage if not used correctly.

■ **DANGER:** is used to call attention to any of the above which could cause personal injury if not followed correctly. Please become familiar with all danger warnings and observe them at all times.

 Indicates Class 1, Type B, medical equipment.

 Indicates the proper shipping orientation for the product.

 Indicates that the product is fragile; be careful in handling.

 Indicates a protective earth ground.

 Indicates alternating current.

 Indicates the unit duty cycle of 10%, example (1) minute on (9) minutes off.

 Indicates that the product must be kept dry.

 Indicates the minimum and maximum storage temperatures for the unit.

**2**  
 Indicates the maximum stacking height of palletized units.

 Indicates the presence of a dangerous voltage/shock hazard.

 Indicates the operators manual should be consulted for important information.

## Transportation And Storage Conditions

Ambient Temperature Range: 0°C(32°F) to 44°C (110°F)

Relative Humidity..... 10° to 90° (non-condensing)

Atmospheric Pressure..... 500 hPa to 1060 hPa (0.49atm to 1.05atm)

## INSTALLATION

### Unpacking:

### READ THIS MANUAL BEFORE INSTALLATION!

IF THIS CHAIR HAS BEEN EXPOSED TO LOW TEMPERATURES, ALLOW ADEQUATE TIME FOR IT TO WARM TO ROOM TEMPERATURE BEFORE PUTTING INTO SERVICE. INSPECT THE SHIPPING BOXES FOR VISIBLE DAMAGE. RECORD, PHOTOGRAPH AND REPORT ANY DAMAGE TO THE CARRIER IMMEDIATELY. REQUEST AN INSPECTION BY THE CARRIER IF ANY CONCEALED DAMAGED IS NOTED.

You will need the following to unpack and assemble your new MTI chair: wire or sheet metal cutters to cut banding; 7/16" open or closed box end wrench (also a 5/8" open or closed wrench and set of allen wrenches, if a light post is ordered); a utility knife or blade to open the upholstery box, and a medium flat blade screw driver.

1. Open the small upholstery box using the utility knife with the blade only slightly exposed, to avoid upholstery damage, while opening. Inspect the upholstery carefully for any damage. There should be one back cushion, one back/seat cushion flap, one seat cushion, one clear plastic scuff cover and one decorative upholstery strip.

2. Cut the banding on the chair pallet, lift and remove the corrugated box being careful not to scrape the chair inside.

3. Using the 7/16" wrench or an adjustable wrench, loosen the four nuts and remove them, along with the wooden slats holding the base to the wood pallet.

■ ***This equipment is heavy, get help to remove it from the shipping pallet. Use proper lifting procedures when lifting to avoid serious back injury.***

4. Remove the foot control from its corrugated enclosure.

▼ ***Avoid lifting the chair from the top of the back and the foot end of the seat. All lifting of the chair should be done from the sides of the chair if possible. Carefully, lift and slide the chair and base to and past the side edge of the pallet. If the installation location is on a vinyl or hard tile floor, a piece of carpet or other material should be placed beside the pallet to act as a cushion and protect the flooring.***

5. The chair back is shipped with the back laying over on the seat. On Model 409, grasp the top of the back, lift and lay it back down until it is in the same plane as the seat. Note the two attachment holes in the male clevis located on the lower rear of the of the back. Line-up the two sets of holes in

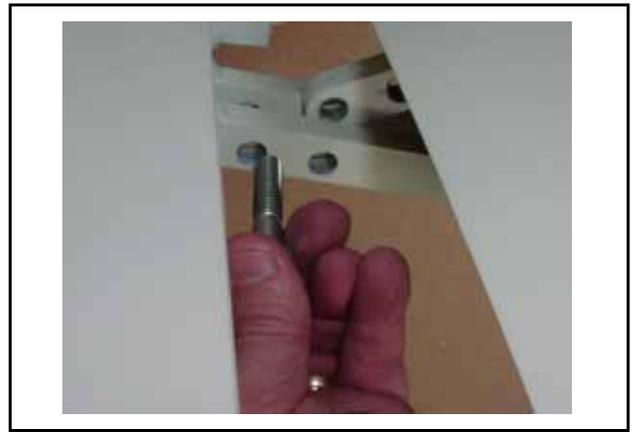


Figure 1

the female clevis on the seat. Insert the one of (2) 3/8-16 x 2" hex bolts through each hole and affix the bolts with the (2) 3/8-16 hex lock nuts supplied. **(Figure 1)**

On Model 410, raise the back up to approximately 80 degrees vertical to the floor. Remove one of the e-ring fasteners from the precision pin located in the hole at the end of the back gas spring actuator. Line the twin female clevis up with the male clevis of the gas spring and insert the pin. Slight side to side wiggle of the gas spring shaft may be necessary as the pin is inserted. Once the pin is through the opposite side of the female seat clevis, snap the remaining e-ring fastener into the slot on the pin. **(Figure 2)**



Figure 2

6. Aligning tabs of the male plug of the foot controller with the receptacle at the lower rear of the chair base, **(Figure 3)** secure the plug from the foot switch by rotating the locking ring clockwise until it engages and then stops.



Figure 3

▼ *Alignment only requires slight pressure, do not force the male plug into the female receptacle of the base as damage to one or both plugs can occur.*

7. Your MTI chair is equipped with a separate three-wire electrical supply cord with grounded male plug cap and IEC320 female plug to the chair. Plug the chair power cord into the chair and attach the surge protector and then to an appropriately protected 115/60 or 230/50 Volt AC grounded outlet. The AC (alternating current) input is transformed to 24 volts and then rectified to DC (direct current) just after the power enters the chair base.

▼ *Each MTI chair has a circuit board. The included surge protector must be used to protect the board. Warranty is void if this surge protector is not used.*

■ *Do not use a two-three plug adapter to plug the MTI chair into a two conductor outlet, as grounding reliability is not then maintained.*

■ *Do not operate your MTI chair in the presence of flammable anesthetics.*

⚡ *The supply cord may be used to simultaneously isolate both poles of the power supply by removing the power supply cord at the chair input or wall receptacle.*

⚡ *The electro magnet on any optional electro magnetically operated swivel base has been evaluated for potential electro magnetic interference and health risks and found NOT to present any potential problem.*

## **Upholstery Installation**

1. All cushions and the foot section scuff cover attach to the chair with Velcro for easy installation and removal. Align all cushions and Velcro strips with those on the chair metal section substrates. Before attaching the back and seat cushions, lay the chair back down flat on model 410 only.

Lay the seat section on the seat substrate such that the back of the seat is butted up against the back/seat hinges with equal overhang on each side. *There is a rear and a front orientation to the seat.* Note, the seam line curves down on the end of the seat which butts up against the hinges. Place the back section upholstery 90 degrees vertically at the rear of the seat section and attach the seat section flap to the Velcro strip on its back side. **(Figure 4)**



Figure 4

Lay the back upholstery down on the back substrate and position it with approximately one half of an inch overhang at the top. Make sure there is equal overhang on each side. Make sure the flap fold is biased toward the top side of the cushion so that the flap fold does not fold inward as the back is raised.

⚡ *Allow the chair to come to room temperature to get maximum performance from it. Prolonged storage at low temperatures can make the*

*operation slow down until the motors have warmed up.*

## Controls and Features

A manual non-programmable single function foot control is standard. **(Figure 7)** An optional programmable single position foot control is available. **(Figure 8)**

Both manual and programmable foot controls have an auto return or dismiss position to allow for quicker and safer patient entry/exit.

A manually adjustable backrest is provided to position the patient's head forward or backward for the best patient comfort and most efficient position.

## Explanation of Control

*Lift up pedal* -when pressed the entire table top rises.

*Lift down pedal* -when pressed the entire table top lowers.

*Back release button* (410 model only) -when pressed the back section raises without weight against it and lowers when depressed with weight applied against it. The gas spring counterbalances various weights depending on where and how much weight is applied to it.

*Auto "Return" button* -when pressed automatically the table top lowers to the lowest position.

*"Stop" Button* -when pressed it immediately stops any table movement when in the automatic mode. In addition, touching any other button when the table is in auto return or proceeding to a program position will stop.

*Optional Programmed Position* -when pressed the table top automatically moves into the position which has been stored in the memory for that particular button. Button only requires momentary depression.

*Optional "Enter" Button* -is used in conjunction with the Programmable Button to memorize a

particular position.

# OPERATION

## Manual Back Release

Both MTI 409 and 410 Model tables have an electrically actuated gas spring release system. The push button controlling the gas spring is located on both side of the back near the top. **(Figure 5)** The gas spring helps counterbalance the table back on the way down and helps raise the patient when going up. Push the button to unlock the gas spring while with the other hand helping to lower or raise the back.



Figure 5

## Electrical Lock-Out

Because your new MTI chair has electronic components which can be interfered with by lightening and certain EMI (electromagnetic interference) and RFI (radio frequency interference), a total system lock-out has been



Figure 6

installed. To completely block all interference with the chair from all outside sources, move the toggle switch located on the lower right corner of the base cover to the "OFF" position. With the switch in the "OFF" position no movement is

possible. (Figure 6)

## Foot Controls

### Coded Lock-Out

Your MTI chair/table has a control switch lockout system in it that can be set by the operator to preclude unwanted operation of the chair through the acts of children or from accidental actuation by staff. To preclude operation, depress the stop switch and at the same time depress the lift switch button in the up direction. The order of actuation may be reversed. The chair controls will now not be function until they are unlocked.

To unlock the chair controls, depress the stop switch and at the same time depress the lift switch button in the down direction. This order of actuation may also be reversed. The chair should immediately be operational.

### Standard Foot Switch w/auto return and stop

The power controls for your MTI chair are power lift only (Figure 7) Auto return and stop are standard on both 409 and 410 models. The operator places their foot in the middle of the pedal and rocks from side to side in the direction of the arrow for each individual function.



Figure 7

The “Return” button is used to automatically return the chair from any position to the fully lowered (exit) position.

### Optional Programmable Foot Switch w/single position function and auto return

▼ *The Programmer has permanent memory and recalls any program position previously entered. Upon initial installation, it is recommended that each program switch be programmed so that it is*

*known what the chair will do when a program switch is activated.*

The power controls for your MTI chair with programmable positioning are power lift only. (Figure 8) Auto return and stop, enter and Prg. 1 2 are located across the top of the foot control. The “Return” button is used to automatically return the chair from any position to the fully lowered (exit) position. The “Stop” button will cancel the return command or program command at any time. In addition, touching the lift function pedal in any direction will also cancel the return or program position command.

Depress the auto return button and wait for chair to return to the exit position. Place the operator’s foot in the middle of the pedal and rock from side to side in the direction of the arrow for each individual function. When the chair is in the desired memory location, depress the enter button

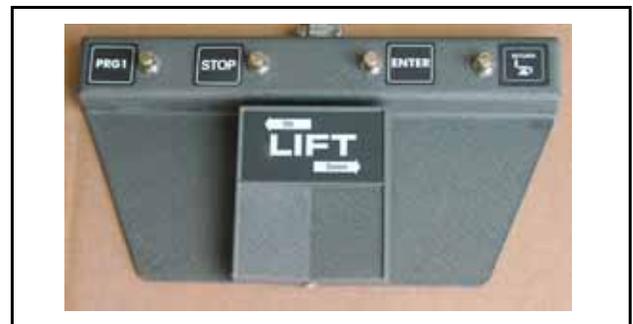


Figure 8

The chair may be driven from Prg. 1 to return, manually adjusted during procedure and then

returned to the preset position or returned to home. New positions can be programmed in at any time and then Prg. 1 switch depressed to memorize that particular position.

## CLEANING AND DISINFECTION

### Upholstery

The upholstery used to cover your new MTI chair has been manufactured to be resistant to many types of fluids and stains, however it can be damaged by some dyes and solvents as well as sharp or pointed objects.

▼ *Avoid contact with sharp or pointed objects. Do not place hard surface objects such as the arm locks on the cushions surfaces as temporary indentations or impressions in the upholstery cover will result. Prolonged contact with a hard or irregular shaped object may make the impression semi permanent.*

Should anything be spilled or otherwise applied to the upholstery surface, it should immediately be wiped up, and at an appropriate time, cleaned using a quality grade of vinyl cleaner, such as Spartan #SD-20.. A weekly cleaning with this same cleaner will keep the upholstery of your new MTI chair new looking for years to come. If disinfection is required, a product such as Vesphene, manufactured by Steris Corporation, can be used. Vesphene is sprayed on the vinyl surfaces and wiped up immediately, or wiped on the metal surfaces of the chair, which are likely to come into contact with the patient or operator. Follow the manufacture's instructions for dilution and additional application techniques.

▼ *Any sprayed disinfectant or cleaning solution should be wiped up immediately after application and not let to stand.*

### **Painted Surfaces**

All painted metal parts have been electrostatically painted and the paint is baked on for durability. Weekly, those surfaces should be wiped down with Spartan Cleaner and a soft cloth.

### **Plastic Components**

Any plastic component such as the chair back covers, arm bottom covers and the base cover should be cleaned regularly with a quality grade of plastic cleaner and soft cloth or towel. Avoid prolonged direct sunlight exposure to preclude color change of the plastic.

◆ *The same disinfecting procedure can be followed for painted or plastic parts as that for the upholstery.*

## **FUSE REPLACEMENT**

There are two Slo-Blo glass fuses on the inlet of the chair from the power cord. Those fuses can be

accessed for inspection or replacement by unplugging the power cord from the chair. At the bottom of the chair power cord receptacle there is a twin fuse compartment. With gentle thumb pressure down and backward, pull the fuse tray out of the bottom of the receptacle to expose the two fuses. See Specifications Section for the exact replacement fuse parameters

## **MAINTENANCE**

All moving parts of this chair should be inspected annually by a qualified service technician. Those moving joints and pins should be lubricated every two to four years with a quality grade white grease. Do not lubricate the patient or IV arm locks as they require friction to operate properly.

## **TROUBLE SHOOTING**

Chair does not work- Check "Electrical Lock-Out", it should be in the "ON" position.

Check "Coded Lock-Out," by simultaneously pressing the lift down and the stop button.

Check power cord to make sure chair is plugged in.

Check fuses, replace if necessary.

Check wall or floor receptacle with known appliance.

Check foot control cord, that it is properly plugged into the receptacle, and that the locking ring on the plug is rotated fully clockwise.

■ *No user service except fuse replacements are intended by the operator. Refer all servicing to a qualified service person to perform in a safe and efficient manner.*

# SPECIFICATIONS

See attached Sheet

***Note:***

For more information on this chair, including circuit diagrams, parts lists and other descriptions, please contact Medical Technology Industries, Inc. (MTI), 3555 West 1500 South, Salt Lake City, UT 84104, 801-887-5114, fax 801-952-0548,

[www.mti-inc.us](http://www.mti-inc.us)

# SPECIFICATIONS

|   |  |
|---|--|
| <b>Patient Weight (Maximum)</b>               | 500 lbs (227.2 kgs)  |
| <b>Weight of Table</b>                        | 385 lbs (175.0 kgs) w/o accessories  |
| <b>Back Section Range</b>                     | 0°(horizontal) to 85° ± 5°   |
| <b>Table Top Range</b>                        | 18.5 in. ± 0.5 in. to 36.5 ± 0.5 in. (46.9 ± 1.3 cm to 92.7 ± 1.3 cm)  |
| <b>Foot Controls</b>                          | Rated Drip Proof   |
| <b>General Dimensions ± 0.5 in ( 1.3 cm):</b> | 26.0 in. (66.0 cm) wide x 73 in. long (185.4 cm)   |
| Power Cord                                    | 6 ft. 7 in. (201 cm) long. A jacketed molded cord to fit IEC appliance inlet   |
| <b>Electrical Ratings:</b>                    | 115 VAC ±10%, 4 amps, 60 HZ<br>230 VAC ±10%, 2 amps, 50 HZ   |
| <b>Fuse Replacement:</b>                      | PC Board: 32 V, 20A, Fast Acting<br>At power cord inlet: 250 V, 4 A Slo Blo, on 115 V<br>250 V, 2 A, Slo Blo, on 230 V |
| <b>Duty Cycle</b>                             | Intermittent Operation, 10% Duty Cycle, example (1) minute on (9) minutes off  |
| <b>Classification</b>                         | Class 1, Type B Equipment, Ordinary Equipment, Intermittent Operation  |
| <b>Listing/Approvals</b>                      | ETL, UL2601-1, 2 <sup>nd</sup> Edition, CAN/CSA-C22.2 No. 601.1-M90, CE  |

# ACCESSORIES

| <u>Accessory Name</u>     | <u>Order Number</u> | <u>Intended Use/Restrictions</u>  |
|---------------------------|---------------------|---|
| Programmable Foot Control | FC4704 & FC4706     | <b>Use</b> -to automatically position table to a preset position.   |
| Seat Rails and Back Rails | SR430 & FR430       | <b>Use</b> -to provide a mounting platform for other accessories.   |
| Accessory Outlet          | AO-1                | <b>Use</b> -to provide power to HS-400 exam light<br><b>Restrictions</b> -do not plug any other light into outlet |
| Mobile Caster Cart        | MCC                 | <b>Use</b> -to provide mobility with little increase in minimum height.   |
| Mobile Caster Base        | CMB                 | <b>Use</b> -to provide mobility with 5 ½" (14 cm) increase in minimum height and caster jacks and brakes.         |

**Part No. 073005 Rev. Org.**