

# GLOBAL

SURGICAL™ CORPORATION

## OWNER'S MANUAL

**SMR® MAXI S 4000 EXAMINATION CHAIR**



### S 4000

When contacting Global Surgical Corporation for either Customer Service or Technical Service, it will be helpful if you have your **Customer Identification Number and your Customer Order Number** available. Please take a moment to record these numbers (printed on invoice) in the spaces below.

**Customer Identification Number:** \_\_\_\_\_

**Customer Order Number:** \_\_\_\_\_



S U R G I C A L <sup>TM</sup> C O R P O R A T I O N

**3610 TREE COURT INDUSTRIAL BLVD.**

**ST. LOUIS, MO 63122**

**1-800-861-3585**

**IF OUTSIDE THE USA:1-636-861-3388**

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# TABLE OF CONTENTS

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<b>Section 1 Important Safety Instructions</b> .....	<b>1-1</b>
1.1. Symbol Definitions .....	1-1
1.2. Warnings and Cautions .....	1-2
<b>Section 2 General Information</b> .....	<b>2-1</b>
2.1. Description.....	2-1
2.2. Optional Equipment .....	2-2
2.3. Unpacking Instructions.....	2-3
<b>Section 3 Installation</b> .....	<b>3-1</b>
3.1. Installation of the Chair.....	3-1
3.2. Installation of the Optional Footswitch .....	3-2
<b>Section 4 Operation</b> .....	<b>4-1</b>
4.1. Power On Procedure .....	4-1
4.2. Key Pad Functions .....	4-1
4.3. Headrest .....	4-5
4.4. Armrest .....	4-10
4.5. Footrest .....	4-11
4.6. Chair Footswitch (optional) .....	4-12
4.7. Positioning of patient: .....	4-12
4.8. Chair Positions .....	4-13
4.9. Power Off Procedure .....	4-13
<b>Section 5 Cleaning and Maintenance</b> .....	<b>5-1</b>
5.1. Preparation and Best Practice .....	5-1
5.2. Standard Vinyl Upholstery Cleaning and Disinfecting .....	5-1
5.3. Plastic, Metal, and Painted Surface Cleaning.....	5-2
5.4. Plastic, Metal, and Painted Surfaces Disinfecting.....	5-2
5.5. Preventive Maintenance .....	5-4
<b>Section 6 Troubleshooting</b> .....	<b>6-1</b>
6.1. Troubleshooting .....	6-1
<b>Section 7 Service and Warranty</b> .....	<b>7-1</b>
7.1. Warranty Information .....	7-1
7.2. Technical Service Department .....	7-2
7.3. Internet Access.....	7-2
7.4. Service Information .....	7-2
<b>Section 8 Technical Data</b> .....	<b>A-1</b>
<b>Appendix A</b> .....	<b>A-1</b>

**WARNING**

THE SAFETY AND SATISFACTION OF OUR CUSTOMERS AND THEIR PATIENTS ARE THE HIGHEST PRIORITIES OF GLOBAL SURGICAL CORPORATION. THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING THE SAFE AND PROPER USE OF THIS EQUIPMENT AND SHOULD BE READ THOROUGHLY BY ALL OPERATORS PRIOR TO THEIR FIRST USE OF THE EQUIPMENT. FAILURE TO READ AND UNDERSTAND THIS MATERIAL COULD RESULT IN INJURY TO PATIENTS OR PERSONNEL OR IN DAMAGE TO THE EQUIPMENT.

**1.1. Symbol Definitions**

This symbol on the product is an attention symbol, alerting the user to read the Owner's Manual for important installation, operating instructions or safety information.



This symbol on the product indicates a potential electrical shock hazard and alerts the user to read the Owner's Manual for important safety information.



Symbol indicating an accessible location on or within the chair where there is risk that a body part may become trapped.



Symbol indicating "not for general waste." Recycle per the EUROPEAN WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE



This symbol indicates earth ground.



Equipotentiality



Type B Applied Part



For Professional Use Only.

**WARNING**

This symbol indicates a situation in which incorrect handling through disregard of a warning might result in death or serious personal injury.

**CAUTION**

This symbol indicates a situation in which incorrect handling through disregard of a caution might result in personal injury or may result in damage to property.













**NOTE**












This symbol indicates a message to avoid property damage or additional information to help complete a procedure.



We encourage our customers to recycle this product whenever possible. Disposal of this unit must be performed in accordance with the applicable local environmental regulations.

## 1.2. Warnings and Cautions

-  **WARNING** TO REDUCE THE RISK OF INJURY, THE MOTION OF THE CHAIR DUE TO AUTO-RETURN AND MEMORY POSITIONING CAN BE STOPPED IMMEDIATELY BY PRESSING ANY BUTTON ON THE KEYPAD.
-  **WARNING** TO HELP PREVENT MISUSE OF THE EXAM CHAIR WHILE PATIENTS ARE LEFT UNATTENDED, ALWAYS ENGAGE THE SAFETY LOCK BEFORE LEAVING THE ROOM.
-  **WARNING** DISCONNECT ALL ELECTRICAL POWER PRIOR TO CLEANING AND DISINFECTING. RISK OF ELECTRICAL SHOCK RESULTING IN DEATH OR INJURY IS POSSIBLE IF THE ELECTRICAL POWER IS NOT DISCONNECTED.
-  **WARNING** NO MODIFICATION OF THIS EQUIPMENT IS ALLOWED.
-  **WARNING** TO PREVENT RISK OF SHOCK OR INJURY, DO NOT USE OTHER ELECTRICAL EQUIPMENT ON THE PATIENT WITHOUT FIRST ENSURING PROPER GROUNDING OF CHAIR.
-  **WARNING** THE USE OF POWER CORD AND PLUG OTHER THAN THOSE INCLUDED WITH THE MAXI S 4000 EXAMINATION CHAIR AND SUPPLIED BY GLOBAL SURGICAL CORPORATION MAY RESULT IN INCREASED EMISSIONS OR DECREASED IMMUNITY OF THE MAXI S 4000 EXAMINATION CHAIR.
-  **WARNING** IT IS HIGHLY RECOMMENDED THAT THE INSTALLATION OF THIS EQUIPMENT BE PERFORMED BY QUALIFIED TECHNICIANS. INSTALLATION BY UNQUALIFIED INDIVIDUALS COULD RESULT IN PERSONAL INJURY.
-  **WARNING** DO NOT CLEAN ANY SURFACE WITH PETROLEUM-BASED SOLVENTS SUCH AS ACETONE OR M.E.K. (METHYL ETHYL KETONE). THESE SOLVENTS WILL REMOVE PAINT AND CAUSE PERMANENT DAMAGE TO VINYL AND PLASTIC SURFACES. USING THESE SOLVENTS ALSO PRESENTS A DANGER TO PERSONNEL IF THEY ARE OPENED IN A POORLY VENTILATED ROOM.
-  **WARNING** TO AVOID THE RISK OF ELECTRIC SHOCK, THIS EQUIPMENT MUST ONLY BE CONNECTED TO A SUPPLY MAINS WITH PROTECTIVE EARTH (=GROUND).
-  **WARNING** CONNECTING EQUIPMENT TO THE MULTIPLE SOCKET-OUTLET EFFECTIVELY LEADS TO CREATING A MEDICAL ELECTRICAL SYSTEM AND THE RESULT CAN BE A REDUCED LEVEL OF SAFETY. THE ONLY EQUIPMENT INTENDED TO BE CONNECTED TO THE CHAIR IS THE SOLAR LITE MANUFACTURED BY GLOBAL SURGICAL CORPORATION.
-  **WARNING** TO MINIMIZE THE RISKS DUE TO MOVING PARTS AND PINCH POINTS, ENSURE THE PATIENT IS SEATED AS INTENDED WITH HEAD SUPPORTED BY THE HEADREST, ARMS SUPPORTED BY THE ARMRESTS AND LEGS SUPPORTED BY THE CALF REST BEFORE OPERATING THE CHAIR. OPERATORS SHOULD KEEP THEIR FREE HAND AND THEIR FEET AWAY FROM THE CHAIR WHILE THE CHAIR IS MOVING.
-  **WARNING** THE MAXI S 4000 EXAMINATION CHAIR SHOULD NOT BE USED ADJACENT OR STACKED WITH OTHER EQUIPMENT AND IF ADJACENT OR STACKED USE IS NECESSARY, IT SHOULD BE VERIFIED THAT THE MAXI S 4000 EXAMINATION CHAIR OPERATES NORMALLY IN THE CONFIGURATION IN WHICH IT WILL BE USED.

-  **WARNING** TO PREVENT RISK OF INJURY OR RISK OF DAMAGE TO THE CHAIR, KEEP ALL OBJECTS AND BODY PARTS OUT FROM UNDER THE CHAIR WHILE THE CHAIR IS IN MOTION. ALSO INSTRUCT THE PATIENT TO MINIMIZE MOVEMENT WHILE THE CHAIR IS IN MOTION.
-  **WARNING** PATIENTS ENTERING OR EXITING THE CHAIR IN A POSITION OTHER THAN THE HOME/AUTO RETURN POSITION COULD BE INJURED OR COULD CAUSE DAMAGE TO THE EQUIPMENT.
-  **CAUTION** WHEN USED IN CLINICAL OR RESIDENTIAL AREAS NEAR RADIO OR TV UNITS, THIS EQUIPMENT MAY BE SUBJECTED TO RADIO INTERFERENCE. TO AVOID ADVERSE ELECTROMAGNETIC EFFECTS, DO NOT OPERATE THIS EQUIPMENT NEAR RF ENERGY EQUIPMENT.
-  **CAUTION** TO PREVENT ANY POTENTIAL ELECTROMAGNETIC INTERFERENCE, DO NOT USE ANY KIND OF CELLULAR PHONE NEAR THE EQUIPMENT.
-  **CAUTION** THIS EQUIPMENT NEEDS SPECIAL PRECAUTIONS REGARDING EMC (ELECTROMAGNETIC COMPATIBILITY) AND NEEDS TO BE INSTALLED AND PUT INTO SERVICE ACCORDING TO THE EMC INFORMATION PROVIDED IN APPENDIX A OF THIS MANUAL.
-  **CAUTION** PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT CAN AFFECT MEDICAL ELECTRICAL EQUIPMENT.
-  **CAUTION** REPLACEMENT PARTS, SUCH AS CABLES, MUST BE PURCHASED THROUGH GLOBAL SURGICAL CORPORATION TO ENSURE PROPER COMPLIANCE REQUIREMENTS. THE USE OF OTHER CABLES MAY AFFECT EMC PERFORMANCE. UNAUTHORIZED USE OF THESE ITEMS WILL VOID WARRANTY AND MAY CAUSE INJURY TO YOU, OTHERS AND/OR THE EQUIPMENT.
-  **CAUTION** DO NOT OVERTIGHTEN THE ADJUSTMENT NUT OR THE PINS IN THE UPPER LINK WILL BREAK.
-  **CAUTION** DO NOT USE SCOURING MATERIALS SUCH AS SCOTCH-BRITE® ON VINYL OR PLASTIC SURFACES FOR STUBBORN STAINS. THESE MATERIALS WILL DAMAGE THESE SURFACES.
-  **CAUTION** SHOULD YOU DESIRE TO USE OTHER CLEANING METHODS, CAREFULLY TRY THEM IN AN INCONSPICUOUS AREA TO DETERMINE POTENTIAL DAMAGE TO THE MATERIAL. NEVER USE HARSH SOLVENTS OR CLEANERS WHICH ARE INTENDED FOR INDUSTRIAL APPLICATIONS. TO CLEAN STAINED OR SOILED AREAS, A SOFT WHITE CLOTH IS RECOMMENDED. AVOID THE USE OF PAPER TOWELS.
-  **CAUTION** CLEANING PRODUCTS MAY BE HARMFUL/IRRITATING TO YOUR SKIN, EYES, ETC. USE PROTECTIVE GLOVES AND EYE PROTECTION. DO NOT INHALE OR SWALLOW ANY CLEANING PRODUCT. PROTECT SURROUNDING AREA/CLOTHING FROM EXPOSURE. USE IN A WELL-VENTILATED AREA. FOLLOW ALL PRODUCT MANUFACTURERS' WARNINGS. NAUGAHYDE CANNOT BE HELD RESPONSIBLE FOR DAMAGE OR INJURIES RESULTING FROM THE USE OR MISUSE OF CLEANING PRODUCTS.


## 2.1. Description

Intended Use: The MAXI 4000 Examination Chair is an active, non-invasive medical device that is intended to support patients and to assist medical professionals with patient positioning during medical examinations and procedures. The frequently used functions include recline/incline, lift/lower, rotation lock, safety lock mode, auto return, armrest adjustment, headrest adjustment and memory. See Section 2.2 for optional equipment.

**! NOTE** The MAXI 4000 Examination Chair is not intended to be used with Intravenous (IV) poles.

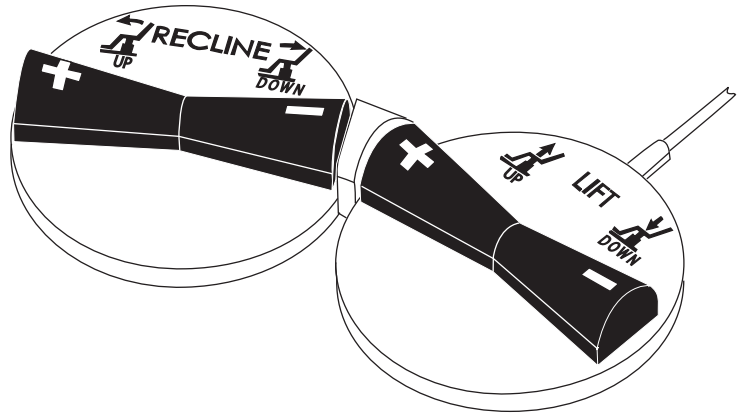
The MAXI 4000 Examination Chair uses a key pad for operation. This key pad is located on either side of the chair. The chair can be flat reclined, has a 345° rotation, has a seat width of 22" (559 mm) and has a height travel range of 21"-38" (533-965 mm). There is an adjustable headrest, and the arm rests lay flat when the chair is reclined. The maximum lift/support is 400 lbs (181 kg).

**Table 2-1. Chair Specifications**

ITEM	SPECIFICATION
Shipping Weight	408 lbs. (185 kg)
Chair Only Weight	339 lbs. (1154 kg)
Base Dimensions	30-1/2" x 38" (775 mm x 965 mm)
Travel Range of Seat Height	21" to 38" (533 mm to 965 mm)
Rotation	345°
Chair Seat Angle (Fixed)	5°
Range of Chair Back Angle	100° - 180°
Maximum Lift Capacity	400 lbs (181 kg)
Power Consumption	4 amp
Input Voltage	120v 60hz
Input Voltage with Solarlite	120v 60hz
Mode of Operation	Non-Continuous Operation 10% duty cycle (2 min – 18 min)
Water Resistance	IPXO
Medical Electrical (ME) Equipment Classification	Class I
ME Equipment Applied Part Classification	Type B
Operation Environment: • Temperature • Relative Humidity • Air Pressure	+10° to +40°C (50° to 104°F) 0 to 95% 700 to 1060 kPa
Storage Environment: • Temperature • Relative Humidity • Air Pressure	-20° to +60°C (-4° to 140°F) 0 to 95% 700 to 1060 kPa
Regulations / Standards	 <p>Conforms to ANSI/AAMI Std ES60601-1, IEC Stds 60601-1, 60601-1-6 &amp; 62366 Certified to CSA Std C22.2 No. 60601-1</p>

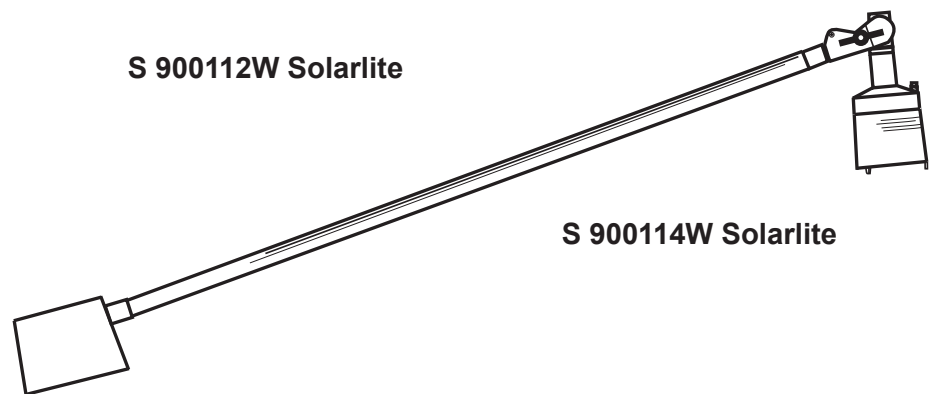
## 2.2. Optional Equipment

- S 410003 Chair Footswitch



A control located on the floor for the purpose of operating the chair with the foot versus the touch pad panels on either side of the chair back. This offers a “hands-free” method to positioning the chair.

- S 900112W & S 900114W Solarlite



A reusable light source manufactured by Global Surgical Corporation intended to be installed on the MAXI S 4000 Examination Chair for the purpose of illuminating the area of interest during medical procedures and examinations. The S 900112W Solarlite has the power switch on the base. The S 900114W Solarlite has the power switch on the head.

For instructions on the installation of the Solarlite see “Solarlite S 900 Series Exam Lights Installation Instructions” Part # 108-008-003

**WARNING**

**CONNECTING EQUIPMENT TO THE MULTIPLE-SOCKET OUTLET EFFECTIVELY LEADS TO CREATING AN MEDICAL ELECTRICAL SYSTEM AND THE RESULT CAN BE A REDUCED LEVEL OF SAFETY. THE ONLY EQUIPMENT INTENDED TO BE CONNECTED TO THE CHAIR IS THE SOLARLITE MANUFACTURED BY GLOBAL SURGICAL CORPORATION.**

## 2.3. Unpacking Instructions

- ! WARNING** FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN DAMAGE TO THIS CHAIR OR POSSIBLE INJURY (RECEIVER'S RESPONSIBILITY).
- ! WARNING** IT IS HIGHLY RECOMMENDED THAT THE INSTALLATION OF THIS EQUIPMENT BE PERFORMED BY QUALIFIED TECHNICIANS. INSTALLATION BY UNQUALIFIED INDIVIDUALS COULD RESULT IN PERSONAL INJURY.
- ! WARNING** DO NOT LIFT THE CHAIR BY THE ARMS OR HEADREST.
- ! WARNING** DO NOT REMOVE THE STRAP OR 2 X 4 WOOD BRACE HOLDING THE SEAT IN PLACE UNTIL THE CHAIR IS IN IT'S PERMANENT LOCATION.
- ! NOTE** Check for damage before discarding the shipping material and notify Global Surgical Customer Service if shipping damage is observed.
- ! NOTE** Leave the chair on the wooden skid until qualified technician begins installation.

1. Inspect all packaging for any visible signs of damage.
2. Make a notation on the delivery receipt if the packaging was previously opened and check the package for proper content.

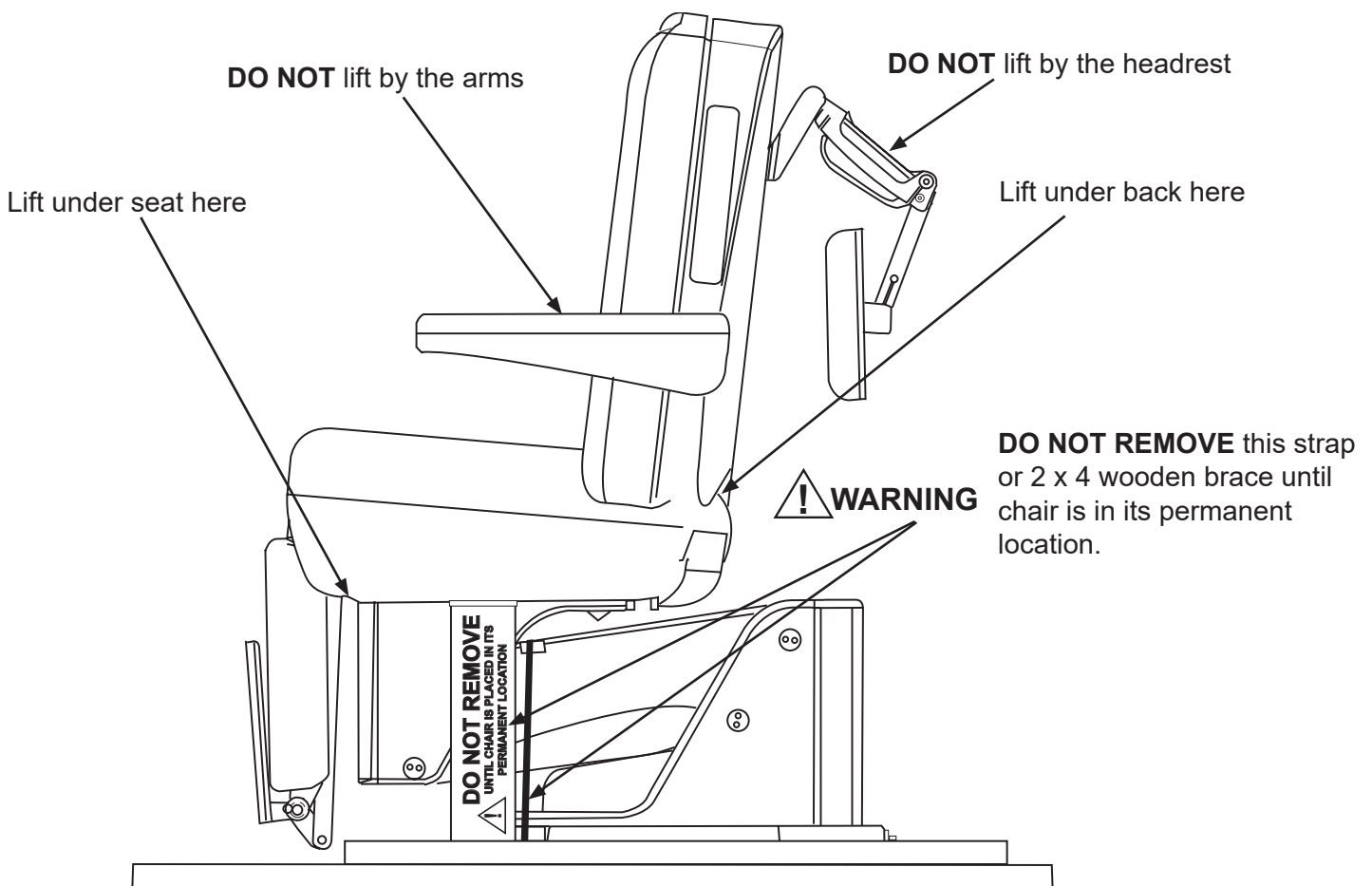


Figure 2-1 Unpacking

**WARNING**

**DO NOT REMOVE THE STRAP OR 2 X 4 WOOD BRACE HOLDING THE SEAT IN PLACE UNTIL THE CHAIR IS IN ITS PERMANENT LOCATION.**

1. Remove the fasteners along the bottom of the packaging that secure the chair to the wooden pallet.
2. Lift the chair off of the skid by grasping its back and seat framework. Do not lift by the arms or headrest.  
**See Figure 2-1**
3. When chair is in its permanent position cut and remove strap.
4. Plug the chair into the wall once the chair is placed in its permanent location.
5. Press the “SEAT UP” button to lift the chair off of the 2 x 4 wood brace. Be sure to lift the chair high enough so the bottom of the calf rest is above the 2 x 4 wood brace.
6. Slide the 2 x 4 wood brace off the chair base and set aside.
7. All shipping materials should be retained until it has been determined that the unit was not damaged during shipment.

**If damage is discovered, completed the following:**

- Do not refuse shipment.
- Make a notation on the delivery receipt, and inspect the carton for damage.
- Take pictures of damage to the equipment, and to the packaging (if evident).
- If damage is discovered leave in original container and request immediate inspection from the carrier.
- Contact the Global Surgical Customer Service Department at 1-800-861-3585.
- If the product is damaged electrically or mechanically and in the event the original packing materials are no longer available, contact Global Surgical Customer Services Department.
- Refer to Section 7 of this manual regarding service and warranty and proceed as instructed.

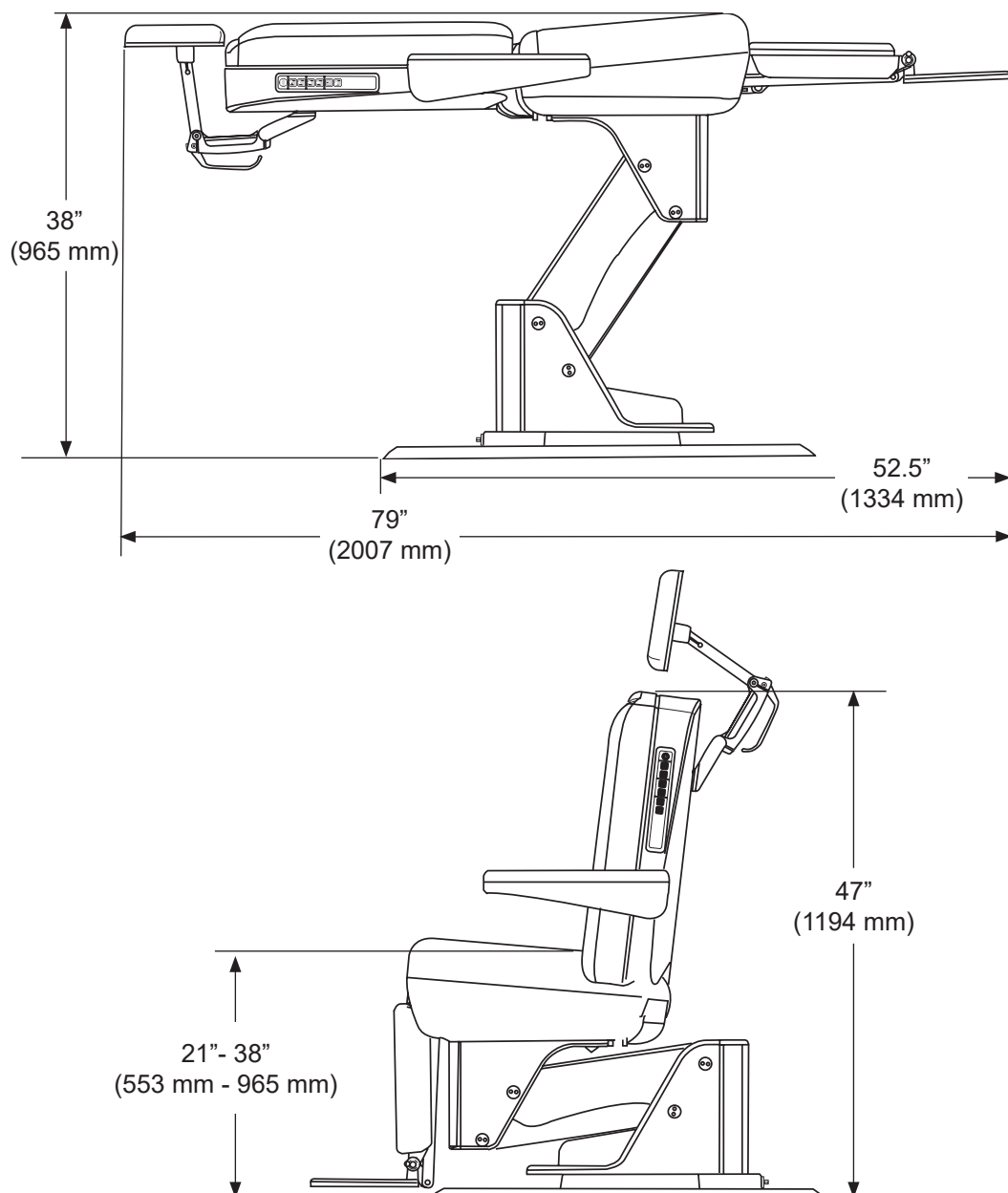
**WARNING**

**IT IS HIGHLY RECOMMENDED THAT THE INSTALLATION OF THIS EQUIPMENT BE PERFORMED BY QUALIFIED TECHNICIANS. INSTALLATION BY UNQUALIFIED INDIVIDUALS COULD RESULT IN PERSONAL INJURY.**

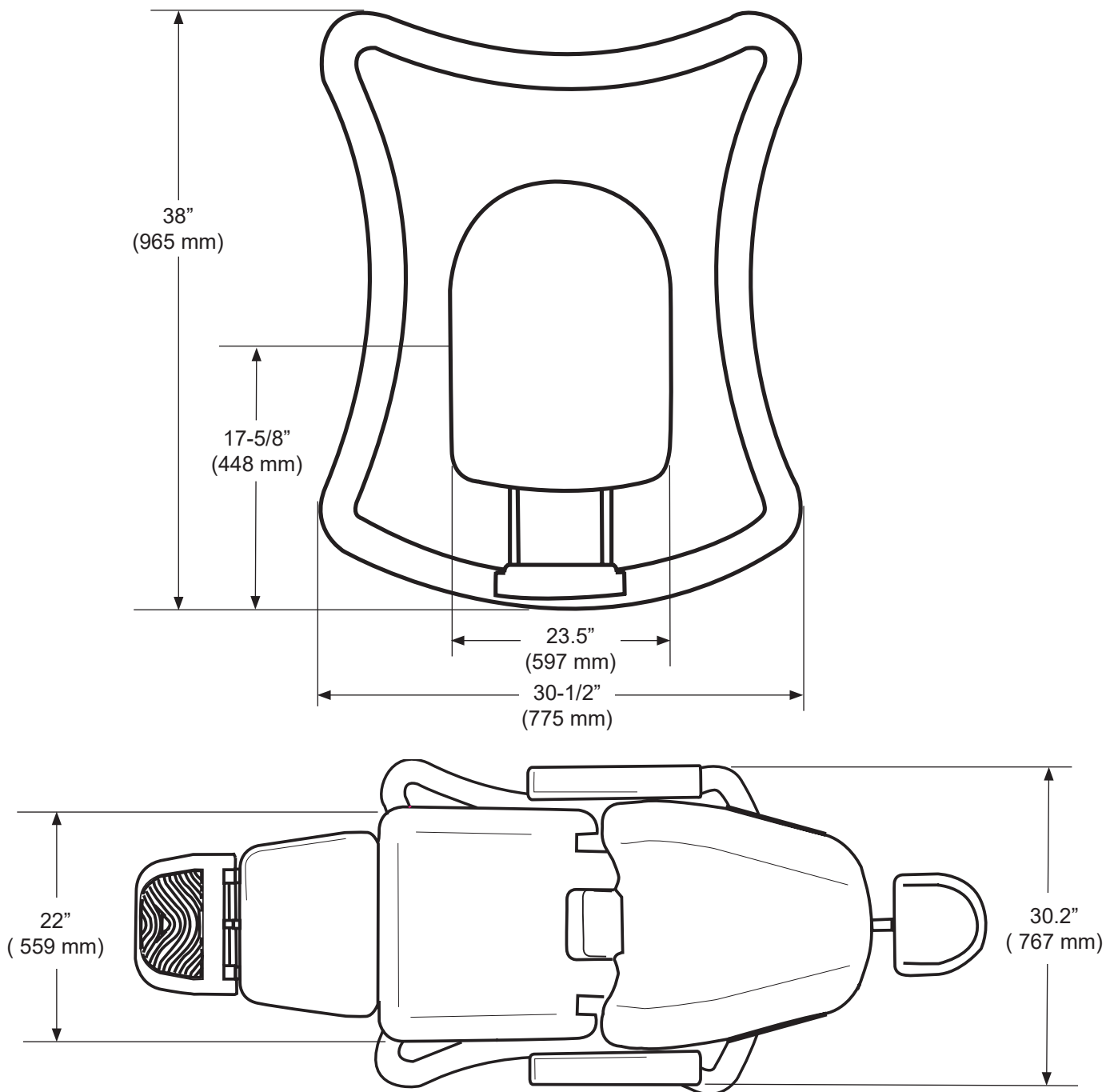
### 3.1. Installation of the Chair

Installation of the chair is intended to be completed by qualified Global Surgical technicians. The end user should not attempt to move the chair off the wooden skid and/or install the chair as there is risk of personal injury as well as damage to the chair.

Refer to Table 2-1 and Figure 3-1 for clearance requirements and determine an appropriate installation site. The installation should be close enough to a 115 VAC 20A wall receptacle to be reached by the 13 foot (4 m) power cord. When planning an installation site, ensure the base is positioned where accessibility is not hindered by these limits. Also ensure the floor is level. An uneven floor may allow the chair to wobble which is undesirable during use with the patient.



**Figure 3-1 Overall Side View Dimensions**



**Figure 3-2 Overall Top View Dimensions**

**NOTE** Do not position the chair so that it is difficult to disconnect from the power supply.

### 3.2. Installation of the Optional Footswitch

The MAXI 4000 Examination Chair has an optional footswitch that works in conjunction with the keypad located on both sides of the chair back. To install the optional footswitch:

1. Locate the power entry module on the base of the chair
2. Unscrew the protective dust cap
3. Insert the footswitch plug using the keyways to line up the pins. Secure by screwing the coupling ring onto the receptacle.

**NOTE** Ensure the parts and accessories are properly installed per Section 3 before operating the chair.

**4.1. Power On Procedure**

- 1. Plug in the chair to initiate operation of the chair.

**4.2. Key Pad Functions**

**WARNING** TO REDUCE THE RISK OF INJURY, THE MOTION OF THE CHAIR DUE TO AUTO-RETURN AND MEMORY POSITIONING CAN BE STOPPED IMMEDIATELY BY PRESSING ANY BUTTON ON THE KEYPAD.

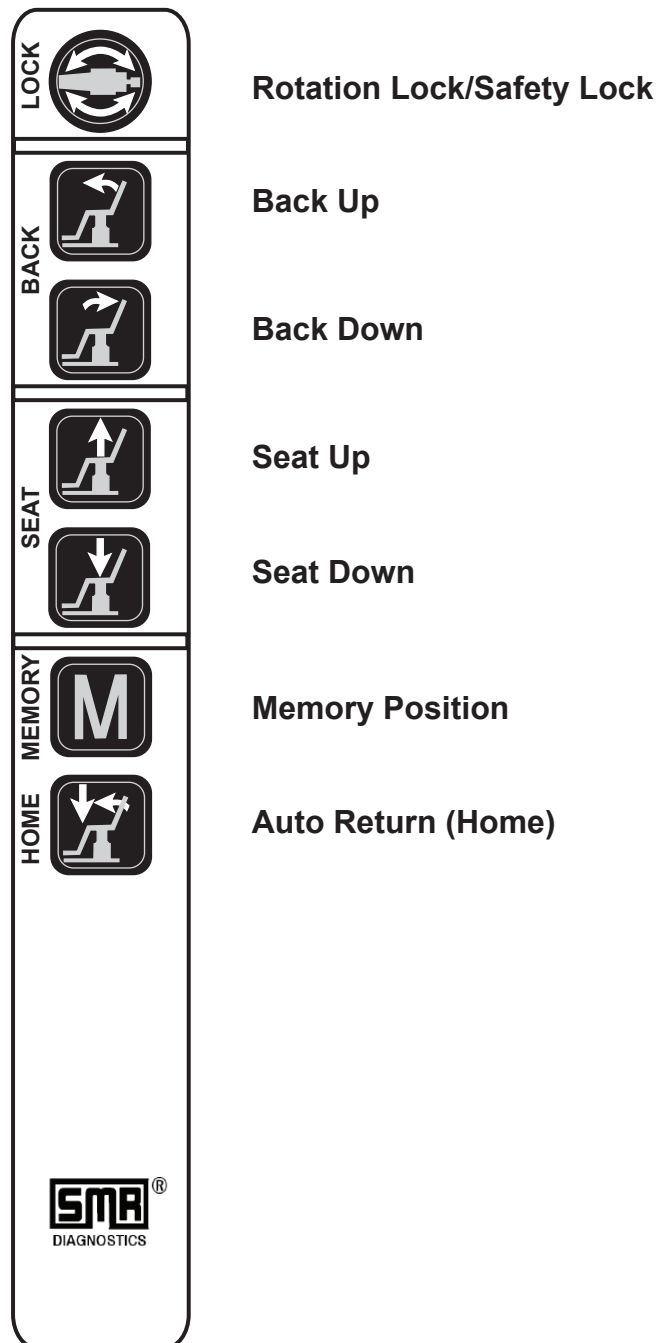


Figure 4-1 Keypad Rotation

**WARNING**

**TO HELP PREVENT MISUSE OF THE EXAM CHAIR WHILE PATIENTS ARE LEFT UNATTENDED, ALWAYS ENGAGE THE SAFETY LOCK BEFORE LEAVING THE ROOM.**

#### 4.2.1. Rotation Lock/Safety Lock



This button controls two functions: rotation lock and safety lock mode. The rotation lock is the primary function. The chair may be manually rotated 345° on its base. The chair is normally in the locked position. To unlock the brake, press the button for 1 second. Once unlocked, the chair will be free to rotate to the desired position. The button can be pressed for 1 second again to set the brake or the chair will automatically secure the rotational lock after a 12 second delay.

The safety lock mode is also activated using this button. This function sets the rotation lock on the chair and disables the key pad controls and optional footswitch controls. While in safety lock mode, the padlock indicator light will be lit. To activate the safety lock mode, press the lock button and hold for at least 3 seconds. The padlock indicator light will light up once the safety lock mode is entered. To exit safety lock mode, press the lock button again and hold for at least 3 seconds. The padlock indicator light will extinguish once the safety lock mode is exited.

#### 4.2.2. Backrest Up



This button moves the chair back from a reclined position to an upright position. The chair back will move up for as long as the button is pressed until it reaches its travel limit of 80° above horizontal.

#### 4.2.3. Backrest Down



This button moves the chair back from an upright position to a reclined position. The back will move down for as long as the button is pressed until it reaches its travel limit of horizontal.

#### 4.2.4. Seat Up



This button moves the chair up in elevation. The chair will move up for as long as the button is pressed until it reaches its travel limit of 38" from the floor. If the rotation lock is unlocked while the chair is moving up, the seat will pause for one second then resume moving up.

#### 4.2.5. Seat Down



This button moves the chair down in elevation. The chair will move down as long as the button is pressed until it reaches its travel limit of 21" from the floor.

#### 4.2.6. Auto Return (Home)



The Auto Return button is used to move the seat to its lowest elevation and to move the backrest to 80° above horizontal. This is the ideal position for patients entering and exiting the chair. When the Auto Return button is pressed for 1 second then released, the chair moves until the auto return position is reached.

#### 4.2.7. User Programmable Memory Position



The MAXI S 4000 can store one memory position. To store the current chair position into memory, press and hold the memory button for 3 seconds. A 1 second audible beep will confirm the memory position storage. Once the memory position has been stored, it can be recalled by pressing for 1 second then releasing the memory button. The chair will move until the stored position has been reached. When recalling a stored position, be careful not to hold the memory button too long because pressing the button for 3 seconds or longer will store a new memory position.

## 4.2.8. Pinch Points

- ! WARNING** TO MINIMIZE THE RISKS DUE TO MOVING PARTS AND PINCH POINTS, ENSURE THE PATIENT IS SEATED AS INTENDED WITH HEAD SUPPORTED BY THE HEADREST, ARMS SUPPORTED BY THE ARMRESTS AND LEGS SUPPORTED BY THE CALF REST BEFORE OPERATING THE CHAIR. OPERATORS SHOULD KEEP THEIR FREE HAND AND THEIR FEET AWAY FROM THE CHAIR WHILE THE CHAIR IS MOVING.
- ! WARNING** TO PREVENT RISK OF INJURY OR RISK OF DAMAGE TO THE CHAIR, KEEP ALL OBJECTS AND BODY PARTS OUT FROM UNDER THE CHAIR WHILE THE CHAIR IS IN MOTION. ALSO INSTRUCT THE PATIENT TO MINIMIZE MOVEMENT WHILE THE CHAIR IS IN MOTION.
- ! WARNING** TO REDUCE THE RISK OF INJURY, THE MOTION OF THE CHAIR DUE TO AUTO-RETURN AND MEMORY POSITIONING CAN BE STOPPED IMMEDIATELY BY PRESSING ANY BUTTON ON THE KEYPAD.

Specific areas on the chair may have a risk of injury due to pinch points. To minimize these risks be mindful of body part locations while the chair is moving and do not leave patient unattended while chair is in motion. See Figure 4-2 for potential pinch point locations.

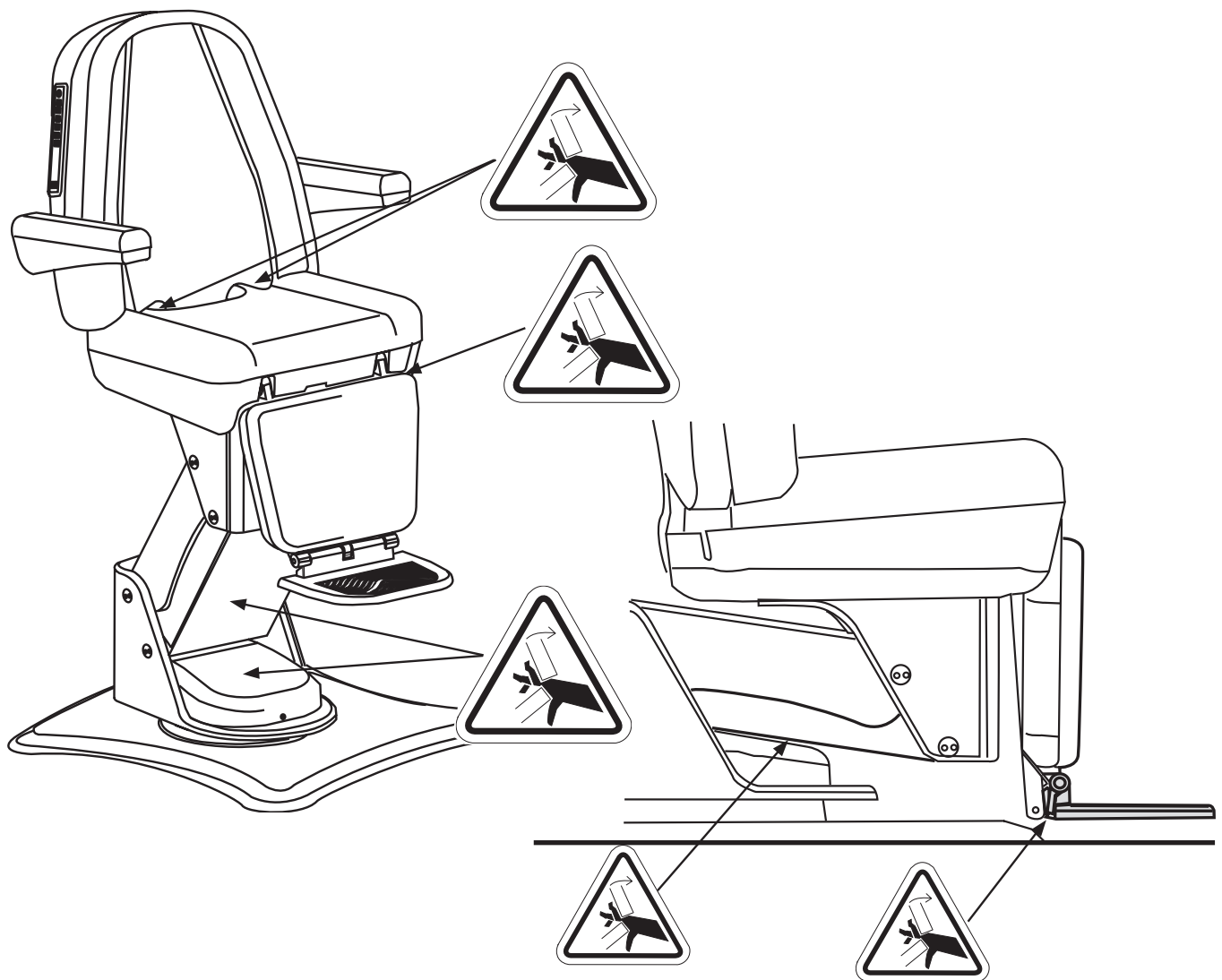


Figure 4-2 Pinch Point Locations

### 4.3. Headrest

Intended Use:

To support a patient's head during medical examination or procedure. It is adjustable to accommodate different patients' support needs.

#### 4.3.1. Articulating Headrest

The Multi-Position Adjustable Headrest is positioned by manipulating the pivoting arm assembly mounted on the back of the chair. The headrest mechanism is restrained by a movable handle which is part of the assembly. To reposition the headrest, the following procedures apply. Refer to Figure 4-3.

##### Headrest Positioning

1. Grasp the handle and pull outward and upward (this releases the arm assembly) while steadying the headrest with the other hand.
2. Move the handle forward or backward to obtain the optimum position for the patient's head.
3. Lock the headrest into position by grasping the handle and the adjoining arm between your thumb and fingers and squeezing tightly. The handle will snap into the restraining position.

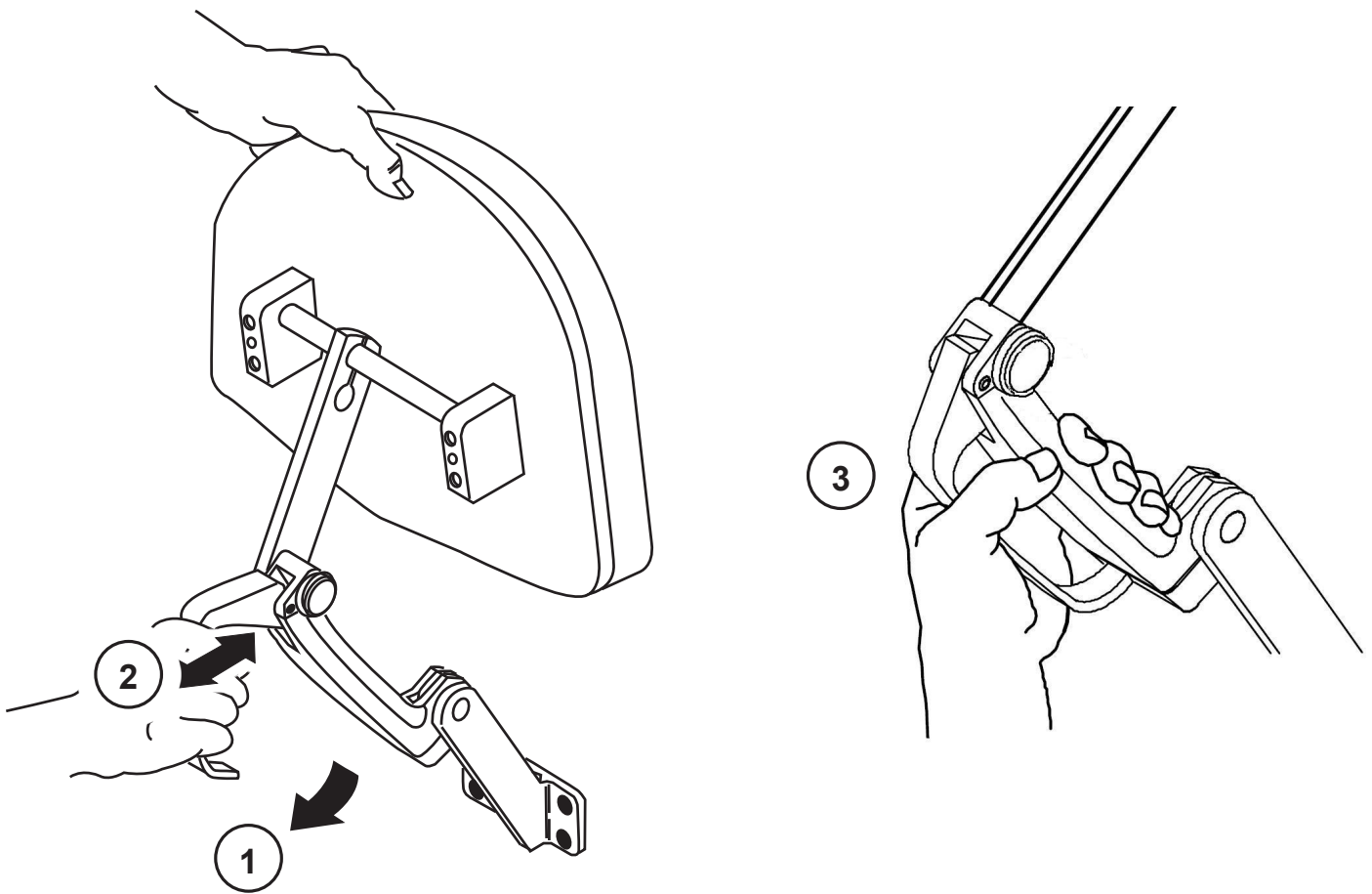


Figure 4-3 Headrest Adjustment

**! CAUTION** Do not over tighten the adjustment nut or the pins in the upper link will break.

### Tightening of Friction Lock

Occasionally the headrest may need to be tightened. The headrest mechanism relies on friction to maintain a secure position. To tighten this adjustment, refer to Figure 4-4 and proceed as follows:

1. Unlock the headrest and move it to the extreme upward and forward position. Leave the headrest unlocked.
2. Loosen the Set Screw a couple of turns, with a 3/16 Hex Wrench.
3. Using a 3/8" hex wrench tighten the adjustment nut until it stops. Unlock the handle and turn the adjustment nut 1/8 of a turn and re-lock the handle. If headrest is not at the desired tension, repeat the process by unlocking the handle and adjusting another 1/8 turn.
4. If the handle is too hard to lock into place, loosen the nut and try the handle again.
5. When the adjustment is correct use one hand on the back of the chair grab the upper link and pull the headrest backward towards you. If the headrest does not move then the adjustment nut is secure.
6. Re-tighten the set screw using a 3/16" hex wrench.

**! NOTE** This is a user adjustment and as such is not covered by the warranty.

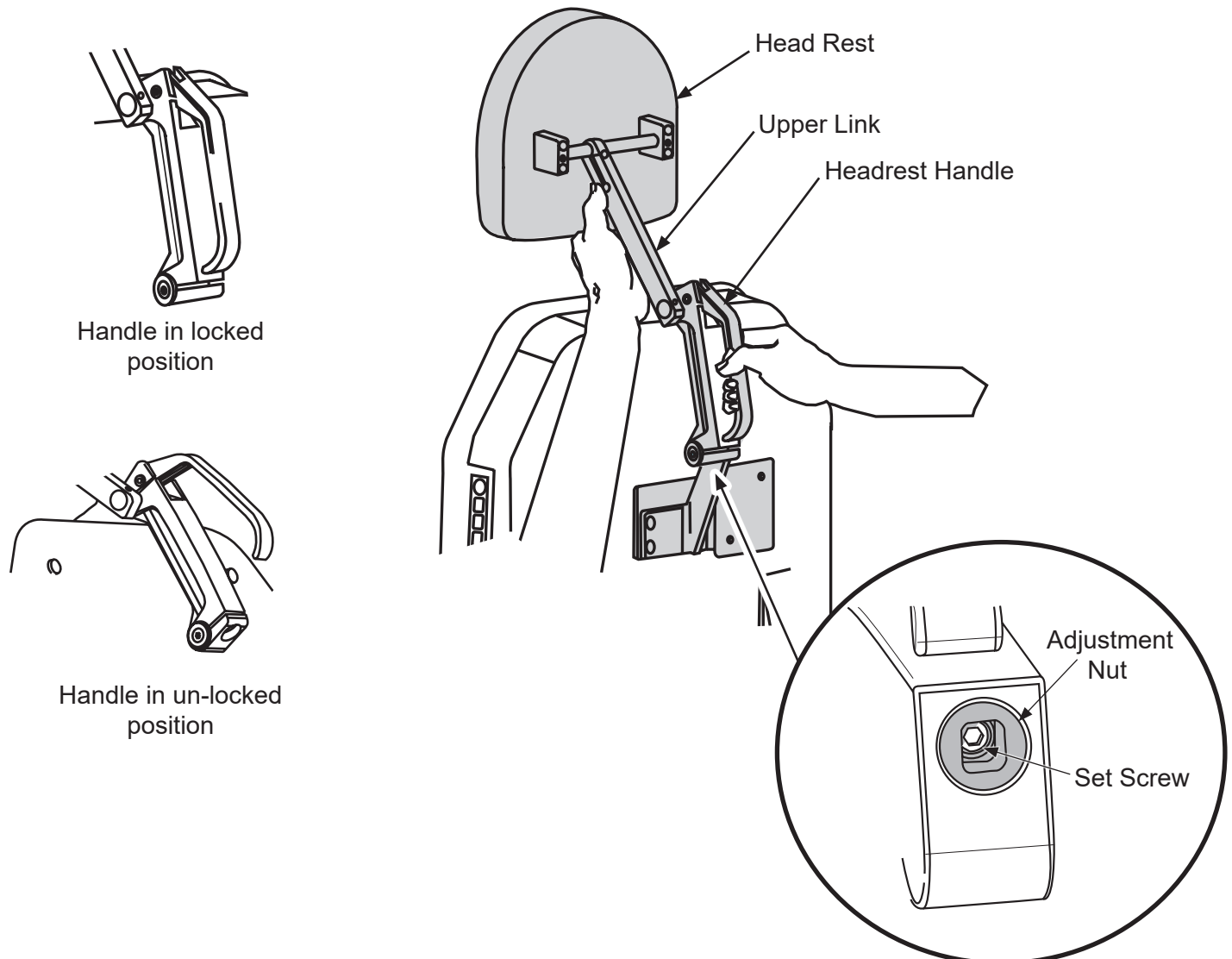


Figure 4-4 Tightening the Friction Lock

### 4.3.2. Single Handed Headrest Adjustment

The headrest is adjustable to accommodate every patient. To attain an ideal headrest position, follow the steps listed below.

1. Grasp the handle and pull upward on the release bar with one hand to unlock the arm assembly.
2. While squeezing the release bar, maneuver the headrest to the desired position then release the bar. The headrest is now locked in place.

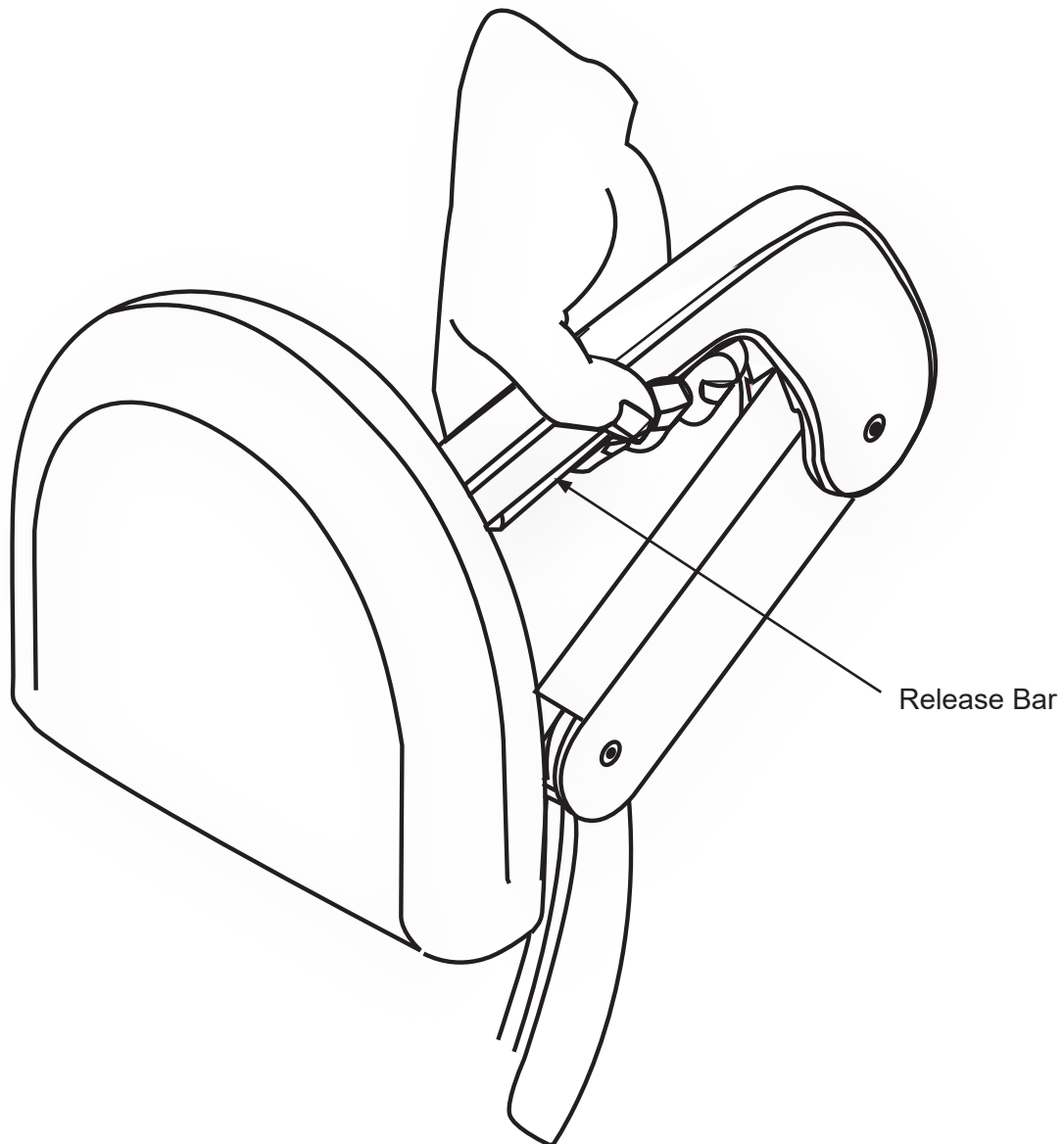
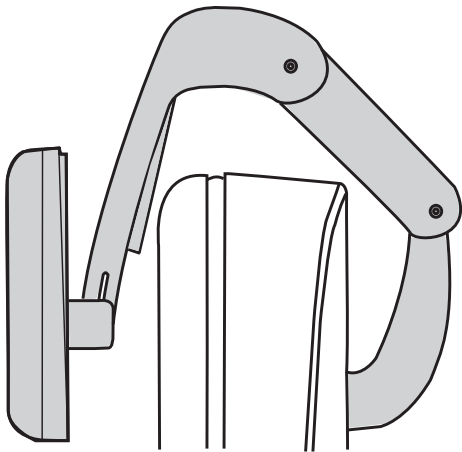
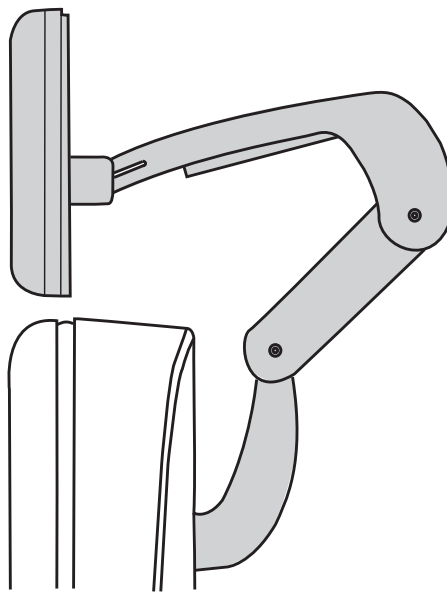


Figure 4-5 Single Handed Headrest Adjustment

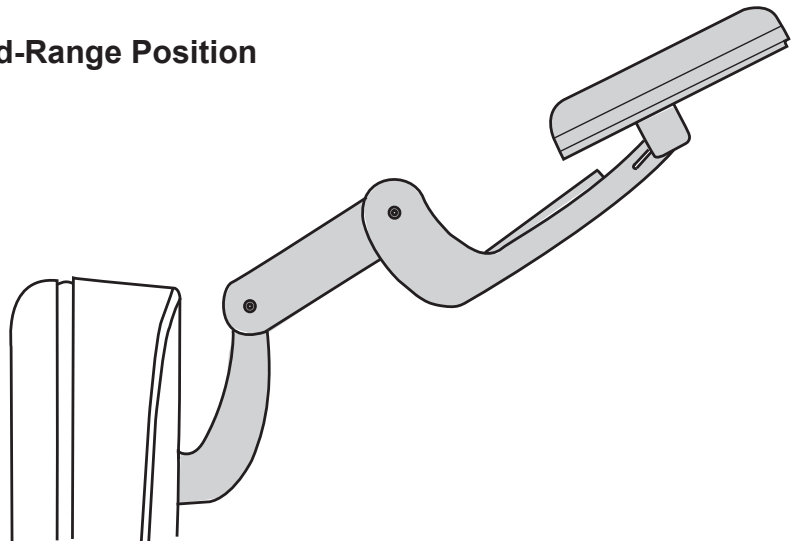
Single Handed Headrest Positions



Lowest Position



Mid-Range Position



Farthest Position

Figure 4-6 Single Handed Headrest Positions

### 4.3.3. Sliding Headrest Adjustment

The sliding headrest is adjusted by manipulating the sliding plate assembly mounted on the back of the chair. The sliding headrest provides excellent support for the patient's head and can be adjusted for patients of various heights. Refer to Figure 4-7 and perform the following steps to correctly position the headrest for each patient:

1. While steadying the headrest with one hand, grasp the knob and turn counter-clockwise to release tension on the sliding headrest.
2. Slide the headrest up or down to obtain the optimum position for the patient's head.
3. Turn the knob clockwise to increase tension and lock the headrest in place.

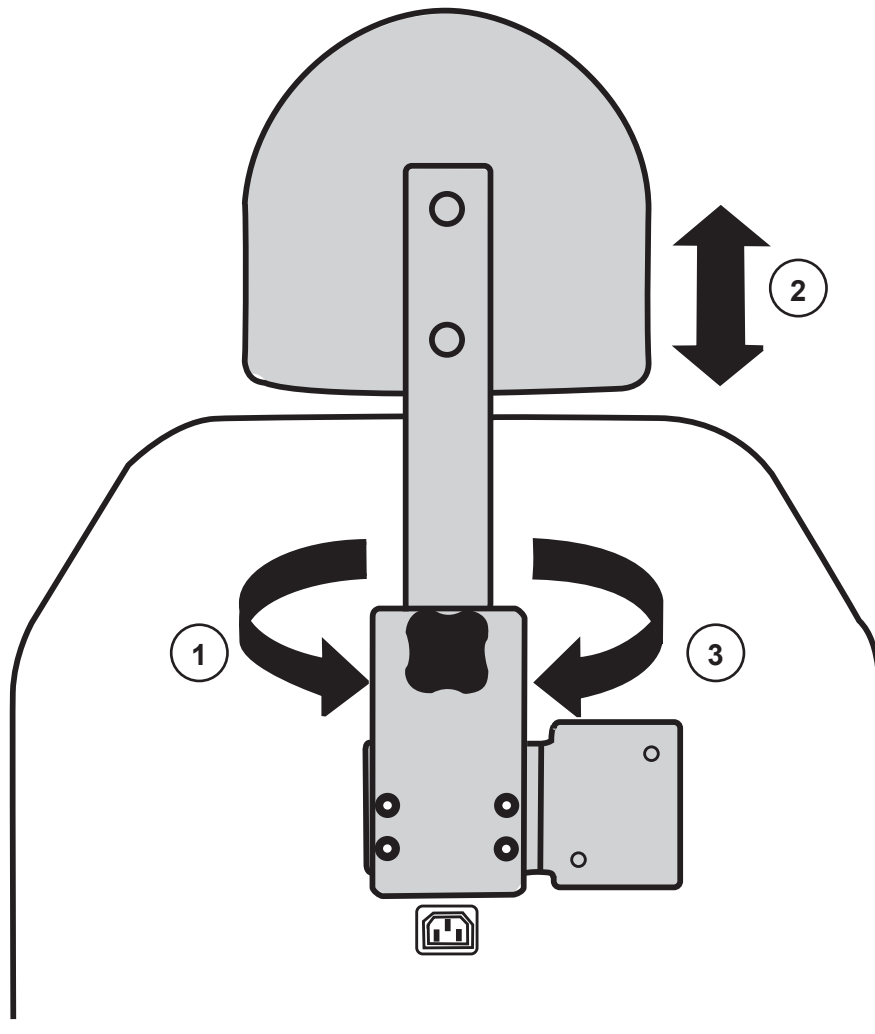


Figure 4-7 Sliding Headrest Adjustment

#### 4.4. Armrest

Intended use:

To support a patient's arms during medical examination or procedure. Armrests can be positioned to aid patient entry or exit from chair.

To raise the armrest, lift upward on the front of the armrest until it reaches its limit of travel, as shown in Figure 3-8. When reclined, the armrests lay flat.

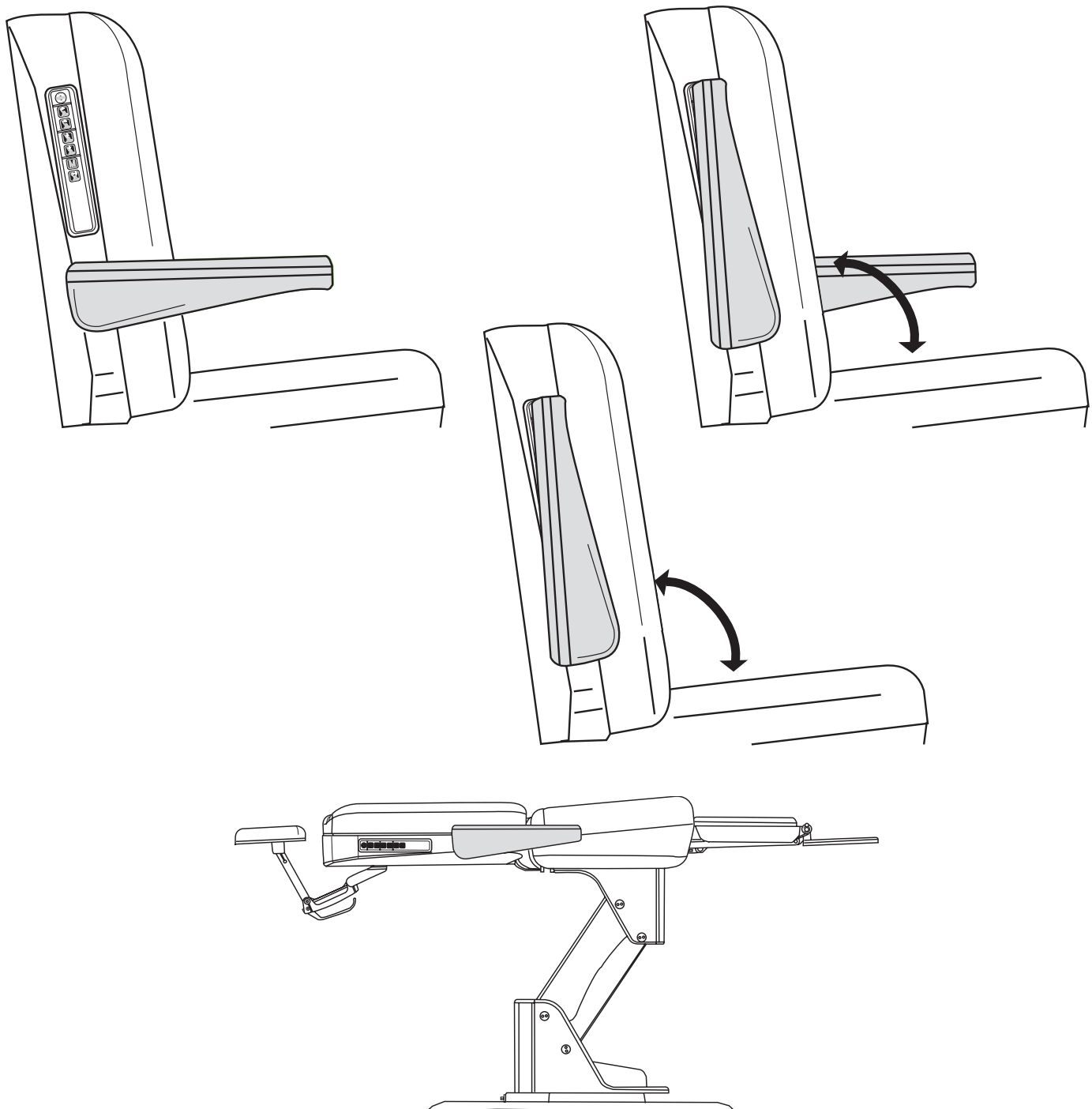


Figure 4-8 Armrest positions

4.5. Footrest

Intended use:

To provide a place to rest feet during a medical examination or procedure. Footrests can be positioned to aid patient entry or exit from chair.

To raise the footrest, fold towards the calf rest. To lower the footrest into position, fold the footrest towards the floor refer to Figure 3-9.

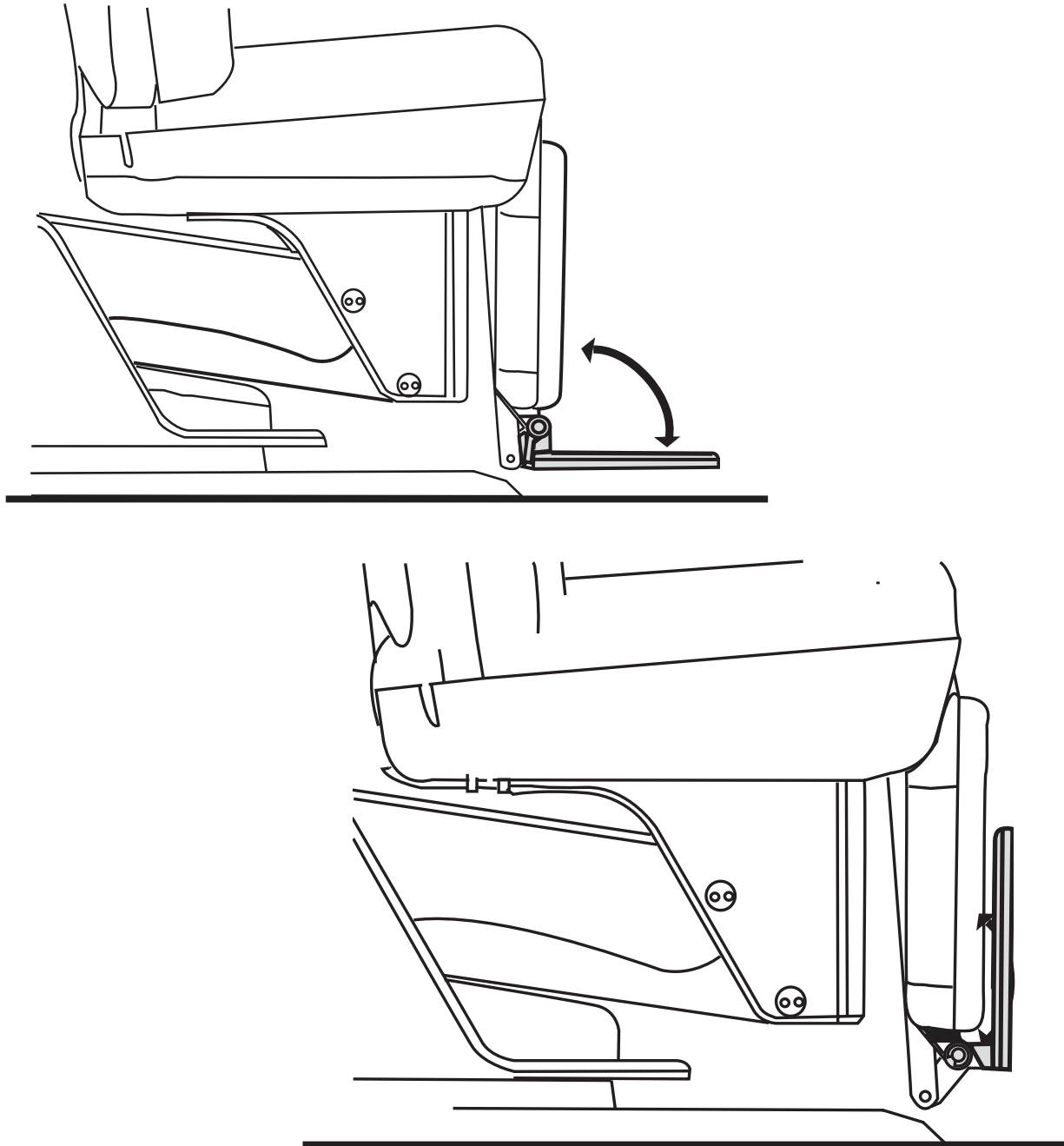


Figure 4-9 Footrest Positions

#### 4.6. Chair Footswitch (optional)

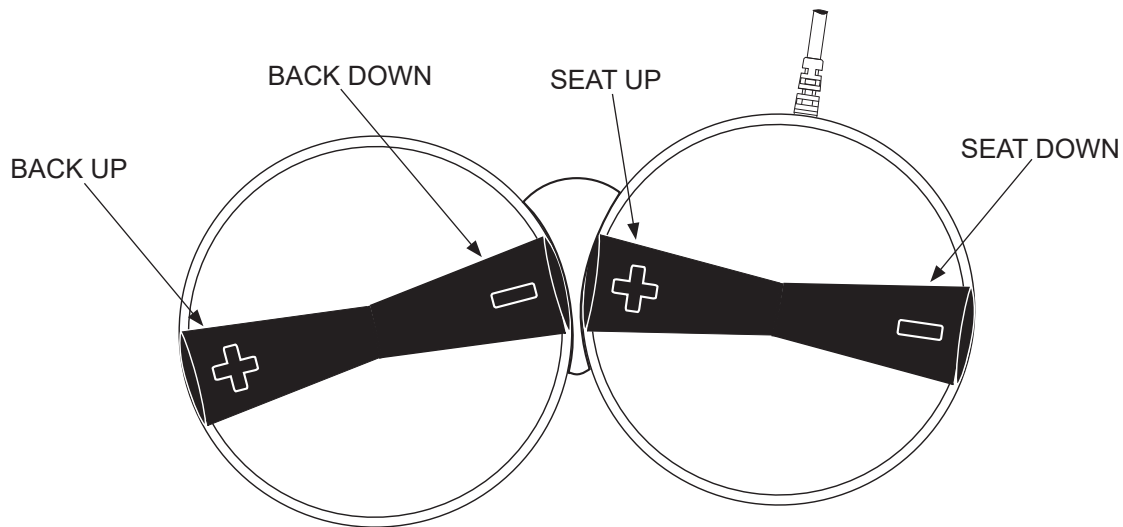


Figure 4-10 Footswitch controls

The Footswitch is an ergonomically designed modular system for easy hands-free control of the chair.

#### 4.7. Positioning of patient:

Patients should be allowed to enter or exit the chair only while the rotation lock is applied and the seat and back are in the Auto Return (Home) position. **See Figure 4-11** Position the footrest down to use as a step for patients as they enter or exit the chair. For some patients, it may be helpful to move the armrests up and out of the way. **See Section 4.8.** The patient should be sitting in the chair with back firmly against the chair's backrest and legs on the leg rest before bringing the chair into operation.



**WARNING**

**PATIENTS ENTERING OR EXITING THE CHAIR IN A POSITION OTHER THAN THE HOME/AUTO RETURN POSITION COULD BE INJURED OR COULD CAUSE DAMAGE TO THE EQUIPMENT.**

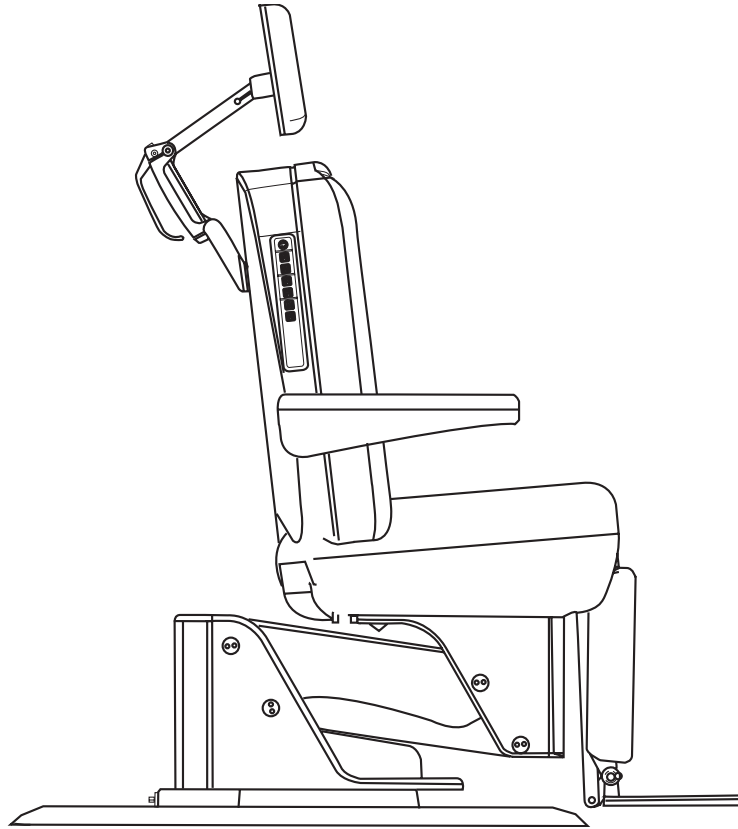


**WARNING**

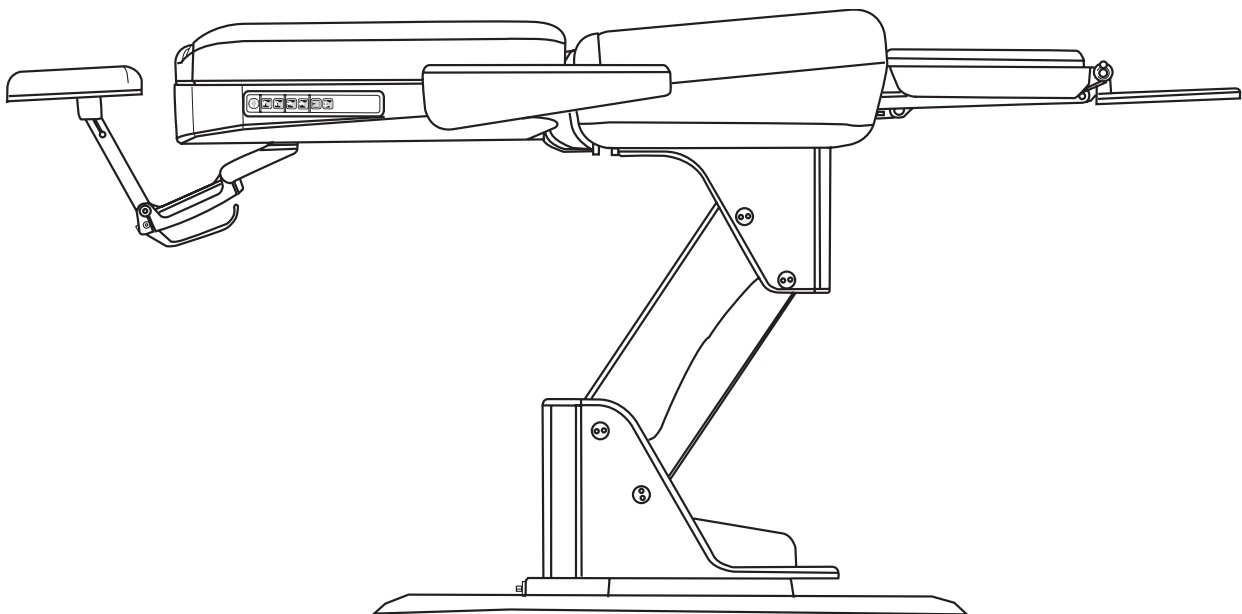
**TO MINIMIZE THE RISKS DUE TO MOVING PARTS, ENSURE THE PATIENT IS SEATED AS INTENDED WITH HEAD SUPPORTED BY THE HEADREST, ARMS SUPPORTED BY THE ARMRESTS AND LEGS SUPPORTED BY THE CALF REST BEFORE OPERATING THE CHAIR. OPERATORS SHOULD KEEP THEIR FREE HAND AND THEIR FEET AWAY FROM THE CHAIR WHILE THE CHAIR IS MOVING.**

### 4.8. Chair Positions

The chair back is adjustable from Home/ Auto Return seating position to completely reclined. The seat is adjustable from a height of 21" (533 mm) to 38" (965 mm).










**Figure 4-11 Chair in Auto Return (Home) Position**



**Figure 4-12 Chair in Recline Position**

### 4.9. Power Off Procedure

Unplug the chair to safely terminate the operation of the medical equipment.

-  **NOTE** Clean and disinfect after every patient according to CDC and OSHA requirements for non-critical devices.
-  **WARNING** **DISCONNECT ALL ELECTRICAL POWER PRIOR TO CLEANING AND DISINFECTING. RISK OF ELECTRICAL SHOCK RESULTING IN DEATH OR INJURY IS POSSIBLE IF THE ELECTRICAL POWER IS NOT DISCONNECTED.**
-  **WARNING** **DO NOT CLEAN ANY SURFACE WITH PETROLEUM-BASED SOLVENTS SUCH AS ACETONE OR M.E.K. (METHYL ETHYL KETONE). THESE SOLVENTS WILL REMOVE PAINT AND CAUSE PERMANENT DAMAGE TO VINYL AND PLASTIC SURFACES. USING THESE SOLVENTS ALSO PRESENTS A DANGER TO PERSONNEL IF THEY ARE OPENED IN A POORLY VENTILATED ROOM.**
-  **CAUTION** **DO NOT Use scouring materials such as SCOTCH-BRITE® on vinyl or plastic surfaces for stubborn stains. These materials will damage these surfaces.**
-  **CAUTION** **Do not allow excessive moisture or liquids to come in direct contact with the unit.**
-  **NOTE** Do not allow cleaning agents or liquids to enter the power input.
-  **NOTE** When cleaning and disinfecting the chair, wear puncture and chemical-resistant gloves and other PPE to prevent occupational exposure to infectious agents and hazardous chemicals

### 5.1. Preparation and Best Practice

Cleaning is the necessary first step of any disinfection process. Cleaning is a form of decontamination that renders the environmental surface safe by removing organic matter, salts, and visible soils, all of which interfere with microbial inactivation. The physical action of scrubbing with detergents and surfactants and rinsing with water removes substantial numbers of microorganisms. If a surface is not cleaned first, the success of the disinfection process can be compromised. Removal of all visible blood and inorganic and organic matter can be as critical as the germicidal activity of the disinfecting agent.

Clean and disinfect clinical contact surfaces by using an EPA-registered hospital disinfectant with a low-level activity (i.e., HIV and HBV label claims) to intermediate-level activity (i.e., tuberculocidal claim) after each patient. Use an intermediate-level disinfectant if the chair is visibly contaminated. In addition, cleaning and disinfection are recommended at the end of daily work activities and are required if surfaces have become contaminated since their last cleaning.

Follow the instructions given by the manufacturer of the disinfectant solution, however:

- Apply disinfectant per the manufacturer's instructions. Ensure that instructions for contact time are adhered to.
- After appropriate contact time, remove cleaning solution residue by wiping all surfaces with a clean soft cloth or lint-free tissue lightly moistened with distilled water.
- Dry as necessary

### 5.2. Standard Vinyl Upholstery Cleaning and Disinfecting

The manufacturers of the upholstery materials used on the Maxi SMR S 4000 and S 4500 chairs recommend the following cleaning methods:

#### For Light soiling:

A solution of 10% household liquid dish soap (pH~9) with warm water applied with a soft damp cloth will remove most soiling.



**DON'T MIX BLEACH (SODIUM HYPOCHLORITE ) WITH AMMONIA, ACIDS, OR OTHER CLEANERS. MIXING BLEACH WITH COMMON CLEANING PRODUCTS CAN CAUSE SERIOUS INJURIES. BE SURE TO ALWAYS READ THE PRODUCT LABEL BEFORE USING A CLEANING PRODUCT.**

#### **For Disinfecting And Heavier Soiling not Solved By Above Method:**

Difficult Stains, Dampen a soft white cloth with a solution of household bleach (sodium hypochlorite); 10% bleach, 90% water and rub gently. Rinse with a water-dampened cloth to remove bleach concentration.

If necessary, apply a 1:10 diluted bleach solution to a soaked cloth on the affected area for approximately 30 minutes. Rinse with a water-dampened cloth to remove any remaining bleach concentration.

Disinfect the upholstery with products containing sodium hypochlorite (common household bleach) diluted 1:10. Follow the instructions given by the manufacturer of the disinfectant solution.

### **5.3. Plastic, Metal, and Painted Surface Cleaning**

Plastic, metal, and painted surfaces can be cleaned by using a mild soap and water solution and a clean, soft cloth. To treat stains, use a soft bristle brush. Use a cloth dampened with water to remove any remaining cleaner. Dry the surface with a soft, lint-free cloth. Do not use cleaning agents that are not permitted for use with plastics, i.e., ammonia, acetone, salty acids (HCl), etc.

### **5.4. Plastic, Metal, and Painted Surfaces Disinfecting**

Clean with a cloth dampened (not wet) with water.

These surfaces of the chair can be safely disinfected by using any product included in the list provided in Table 5-1. All cleaning products in this list are contained in the EPA List N, and have been tested on the plastic and metal surfaces of the Maxi SMR S 4000 & S 4500 Chairs. The instructions from the cleaning agents must be followed to avoid damage to the chair materials. If a different product from the EPA List N will be used, it is strongly recommended to test an inconspicuous spot in the event the cleaner damages the chair surface.

Table 5-1 Cleaning and Disinfecting products derived from EPA List N:

<b>EPA Reg. No.</b>	<b>Active Ingredient(s) &amp; Concentration</b>	<b>Product Name</b>	<b>Company</b>	<b>Contact Time</b>
1677-249	Isopropanol	Klercide 70/30 IPA	Ecolab Inc.	5 min.
46781-6	Quaternary ammonium; Isopropanol	Cavicide	Metrex Research	2 min.
70144-1	Quaternary ammonium; Isopropanol	Opti-Cide 3	Micro-Scientific LLC	2 min.
9480-4	Quaternary ammonium; Isopropanol	Super Sani-Cloth Germicidal Disposable Wipe	Professional Disposables International Inc.	2 min.
67619-24	Hydrogen peroxide	Clorox Commercial Solutions® Hydrogen Peroxide Cleaner Disinfectant	Clorox Professional Products Company	1 min.
67619-25	Hydrogen peroxide	Clorox Commercial Solutions® Hydrogen Peroxide Cleaner Disinfectant Wipes	Clorox Professional Products Company	2 min.
74559-1	Hydrogen peroxide	Accel TB	Virox Technologies Inc.	1 min.
74559-3	Hydrogen peroxide	Accel TB Wipes	Virox Technologies Inc.	1 min.

**5.5. Preventive Maintenance**

The chair is maintenance free; however, it must be periodically cleaned. An established routine of cleaning will alleviate most potential problems. If repair becomes necessary, it is recommended that the Global Surgical Technical Services Department be contacted. Refer to Section 7 of this manual for applicable telephone numbers or visit Global Surgical's website at: [globalsurgical.com](http://globalsurgical.com).

Occasionally the Articulating headrest may need to be tightened. The headrest mechanism relies on friction to maintain a secure position. To tighten this adjustment, refer to **Figure 4-3** on page 4-5.

**ⓘ NOTE** This is a user adjustment and as such is not covered by the warranty.

**Storage Conditions:**

The chair is stationary and not intended to be moved after installation. It should always be stored upright and away from water.

**The storage environment is:**

- Temperature: -20° to +60°C (-4° to 140°F)
- Relative Humidity: 0 to 95%
- Air Pressure: 700 to 1060 kPa

## 6.1. Troubleshooting

**Table 6-1.** (below) lists some symptoms, possible causes, and solutions.

Contact Global Surgical's Technical Service for any issues with the chair to include audible alarm

**Table 6-1. Troubleshooting Guide**

Symptoms	Solutions
No Power to the chair / keypad does not work	Ensure that the Power Cord is properly connected.
	Verify building circuit breaker is not tripped, or that another device works in the same outlet.
	Verify the "Safety Lock" cannot be engaged.
	If footswitch has been installed make sure that the footswitch plug is securely seated in the chair port. If a fatal error has occurred due to a poor connection proceed with the fatal error reset listed below.
After the chair has run through several cycles of up and down the motor fails to work	Let the motor rest for 18 minutes before trying to use the chair again.
The movement of the chair does not match the key pressed.	The connections to the chair are incorrect. Contact Technical Service.
Acoustic warning signal heard	A 200 millisecond beep followed by a 200 millisecond pause indicates a lost chair position. Push the home button, and the chair should reset itself. If the chair does not reset, proceed with the fatal error reset listed below.  • <b>Fatal error reset</b> – Push the back up and back down buttons simultaneously for >5 seconds to reset system to factory defaults, and then press the Auto Return button to reinitialize the system.
	A long continuous beep indicates the chair is in fatal error mode. Follow the fatal error reset instructions listed above. If chair resumes operation, the alarm was a false error. If it does not resume operation, contact technical services
	A 5 second beep followed by no-beep indicates the chair is over-heating. Let the motor rest for 18 minutes before trying to use the chair again.

**7.1. Warranty Information**

Global Surgical Corporation warranty information is located at:

**<http://www.globalsurgical.com/warranty.html>**

**SMR Cabinet and Chair Warranty**

SMR cabinets, chairs, and associated accessories include a one-year warranty from defects, which covers parts and labor.

Except as set forth in this Limited One – Year Warranty, Global Surgical Corporation (the “Company”) hereby warrants that each SMR (ENT cabinets, exam chairs, and stools) product manufactured and sold by the company (“Product”) shall be free from defects in materials and workmanship under normal use and service for one year from date of invoice. This warranty is non-transferable and is valid only with respect to the original purchaser of the Product. The Company’s obligation under this warranty shall be limited to repairing or replacing, at the Company’s facility and at the Company’s expense, any parts or components that are demonstrated to be defective. The purchaser shall be responsible for shipment of the Product to and from the Company’s facility at 3610 Tree Court Industrial Boulevard, St. Louis, Missouri, 63122, Attention: Technical Service, or such other facility as the Company may otherwise designate.

Under certain circumstances which are pre-approved by the Company, necessary repairs may be made at the purchaser’s facility. A return authorization is required before returning any Product for warranty service by calling 1-800-861-3610 or 636-861-3388.

This warranty shall be void and of no effect: (1) if the Product is damaged due to misuse, use in a manner other than pursuant to the instructions for the use of the Product, abuse, physical mishandling or natural causes such as flood, fire, earthquake, or other perils, as determined by the Company, or (II) if any repairs or replacements are made by persons unauthorized by the Company to perform such services.

The warranties set forth herein are in lieu of any and all other warranties, expressed or implied, including, without limitation, warranties of merchantability and fitness for a particular purpose. Purchaser’s rights thereunder are granted in lieu of any other rights purchaser may have and purchaser hereby waives all other rights, warranties, remedies or guarantees whatsoever with respect to the product. The Company shall not be liable for any third parties with respect to the product or its performance. Further, the Company shall not be liable for, and purchaser hereby releases the Company from, any direct or indirect, consequential, special, and incidental or punitive damages with respect to the product. In no event shall the Company be liable for any breach of warranty or other claim in an amount exceeding the purchase price of the product.

This warranty applies to the U.S. and Canada only.

For International warranty information: Email: [international@globalsurgical.com](mailto:international@globalsurgical.com)  
Phone: 1-636-861-3388, Fax: 1-636-861-2969

## 7.2. Technical Service Department

When contacting our Technical Services Department, you will be served by highly knowledgeable representatives in an efficient manner. If service is required at your location, a skilled technician or sales representative will be dispatched within 24 hours.

If you have questions that are not covered in this manual, please call the Global Surgical Technical Service Department as listed below:

Toll Free Number:	1-800-861-3610
Technical Services Representatives:	1-636-861-3388
Fax Number:	1-636-861-5284
Email:	techservice@globalsurgical.com

The staffing hours for the Global Surgical Technical Service Department are Monday through Friday from 8:00 a.m. to 5:00 p.m. Central Standard Time.

## 7.3. Internet Access

The Global Surgical Technical Service website has information about additional products and services and can be reached by using the online at: <http://www.globalsurgical.com>.

## 7.4. Service Information

In the event of any malfunction, you should immediately contact the Global Surgical Technical Service Department for assistance. A **Customer Identification Number and Customer Order Number** will be needed when contacting the Technical Service Department. These numbers are printed on your invoice. To save time in the event service is needed, record these numbers in the spaces provided in the front of this manual.

A **Return Material Authorization (RMA) number** must be obtained from the Global Surgical Technical Service Department prior to returning a product for repair. The following information must accompany all returned units:

1. Your name, address, and telephone number
2. The RMA number
3. A description of the problem

Ship or return the product to:

**Global Surgical Corporation  
3610 Tree Court Industrial Blvd.  
St. Louis, MO 63122  
Attention: Technical Services Department**

## Appendix A

**Guidance an manufacturer's declaration**

Appendix A-1	Electromagnetic emissions.....	A-1
Appendix A-2	Electromagnetic immunity .....	A-3
Appendix A-3	Recommended separation distances between portable and mobile RF communications equipment and the MAXI S 4000 Examination .....	A-6

**WARNING**

**THE USE OF POWER CORD AND PLUG OTHER THAN THOSE INCLUDED WITH THE MAXI S 4000 EXAMINATION CHAIR AND SUPPLIED BY GLOBAL SURGICAL CORPORATION MAY RESULT IN INCREASED EMISSIONS OR DECREASED IMMUNITY OF THE MAXI S 4000 EXAMINATION CHAIR.**

**WARNING**

**THE MAXI S 4000 EXAMINATION CHAIR SHOULD NOT BE USED ADJACENT OR STACKED WITH OTHER EQUIPMENT AND IF ADJACENT OR STACKED USE IS NECESSARY, IT SHOULD BE VERIFIED THAT THE MAXI S 4000 EXAMINATION CHAIR OPERATES NORMALLY IN THE CONFIGERATION IN WHICH IT WILL BE USED.**

**CAUTION**

**When used in clinical or residential areas near radio or TV units, this equipment may be subjected to radio interference. To avoid adverse electromagnetic effects, do not operate this equipment near RF energy equipment.**

**CAUTION**

**To prevent any potential electromagnetic interference, do not use any kind of cellular phone near the equipment.**

**CAUTION**

**This equipment needs special precautions regarding EMC (Electromagnetic Compatibility) and needs to be installed and put into service according to the EMC information provided in Appendix A of this manual.**

**CAUTION**

**Replacement parts, such as cables, must be purchased through Global Surgical Corporation to ensure proper compliance requirements. The use of other cables may affect EMC performance. Unauthorized use of these items will void warranty and may cause injury to you, others and/or the equipment.**

**CAUTION**

**Portable and mobile RF communications equipment can affect medical electrical equipment.**

## Appendix A-1

Guidance and manufacturer's declaration – electromagnetic emissions		
The MAXI S 4000 Examination Chair is intended for use in the electromagnetic environment specified below. The customer or the user of MAXI S 4000 Examination Chair should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The MAXI S 4000 Examination Chair uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The MAXI S 4000 Examination Chair is suitable for use in all establishments other than domestic, and may be used in domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded:
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	<b>Warning:</b> This system is intended for use by healthcare professionals only. This system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-orienting or relocating MAXI S 4000 Examination Chair or shielding the location.

## Appendix A-2

**Guidance and manufacturer's declaration – electromagnetic immunity**

The MAXI S 4000 Examination Chair is intended for use in the electromagnetic environment specified below. The customer or the user of the MAXI S 4000 Examination Chair should assure that it is used in such an environment.


<b>Immunity Test</b>	<b>IEC 60601 test level</b>	<b>Compliance level</b>	<b>Electromagnetic environment - guidance</b>
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% $U_T$ (>95% dip in $U_T$ ) for 0,5 cycle  40 % $U_T$ (60% dip in $U_T$ ) for 5 cycles  70 % $U_T$ (30% dip in $U_T$ ) for 25 cycles  <5 % $U_T$ (>95% dip in $U_T$ ) for 5 s	<5% $U_T$ (>95% dip in $U_T$ ) for 0,5 cycle  40 % $U_T$ (60% dip in $U_T$ ) for 5 cycles  70 % $U_T$ (30% dip in $U_T$ ) for 25 cycles  <5 % $U_T$ (>95% dip in $U_T$ ) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the MAXI S 4000 Examination Chair requires continued operation during power mains interruptions, it is recommended that the MAXI S 4000 Examination Chair be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE:  $U_T$  is the a.c. mains voltage prior to application of the test level.

## Appendix A-2

## Guidance and manufacturer's declaration – electromagnetic immunity

The MAXI S 4000 Examination Chair is intended for use in the electromagnetic environment specified below. The customer or the user of the MAXI S 4000 Examination Chair should assure that it is used in such an environment.

Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 Vrms 150 kHz to 80 MHz</p> <p>3 V/m 80 MHz to 2.5 GHz</p>	<p>3 Vrms</p> <p>3 V/m</p>	<p>Portable and mobile RF communication equipment should be used no closer to any part of the MAXI S 4000 Examination Chair, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P} \text{ 80 MHz to 800 MHz}$ $d = 2.3\sqrt{P} \text{ 800 MHz to 2.3 GHz}$ <p>where <b>P</b> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic sit survey, a should be less than the compliance level in each frequency range. b</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>

**Appendix A-2**

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the MAXI S 4000 Examination Chair is used exceeds the applicable RF compliance level above, the MAXI S 4000 Examination Chair should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the MAXI S 4000 Examination Chair.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

## Appendix A-3

**Recommended separation distances between portable and mobile RF communications equipment and the MAXI S 4000 Examination Chair**

The MAXI S 4000 Examination Chair is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the MAXI S 4000 Examination Chair can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and MAXI S 4000 Examination Chair as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum output power of transmitter  <b>W</b>	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz  $d=1.2\sqrt{P}$	80 MHz to 800 MHz  $d=1.2\sqrt{P}$	800 MHz to 2.5 GHz  $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in Watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.



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