

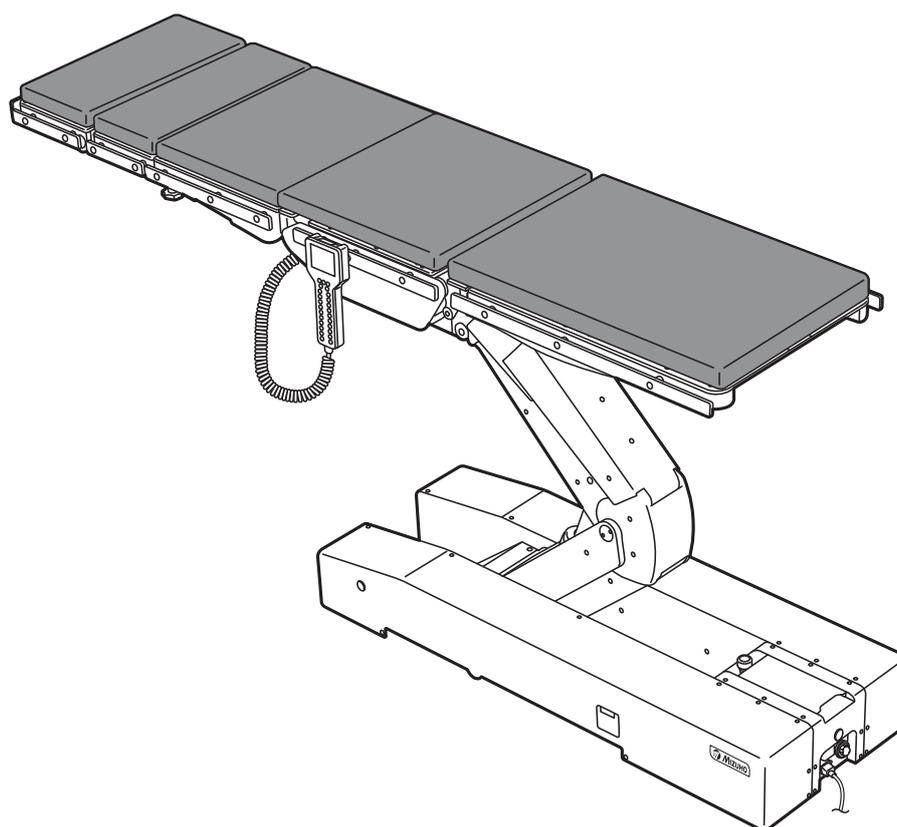
CE



# Microsurgery Operating Table Operator's Manual

## MST-7300B

## MST-7300BX



This operating table is designed for medical operations. Using this operating table for any other purpose other than this intended use may cause serious injury.

The operator and the person in charge of the maintenance of this operating table must read this operator's manual thoroughly and understand the contents before operating, inspecting, adjusting and maintaining it.

Keep this manual for reference in a place where is readily accessible.

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# 1. Introduction

## 1.1 This manual

This manual contains information for safely and effectively using this product.

Before operating this product, read this manual thoroughly to understand how to operate and inspect the product.

Failure to follow these instructions could lead to serious injury.

The safety information is categorized as per the following so that the contents of warnings and cautions, and the details of warnings and cautions which are labeled on the product may be comprehended.



If this indication is ignored and the product is incorrectly used, serious injury or death may result.



If this indication is ignored and the product is incorrectly used, injury and/or damage to property may result.

### NOTE

This notice notes additional information on the product's functions.

The warning and caution notices on this manual relating to operating and inspecting, apply to the intended use (surgical operations) of this product.

If the product is used for purposes other than surgery, the user is responsible in regard to safety for performing operations and inspections which are not contained in this manual.

## 1.2 Intended use and this product

### ■ Operating table

This product is the operating table on which a patient is placed for surgical operations.

The product is intended to support a patient during neurosurgical operations.

In conforming with the objectives of surgery, the product is equipped with features for adjusting its height, and for freely changing and setting the patient's body position.

The product uses both medical grade outlets and batteries as power sources.

This product is to be used by health care professionals, including but not limited to surgeons, nurses and biomedical technicians.

### ■ Touch screen

This product is provided with a touch screen. The touch screen displays a status of the operating table and its error status. For the details of the touch screen, refer to Page 14.

## 1.3 Operation of this product

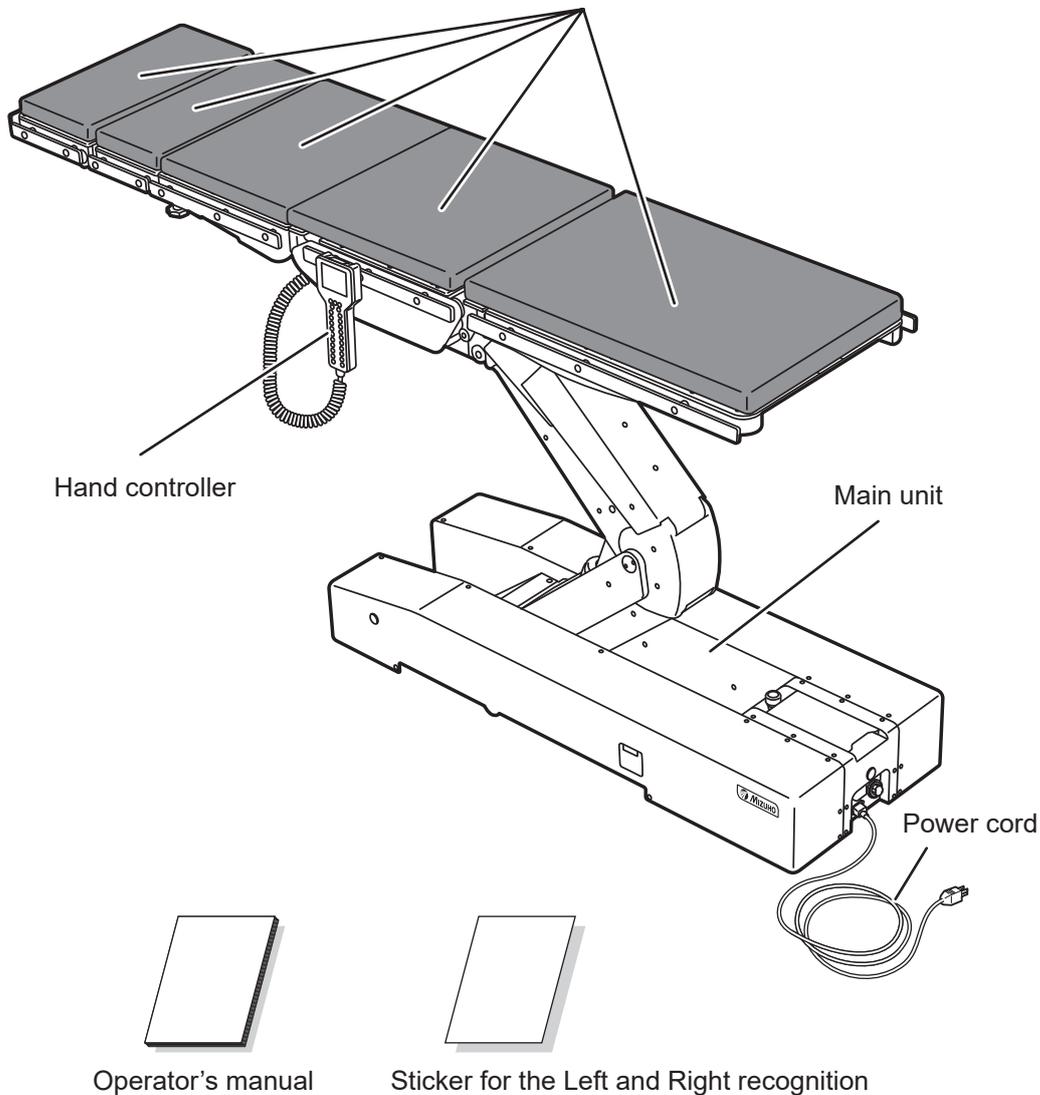
The description of the operations written in this manual focuses mainly on those to be done by the hand controller. For some operations operable only by the touch screen, however, those by the touch screen are described.

The pictures of the hand controller and the touch screen which are depicted in this manual are from the MST-7300BX.

## 1.4 Accessories

### ■ Standard components and accessories

Flame-Retardant and Waterproof Pads (SUSANO Pad)  
(for Head Section Type A, Head Section Type B, Back Section Type B,  
Seat Section Type C, Single Leg Section Type B)

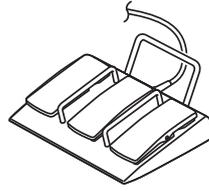
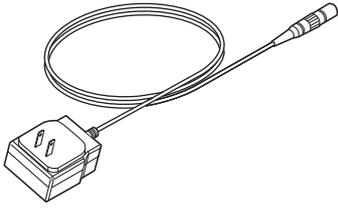


#### NOTE

The Sticker for the Left and Right recognition is a label that matches the colors with the left and right on the hand controller. Feel free to affix it, etc. and use it in a place on the base where it is easily visible.

## ■ Optional parts

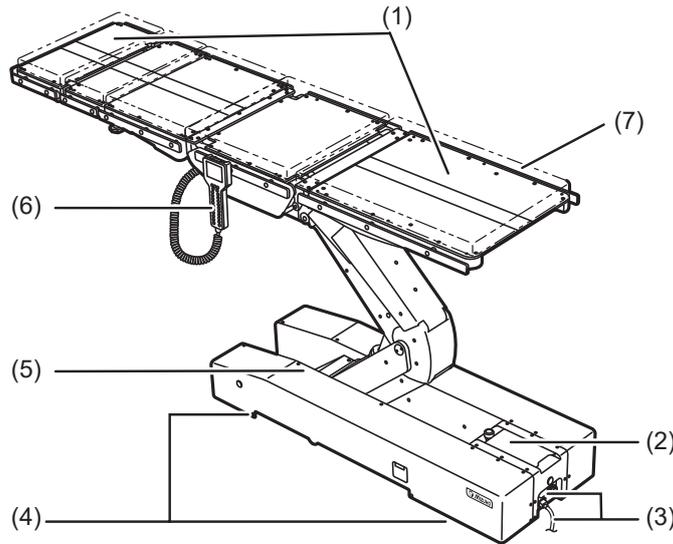
- Hand controller charging adapter
- Foot switch



# 2. Safety precaution

## 2.1 Read thoroughly before using

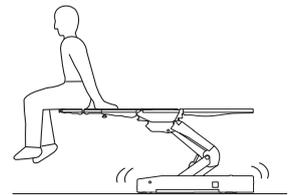
In using this product, carefully read the following warnings and cautions, and make sure to observe them. Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority in which the user and/or patient is established.



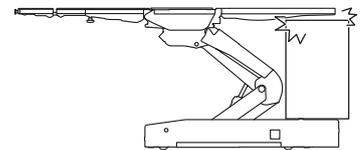
### (1) Head section and leg section



Do not step or sit on the head section or the leg section(s). The operating table may tip over resulting in injury.



- Before lowering the table or placing it in a reverse Trendelenburg position, check if there are any devices under the leg section. If the leg section comes in contact with devices and it is subjected to excessive force, the operating table may be damaged.



- Do not operate until the accessory contacts the floor when the operating table is put into the Trendelenburg or the back section/tabletop is moved down with any accessory such as a head frame attached. It may get damaged.



When transferring a patient from the operating table (Fig. a) or changing a patient's body position (Fig. b), do not apply excessive force on the head section or leg section.

The operating table may get deformed or damaged.

Fig. a



Head section Leg section

Fig. b



Head section Leg section

## (2) Touch screen



**CAUTION**

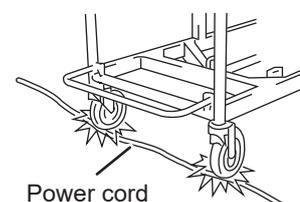
- Do not push the touch screen by any sharps such as a pen and a screw driver. The touch screen may get damaged.
- Do not apply great impact or pressure to the touch screen. The touch screen may get damaged.
- Do not use organic solvents such as paint thinner to wipe the display and the protective cover. They may get damaged. To wipe the display and the protective cover, use a natural detergent diluted with water.
- The touch screen does not accept simultaneous multiple-key pressing and flicking operations. When operating the touch screen, press the switch one by one.
- Close the protective cover when you do not use the touch screen.

## (3) Power cord and power connector



**WARNING**

- Do not place any heavy objects on the power cord.
- Do not roll over the power cord with a casted device.
- Do not forcibly pull the power cord.
- Do not place any objects in the place where the power cord is to be unplugged from the medical grade outlet, which would obstruct it from being unplugged.
- Take waterproofing measures such as covering the power connector with a plastic sheet, etc. so that liquids do not infiltrate inside of the power connector. If liquids infiltrate inside of the power connector, it may cause fire or damage.

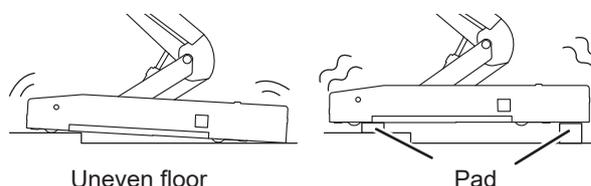


## (4) Installation of the operating table



**WARNING**

- Do not install the operating table on an uneven floor.
- Do not place a pad under the base for raising the operating table. The operating table may tip over resulting in injury.



## (5) Base



**CAUTION**

Do not place any objects on the base. An object may get caught and the operating table may get damaged.

## (6) Hand controller



**CAUTION**

- Do not forcibly pull the hand controller cord.
- Do not subject the hand controller to strong shocks. The hand controller may get damaged.

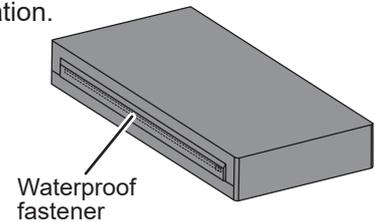
## (7) Table pad



Make sure to securely attach the table pads to the operating table so that they do not come off. The table pads may come off, and the patient may get injured.



- Attach the table pads straight along the Velcro fastenings from the edges. Especially, attach long table pads while holding them with your hands so that the surfaces do not get wrinkled. If the table pads rise up or buckle, they may get deformed or damaged.
- Do not apply tape, etc. directly on the table pads. Otherwise, they may get damaged.
- Place and store the table pads in flat places. Leaning or bending may get deformed or damaged.
- Do not store operating table accessories or other medical devices, etc. on the table pads. Otherwise, they may get deformed or damaged.
- The table pads maintain waterproofness when they are properly attached in their usage. If the table pads are attached other than the proper placement method in their usage, and liquids infiltrate inside, it may cause degradation.
- If liquids get on the table pads waterproof fastener, wipe them off quickly. If the waterproof fastener gets wet and the liquids infiltrate inside, it may cause degradation.
- Do not open the table pads waterproof fastener. If liquids infiltrate inside, it may cause degradation.



## ■ Patient's position during surgical operation



Position the patient's body 10 mm (0.39 in) or more away from the metal side rail. The side rail may produce high temperatures due to the usage of electric scalpels, etc., which may result in a burn injury.

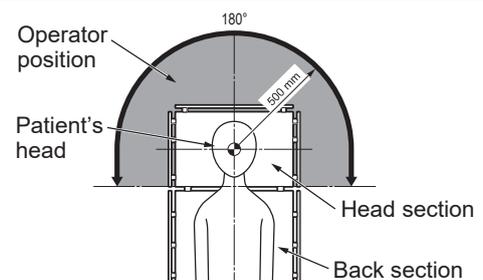
### ● Positioning the patient

Follow the steps below to position the patient.

- 1. Attach the accessory table pads onto the tabletop with their Velcro fastenings aligned with each other.**
- 2. Put the patient on the table pads. (Do not reverse the patients' head and leg orientations.)**
- 3. Position the patient according to the purpose of the surgical operation.**



Have the person who operates the operating table to operate it in a position where the emergency stop switch can be immediately pressed, and the patient's condition can constantly observed.



## Other

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- **Prohibited**
    - Do not disassemble and/or modify the operating table. Otherwise, malfunction may occur.
  - **Patient position**
    - When using the tabletop or accessories to secure a patient's body position, always observe the patient's condition. Being in the same position for long periods of time causes neuroparalysis or bedsores.
  - **Other medical electrical equipment to be used together with the operating table**
    - When using a high-frequency surgical equipment and/or a cardiac defibrillator etc. with the operating table, refer to their operator's manual provided by the manufacturers and observe the precautions and usage. Improper precautions and usage may cause the operator or the patient to get burned and/or devices to malfunction.
    - When using medical electrical equipment etc. with the operating table, check that the operating table does not malfunction before using it. Electromagnetic interference may result in malfunctioning of the operating table.
  - **Weight capacity**
    - Do not apply loads which exceed the weight capacity (total of the patient and accessories)\*. The operating table may not function, which may result in failures.  
\* 360 kg (800 lbs)
  - **Preventive maintenance and inspections**
    - Make sure to inspect and maintain the operating table before and after use. The operating table may require replacement of the parts due to significant wear, deterioration, and/or breakage depending on the usage period and frequency of use.
    - For preventive maintenance and inspections, contact your distributor or Mizuho directly.
  - **Antistatic measure**
    - Do not use the operating table on floors and/or with accessories that do not possess static electricity countermeasures. This may impede surgical operations.
-



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### ● Devices and accessories used together with this product

- Before using other devices or accessories, thoroughly read the instruction manual of the devices and make sure that the operating table is not affected adversely. Before fitting on accessories from third party companies, contact your distributor or Mizuho. Some accessories cannot be fitted on.
- While operating the operating table, check the position of other devices or the accessories used with them. They may come in contact with each other during the operation, the operating table, devices and/or accessories may get damaged.
- For hygiene, be sure to use sterilized drapes on the areas on this product where the patient comes into contact with it.

### ● Moving and transporting

- Do not move the operating table with a patient on it.
- Follow the procedures below to move the operating table.
  - \* Before moving the operating table, disinfect the entire operating table in order to prevent infection.
    1. Turn off the power and disconnect the power cord from the medical grade outlet.
    2. Check if the handles and levers are in fixed positions, and each section is fixed firmly.
    3. Unlock the brakes, and move the operating table.
  - \* Do not move the operating table by pulling on the head section or the leg section.
- The operating table should be transported with the following conditions met.
  1. Disinfect the entire operating table before transporting it.
  2. Take measures to prevent it from tipping over, such as lowering the tabletop to the bottom position.
  3. Actuate the brake.
  4. Suitably position cushioning on the product to prevent it from getting damaged during transport.
  5. Store the product in a container so that it does not get exposed to dust, and the weather.

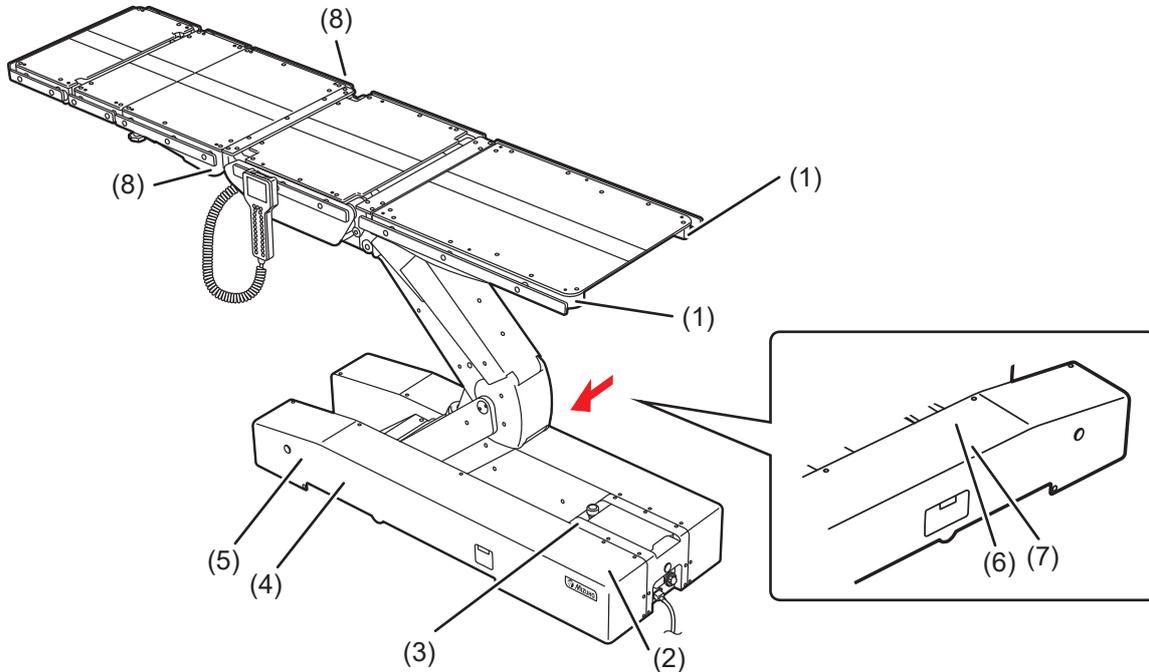
### ● Disposal

- In accordance with the European Union Waste Electrical and Electronic Equipment (WEEE) Directive, all electrical components and batteries must be disposed of in accordance with local regulations. Please contact your local distributor for proper disposal.
  - Pay special attention to the following disposals:
    - a) Hydraulic Fluid
    - b) Lead Acid Batteries
-

## 2.2 Labeling

The operating table is labeled at the locations shown as below. Before use, make sure to understand the contents of the labels.

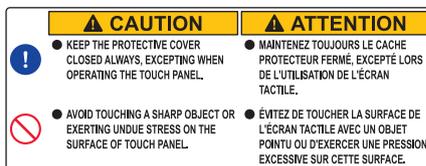
### Warning and Caution labels



(1) C643025 □



(2) C657332 □



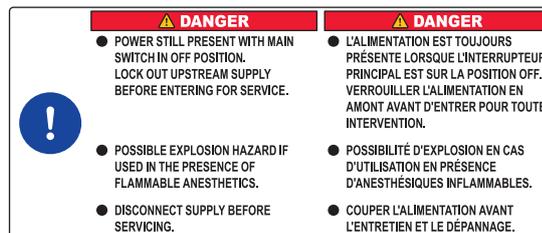
(3) C657312 □



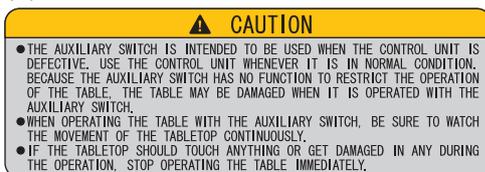
(4) C656740 □



(5) C657331 □



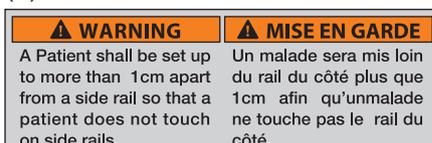
(6) C655803 □



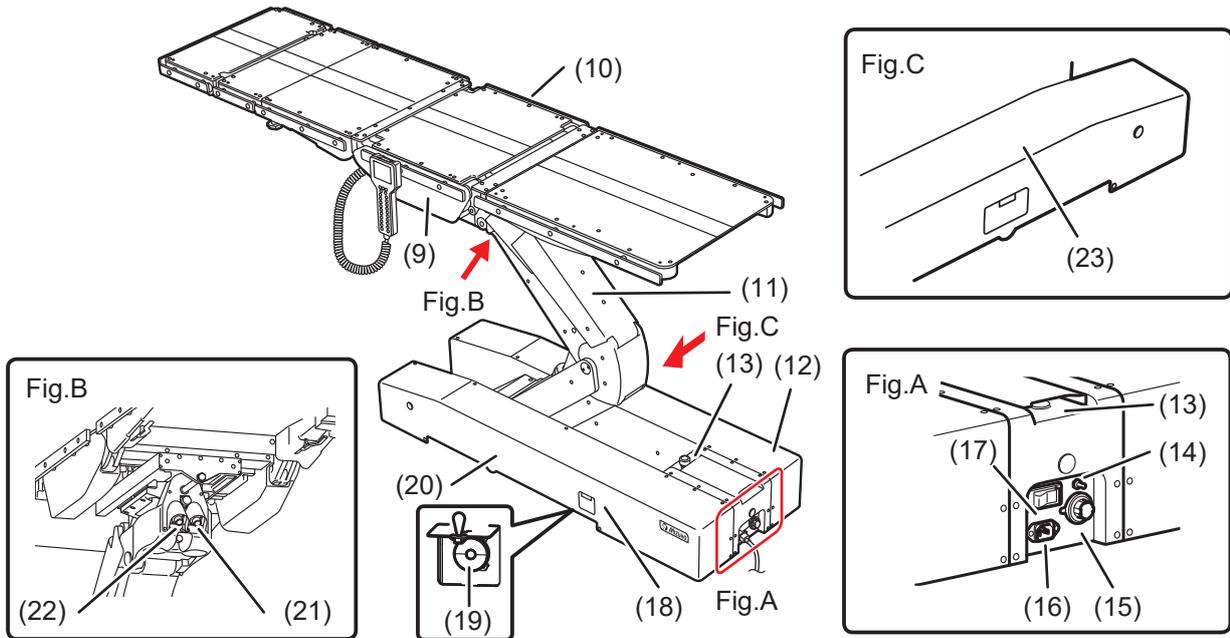
(7) C657333 □



(8) C653624 □



Other labels (1/2)



(9) C657337□ (MST-7300BX)



(9) C657335□ (MST-7300B)



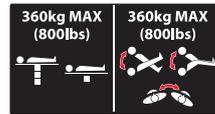
(10) C657336□ (MST-7300BX)



(10) C657334□ (MST-7300B)



(11) C657343□



(12) C642002□



(13) C657313□



(14) C657309□



(15) C657308□



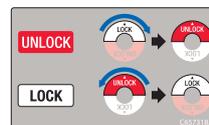
(16) C657307□



(17) C657306□



(18) C657318□



(19) C655711□



(20) C656741□

NOTE	REMARQUE
GROUNDING RELIABILITY CAN ONLY BE ACHIEVED WHEN THE EQUIPMENT IS CONNECTED TO AN EQUIVALENT RECEPTACLE MARKED "HOSPITAL ONLY" OR "HOSPITAL GRADE".	LA FIABILITÉ DE MISE À LA TERRE NE PEUT ÊTRE OBTENUE QUE LORSQUE L'ÉQUIPEMENT EST CONNECTÉ À UNE PRISE ÉQUIVALENTE REPÉRÉE "HÔPITAL UNIQUEMENT" OU "QUALITÉ HÔPITAL".

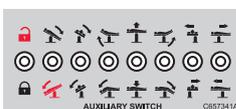
(21) C657311□



(22) C657310□



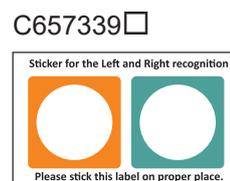
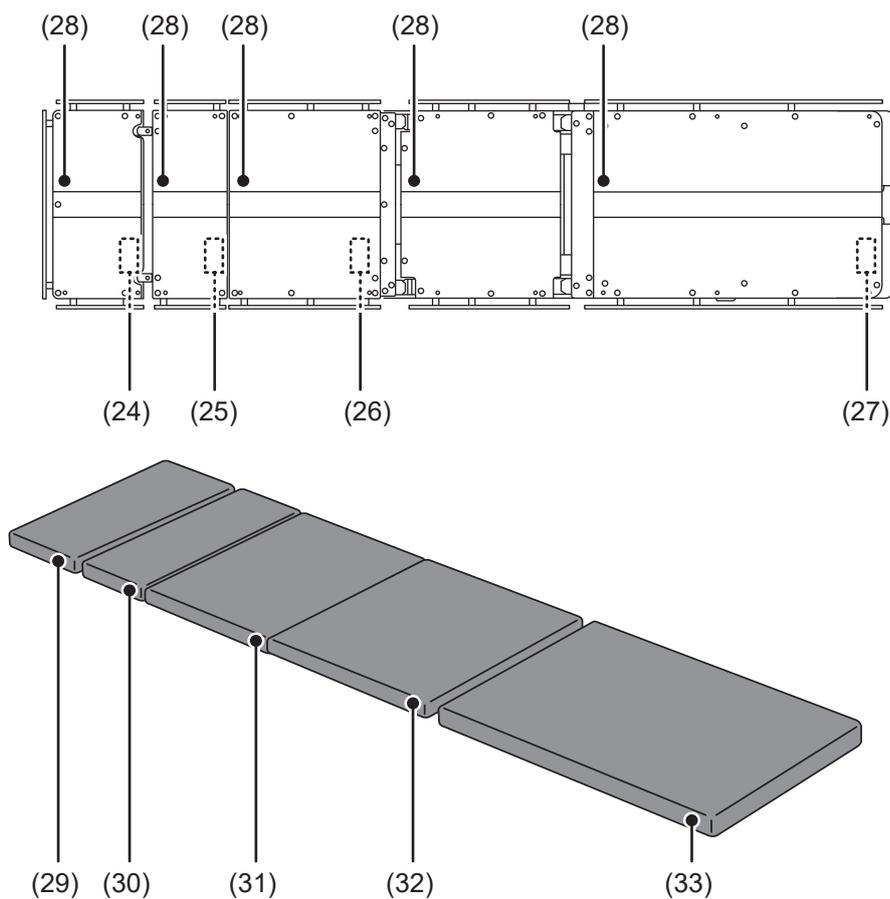
(23) C657341□ (MST-7300BX)



(23) C657340□ (MST-7300B)



Other labels (2/2)



(24) C657305□ (ASIA)    (25) C657303□ (ASIA)    (26) C657302□ (ASIA)    (27) C657301□ (ASIA)



or C657348□ (EU)



or C657351□ (EU)



or C657349□ (EU)



or C657350□ (EU)



or C657344□ (US)



or C657347□ (US)



or C657345□ (US)



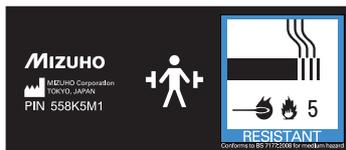
or C657346□ (US)



(28) C653620□



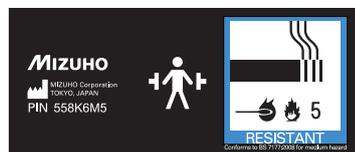
(29) PIN 558K5M1



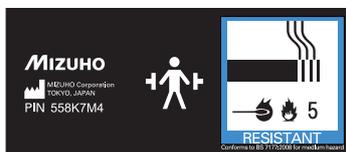
(30) PIN 558K5M3



(31) PIN 558K6M5



(32) PIN 558K7M4



(33) PIN 558K8M8

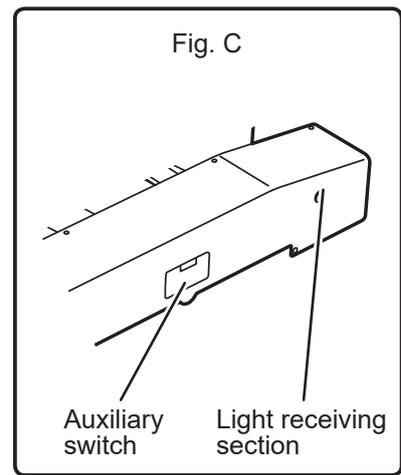
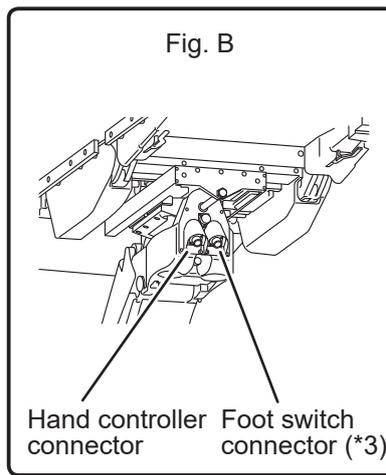
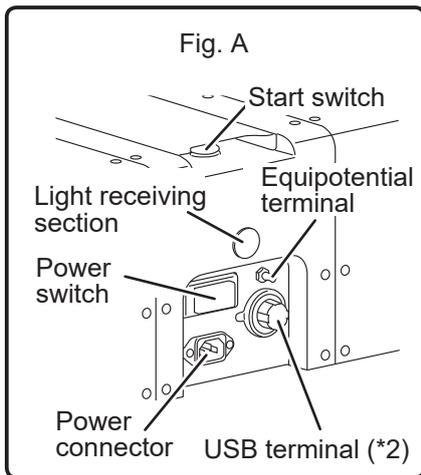
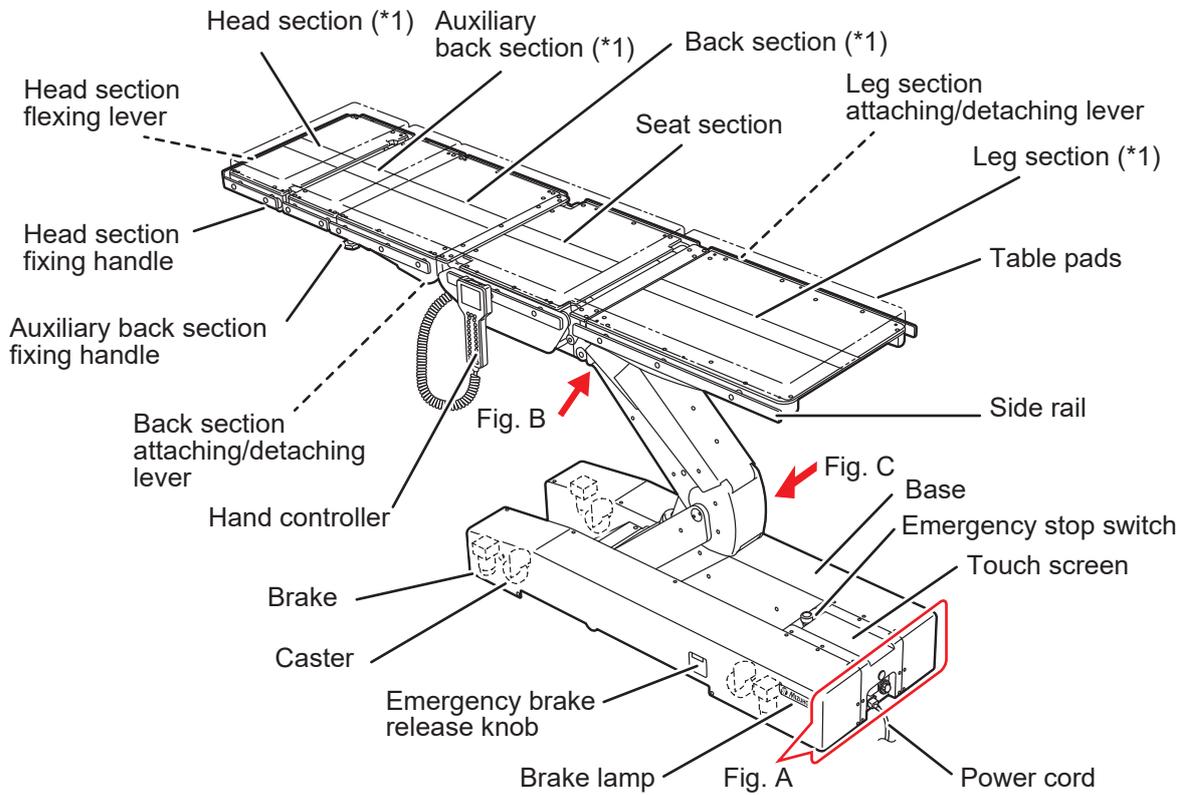


## ■ Symbol mark for labeling

Symbol	Description	Label no.
	Indicates a possibility of injury or even death if operates the table without following the warning	(1) (2) (4) (5) (6) (7) (8)
	General prohibition sign	(1) (2) (4)
	No sitting	(1)
	No stepping on surface	(1)
	General mandatory action sign	(2) (4) (5)
	Emergency stop	(3)
	Refer to the operator's manual	(4) (12) (13)
	Indicates AC power supply	(12) (16)
IPX4	Enclosure Class (Splash-proof)	(12)
	Serial number	(12)
	Catalogue Number	(12)
	European authorized representative	(12)
	Indicates waste disposal information	(12)
	Medical Device	(12)
	Equalization terminal	(14)
	USB	(15)
	POWER ON	(17)
○	POWER OFF	(17)
	Indicates protection against electric shock and defibrillator (Class B)	(28)
	Defibrillation - proof Type B applied part	(29) (30) (31) (32) (33)
	Date of manufacture	(12)
	Manufacturer	(12) (29) (30) (31) (32) (33)
	Conforms to BS 7177:2008 for medium hazard	(29) (30) (31) (32) (33)

# 3. Section Introduction

## 3.1 Main unit



- \* 1: The head section, auxiliary back section, back section, and the leg section can be detached.
- \* 2: The USB terminal is intended to be used for maintenance. Do not connect a device such as a personal computer to the USB terminal.
- \* 3: The foot switch is optional.

## 3.2 Touch screen

### TOP PAGE screen

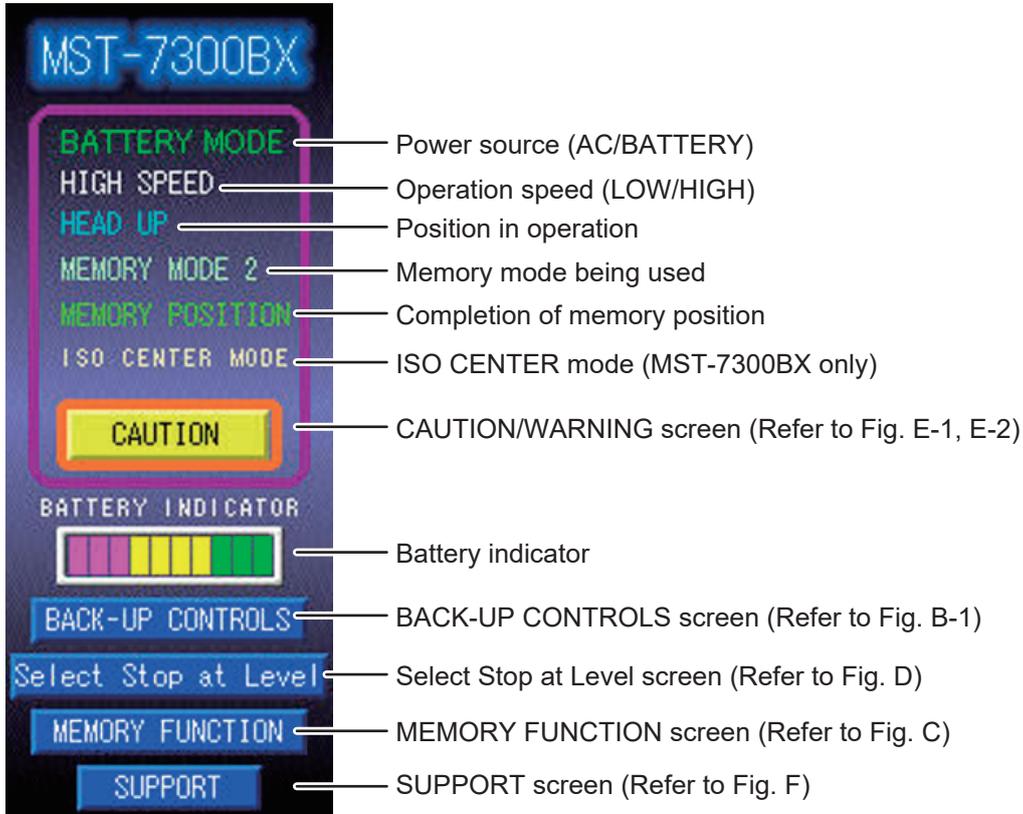


Fig. A (MST-7300BX)

### BACK-UP CONTROLS screen (1/2)

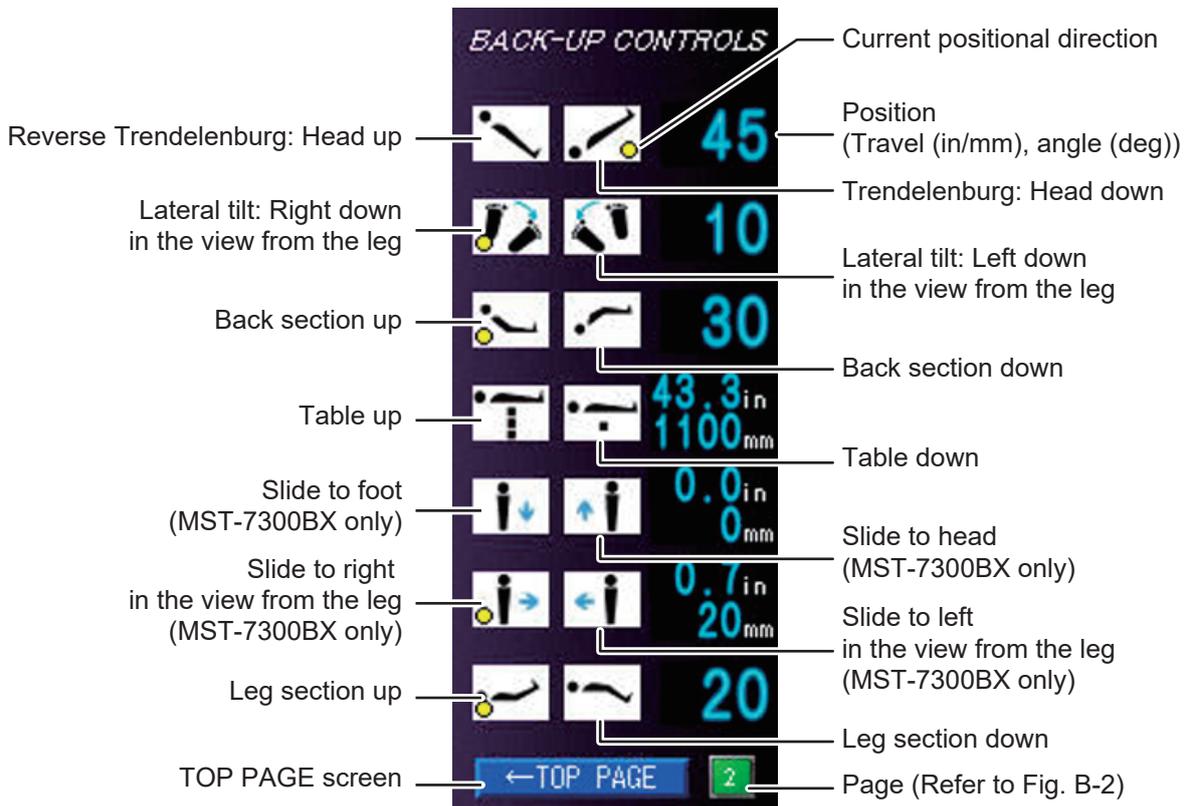


Fig. B-1 (MST-7300BX)

■ BACK-UP CONTROLS screen (2/2)

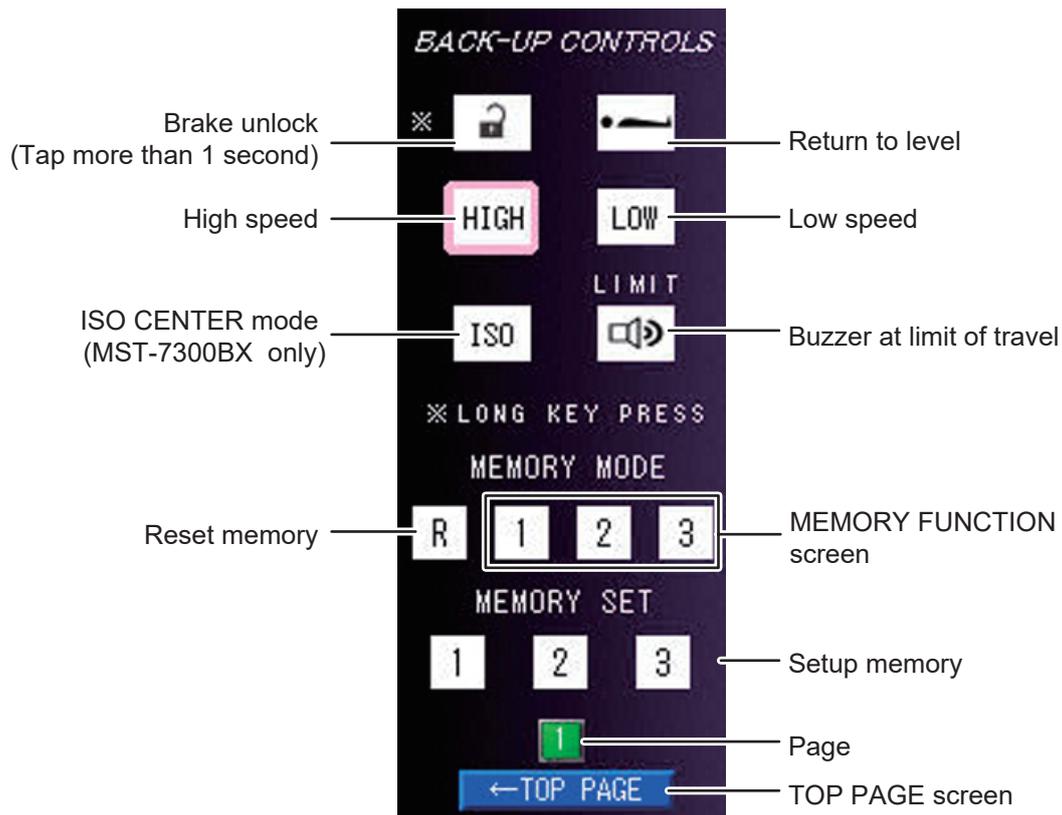


Fig. B-2 (MST-7300BX)

■ MEMORY FUNCTION screen

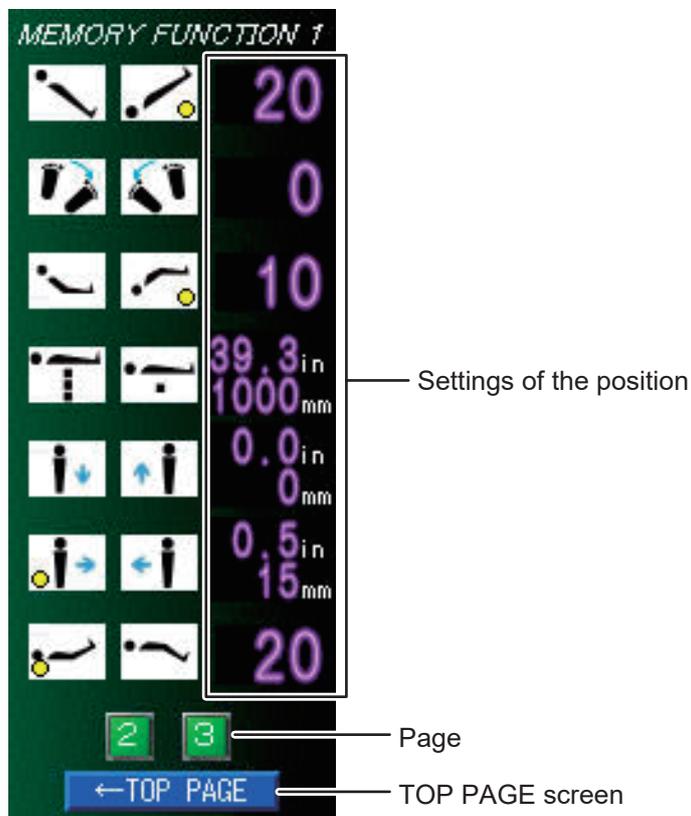


Fig. C (MST-7300BX)

**NOTE**

For the details of the MEMORY FUNCTION, refer to Page 53.

## ■ Select Stop at Level screen

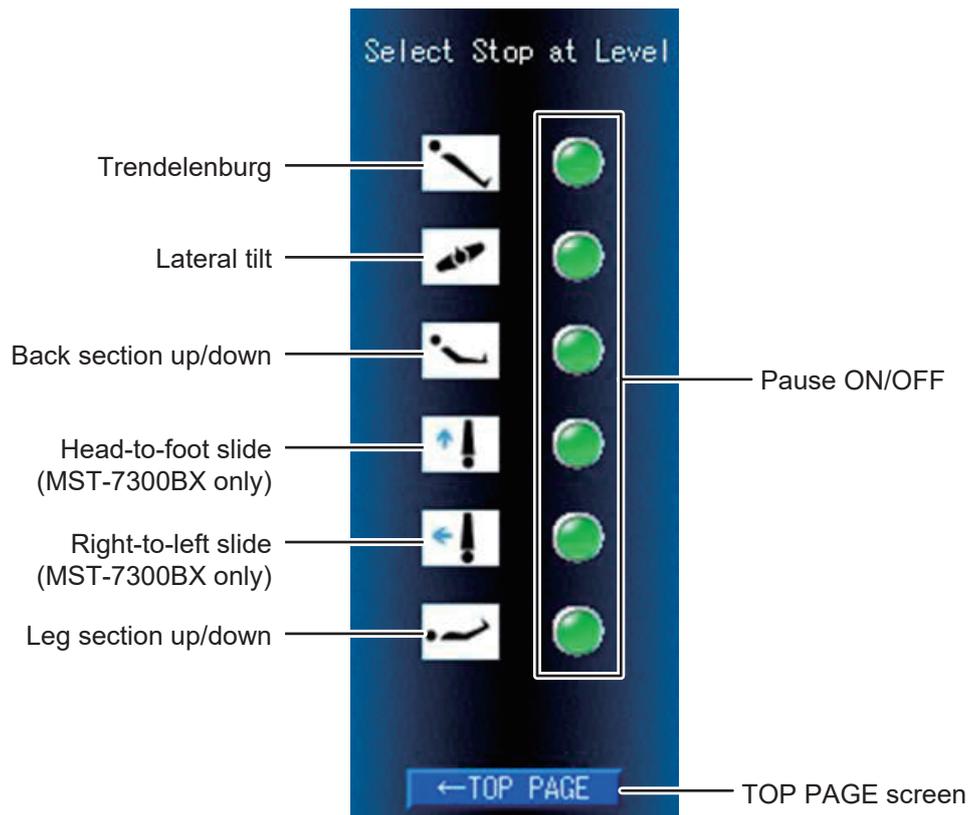


Fig. D (MST-7300BX)

### NOTE

- With the default setting, all functions are set to ON.
- For the details of the Select Stop at Level screen, refer to Page 32.

## ■ CAUTION/WARNING screen

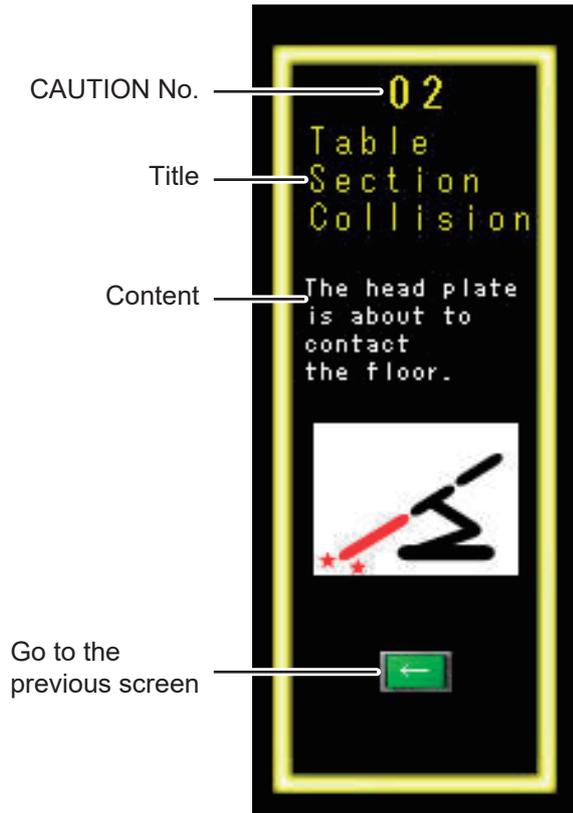


Fig. E-1

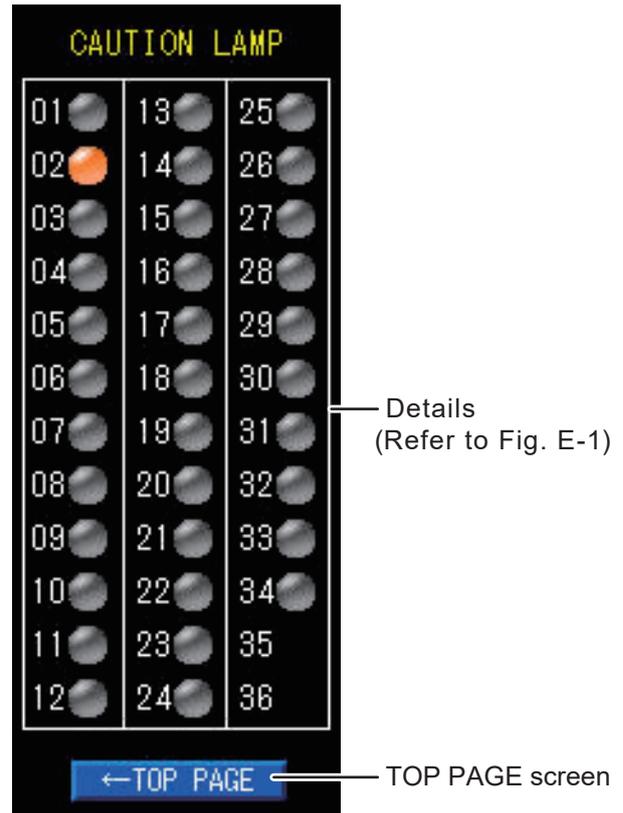


Fig. E-2

### NOTE

- To prevent damages, the operating table may stop automatically during the operation of the table and a caution/warning screen such as in Fig. E-1 appears on the touch screen. For specific recovery procedures after the operating table stopped, refer to Page 79.
- Fig. E-2 appears, if you click CAUTION in Fig. A while any caution or warning has occurred. When you tap the CAUTION No. which is lit, and then the screen of Fig. E-1 appears.

## ■ Special error screen

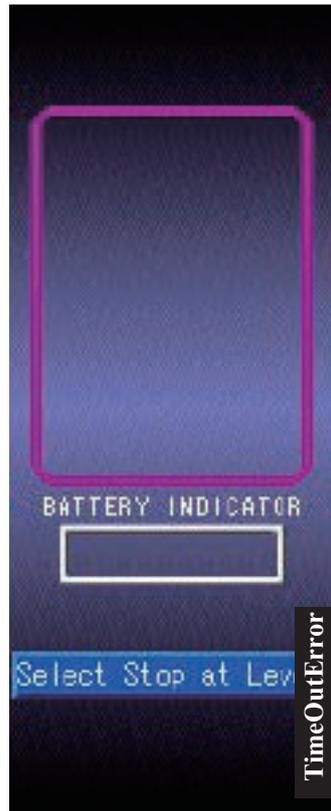


Fig. E-3

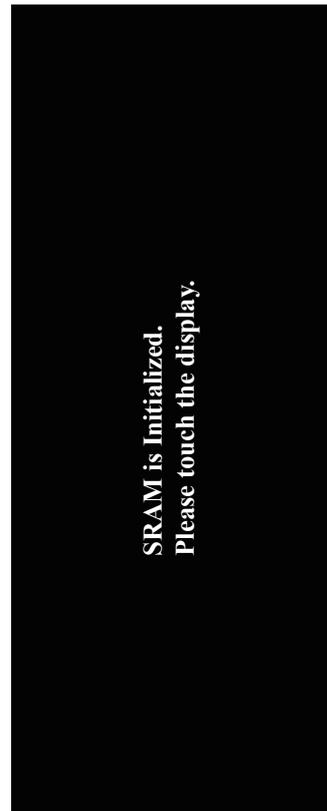


Fig. E-4

### NOTE

- The special error screen as per the above may be displayed.
- Fig E-3 might be the touch screen connection error.
- Fig E-4 indicates that the touch screen battery might be depleted.
- If the operating table is turned off and turned on again, the special error screen is still displayed, contact your distributor or Mizuho for repairs.

## ■ SUPPORT screen



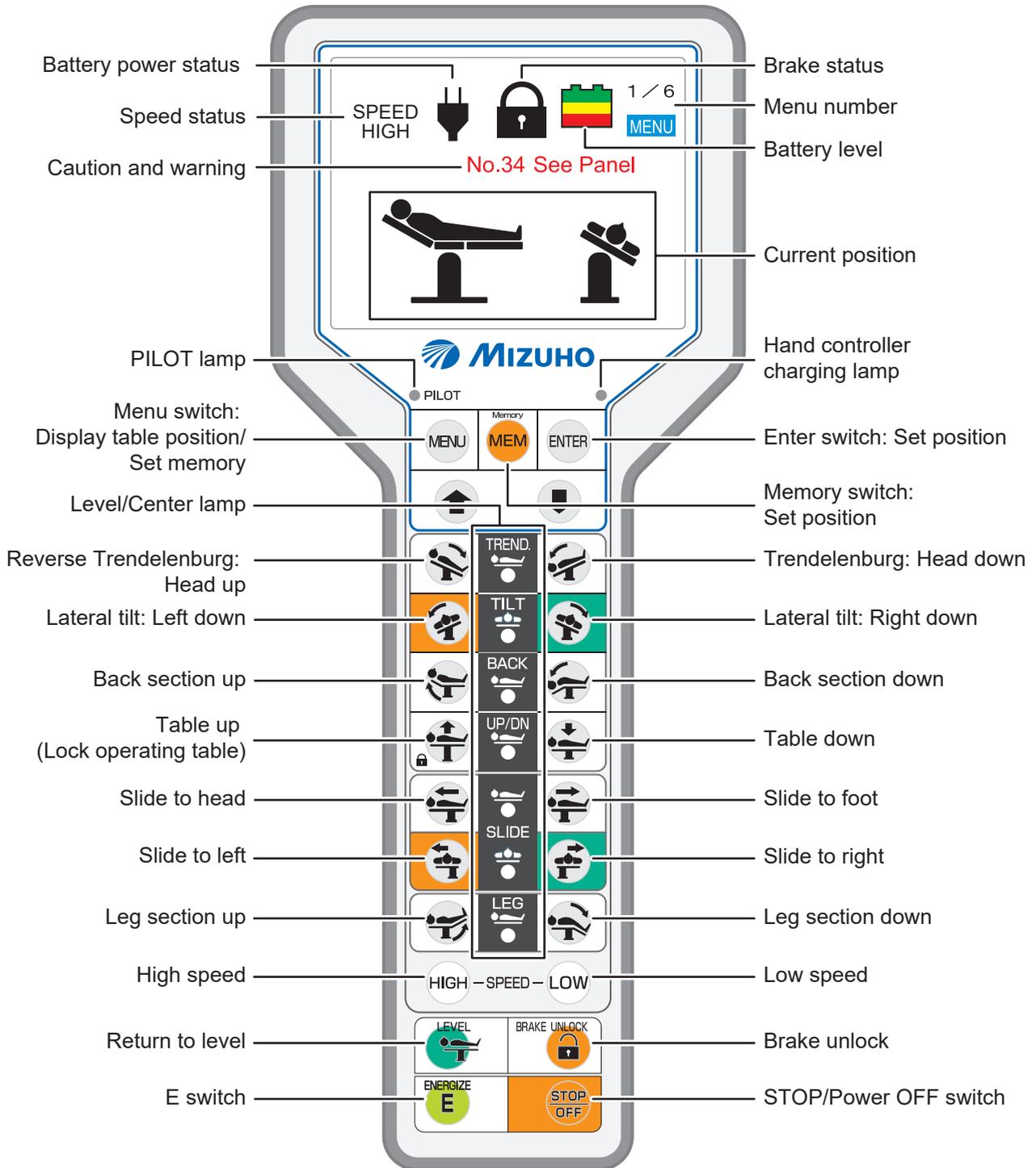
Fig. F

### NOTE

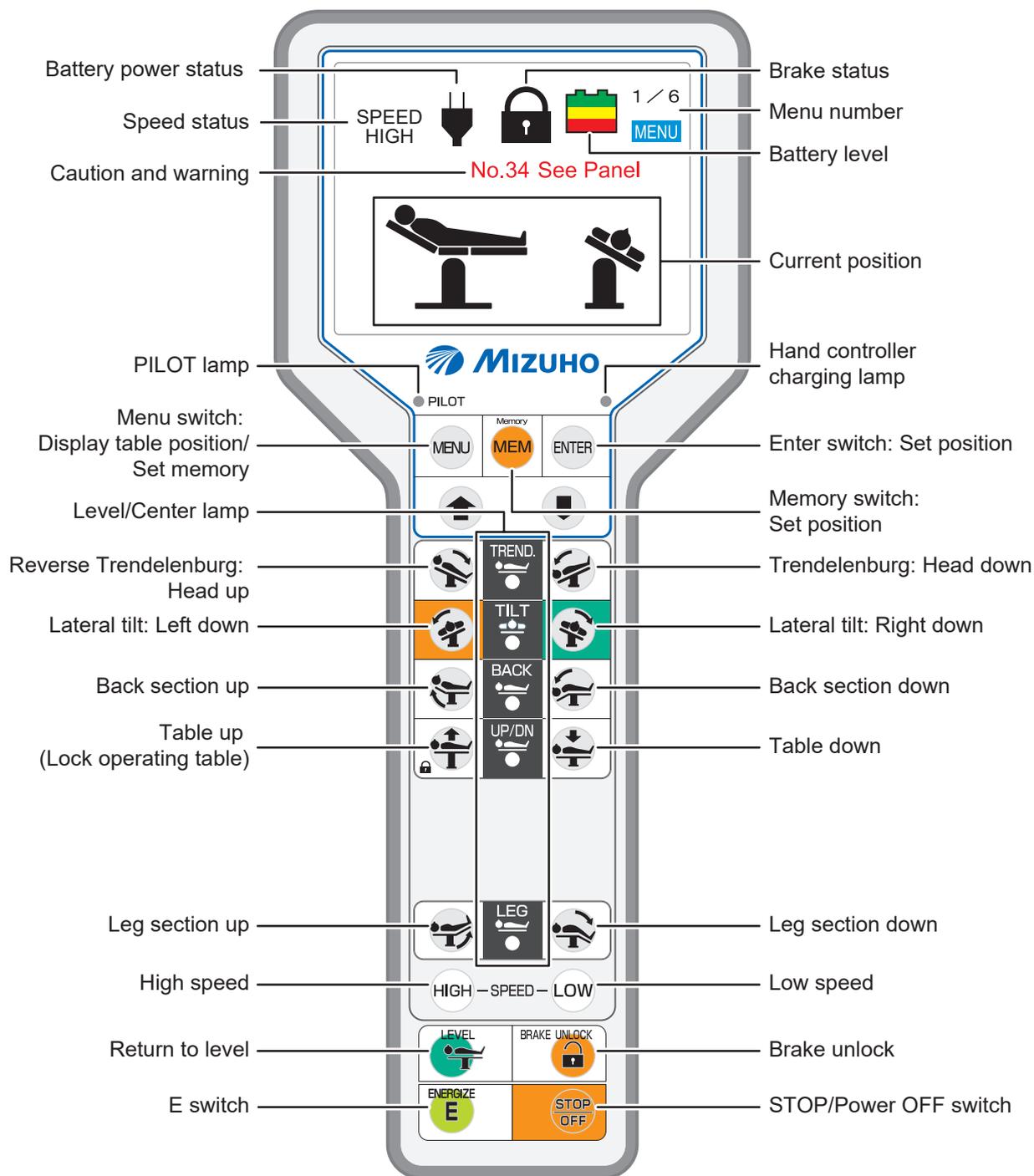
Please contact your distributor or Mizuho for repairs or maintenance.

# 3.3 Hand controller

## ■ MST-7300BX



## ■ MST-7300B

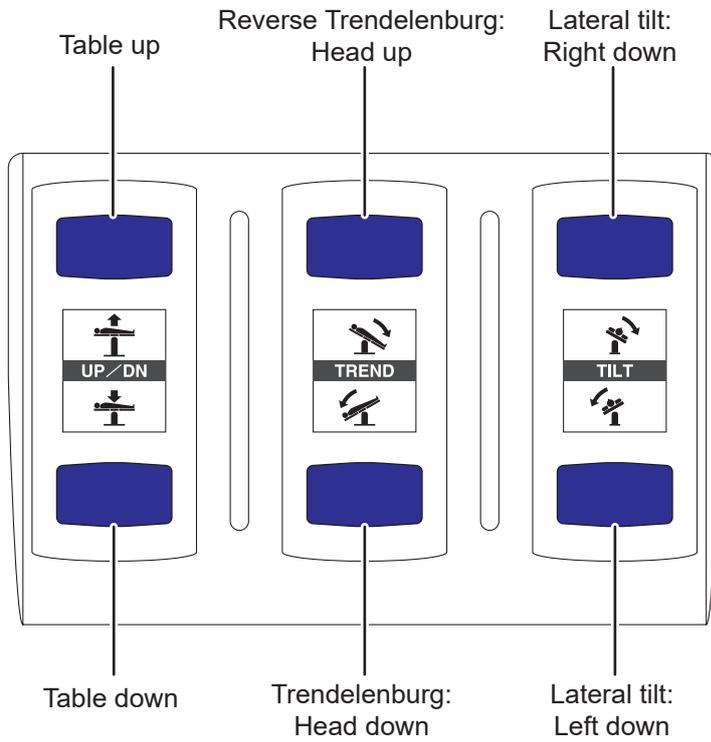


### NOTE

- The switches other than the E switch continue to function while being pressed.
- If **E** is pressed, function switches light up. Pressing any function switch while they are lighting up activates the function of the switch, and the PILOT lamp lights up. The function does not work even if you pressed the function switch before pressing **E**.
- **HIGH** and **LOW** light up when respective operation speeds are reached.
- The hand controller charging lamp blinks when charging is required and lights up while charging.
- The level/center lamp lights up when the tabletop is at the level or center position of respective operations.
- To prevent damages, the operating table may stop automatically during the operation of the table with a message shown on the hand controller. For specific recovery procedures after the operating table stopped, refer to Page 79.
- When the hand controller is used wirelessly, nothing appears on the monitor screen.
- When using the battery, the power is turned off automatically 3 minutes after the last operation.

## 3.4 Foot switch (optional)

### ■ MST-7300BX and MST-7300B

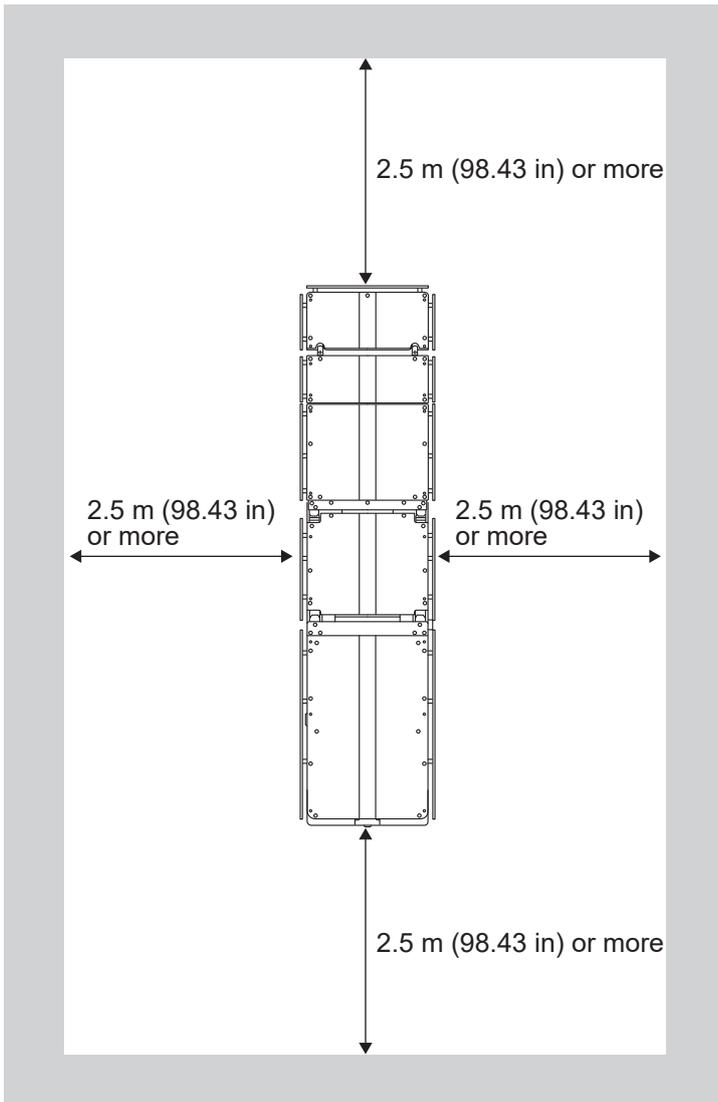


# 4. Installation

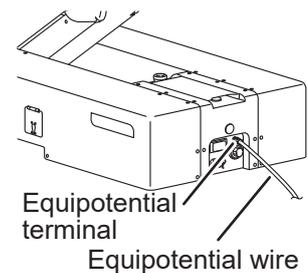
## 4.1 Installation of the operating table

### ■ Installation space

This product requires the installation space shown as below.



- Use the equipotential wire to ground the equipotential terminal to the medical grounding terminals. Prepare the equipotential wire yourself.
- When moving this product, carry it out with two or more persons.

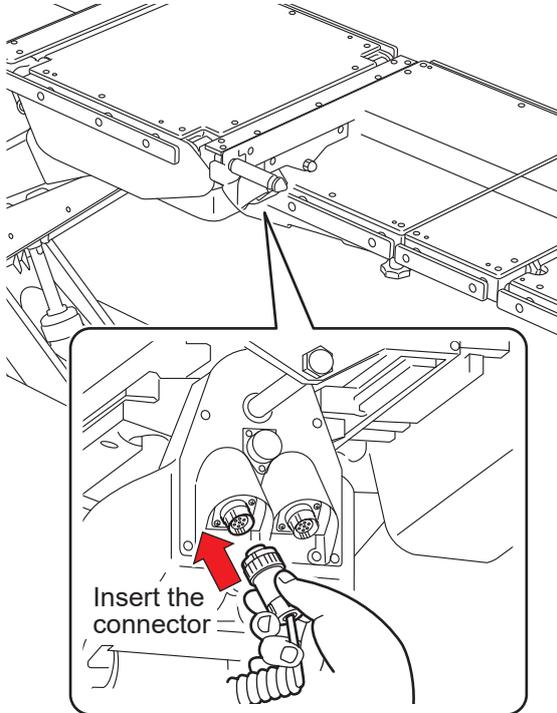


### 1. Move this product to a flat place to install it.

## 4.2 Attaching/Detaching the hand controller

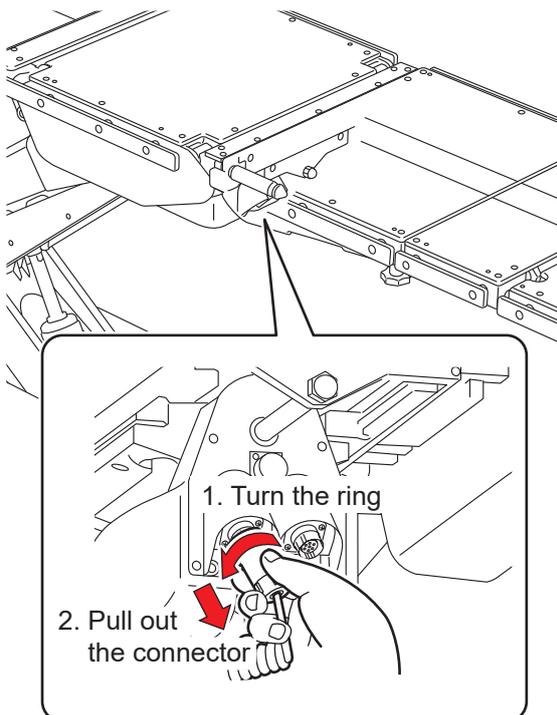
### ■ Attaching the hand controller

1. Align the connector with the guide and insert it into the receptacle properly.



### ■ Detaching the hand controller

1. Turn the connector ring in the direction of the arrow until it stops.
2. Once it stops, pull out the connector.



## ■ Using the hand controller wirelessly

The hand controller can be detached from the main unit and used wirelessly.



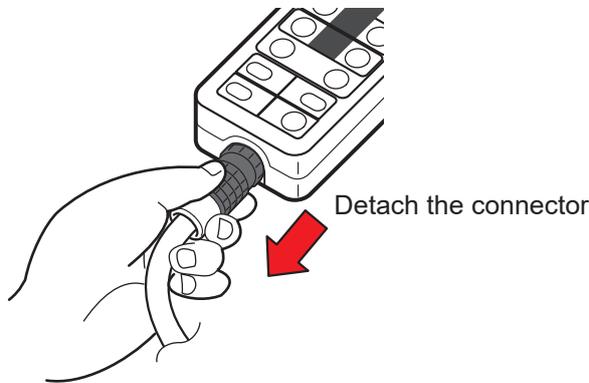
When using the hand controller wirelessly, an operating failure may occur, such as an interrupted connection caused by infrared and ambient light from peripheral medical devices.

## ● Putting the hand controller to the wireless control status



Hold the connector body to detach it. Holding the cord to detach the connector may cause breaking of the cord.

### 1. Detach the hand controller connector from the hand controller.

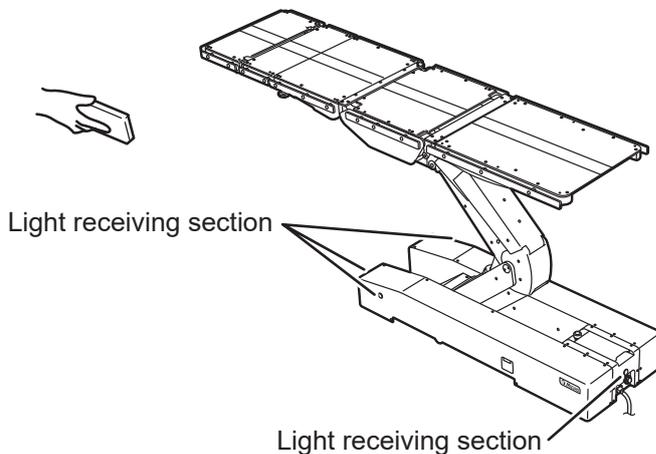


### NOTE

- While being used wirelessly, the hand controller works on the internal battery.
- While the hand controller is being used wirelessly, nothing appears on the monitor screen.
- It is normal for “No.11” and “No.31” to appear on the display screen on the touch screen when the hand controller is detached from the main unit.

## ● Operation

### 1. Aim the hand controller toward the light receiving section on the operating table and operate the hand controller.

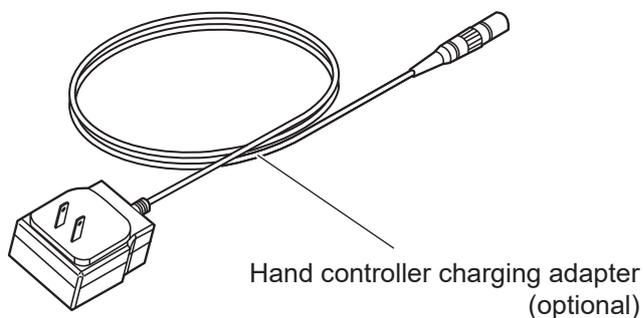


## ● Charging

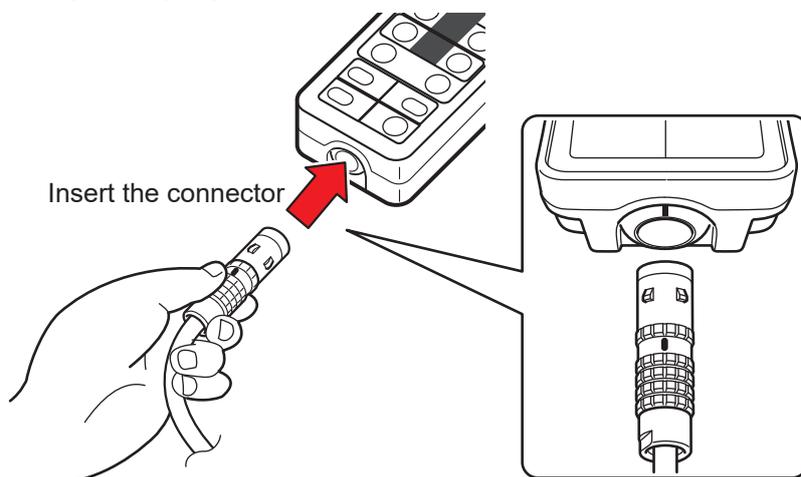
The hand controller cannot be used wirelessly when the battery level is low. If the hand controller charging lamp at the upper right of the hand controller flashes, connect the hand controller with the cord and immediately charge the hand controller. Use the hand controller charging adapter (optional) to charge the hand controller from your outlet.

### NOTE

The battery of the hand controller can be recharged only when the battery is decreased in the power level and the charging lamp flashes.



- 1. Align the connector with the guide and insert it into the receptacle properly.**



## 4.3 Turning on/off the power

This procedure is different between the powers from the medical grade outlet and the battery.



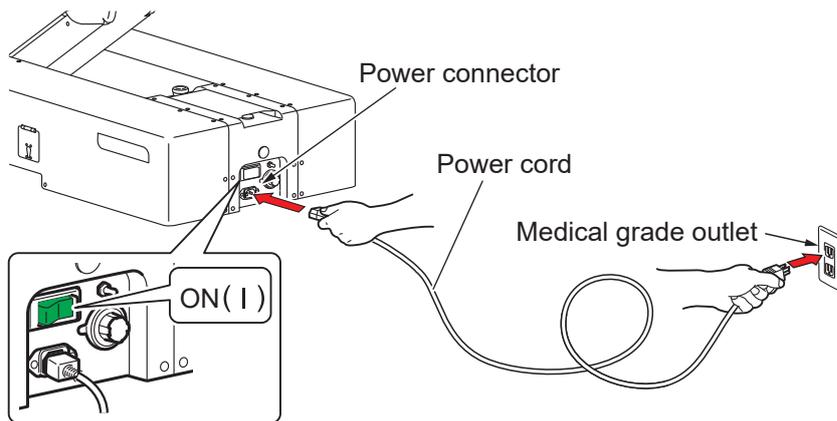
- Connect the product to the power source provided with the protective grounding to prevent the risk of an electrical shock.
- Make sure to use the dedicated power cord with the “MIZUHO” logo.
- Before inserting the power cord into the power connector, check that the power connector does not have any fluid in it nor is dusty.

### ■ When the medical grade outlet is used

#### ● Turning on the power

1. Connect the power connector of the product and the medical grade outlet with the power cord, and turn on the power switch.

The power switch (green) lights up, “AC MODE” appears on the touch screen, and  appears on the monitor screen of the hand controller.



#### NOTE

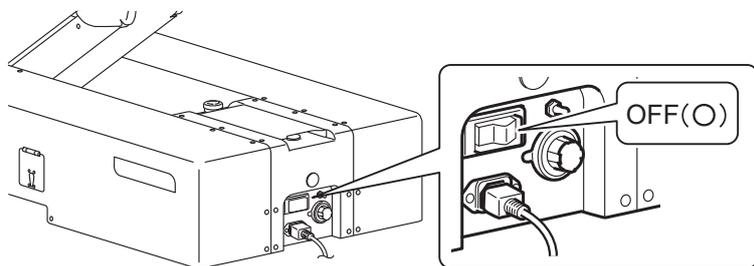
In an emergency or when turning off the power completely, disconnect the power cord from the medical grade outlet.



## ● Turning off the power

### 1. Turn off the power switch on the base.

The power switch (green) lights off, and  disappears on the monitor screen on the hand controller.



### 2. Press on the hand controller.

The touch screen and monitor screen light off.

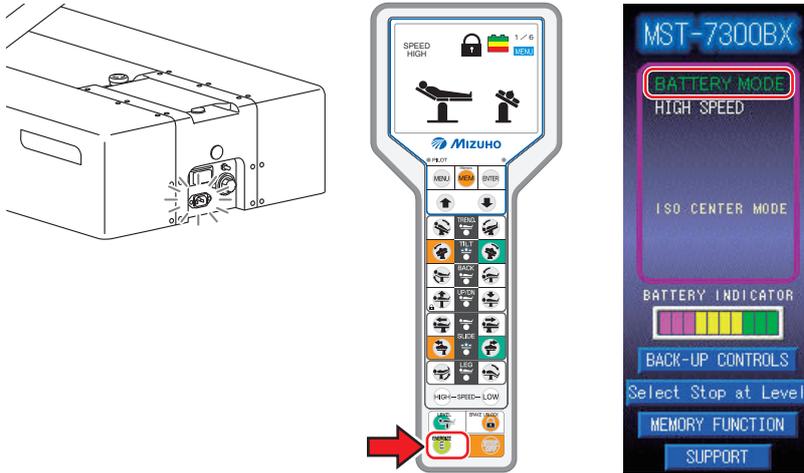


## ■ When the battery is used

### ● Turning on the power

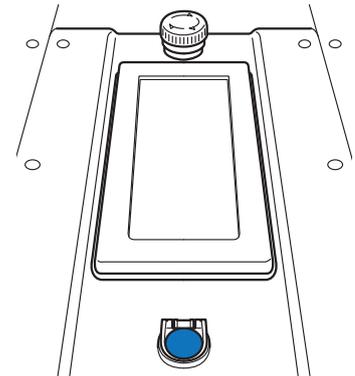
1. When the power cord is not connected to the power connector or the power switch on the base is turned off, press **E** on the hand controller.

“BATTERY MODE” appears on the touch screen, and  appears on the monitor screen of the hand controller.



#### NOTE

- When using the battery, the power is turned off automatically 3 minutes after the last operation.
- To turn on the power, press **E** on the hand controller or the blue switch below the touch screen.



2. Check the display on the hand controller.

The battery needs to be charged if the battery level icon turns to  on the monitor screen.



#### NOTE

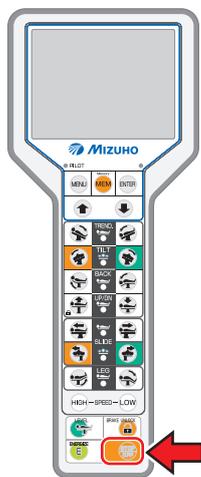
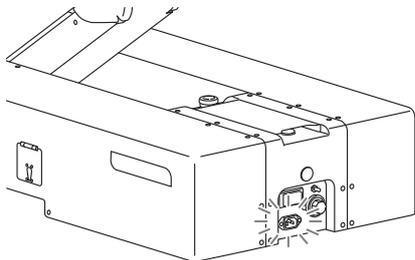
You can also use the battery indicator of the touch screen to check the charging status. When the battery indicator lights up only red, battery charging is necessary.



● Turning off the power

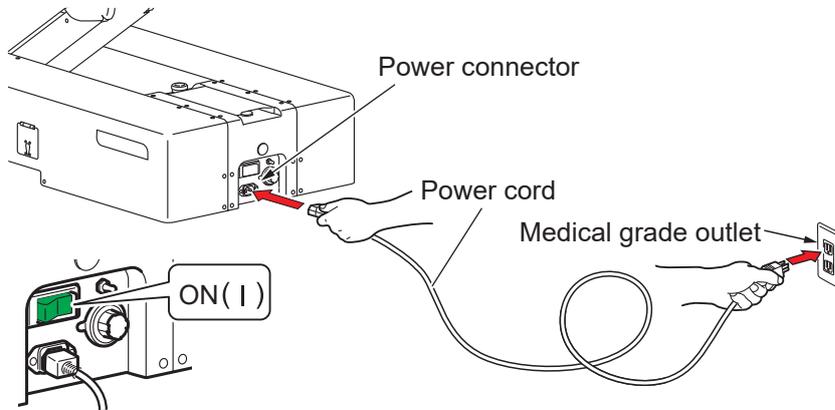
1. Press  on the hand controller when the power cord is disconnected to the power connector or the power switch is turned off.

The touch screen and monitor screen light off.



## 4.4 Charging the battery

1. Connect the power connector of the product and the medical grade outlet with the power cord, and turn on the power switch.



Battery charging starts.

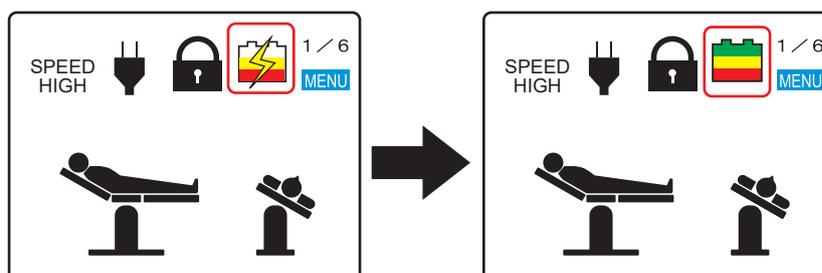
While charging, "CHARGE" appears on the battery indicator of the touch screen.

If the battery indicator changed to "FULL BATTERY", the charging is completed.



While charging, ⚡ appears on the monitor screen of the hand controller.

If ⚡ disappears and changes to 🔋, the charging is completed.



### NOTE

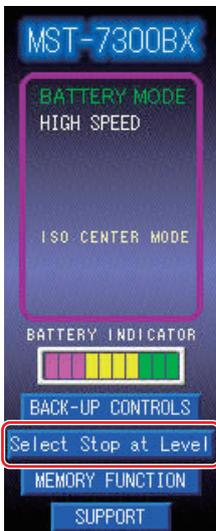
- Make sure to charge the battery when initially using the purchased product, or when it has not been used for a long time. The battery naturally discharges itself when it is not being used and is being stored.
- While the battery is being charged, you can operate the operating table.
- If the battery level on the monitor screen of the hand controller is red only, or the battery indicator on the touch screen is red only, immediately charge the battery. When the battery is discharged, only the AC power is available and will not be able to use the battery power.
- The operating table battery replacement time is about 2 years. Once it reaches its replacement time, request your distributor or Mizuho for a battery replacement.
- The life-span for the battery varies greatly depending on operating conditions. The battery could degrade quicker if charging and discharging the battery are repeated frequently after using the operating table for short operations.
- It is recommended that you charge the battery once a week on weekends, since it takes about 20 hours to fully charge the battery.
- If "FULL BATTERY" does not appear on the battery indicator or the battery is discharged soon even after charging, the battery may be degraded. Request repairs from your distributor or Mizuho.

# 5. Settings

## 5.1 Setting the pause functions at the level and center positions

With the default setting, the operating table pauses once at the level and center positions if the table is moved toward an opposite direction. You can set whether the operating table pauses or not at the level and center positions.

1. Show the “TOP PAGE” screen of the touch screen.
2. Tap “Select Stop at Level.”



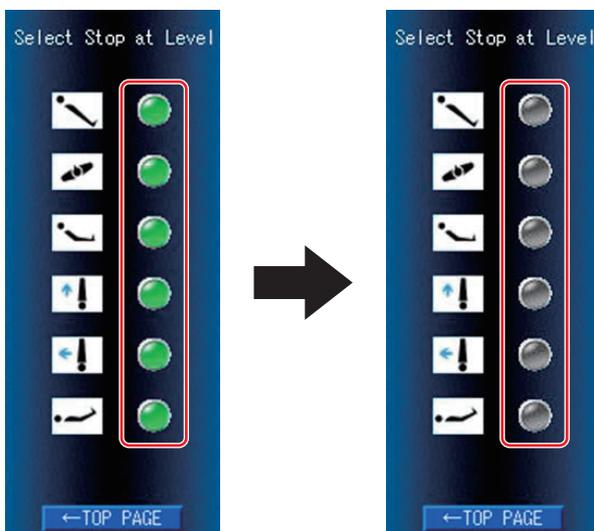
### NOTE

- For the procedure to show the touch screen, refer to Page 38.
- For the procedure to show the “TOP PAGE” screen of the touch screen, refer to Page 14.

The “Select Stop at Level” screen appears.

3. Tap the lamp of the function that you want to cancel the pause of the operation at the level and center positions.

The lamp of the function that you tapped grays out, and the operating table is set so that it does not pause at the level and center positions.



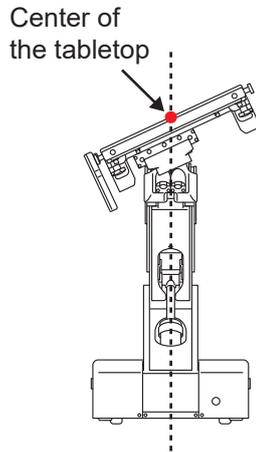
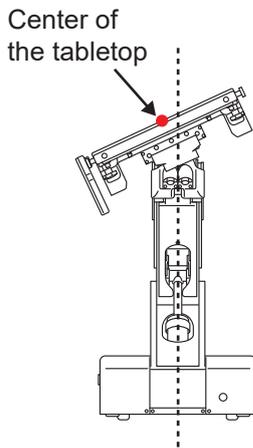
### NOTE

Tapping the lamp again turns the lamp green, which sets the operating table so that it pauses at the level and center positions.

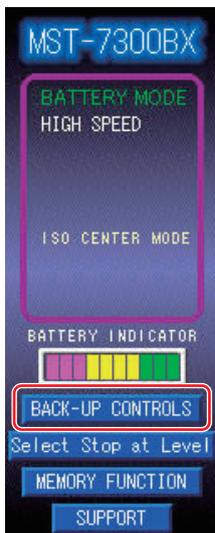
## 5.2 Changing the movement of the lateral tilt (MST-7300BX only)

With the default setting, the tabletop slides laterally so that is not displaced from the center of the main unit (ISO CENTER mode). You can set whether the ISO CENTER mode is activated or deactivated.

- Not ISO CENTER mode
- ISO CENTER mode



1. Show the “TOP PAGE” screen of the touch screen.
2. Tap “BACK-UP CONTROLS.”



The “BACK-UP CONTROLS” screen appears.

### NOTE

- For the procedure to show the touch screen, refer to Page 38.
- For the procedure to show the “TOP PAGE” screen of the touch screen, refer to Page 14.

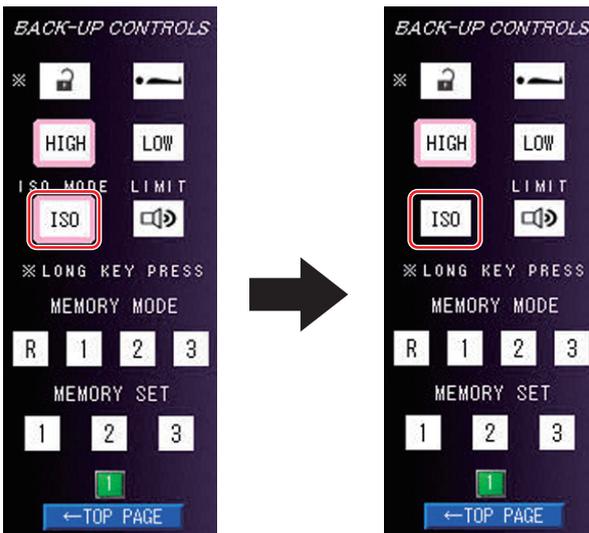
### 3. Tap “2.”



The page changes.

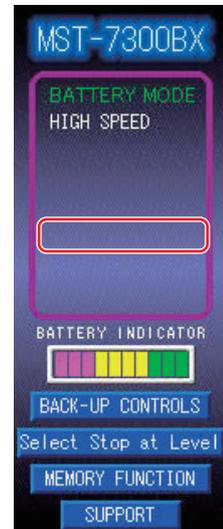
### 4. Tap “ISO.”

The ISO CENTER mode is deactivated.



#### NOTE

- After the ISO CENTER mode was deactivated, “ISO CENTER MODE” disappears on the “TOP PAGE” screen of the touch screen.



- Tapping “ISO” again activates the ISO CENTER mode.

## 5.3 Activating buzzer at the limit of travel

Buzzer can be activated so as to generate a buzzer sound when the operating table approaches the limit of travel during operation.

1. Show the “TOP PAGE” screen of the touch screen.
2. Tap “BACK-UP CONTROLS.”



The “BACK-UP CONTROLS” screen appears.

3. Tap “2.”



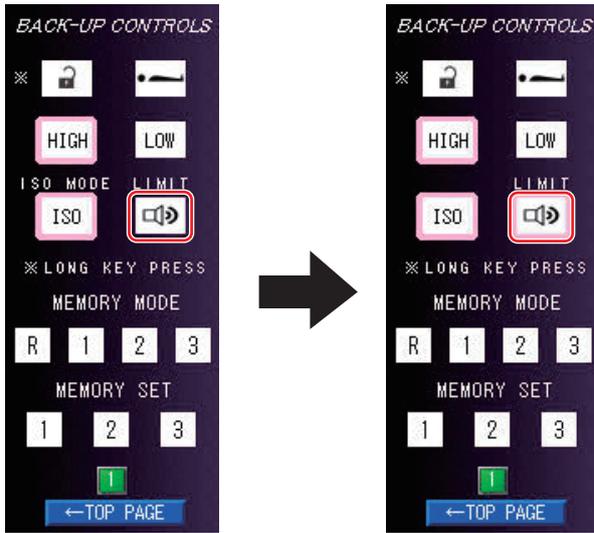
The page changes.

### NOTE

- For the limits of travels, refer to Page 70 (MST-7300BX) or Page 72 (MST-7300B).
- For the procedure to show the touch screen, refer to Page 38.
- For the procedure to show the “TOP PAGE” screen of the touch screen, refer to Page 14.

#### 4. Tap "LIMIT."

Buzzer at the limit of travel is activated.

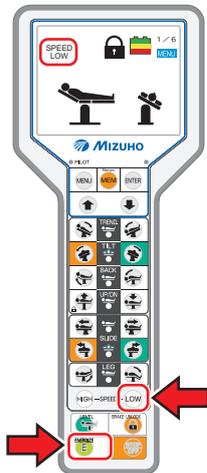


## 5.4 Switching speed

To finely adjust the movement of the operating table, set the mode to the low speed mode.

### ■ Switching to the low speed mode

1. Press **E** first and then **LOW**.



Switch to the low speed mode. The back light of **LOW** lights up, and then **SPEED LOW** appears on the monitor screen.

### ■ Switching to the high speed mode

1. Press **E** first and then **HIGH**.



Switch to the high speed mode. The back light of **HIGH** lights up, and then **SPEED HIGH** appears on the monitor screen.

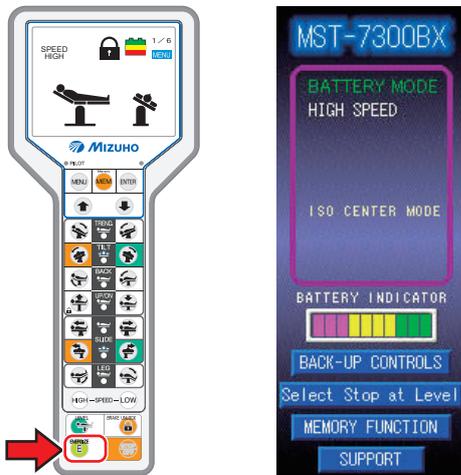
# 6. Operation

## 6.1 Display the monitor

When the monitor screen and the touch screen light off, you can not control the operating table. If you control the operating table, follow the steps below to show the screen.

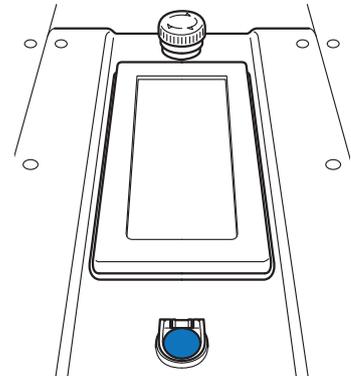
### 1. Press **E**.

After the start up operation completed, the monitor screen and the touch screen light up.



### NOTE

The touch screen can be also turned on by pressing the blue switch below the touch screen.



## 6.2 Operating the emergency stop switch

In an emergency, you can stop the operating table from moving by pressing the emergency stop switch.

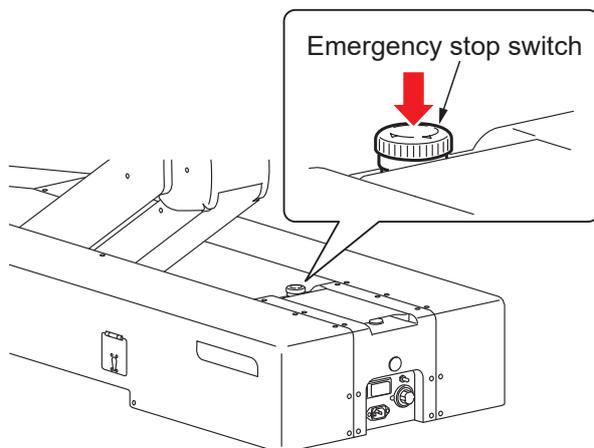


The emergency stop switch must be used only in an emergency.

### ■ Operating in an emergency

#### 1. Press the emergency stop switch.

The buzzer sounds and the operating table stops.



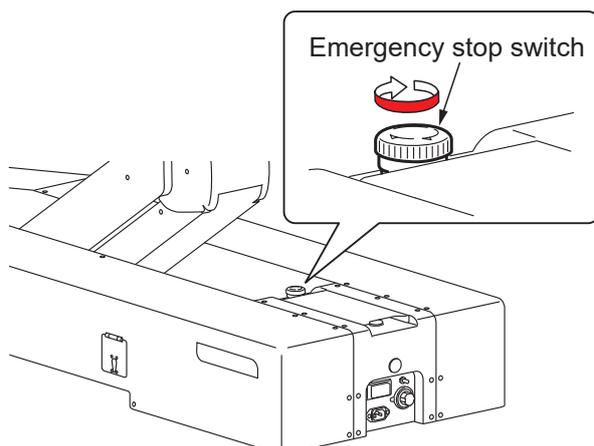
### ■ Canceling operations



To reset the operating table to the original position in an emergency where, for example, an operator's hand is caught in a gap of the operating table, press the switch on the hand controller to move the table in the opposite direction.

#### 1. After the operating table stops, turn the emergency stop switch in the direction of the arrow or pull it up to cancel the emergency stop switch.

The buzzer stops sounding.



## 6.3 Fixing and unfixing the operating table

### Fixing the operating table

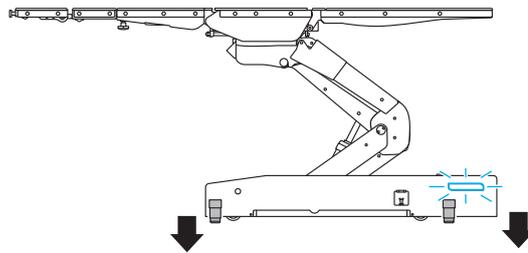
To operate the operating table, activate the brake to fix the operating table.



After activating the brake, check that the operating table is fixed securely.

#### 1. Press **E** first and then .

The brake is activated to fix the operating table. The brake lamp on the base turns blue, and  appears on the monitor screen.



#### NOTE

- If the brake cannot be activated and the operating table is not fixed, refer to “Troubleshooting.”
- Operations such as raising the tabletop will not operate until the operating table is fixed completely.
- When this product is used with the battery, the brake lamp on the base turns off after 3 minutes.
- The function does not work even if you pressed the function switch before pressing **E**.

### Unfixing the operating table

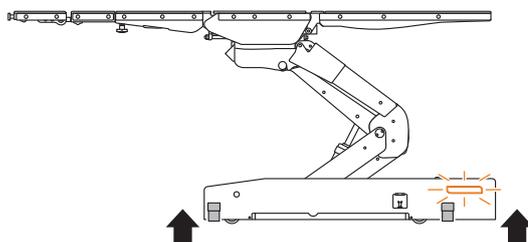
To move the operating table, unfix the operating table.



Do not unfix the operating table with a patient on it. The patient may fall from the operating table.

#### 1. Press **E** first and then for 1 second or more.

The brake is released for unfixing the operating table. The brake lamp on the base turns orange, and  appears on the monitor screen.



#### NOTE

It takes about 15 seconds until the operating table is unfixing.

## 6.4 Tilting the tabletop laterally

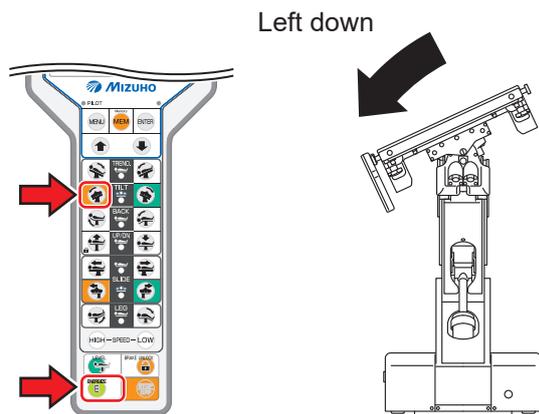


When you tilt the tabletop laterally with a patient on the operating table, make sure to use the fixing accessory for the Mizuho operating table. The patient may fall from the operating table.

### ■ Tilting to the left

1. Press **E** first and then .

The tabletop tilts to the left in the view from the head side.



### NOTE

- The maximum angle achieved in the left down and right down position is 25° from the level position.

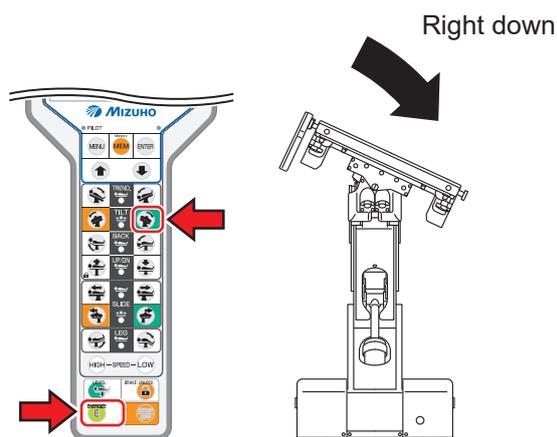


- If the tabletop is tilted laterally to its maximum extent, the right-left sliding position may move a little.

### ■ Tilting to the right

1. Press **E** first and then .

The tabletop tilts to the right in the view from the head side.



### NOTE

#### About level correcting

When the lateral tilt does not return to the level position even if the Return to level switch is pressed, then press the right and left Lateral tilt switches to operate them to greatly exceed the level position. The lateral tilt's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

## 6.5 Trendelenburg

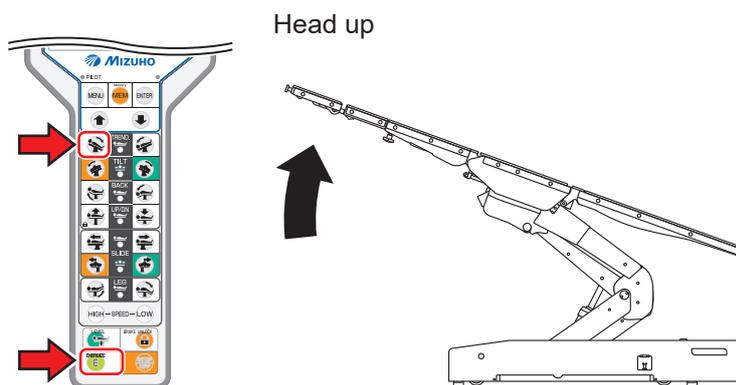


When you operate the Trendelenburg operation with a patient on the operating table, make sure to use the fixing accessory for the Mizuho operating table. The patient may fall from the operating table.

### Reverse Trendelenburg (Head up)

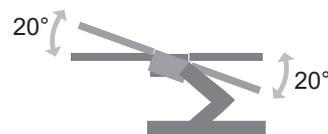
1. Press **E** first and then .

The tabletop moves to the head up position.



#### NOTE

The maximum angle achieved in the head up position is 20° from the level position.



#### NOTE

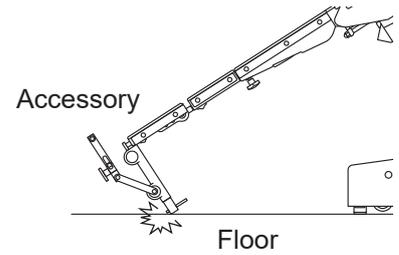
##### About level correcting

When the Trendelenburg tilt does not return to the level position even if the Return to level switch is pressed, then press the Reverse Trendelenburg (Head up) and Trendelenburg (Head down) switches to operate them to greatly exceed the level position. The Trendelenburg tilt's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

## ■ Trendelenburg (Head down)

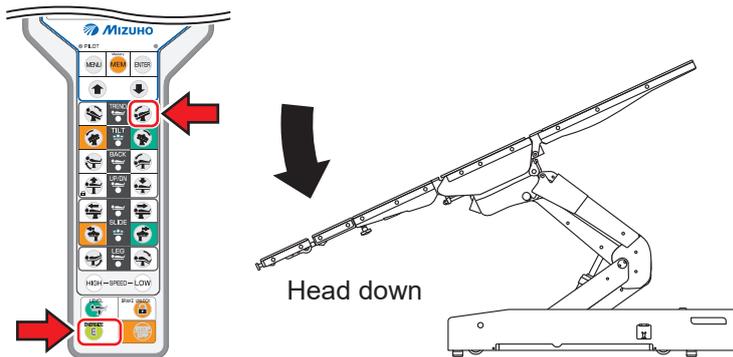


- Do not operate until the tip of the head section contacts the floor. It may get damaged.
- Do not operate until the accessory contacts the floor when the operating table is put into the Trendelenburg with any accessory such as a head frame attached. It may get damaged.



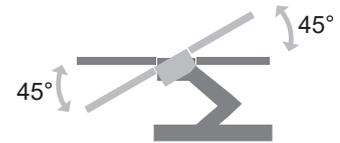
### 1. Press **E** first and then .

The tabletop moves to the head down position.



#### NOTE

The maximum angle achieved in the head down position is 45° from the level position.



#### NOTE

##### About level correcting

When the Trendelenburg tilt does not return to the level position even if the Return to level switch is pressed, then press the Reverse Trendelenburg (Head up) and Trendelenburg (Head down) switches to operate them to greatly exceed the level position. The Trendelenburg tilt's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

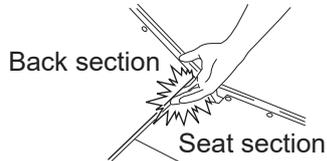
## 6.6 Back section up/down



Keep your hands away from the following gap during the operation of the table.

Otherwise you may get injured.

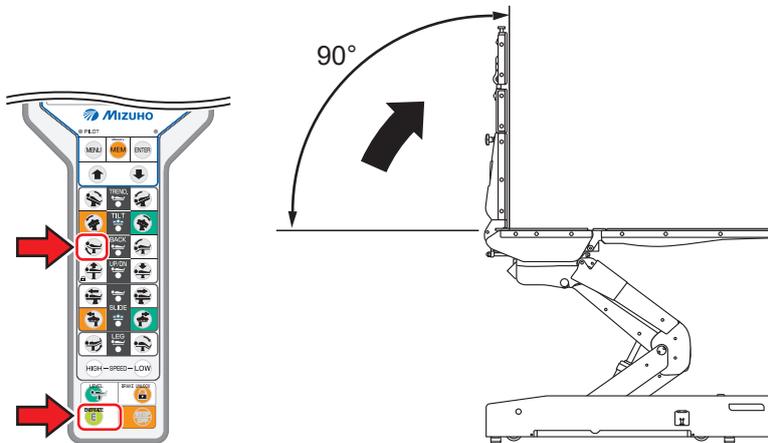
- Gap between the back section and seat section



### ■ Moving up the back section

1. Press **E** first and then .

The back section moves up.



#### NOTE

The maximum angle achieved in the back section up position is 90° from the level position.

#### NOTE

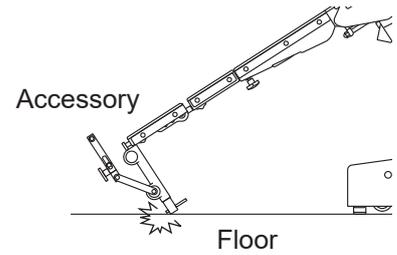
##### About level correcting

When the back section up/down does not return to the level position even if the Return to level switch is pressed, then press the back section up and down switches to operate them to greatly exceed the level position. The back section up/down's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

## ■ Moving down the back section

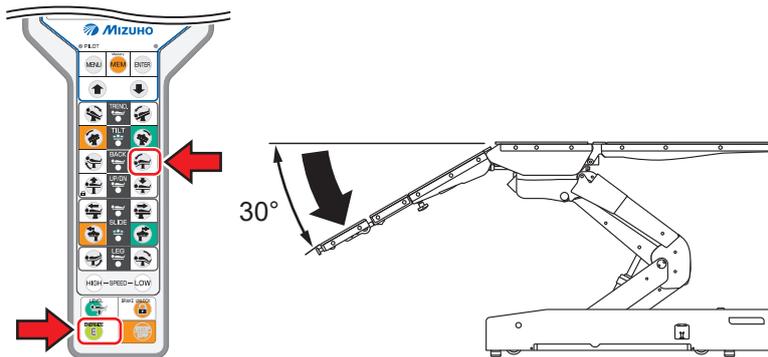


Do not operate until the accessory contacts the floor when the back section is moved down with any accessory such as a head frame attached. It may get damaged.



### 1. Press **E** first and then .

The back section moves down.



#### NOTE

The maximum angle achieved in the back section down position is 30° from the level position.

#### NOTE

##### About level correcting

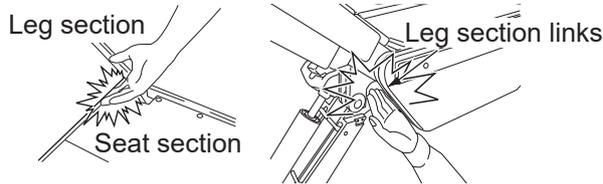
When the back section up/down does not return to the level position even if the Return to level switch is pressed, then press the back section up and down switches to operate them to greatly exceed the level position. The back section up/down's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

## 6.7 Leg section up/down



Keep your hands away from the following gap during the operation of the table. Otherwise you may get injured.

- Gap between the leg section and seat section
- Gap between the leg section links



Do not operate until the tip of the leg section contacts the floor or the base. It may get damaged.

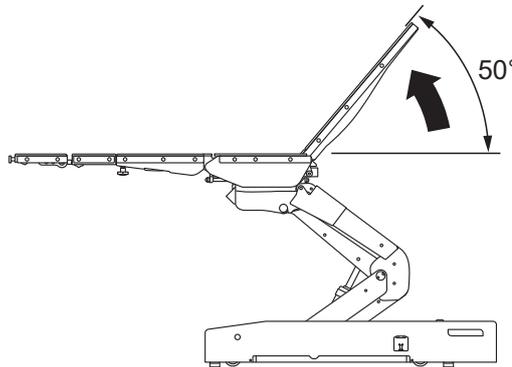
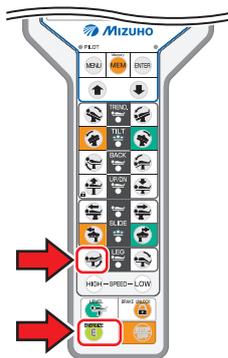
6

Operation

### ■ Moving up the leg section

1. Press **E** first and then

The leg section moves up.



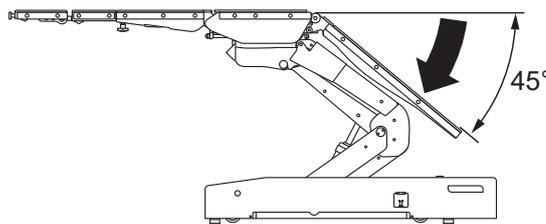
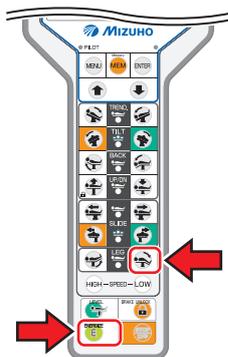
#### NOTE

- The maximum angle achieved in the leg section up position is 50° from the level position.
- The maximum angle achieved in the leg section down position is 45° from the level position.

### ■ Moving down the leg section

1. Press **E** first and then

The leg section moves down.



#### NOTE

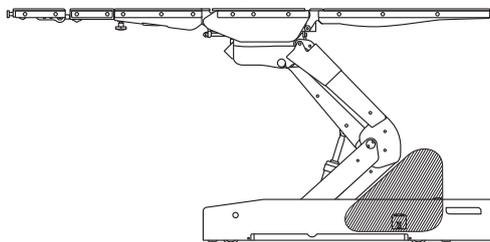
##### About level correcting

When the leg section up/down does not return to the level position even if the Return to level switch is pressed, then press the leg section up and down switches to operate them to greatly exceed the level position. The leg section up/down's level position will be reset, and it will recognize the correct level position. If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

## 6.8 Changing the tabletop height



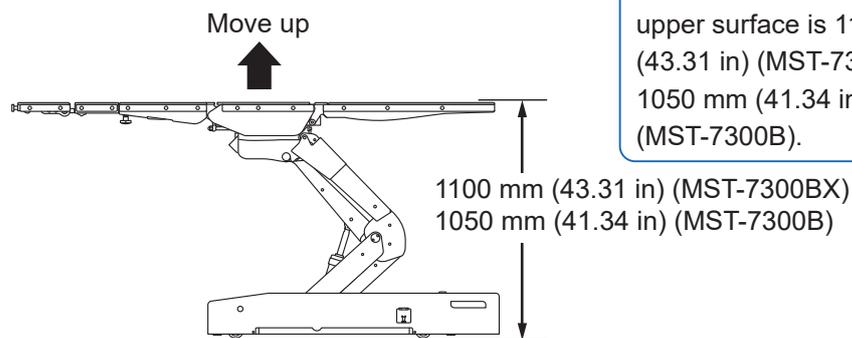
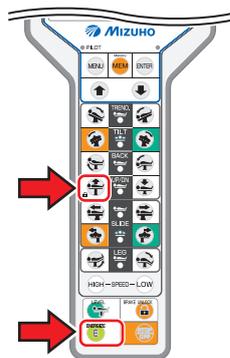
Keep your hands away from the shaded area shown below during the operation of the table. Otherwise you may get injured. Also, do not put any object in the shaded area. Otherwise, not only the sensor detects it and halts the moving down operation, but the operating table also may get damaged.



### ■ Moving up the tabletop

1. Press **E** first and then .

The tabletop moves up.



#### NOTE

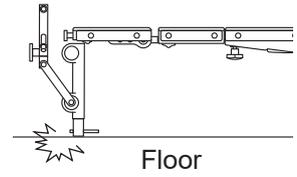
The maximum height from the floor to the tabletop upper surface is 1100 mm (43.31 in) (MST-7300BX) or 1050 mm (41.34 in) (MST-7300B).

## ■ Moving down the tabletop



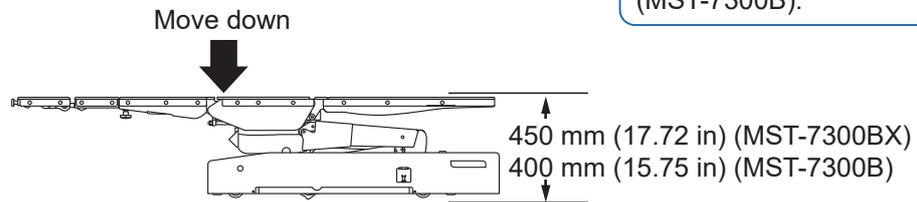
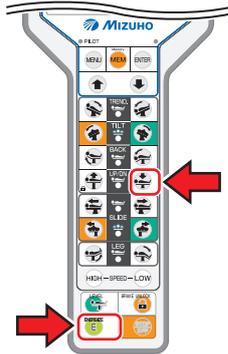
Do not operate until the accessory contacts the floor when the tabletop is moved down with any accessory such as a head frame attached. It may get damaged.

Accessory



### 1. Press **E** first and then .

The tabletop moves down.



#### NOTE

The minimum height from the floor to the tabletop upper surface is 450 mm (17.72 in) (MST-7300BX) or 400 mm (15.75 in) (MST-7300B).

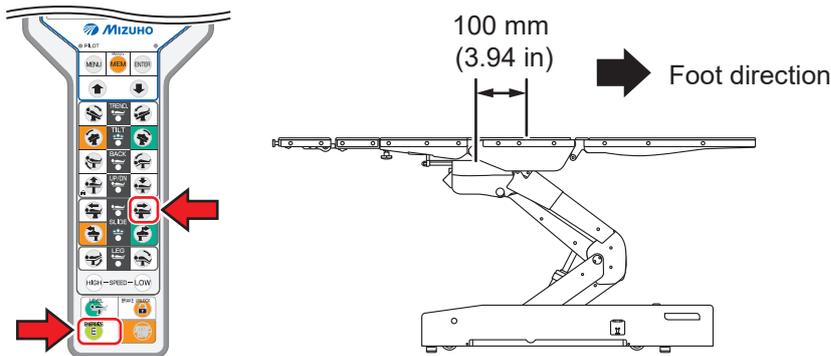
## 6.9 Sliding the tabletop (MST-7300BX only)

### Vertical sliding

#### ■ Sliding in the foot direction

1. Press **E** first and then .

The tabletop slides in the foot direction.



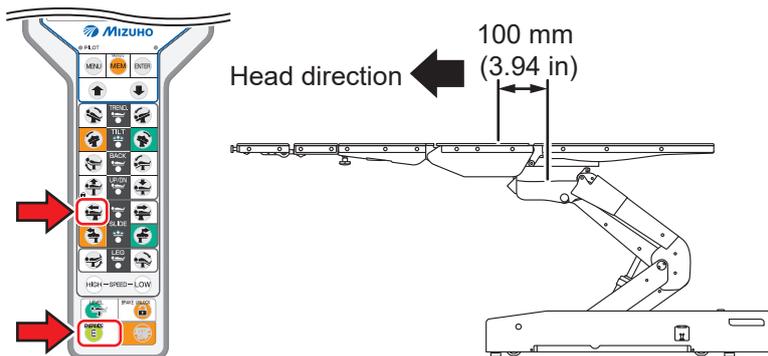
#### NOTE

- The slide's maximum travel from the center position of the tabletop is as follows.
  - Foot direction: 100 mm (3.94 in)
  - Head direction: 100 mm (3.94 in)
- The tabletop does not move toward the foot direction if the Trendelenburg (head down) angle is 15° or more.

#### ■ Sliding in the head direction

1. Press **E** first and then .

The tabletop slides in the head direction.

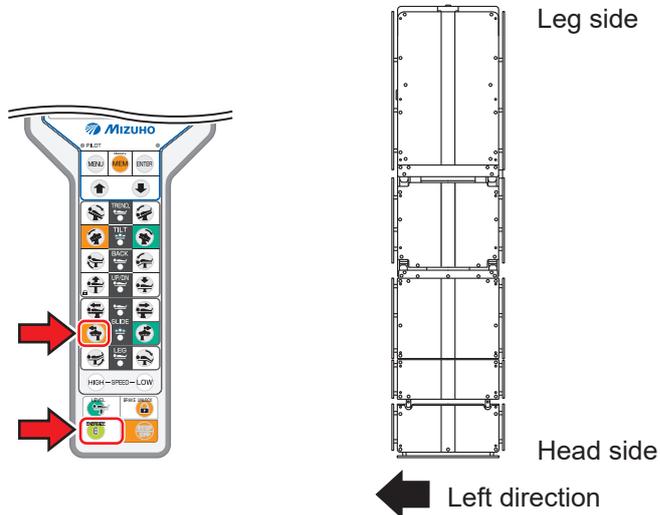


## Lateral sliding

### ■ Sliding in the left direction

1. Press **E** first and then .

The tabletop slides to the left in the view from the head side.



#### NOTE

- The slide's maximum travel from the center position of the tabletop is as follows.
  - Left direction: 80 mm (3.15 in)
  - Right direction: 80 mm (3.15 in)

#### NOTE

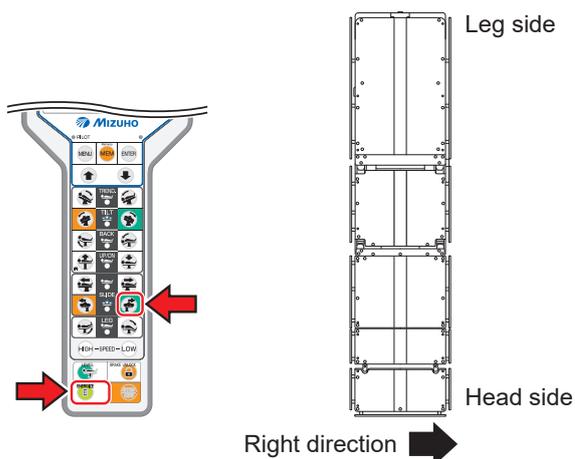
##### About center position correcting

When the slide does not return to the center position even if the Return to level switch is pressed, then press the right and left slide switches to operate them to greatly exceed the center position. The slide's center position will be reset, and it will recognize the correct center position. If the correct center position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

### ■ Sliding in the right direction

1. Press **E** first and then .

The tabletop slides to the right in the view from the head side.



## 6.10 Return to level

### ■ Return the tabletop to the level position

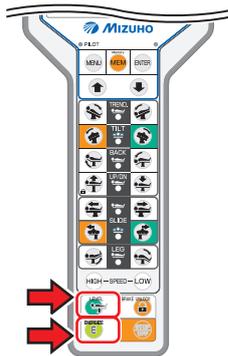
#### 1. Press **E** first and then .

The operating table moves following the steps below and the tabletop returns to the level position.

1. Trendelenburg, back section up/down, and leg section up/down
2. Lateral tilting
3. Left to right slide (center position) (MST-7300BX only)

#### NOTE

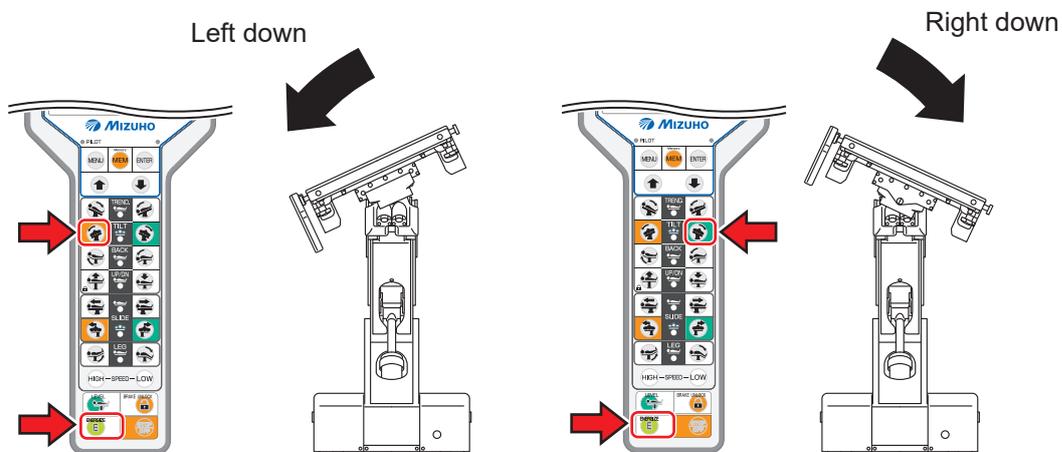
Elevation, head to foot slide and braking do not function.



#### ● If the tabletop does not return to the level position

When the tabletop does not return to the level and center positions even if the Return to level switch is pressed, then actuate the level and center position correcting for each operating.

<E.g.: Lateral tilt level correcting>



Press the right and left lateral tilt switches to operate them to greatly exceed the level position. The lateral tilt's level position will be reset, and it will recognize the correct level position.

If the correct level position is not recognized even though this operation is performed, then request repairs from your distributor or Mizuho.

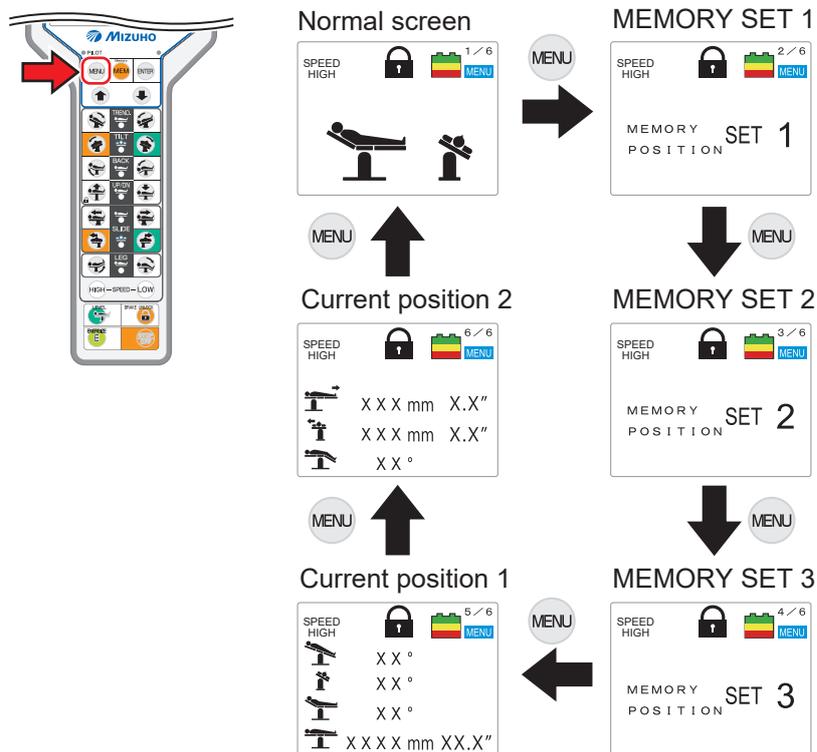
## 6.11 Operating/Registering memory

By registering an arbitrary position of the operating table into the memory, the operating table can reproduce the registered position easily.

### ■ Registering a position of the tabletop

#### ● Registering with the hand controller

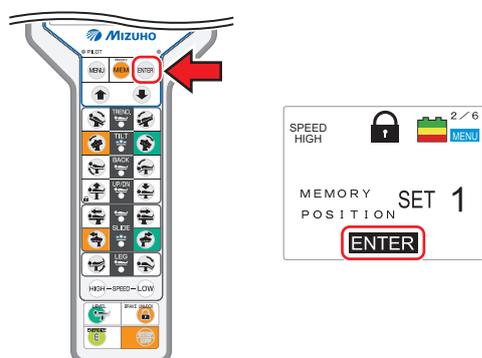
1. Put the tabletop to a position you wish to register.
2. Press **MENU** several times until a memory in which you wish to register appears.



#### NOTE

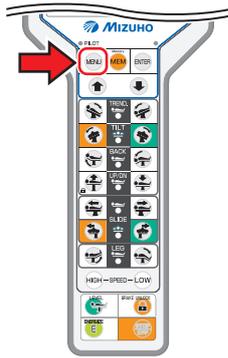
- The number of memories that can be registered is 3.
- If the positions in the registered memories are overwritten, then the registered memories will be deleted.

3. Press **ENTER**.



The position is registered in the memory and display "ENTER" on the monitor screen.

4. Press **MENU** several times until the normal screen appears.

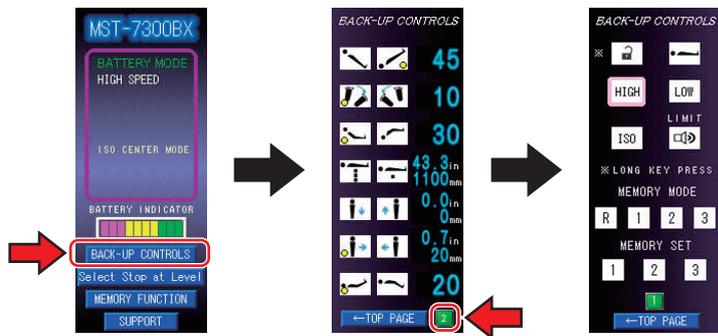


● **Registering with the touch screen**

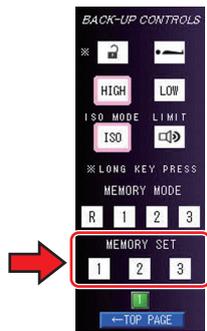
1. Put the tabletop to a position you wish to register.
2. From the TOP PAGE screen, tap “BACK-UP CONTROLS” and “2”, and display the BACK-UP CONTROLS screen (2/2).

**NOTE**

- The number of memories that can be registered is 3.
- If the positions in the registered memories are overwritten, then the registered memories will be deleted.

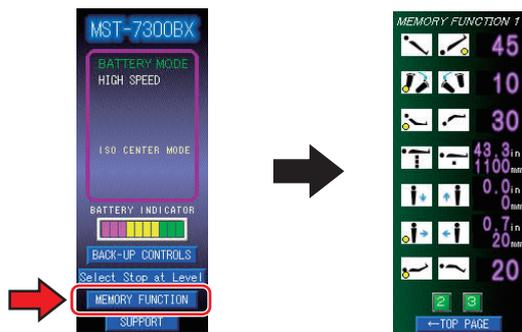


3. Tap the memory number that you want to register for MEMORY SET.



4. Return to the TOP PAGE screen.

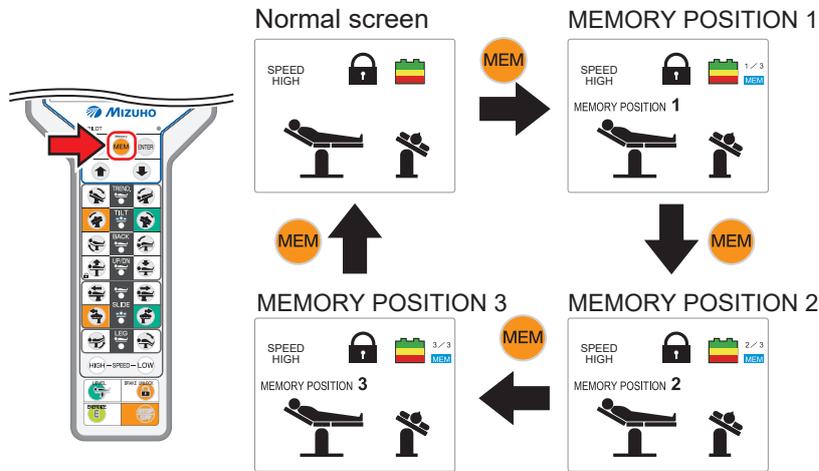
5. The registered memory can be checked with the “MEMORY FUNCTION.”



## ■ Reproducing a registered position

### ● Reproducing with the hand controller

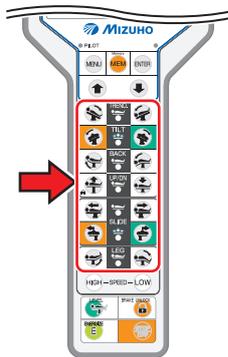
1. Press **MEM** several times until a memory in which you wish to use appears.



2. Press **E**.

The function switch necessary for reproducing the position lights up.

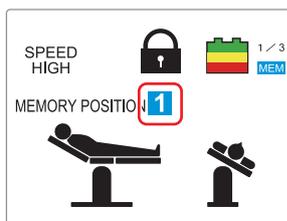
3. Keep pressing the switch lit until the tabletop stops moving.



The function switch you operated lights off.

4. Repeat step 3 until all the function switches lit off.

When the tabletop is moved to the target position, the number of "MEMORY POSITION" turns blue.



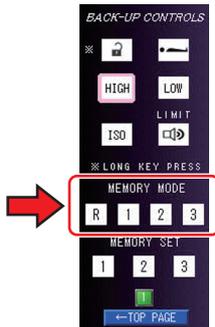
#### NOTE

[MST-7300BX only]

When operating the memory for lateral tilting and sliding movements to the right and left directions in the ISO CENTER mode, first perform lateral tilting. If that is not done, then the operation travel amounts might increase.

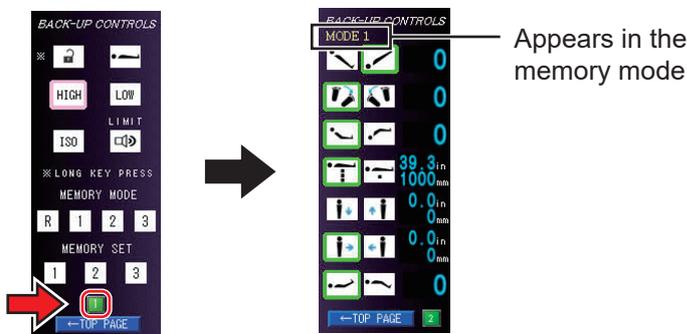
● Reproducing with the touch screen

1. Tap the memory number that you want to reproduce from the “MEMORY MODE” on the BACK-UP CONTROLS screen (2/2).

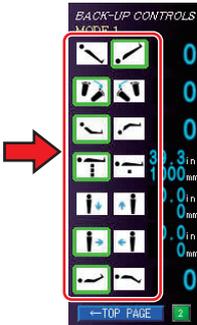


2. Tap “1” to display the BACK-UP CONTROLS screen (1/2).

The memory guides (green) are displayed on the function switches that are needed in order to reproduce the position.



3. Tap the function switches that are displaying the memory guides (green) until the tabletop stops moving.



**NOTE**

[MST-7300BX only]

When operating the memory for lateral tilting and sliding movements to the right and left directions in the ISO CENTER mode, first perform lateral tilting. If that is not done, then the operation travel amounts might increase.

4. Repeat step 3 until all of the memory guide (green) displays disappear.

The memory guide (green) displays disappear, and “MEMORY P” is displayed.

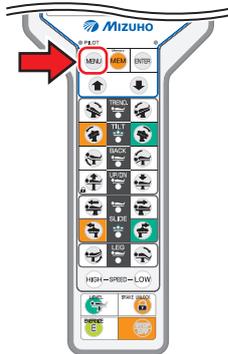


The tabletop will reproduce the registered memory position.

## 6.12 Checking the current position of the tabletop

You can check the current position of the tabletop in a specific number.

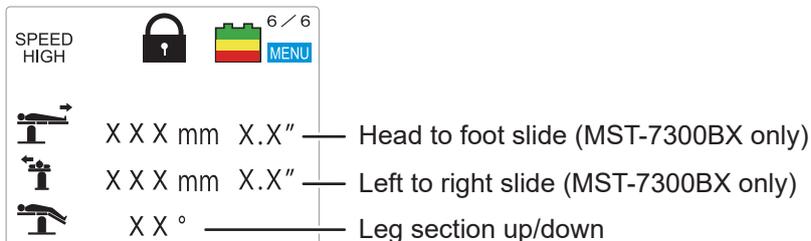
1. Press **MENU** several times until the 5/6 screen appears.



2. Check the travel of “Trendelenburg”, “Lateral tilt”, “Back section up/down”, or “Elevation.”



3. Press **MENU** to go to the 6/6 screen, and check the travel of “Head to foot slide” (MST-7300BX only), “Left to right slide” (MST-7300BX only), or “Leg section up/down.”



## 6.13 Adjusting the head section

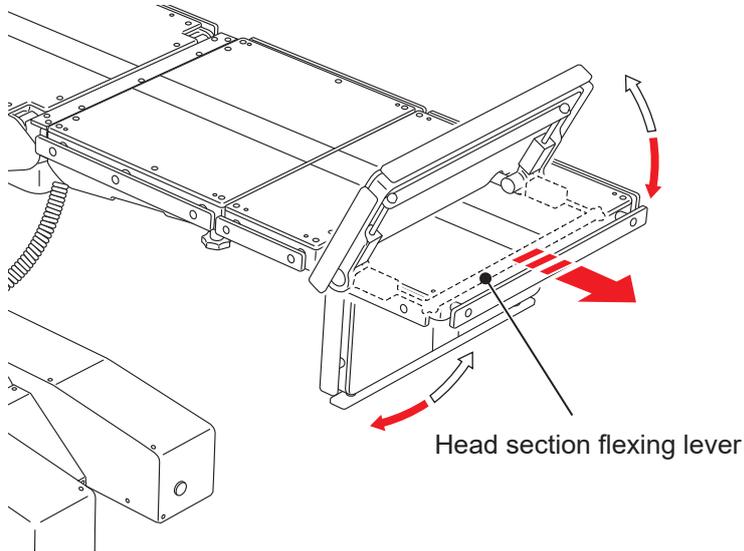
The head section can be bent in 15° increments, to 4 different positions upward (maximum 60°) and to 6 different positions downward (maximum 90°). The head section can also be detached.



The head section weighs 7 kg (15.4 lbs). Pay special attention when handling it. It may drop and cause damage or injury.

### ■ Head section up/down

1. Pull the head section flexing lever toward the head direction. The head section can be bent upward and downward. When releasing the lever, the head section is fixed in that position.



#### NOTE

When bending upward, the head section can be lifted and bent without pulling the head section flexing lever.

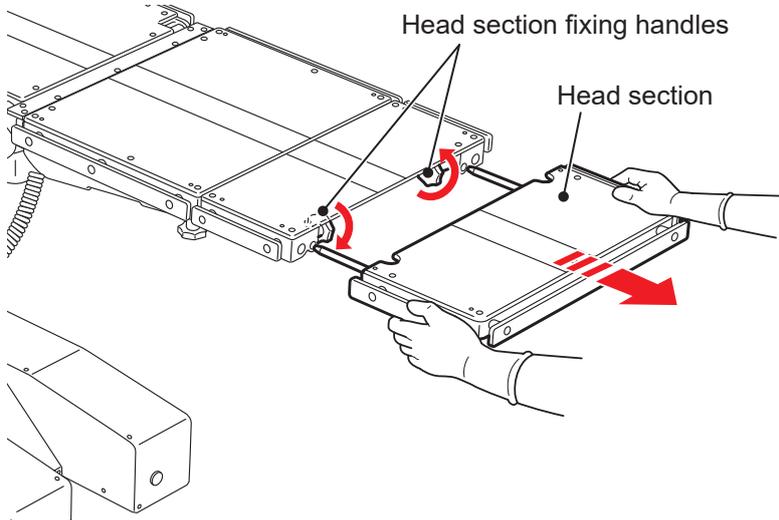
## ■ Detaching the head section

1. Loosen the two head section fixing handles located on the lower side of the auxiliary back section.
2. Hold both sides of the head section firmly and pull straight.

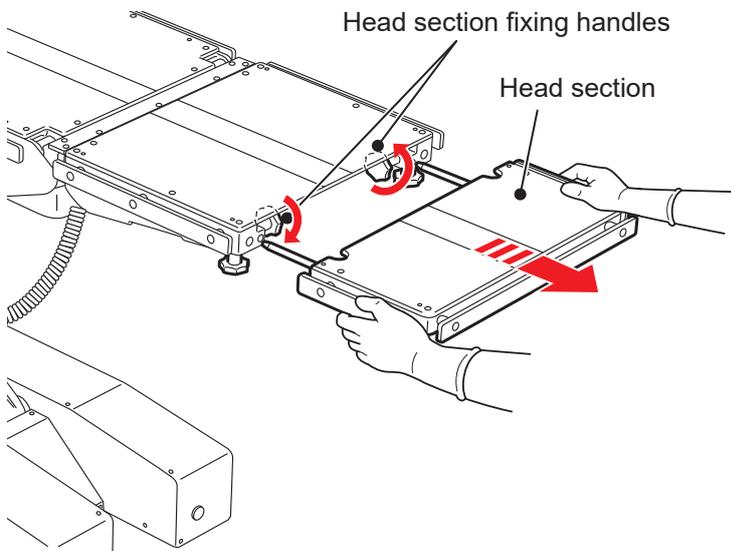
### NOTE

If no auxiliary back section is attached, the head section is being attached to the back section. In this case, loosen the two head section fixing handles located on the lower side of the back section.

### ● From the auxiliary back section



### ● From the back section



## ■ Attaching the head section



Make sure to tighten the head section fixing handles securely.  
If the head section moves with the handles in a loosened state, the patient may get injured.



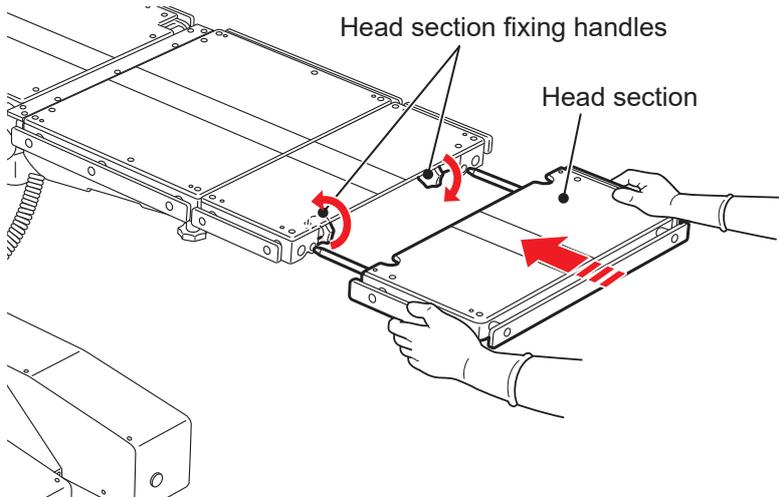
- Make sure to insert the head section into the auxiliary back section or the back section completely. If the operating table is used with the head section inserted incompletely, it may get damaged.
- Do not move the operating table by pulling on the head section. It may drop and cause damage or injury.

1. Hold both sides of the head section and align the head section insertion shaft with the auxiliary back section reception hole, and insert.
2. After checking that the head section is completely inserted, tighten the two head section fixing handles located on the lower side of the auxiliary back section to fix it.

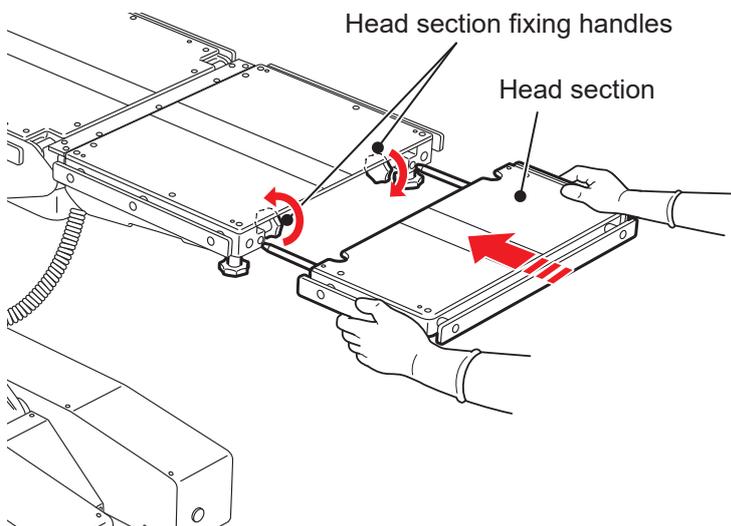
### NOTE

If you do not attach the auxiliary back section, align the head section insertion shafts with the back section reception holes, and tighten the two head section fixing handles located on the lower side of the back section.

#### ● To the auxiliary back section



#### ● To the back section



## 6.14 Attaching/detaching the auxiliary back section

The auxiliary back section can be detached. Detaching the auxiliary back section allows you to adjust the length of the main body of the operating table.



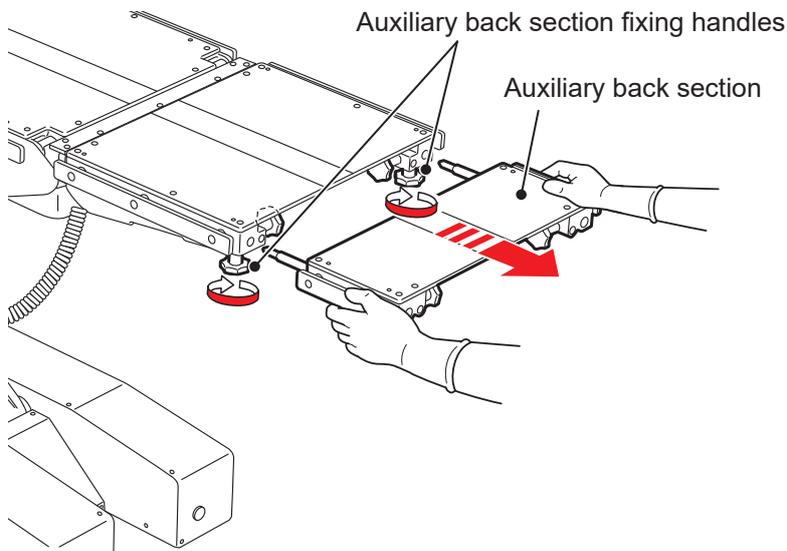
The auxiliary back section weighs 5 kg (11 lbs). Pay special attention when handling it. It may drop and cause damage or injury.

### ■ Detaching the auxiliary back section



Do not detach the auxiliary back section while the head section is inserted into it. If the auxiliary back section with the head section inserted is detached, they may drop and cause injury.

- 1. Loosen the two auxiliary back section fixing handles attached vertically to the lower side of the back section.**
- 2. Hold both sides of the auxiliary back section firmly and pull straight.**



## ■ Attaching the auxiliary back section

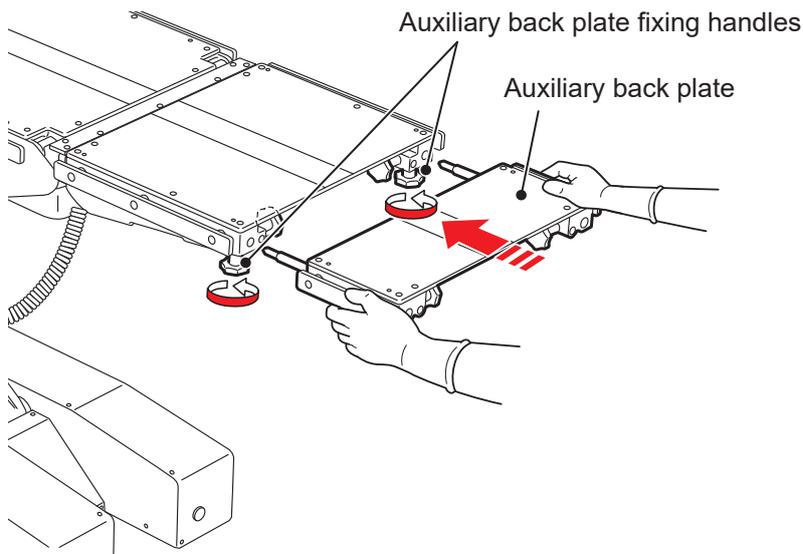


Make sure to tighten the auxiliary back section fixing handles securely.  
If the auxiliary back section moves with the handles in a loosened state, the patient may get injured.



Make sure to insert the auxiliary back section into the back section. If the operating table is used with the auxiliary back section inserted incompletely, it may get damaged.

- 1. Hold both sides of the auxiliary back section and align the auxiliary back section insertion shaft with the back section reception hole, and insert.**
- 2. After checking that the auxiliary back section is completely inserted, tighten the two auxiliary back section fixing handles attached vertically to the lower side of the back section.**



## 6.15 Attaching/detaching the back section

The back section can be detached.



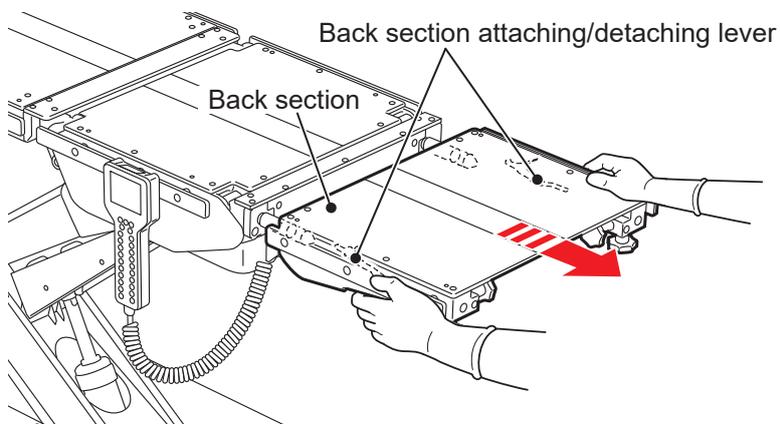
The back section weighs 10 kg (22 lbs). Pay special attention when handling it. It may drop and cause damage or injury.

### ■ Detaching the back section



Do not detach the back section while the head section and the auxiliary back section are inserted into it. If the back section with the head section and the auxiliary back section inserted is detached, they may drop and cause injury.

- 1. Pull up the back section attaching/detaching levers on both sides of the lower side of the back section at the same time.**
- 2. While still pulling up the back section attaching/detaching levers, hold the back section firmly and pull straight.**



## ■ Attaching the back section

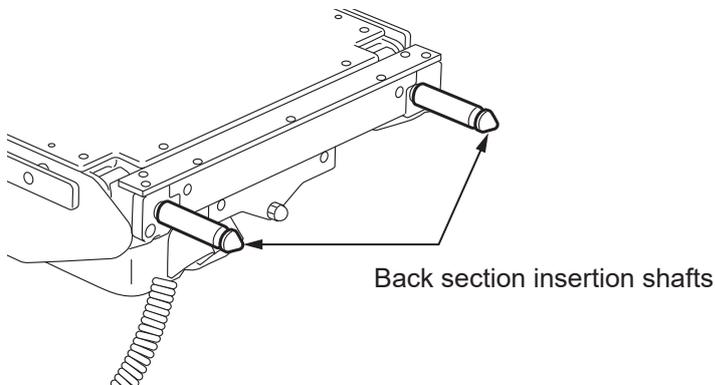


- Make sure that the back section is inserted completely. If the operating table is used without the back section being completely inserted into it, the patient may get injured by the back section being moved.
- When fastening the belt to secure the patient, make sure to avoid the back section attaching/detaching levers. If the belt is fastened over the back section attaching/detaching levers, they may be pressed and the back section may become detached.

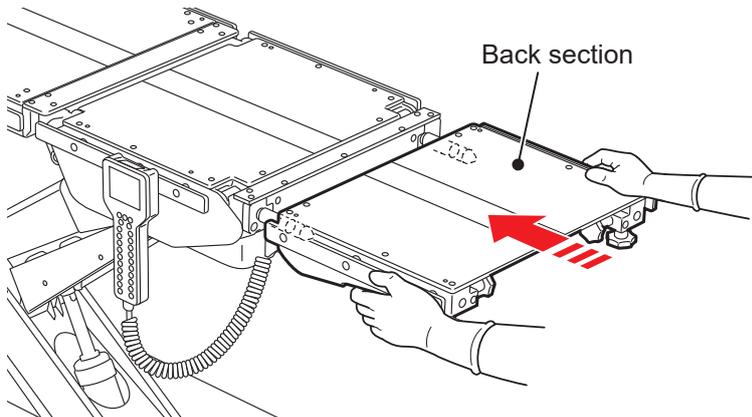
### NOTE

You can install the optional dedicated accessories to the back section insertion shafts. For details, refer to the instruction manual of the accessories.

- 1. Make sure both of the back section insertion shafts are in the level position.**



- 2. Hold the back section firmly and align the back section reception holes with the insertion shafts, and insert.**



- 3. Pull the back section, and make sure that the back section is inserted completely.**

## 6.16 Attaching/detaching the leg section

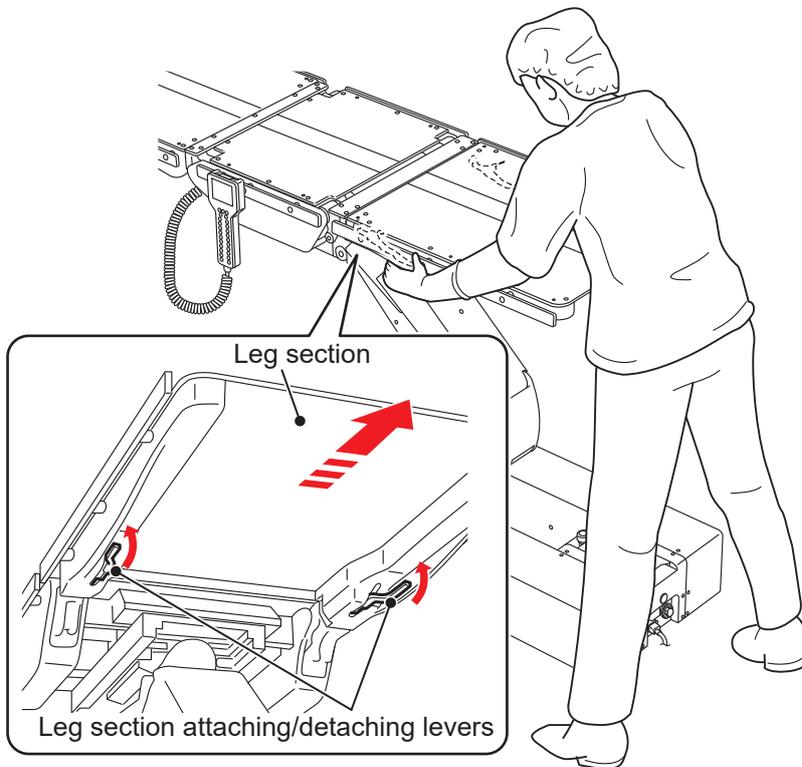
The leg section can be detached.



The leg section weighs 11 kg (24.3 lbs).  
Pay special attention when handling it. It may drop and cause damage or injury.

### ■ Detaching the leg section

1. Pull up the leg section attaching/detaching levers on both sides of the lower side of the leg section at the same time.
2. While still pulling up the leg section attaching/detaching levers, hold the leg section firmly and pull straight.

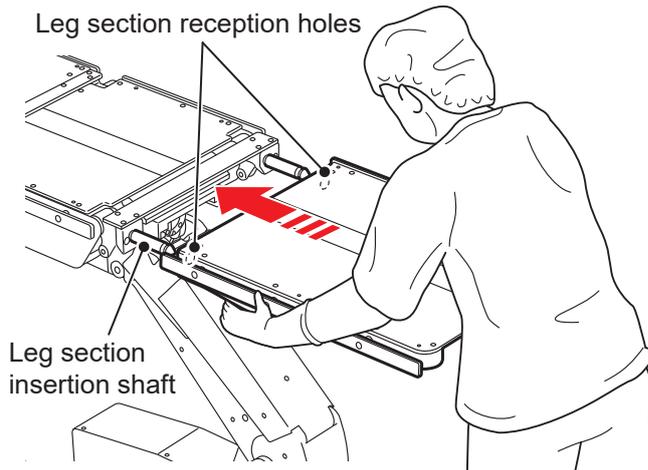


## ■ Attaching the leg section



Make sure that the leg section is inserted completely. If the operating table is used without the leg section being completely inserted into it, the patient may get injured by the leg section being moved.

- 1. Hold the leg section and align the leg section reception hole with the leg section insertion shaft, and insert.**



- 2. Pull the leg section, and make sure that the leg section is inserted completely.**

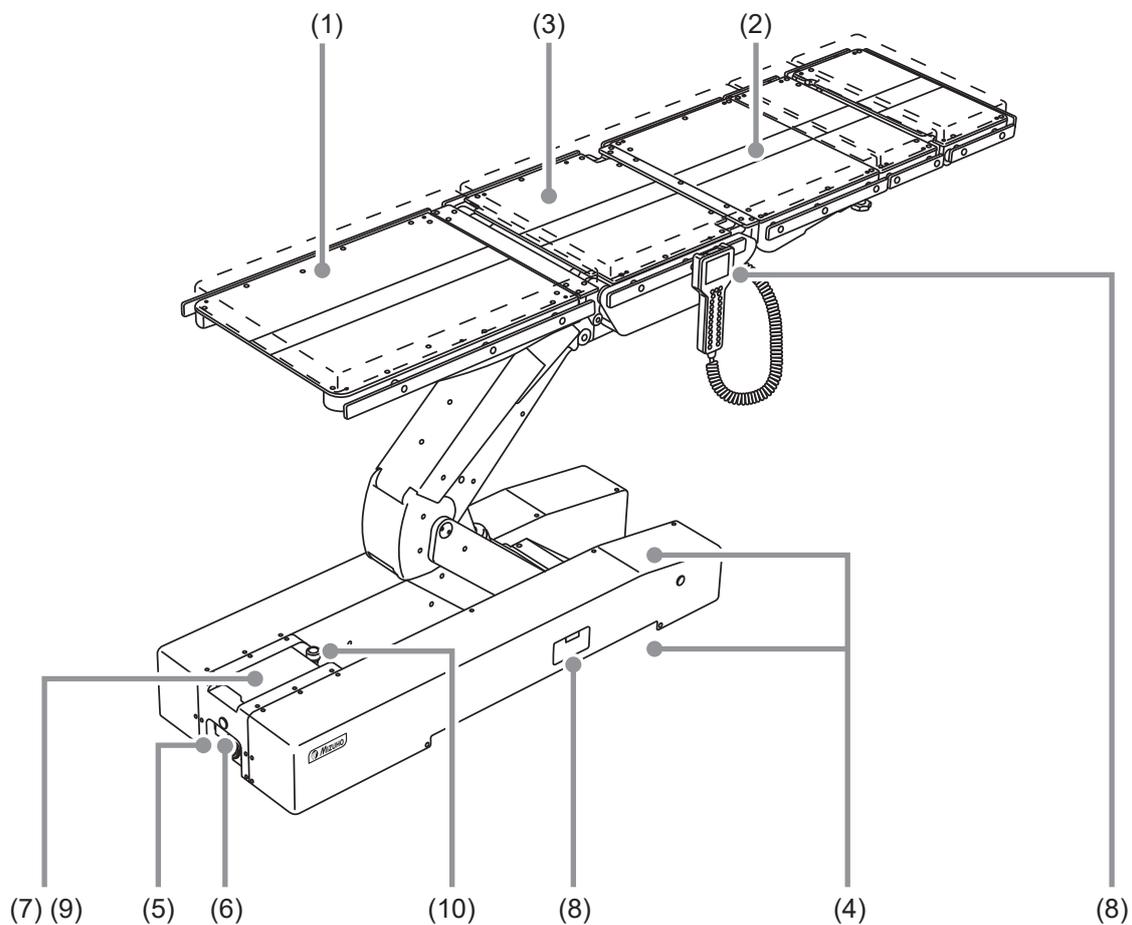
# 7. Maintenance and inspection

## 7.1 Inspection before and after use



Make sure to inspect the items below before and after use. If there are any abnormalities, request your distributor or Mizuho for repairs. Otherwise it may cause problems during surgery.

Inspect the items below. If there is any problem, request your distributor or Mizuho for repair.



### (1) Table pads

#### ● Before use

- Check all the table pads for any damage.

#### ● After use

- Check all the table pads for any damage or dirt.

### (2) Backlash of the tabletop

#### ● Before use

- Check all the tabletops for any backlash when jiggling both sides of the back section.

### (3) Tabletops

#### ● Before use

- Check all the tabletops for any damage.

#### ● After use

- Check all the tabletops for any damage or dirt.

### (4) Oil leakage

#### ● Before and after use

- Check the floor or the base surface for any hydraulic oil.

### (5) Power cord and plug

#### ● Before use

- Check the power cord for any exposed wire and the plug for any damage.

### (6) Power switch

#### ● Before use

- Turn on the power switch to see if the LED lamp of the power switch and the touch screen light up.

### (7) Battery

#### ● Before use

- Check if the battery has been charged.

### (8) Hand controller/Auxiliary switch

#### ● Before use

- Press the switches on the hand controller and auxiliary switch to see if all functions are working properly.

### (9) Touch screen

#### ● Before use

- Press the switches on the touch screen to see if all functions are working properly.

### (10) Emergency stop switch

#### ● Before use

- Check if the emergency stop switch is working properly.

## 7.2 Cleaning and disinfection



- In order to prevent infections, make sure to clean and disinfect the operating table after using it.
- Make sure to unplug the power cord and turn off the main power when cleaning and disinfecting the operating table. The operating table may actuate and cause injury.



- Make sure to use Mizuho authorized disinfectants. Failure to do so may cause the operating table to become discolored or deformed.
- Do not use organic solvents such as paint thinner to wipe the display and the protective cover. They may get damaged. To wipe the display and the protective cover, use a natural detergent diluted with water.
- When cleaning the table pads, take care not to get liquids on the fasteners. If liquids get on the waterproof fasteners, wipe them off quickly. If the waterproof fastener gets wet and the liquids infiltrate inside, it may cause degradation.

### ■ Cleaning and disinfection procedures

1. Turn off the power and disconnect the power cord from the medical grade outlet.
2. Detach all the table pads from the operating table.
3. Use a lint-free cloth soaked with proper volume of disinfectant to wipe off the upper, sides, and back side of the table pads.
4. As with step 3, disinfect the surfaces of the tables and side rails.
5. Wipe off the operating table with a clean dry cloth within 15 minutes after disinfecting it.

### ■ Disinfectants

Authorized disinfectants are as shown below.

	Disinfectant name	Concentration
a	Sodium hypochlorite	0.1%
b	Hypo Alcohol	10%
c	Chlorhexidine gluconate	0.5%
d	Benzalkonium chloride	10%
e	Ethanol	80%
f	Isopropyl alcohol	99.5%

#### NOTE

Use the disinfectant according to the operator's manual and instructions for disinfectant use.

## 7.3 Maintenance by providers

For safety use of this product, make sure to perform the periodical inspection by Mizuho or the certified provider once a year.

Inspections and maintenances by other than Mizuho or the certified provider could cause any adverse event such as deterioration of the performance and functions.

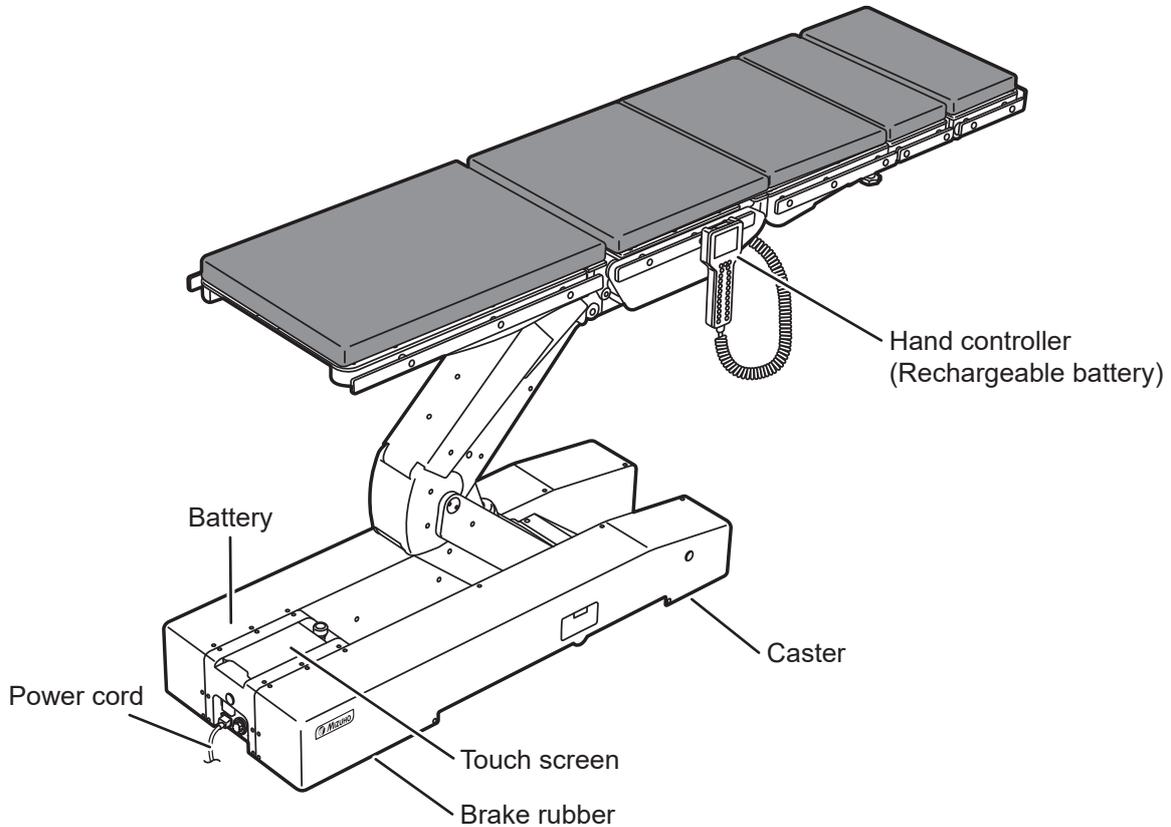
For request for the periodical inspection, contact your distributor or Mizuho.

## 7.4 Periodic replacement parts

Mizuho specifies that the following parts need to be periodically replaced for safety use.

The replacement time is a rough standard. Earlier replacement may be required depending on the usage condition and/or usage frequency.

Request your distributor or Mizuho for replacements.



Parts	Replacement time (years)
Battery	2
Hand controller	4 to 6
Rechargeable battery (hand controller)	2 to 3
Caster	5 to 7
Brake rubber	3 to 5
Power cord	5 to 7
Touch screen	5 to 7

### NOTE

The aforementioned are estimated times. The replacement time may depend on usage condition and/or usage frequencies.

## 7.5 Version information of the software

The version information for the control software which is installed in the operating table can be verified via the label that is directly applied on the on-board microcomputer.



The version information of the software is mainly for the service and maintenance personnel as needed. For confirmation, open the base cover to access the control board.

# 8. Specification

## 8.1 Specification table

### ■ MST-7300BX

Product description		MST-7300BX	
Electromotive functions	Elevation range	Highest	1100 mm (43.31 in) ± 10 mm (0.39 in)
		Lowest	450 mm (17.72 in) ± 10 mm (0.39 in)
	Trendelenburg angle	Head up	20° ± 2°
		Head down	45° - 2° / + 10°
	Lateral tilt angle	Left down	25° ± 2°
		Right down	25° ± 2°
	Back section up/down angle	Up	90° ± 2°
		Down	30° ± 2°
	Leg section up/down angle	Up	50° ± 2°
		Down	45° ± 2°
	Sliding: Note 1	Head direction	100 mm (3.94 in) ± 10 mm (0.39 in)
		Foot direction	100 mm (3.94 in) ± 10 mm (0.39 in)
		Left direction	80 mm (3.15 in) ± 10 mm (0.39 in)
		Right direction	80 mm (3.15 in) ± 10 mm (0.39 in)
	Return to level		Trendelenburg / Lateral tilt / Back section up/down / Leg section up/down / Right to left slide
Brake		Lock / Unlock	
Control devices	Hand controller	Memory, Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Sliding, Switching speed, Return to level, Brake, E switch, Power OFF	
	Touch screen	Memory, Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Sliding, Switching speed, Return to level, Brake, ISO CENTER mode, Level and center positions' temporary pause mode	
	Auxiliary switch	Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Sliding, Brake	
	Foot switch: Note 2	Trendelenburg, Lateral tilt, Elevation	
	Emergency stop switch	Stop	
Manual functions	Head section up/down angle	Up	60°
		Down	90°
	Detachment	Head section / Auxiliary back section / Back section / Leg section	
Others		Emergency brake release knob	

Rating	Classification as per 60601-1	Class I Equipment / Type B Applied Parts / IPX4 Rated (internal power source device : Note 3)
	Supply voltage	AC 100 - 240 V
	Rated supply frequency	50/60 Hz
	Battery power	DC 24V
	Battery charging time	Up to 20 hours (cumulative operation time when fully charged: up to 90 min. : Note 14)
	Power consumption	700 VA
	Operating voltage	24 V
	Duty cycle (per 1 cycle)	3 min on, 7 min off: Note 4
	Others	Recovery from defibrillator is within 5 seconds. Conformity to EMC Standard IEC 60601-1-2: 2020
Dimension	Tabletop	2100 mm (82.68 in) (L) x 500 mm (19.69 in) (W) : Note 5
	Base	1335 mm (52.26 in) (L) x 500 mm (19.69 in) (W) : Note 6
Weight		365 kg (805 lbs)
Weight capacity: Note 7		360 kg (800 lbs) : Note 8
Transitable height and width		Height: 10 mm (0.39 in) / Width: 80 mm (3.15 in)
Table pad		Anti-defibrillation device
		Flame resistance: BS 7177 Fire Test on Mattresses, Sofas and Bases Classification: Conforms to BS 7177:2008 for medium hazard (Medium Hazard [5])
		Manufacturing method via waterproofing: Welder processing: Note 12 Waterproof fasteners: Note 13
Operating environment	Temperature	10 to 40°C (50 to 104°F) : Note 9
	Humidity	30 to 75% : Note 9
	Atmospheric pressure	700 to 1060 hPa : Note 9
	Others	Allowable altitude for use is 3000 m or lower. : Note 9
Transportation and storage	Temperature	-10 to 50°C (14 to 122°F) : Note 10
	Humidity	10 to 85% (without moisture condensation) : Note 10
	Atmospheric pressure	700 to 1060 hPa : Note 10
Service life		Under the specified maintenance and proper storage, 10 years: Note 11

Note 1: From the center position

Note 2: Optional

Note 3: When the battery power is used

Note 4: Operating tables operating possible time and halting time per 1 cycle

Note 5: Excluding the side rail

Note 6: Rough dimension

Note 7: Total of the patient and accessories

Note 8: 290 to 340 kg (640 to 750 lbs) when the table top height is 450 to 600 mm (17.72 to 23.62 in) (Elevation only)

Note 9: IEC 60601-1: 2020 Medical electrical equipment - Part1: General requirements for basic safety and essential performance

Note 10: Company standard (in case that appropriate maintenance and inspection is done)

Note 11: Based on Mizuho's own validation data

Note 12: Process that seamlessly welds via heat

Note 13: Fastener with high waterproofness

Note 14: Depending on the usage conditions

## ■ MST-7300B

Product description			MST-7300B
Electromotive functions	Elevation range	Highest	1050 mm (41.34 in) ± 10 mm (0.39 in)
		Lowest	400 mm (15.75 in) ± 10 mm (0.39 in)
	Trendelenburg angle	Head up	20° ± 2°
		Head down	45° - 2° / + 10°
	Lateral tilt angle	Left down	25° ± 2°
		Right down	25° ± 2°
	Back section up/down angle	Up	90° ± 2°
		Down	30° ± 2°
	Leg section up/down angle	Up	50° ± 2°
		Down	45° ± 2°
	Return to level		Trendelenburg / Lateral tilt / Back section up/down / Leg section up/down
	Brake		Lock / Unlock
	Control devices	Hand controller	Memory, Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Switching speed, Return to level, Brake, E switch, Power OFF
		Touch screen	Memory, Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Switching speed, Return to level, Brake, Level and center positions' temporary pause mode
Auxiliary switch		Trendelenburg, Lateral tilt, Back section up/down, Leg section up/down, Elevation, Brake	
Foot switch: Note 1		Trendelenburg, Lateral tilt, Elevation	
Emergency stop switch		Stop	
Manual functions	Head section up/down angle	Up	60°
		Down	90°
	Detachment		Head section / Auxiliary back section / Back section / Leg section
	Others		Emergency brake release knob
Rating	Classification as per 60601-1		Class I Equipment / Type B Applied Parts / IPX4 Rated (internal power source device : Note 3)
	Supply voltage		AC 100 - 240 V
	Rated supply frequency		50/60 Hz
	Battery power		DC 24V
	Battery charging time		Up to 20 hours (cumulative operation time when fully charged: up to 90 min.: Note 13)
	Power consumption		700 VA
	Operating voltage		24 V
	Duty cycle (per 1 cycle)		3 min on, 7 min off: Note 3
	Others		Recovery from defibrillator is within 5 seconds. Conformity to EMC Standard IEC 60601-1-2: 2020
Dimension	Tabletop		2100 mm (82.68 in) (L) x 500 mm (19.69 in) (W) : Note 4
	Base		1335 mm (52.56 in) (L) x 500 mm (19.69 in) (W) : Note 5
Weight		340 kg (750 lbs)	
Weight capacity: Note 6		360 kg (800 lbs) : Note 7	
Transitable height and width		Height: 10 mm (0.39 in) / Width: 80 mm (3.15 in)	

Table pad		Anti-defibrillation device
		Flame resistance: BS 7177 Fire Test on Mattresses, Sofas and Bases Classification: Conforms to BS 7177:2008 for medium hazard (Medium Hazard [5])
		Manufacturing method via waterproofing: Welder processing: Note 11 Waterproof fasteners: Note 12
Operating environment	Temperature	10 to 40°C (50 to 104°F) : Note 8
	Humidity	30 to 75%: Note 8
	Atmospheric pressure	700 to 1060 hPa: Note 8
	Others	Allowable altitude for use is 3000 m or lower.: Note 8
Transportation and storage	Temperature	-10 to 50°C (14 to 122°F) : Note 9
	Humidity	10 to 85% (without moisture condensation): Note 9
	Atmospheric pressure	700 to 1060 hPa: Note 9
Service life		Under the specified maintenance and proper storage, 10 years: Note 10

Note 1: Optional

Note 2: When the battery power is used

Note 3: Operating tables operating possible time and halting time per 1 cycle

Note 4: Excluding the side rail

Note 5: Rough dimension

Note 6: Total of the patient and accessories

Note 7: 290 to 340 kg (640 to 750 lbs) when the table top height is 400 to 550 mm (15.75 to 21.65 in) (Elevation only)

Note 8: IEC 60601-1: 2020 Medical electrical equipment - Part1: General requirements for basic safety and essential performance

Note 9: Company standard (in case that appropriate maintenance and inspection is done)

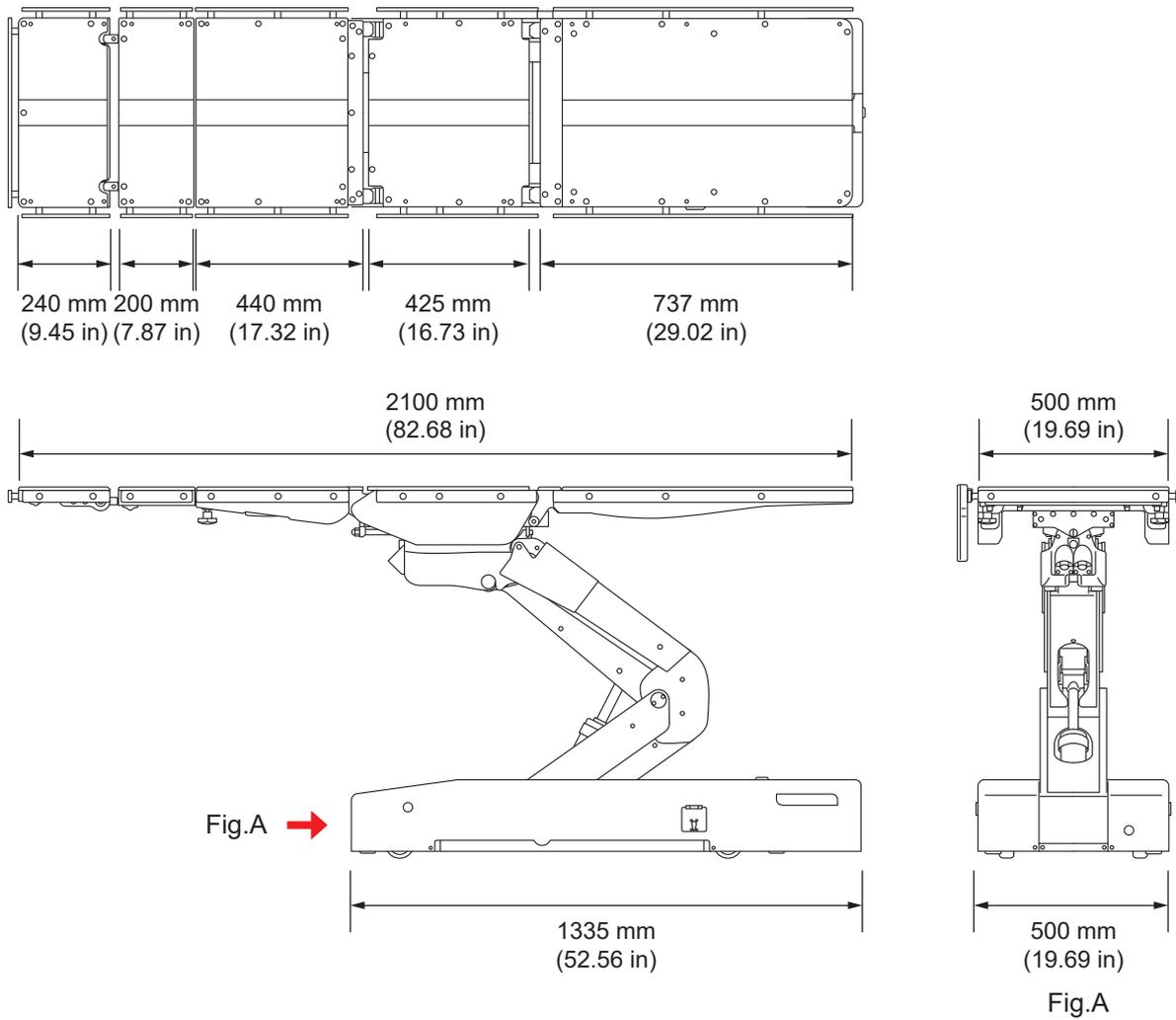
Note 10: Based on Mizuho's own validation data

Note 11: Process that seamlessly welds via heat

Note 12: Fastener with high waterproofness

Note 13: Depending on the usage conditions

## 8.2 External view



# 9. Troubleshooting

## 9.1 When the hand controller cannot be used

### ■ Use the auxiliary switch to operate the operating table



- The auxiliary switch should be used only in an emergency.
- Always watch movement of the operating table when you operate the auxiliary switch. The auxiliary switch has no operational restrictions and may come in contact with other parts.
- If any parts come in contact with each other, immediately stop the operation. Otherwise, the operating table may get damaged.

#### NOTE

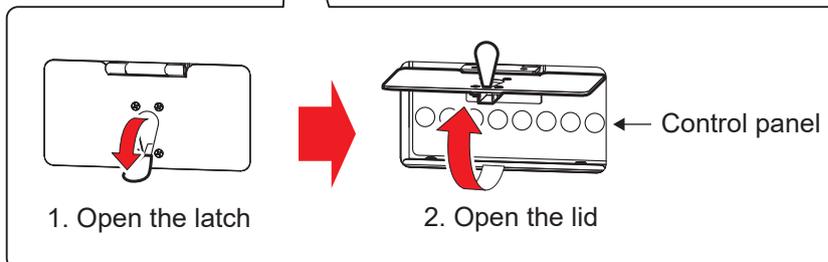
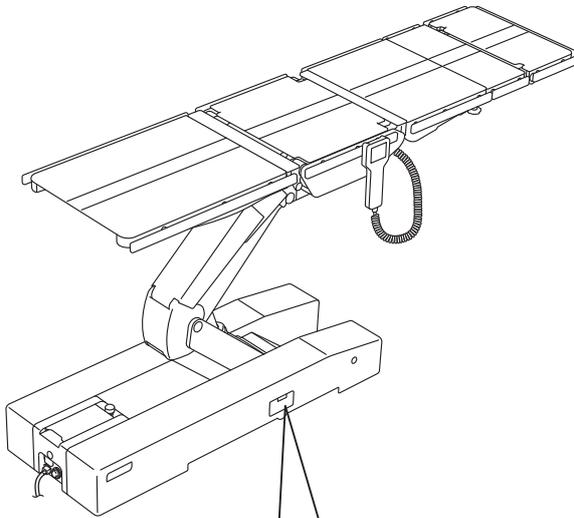
- The operating table always moves in the high speed mode when being operated by the auxiliary switch.

[MST-7300BX only]

- When the auxiliary switch is used for the operation, the ISO CENTER mode does not function.

1. Open the latch of the auxiliary switch.

2. Open the lid of the auxiliary switch.

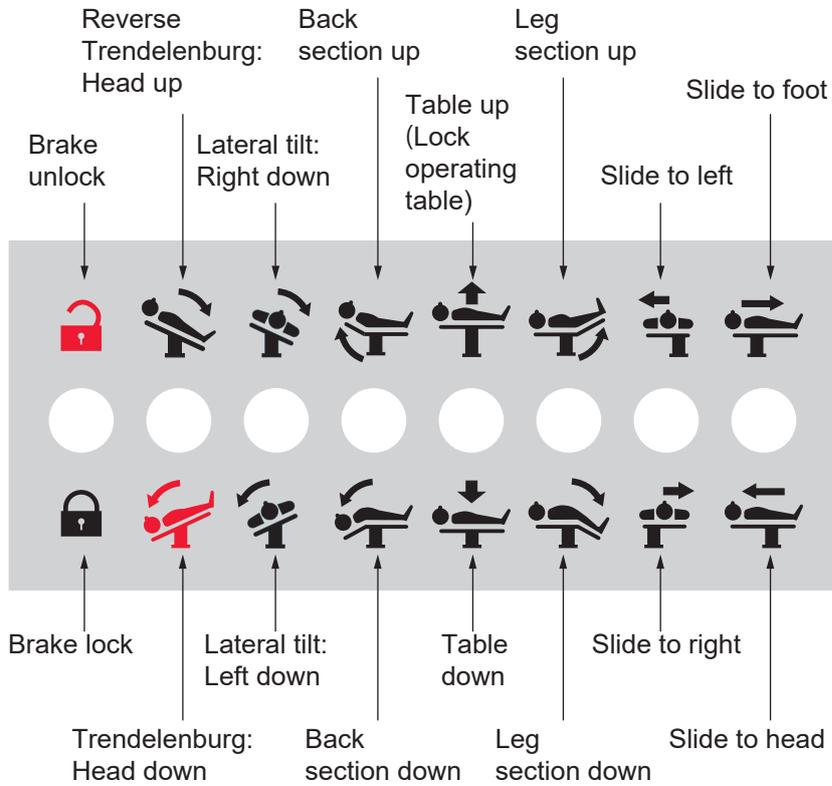


**3. Press the function switch on the control panel according to the desired direction.**

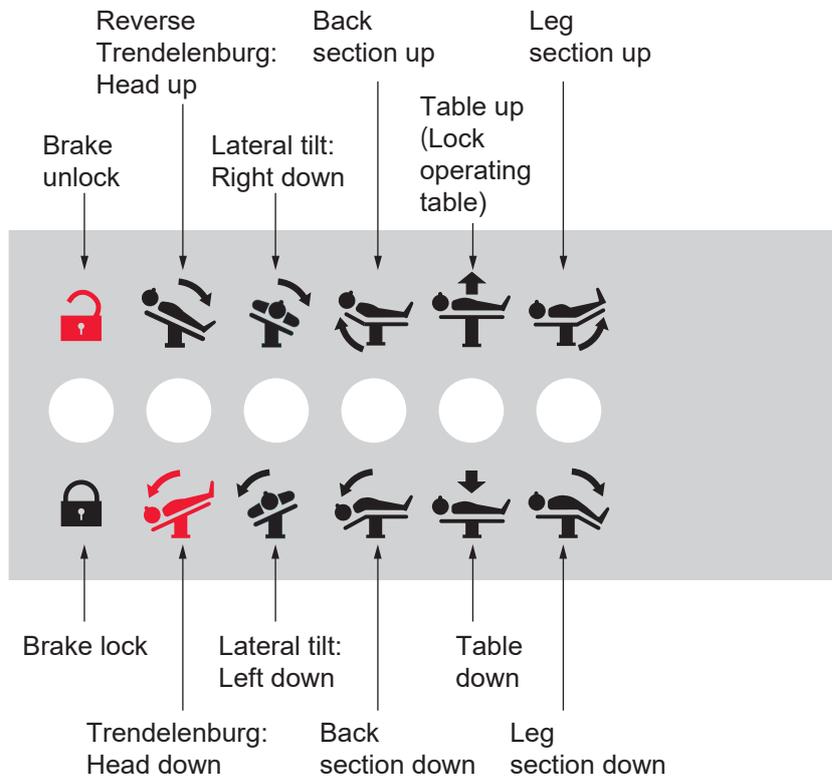
**NOTE**

- The operating table moves while the auxiliary switch is being pressed.
- The operating table stops once the maximum angle is achieved at each operation.

**● MST-7300BX**



**● MST-7300B**



## 9.2 When the brake cannot be released



- Do not operate the emergency brake release knob with a patient on the operating table. The operating table may tip over resulting in injury.
- Do not operate the operating table via operating the touch screen when the emergency brake release knob is in the “UNLOCK” state. The operating table may tip over resulting in injury.



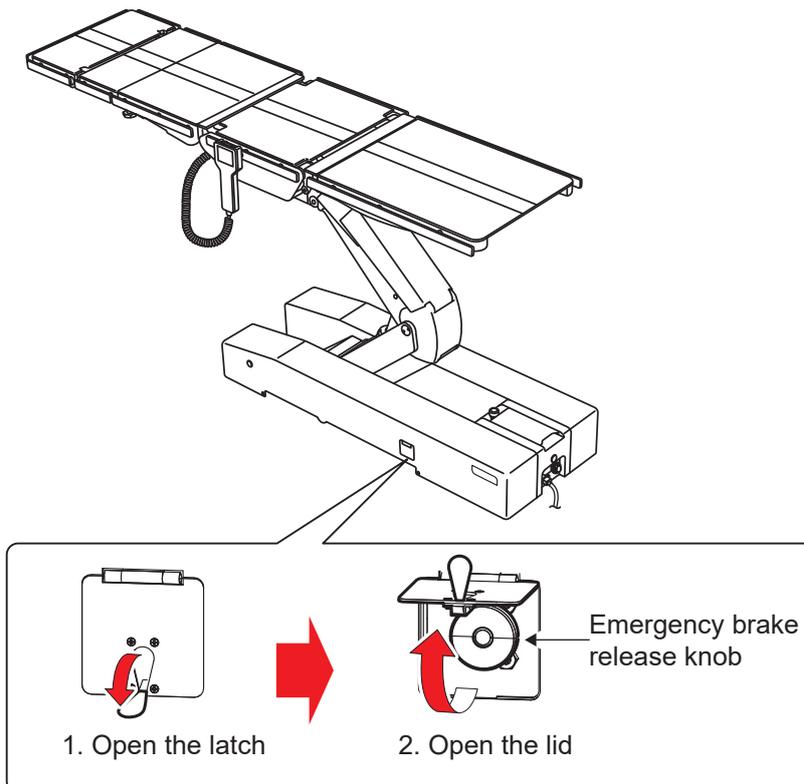
After turning the emergency brake release knob in the UNLOCK direction, make sure to return it in the LOCK direction. If it is not returned, the operating table cannot be operated via the hand controller.

### ■ Brake release with the emergency brake release knob

In case of electrical trouble, the operating table can be moved by using the emergency brake release knob.

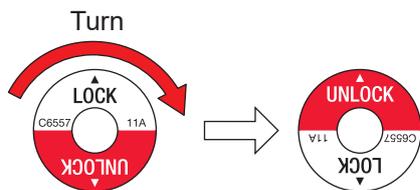
Follow the procedure below to release the brake.

1. Open the latch of the emergency brake release knob.
2. Open the lid of the emergency brake release knob.



### 3. Turn the emergency brake release knob clockwise (to the right).

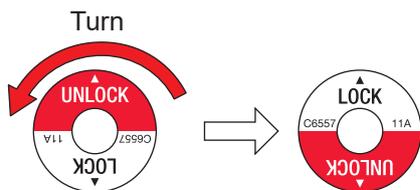
The brake will be released.



## ■ Refixing the operating table

When you want to use it again after the electrical trouble been fixed, follow the procedure below to fix the operating table.

### 1. Turn the emergency brake release knob counterclockwise (to the left).



### 2. Press **E** first and then on the hand controller.

The operating table will be fixed.

## 9.3 In case where any caution/warning appeared

If any caution/warning message appeared on the touch screen and the display monitor, follow the description below to take an appropriate action.

### ■ Cautions/warnings displayed on the touch screen and display monitor

Display		Measures
Touch screen	Monitor	
Valve Thermal The valve's thermal switch for locking is on. Wait 30 minutes before use.	No.01	Wait for about 30 minutes, and then use again.
Table Section Collision The head section is about to contact the floor.	No.02	To continue the current operation, perform the following operations. <ul style="list-style-type: none"> <li>• Reverse Trendelenburg (→ Page 42)</li> <li>• Back section up (→ Page 44)</li> <li>• Table up (→ Page 47)</li> </ul>
Table Section Collision The seat section is about to contact the operating table.	No.03	To continue the current operation, perform the following operations. <ul style="list-style-type: none"> <li>• Lateral tilt in the return direction (→ Page 41)</li> <li>• Trendelenburg in the return direction (→ Page 42, 43)</li> <li>• Table up (→ Page 47)</li> </ul>
Table Section Collision The leg section is about to contact the operating table.	No.04	To continue the current operation, perform the following operations. <ul style="list-style-type: none"> <li>• Leg section up (→ Page 46)</li> <li>• Trendelenburg (→ Page 43)</li> <li>• Table up (→ Page 47)</li> </ul>
Motor Lock The motor is locked and supplied with overcurrent. Request repairs from Mizuho or your distributor.	No.05	Request repairs from your distributor or Mizuho.
Power Supply The AC power has broken down. Request repairs from Mizuho or your distributor.	No.06	Request repairs from your distributor or Mizuho.
Fuse The fuse has blown out. It cannot be used by a battery mode. Request repairs from Mizuho or your distributor.	No.07	Request repairs from your distributor or Mizuho.
Emergency Switch The emergency stop switch was pressed. Check the safety and then deactivate the switch.	No.08	Check the safety and then release the emergency stop switch.
Battery Discharged The battery is out of charge. Charge the battery.	No.09	Charge the battery.
Brake Lock The surgical table cannot be locked. Check if the emergency brake is released.	No.10	Lock the emergency brake again.

Display		Measures
Touch screen	Monitor	
Pendant Control Communication The control cannot be communicated with. Use the hand controller wirelessly or auxiliary switch or the touch screen.	No.11	Use the hand controller wirelessly, the auxiliary switch, or the touch screen.
Rotary Encoder Communication The Rotary encoder cannot be communicated with. Request repairs from Mizuho or your distributor.	No.12	Request repairs from your distributor or Mizuho.
Rx Microcomputer Communication The Rx microcomputer cannot be communicated with. Request repairs from Mizuho or your distributor.	No.13	Request repairs from your distributor or Mizuho.
Table Down Sensor The sensor at the lift linkage is on. Check if any object is caught in the linkage.	No.14	Remove the object. (→ Page 47)
Trend, Table-Down Switch “Reverse trend.” and “Table-down” are disabled due to their contact prevention switch working.	No.15	To continue the current operation, perform the following operations. • Trendelenburg (→ Page 43) • Table up (→ Page 47)
Pump Thermal The thermal switch of the pump motor is on. Wait 30 minutes before use.	No.16	Wait for about 30 minutes, and then operate the operating table again.
5V Power The 5V power of the main board is off. Request repairs from Mizuho or your distributor.	No.17	Request repairs from your distributor or Mizuho.
Remote Control Code The code no. of the remote controller is incorrect. Correct the code no. in the maintenance mode.	No.18	Request repairs from your distributor or Mizuho.
Head Is Below The Heart The head may go below the heart. Carefully adjust the position.	No.19	Check the patient’s condition.
Table Section Collision The sliding rail is about to contact the lift cover.	No.20	Perform the Trendelenburg operation for the operating table to the level position or lower below it. (→ Page 43)
“E” Button No “E” is entered from the hand controller or the foot switch. Use the auxiliary switch or the touch screen.	No.21	Use the auxiliary switch or the touch screen.
Low Battery The battery level is low. Charge the battery.	No.22	Charge the battery.
Table Section Collision The leg section is about to contact the frame.	No.23	To continue the current operation, perform the following operations. • Leg section up (→ Page 46) • Slide to foot (→ Page 49)

Display		Measures
Touch screen	Monitor	
Table Up Rotary Encoder The lift rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.24	Request repairs from your distributor or Mizuho.
Trend Rotary Encoder The Trendelenburg rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.25	Request repairs from your distributor or Mizuho.
Tilt Rotary Encoder The lateral tilt rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.26	Request repairs from your distributor or Mizuho.
Back Rotary Encoder The back section rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.27	Request repairs from your distributor or Mizuho.
Slide Head Leg Rotary Encoder The head-to-leg slide rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.28	Request repairs from your distributor or Mizuho.
Slide Right Left Rotary Encoder The right-to-left slide rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.29	Request repairs from your distributor or Mizuho.
Leg Rotary Encoder The leg section rotary encoder is not functioning. Request repairs from Mizuho or your distributor.	No.30	Request repairs from your distributor or Mizuho.
Hand Control Connection The hand controller is not connected.	No.31	Check if the hand controller is connected.
Encoder PCB2 Communication The Rotary encoder PCB2 cannot be communicated with. Request repairs from Mizuho or your distributor.	No.32	Request repairs from your distributor or Mizuho.
Memory Function Because there is abnormality in the encoder function, the memory function cannot be used.	No.33	Request repairs from your distributor or Mizuho.
Leg slide Interference There is a risk that this will collide inside the operating table.	No.34	To continue the current operation, perform the following operations. • Reverse Trendelenburg (→ Page 42)
Communication error [Timeout] (→ Page 18 Fig. E-3)	Panel Err.	Turn off the power, and repower it on. (→ Page 27)
There is an error in the internal memory (SRAM) data. Touch the screen. (→ Page 18 Fig. E-4)	Panel Err.	If the special error screen is still displayed, request repairs from your distributor or Mizuho.

# 10. Before contacting for repairs

## ■ Checking causes and countermeasures

The following problems can occur even if the operating table is not malfunctioning. Check the following points before requesting repairs.

Status	Possible cause	Measures
The AC power cannot be turned on.	The power switch is OFF.	Check the power cord is connected and then turn on the power switch. (→ Page 27)
The battery cannot be turned on.	The battery is fully discharged. (No.9)	Charge the battery. (→ Page 31)
The battery cannot be charged.	The power switch is OFF.	Check the power cord is connected and then turn on the power switch. (→ Page 31)
A function switch on the hand controller does not function.	You did not press the E switch before the function switch.	Press E switch first and then the function switch. (→ Page 37 to 51)
	The pump motor thermal switch is activated. (No.16)	Wait for about 30 minutes to operate.
The operating table moves slowly.	The operation speed is set to the low speed mode.	Switch to the high speed mode. (→ Page 37)
The operating table does not work.	The emergency stop switch has been pressed. (No.8)	Release the emergency stop switch. (→ Page 39)
A buzzer sounds when the power is turned on.	The emergency stop switch has been pressed. (No.8)	Release the emergency stop switch. (→ Page 39)
The operating table cannot be fixed.	The emergency brake release knob is in "UNLOCK" position.	Turn the emergency brake release knob toward "LOCK." (→Page 78)
The touch screen does not function.	The touch screen is pressed with two or more switches together.	Tap the switches one by one to operate the touch screen. (→ Page 5)
The hand controller cannot be operated wirelessly.	The rechargeable battery of the hand controller is completely discharged.	Connect the hand controller to the operating table and charge it. (→ Page 26)
The operating table stops at positions other than the level and center positions.	The memory mode is activated.	Press the "MEM" switch on the hand controller to activate the normal mode. (→ Page 54)

Status	Possible cause	Measures
The elevation of the operating table cannot be performed in the down direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Back section up (→ Page 44)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations in the return direction. • Lateral tilt (→ Page 41) • Trendelenburg (→ Page 42, 43)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)
	There is something below the lift linkage. (No.14)	Remove the object. (→ Page 47)
	The lift linkage almost comes in contact with the Trendelenburg frame, and a message appeared. (No.15)	Trendelenburg the operating table in the head down direction. (→ Page 43)
The Trendelenburg of the operating table cannot be performed in the head down direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Back section up (→ Page 44) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Lateral tilt in the return direction (→ Page 41) • Table up (→ Page 47)
The Reverse Trendelenburg of the operating table cannot be performed in the head up direction.	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Lateral tilt in the return direction (→ Page 41) • Table up (→ Page 47)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)
	The lift linkage almost comes in contact with the Trendelenburg frame, and a message appeared. (No.15)	Move up the tabletop. (→ Page 47)
The lateral tilt of the operating table cannot be performed in the right down direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Back section up (→ Page 44) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Trendelenburg in the return direction (→ Page 42, 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)
	The slide rail almost comes in contact with the lift cover, and a message appeared. (No.20)	Perform the Trendelenburg operation for the operating table to the level position or lower below it. (→ Page 43)

Status	Possible cause	Measures
The lateral tilt of the operating table cannot be performed in the left down direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Back section up (→ Page 44) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Trendelenburg in the return direction (→ Page 42, 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)
	The slide rail almost comes in contact with the lift cover, and a message appeared. (No.20)	Perform the Trendelenburg operation for the operating table to the level position or lower below it. (→ Page 43)
The back section up/down of the operating table cannot be performed in the down direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Table up (→ Page 47)
The slide of the operating table cannot be performed in the head direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Lateral tilt in the return direction (→ Page 41) • Trendelenburg in the return direction (→ Page 42, 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the frame, and a message appeared. (No.23)	Bend the leg section of the operating table upward. (→ Page 46)
The slide of the operating table cannot be performed in the right direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Lateral tilt in the return direction (→ Page 41) • Trendelenburg in the return direction (→ Page 42, 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)

Status	Possible cause	Measures
The slide of the operating table cannot be performed in the left direction.	The head section almost comes in contact with the floor, and a message appeared. (No.2)	Perform the following operations. • Reverse Trendelenburg (→ Page 42) • Table up (→ Page 47)
	The seat section almost comes in contact with the base, and a message appeared. (No.3)	Perform the following operations. • Lateral tilt in the return direction (→ Page 41) • Trendelenburg in the return direction (→ Page 42, 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Bend the leg section of the operating table upward. (→ Page 46)
The leg section up/down of the operating table cannot be performed in the down direction.	The leg section almost comes in contact with the lift linkage, and a message appeared. (No.4)	Perform the following operations. • Trendelenburg (→ Page 43) • Table up (→ Page 47)
	The leg section almost comes in contact with the frame, and a message appeared. (No.23)	Slide the operating table in the foot direction. (→ Page 49)
The special error screen is displayed on the touch screen. (→ Page 18)	(Fig. E-3) Touch screen communications error. (Fig. E-4) The touch screen battery is depleted.	Turn off the power, and repower it on. (→ Page 27)  If the special error screen is still displayed, request repairs from your distributor or Mizuho.

If the situation does not improve even if the above countermeasures are implemented, request repairs from your distributor or Mizuho.

## ■ In case of malfunction



- The operating table should only be serviced or maintained by Mizuho or the certified providers. Make sure to contact your distributor or Mizuho for maintenance or repairs.
- Do not disassemble the operating table. Unauthorized disassembling may cause a fire, electrical shock or malfunction.
- In order to prevent infections, make sure to clean and disinfect the operating table when requesting to have it repaired.

Implement the follow measures when the operating table malfunctions.

- 1. Turn off the power and disconnect the power cord from the medical grade outlet.**
- 2. Place an “Out of Order” or “Do Not Use” sign on the operating table.**

## ■ Warranty

MIZUHO Corporation will repair defective parts of this product without charge for one year from the date of delivery/installment except for cases of damage caused by a third party's repair, act of nature, improper use or intentional damage. All other warranty terms and conditions are subject to regulations of MIZUHO Corporation.

# App.-1 Electromagnetic Compatibility

Install and operate according to the EMC information provided in this manual.



- Do not use any accessories other than those specified by Mizuho.  
This can result in increased emissions and reduced immunity.
- Do not use it adjacent to or stacked with other equipment.  
Normal operation may not be possible due to electromagnetic interference.
- Before using other medical electronic devices (especially life support devices) to be used together, make sure that they will not malfunction due to electromagnetic interference.  
Normal operation may not be possible due to electromagnetic interference.

## Guidelines and manufacturer declaration – electromagnetic emissions

The MST-7300B/7300BX is intended for use in the electromagnetic environment specified below. The customer or user of the MST-7300B/7300BX must ensure that it is operated in suchlike environments.

Electromagnetic interference measurements	Compliance	Electromagnetic environment – guideline
Harmonic emissions IEC 61000-3-2	Class A	The MST-7300B/7300BX is suitable for use in all establishments, other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	
RF emissions CISPR 11	Class A	
RF emissions CISPR 11	Group 1	The MST-7300B/7300BX 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.

**Guidelines and manufacturer declaration – electromagnetic interference immunity**

The MST-7300B/7300BX is intended for use in the electromagnetic environment specified below. The customer or user of the MST-7300B/7300BX must ensure that it is operated in suchlike environments.

<b>Interference immunity tests</b>	<b>IEC 60601 test level</b>	<b>Compliance level</b>	<b>Electromagnetic environment – guidelines</b>
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact discharge  ± 2; 4; 8; 15 kV air discharge	± 8 kV contact discharge  ± 2; 4; 8; 15 kV air discharge	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 and output lines	± 2 kV for power supply lines  ± 1 kV for input and output lines	Power supply voltage quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 0.5; 1 kV differential mode voltage  ± 0.5; 1; 2 kV common mode voltage	± 0.5; 1 kV differential mode voltage  ± 0.5; 1; 2 kV common mode voltage	Power supply voltage quality should be that of a typical commercial or hospital environment.
Voltage drops, short interruptions and fluctuations in power supply voltage IEC 61000-4-11	0% $U_T$ for 0.5 cycles  0% $U_T$ for 1 cycles  70% $U_T$ for 25/30 cycles  0% $U_T$ for 250/300 cycles	0% $U_T$ for 0.5 cycles  0% $U_T$ for 1 cycles  70% $U_T$ for 25/30 cycles  0% $U_T$ for 250/300 cycles	Power supply voltage quality should be that of a typical commercial or hospital environment. If the user of the MST-7300B/7300BX need to continue operation during a main power interruption, it is recommended that the MST-7300B/7300BX be powered by an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Info: $U_T$ is the AC voltage before application of the test level.			

**Guidelines and manufacturer declaration – electromagnetic interference immunity (continuation)**

<p>Conducted disturbances induced by radiated RF IEC 61000-4-6</p>	<p>150 kHz to 80 MHz 3 V</p> <p>ISM frequencies 6 V</p>	<p>150 kHz to 80 MHz 3 V</p> <p>ISM frequencies 6 V</p>	<p>Portable and mobile RF communications equipment (radio devices, incl. antennas or cables) should be used no closer to any part of the MST-7300B/7300BX than the recommended safety distance of 300 mm (12 in).</p> <p>The field strengths from fixed RF transmitters, as determined by field surveys of electromagnetic fields, should be less than a compliance level of 3 V/m in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 																																																															
<p>Interference due to radiated RF IEC 61000-4-3</p>	<p>80 MHz to 2.7 GHz 3 V/m</p> <p>Wireless communication frequency band</p> <table border="1" data-bbox="454 593 654 1198"> <thead> <tr> <th>V/m</th> <th>MHz</th> </tr> </thead> <tbody> <tr><td>27</td><td>385</td></tr> <tr><td>28</td><td>450</td></tr> <tr><td>9</td><td>710</td></tr> <tr><td>9</td><td>745</td></tr> <tr><td>9</td><td>780</td></tr> <tr><td>28</td><td>810</td></tr> <tr><td>28</td><td>870</td></tr> <tr><td>28</td><td>930</td></tr> <tr><td>28</td><td>1720</td></tr> <tr><td>28</td><td>1845</td></tr> <tr><td>28</td><td>1970</td></tr> <tr><td>28</td><td>2450</td></tr> <tr><td>9</td><td>5240</td></tr> <tr><td>9</td><td>5500</td></tr> <tr><td>9</td><td>5785</td></tr> </tbody> </table>	V/m		MHz	27	385	28	450	9	710	9	745	9	780	28	810	28	870	28	930	28	1720	28	1845	28	1970	28	2450	9	5240	9	5500	9	5785	<p>80 MHz to 2.7 GHz 3 V/m</p> <p>Wireless communication frequency band</p> <table border="1" data-bbox="742 593 941 1198"> <thead> <tr> <th>V/m</th> <th>MHz</th> </tr> </thead> <tbody> <tr><td>27</td><td>385</td></tr> <tr><td>28</td><td>450</td></tr> <tr><td>9</td><td>710</td></tr> <tr><td>9</td><td>745</td></tr> <tr><td>9</td><td>780</td></tr> <tr><td>28</td><td>810</td></tr> <tr><td>28</td><td>870</td></tr> <tr><td>28</td><td>930</td></tr> <tr><td>28</td><td>1720</td></tr> <tr><td>28</td><td>1845</td></tr> <tr><td>28</td><td>1970</td></tr> <tr><td>28</td><td>2450</td></tr> <tr><td>9</td><td>5240</td></tr> <tr><td>9</td><td>5500</td></tr> <tr><td>9</td><td>5785</td></tr> </tbody> </table>	V/m	MHz	27	385	28	450	9	710	9	745	9	780	28	810	28	870	28	930	28	1720	28	1845	28	1970	28	2450	9	5240	9	5500	9
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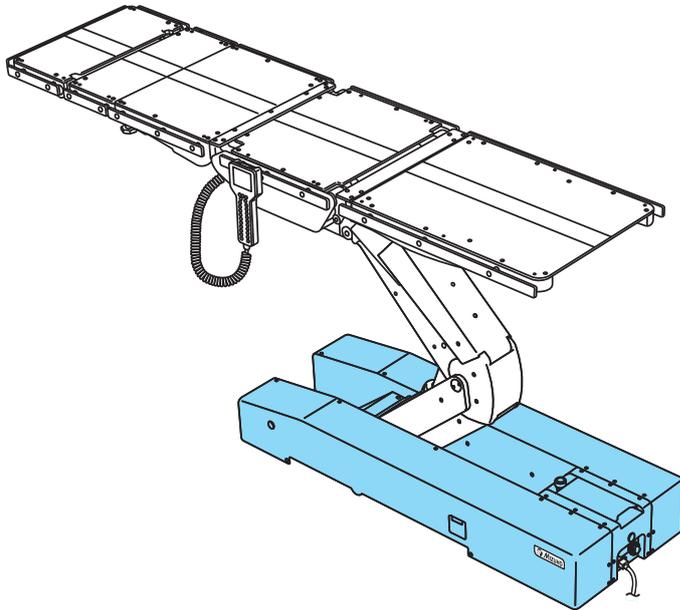
Info: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and people.

The field strengths from fixed transmitters, such as wireless (cellular/cordless) telephones and mobile terrestrial radio base stations, amateur radio, AM/FM radio broadcasts and TV broadcasts cannot be accurately and theoretically predicted. In order to confirm the electromagnetic environment caused by the fixed RF transmitter, it is desirable to consider an electromagnetic field survey. If the measured field strength exceeds the compliance level as specified above at the location where the MST-7300B/7300BX is used, the MST-7300B/7300BX should be observed to verify correct functionality. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the MST-7300B/7300BX.

# App.-2 Glossary

## Base

The light-blue portion of the figure below.

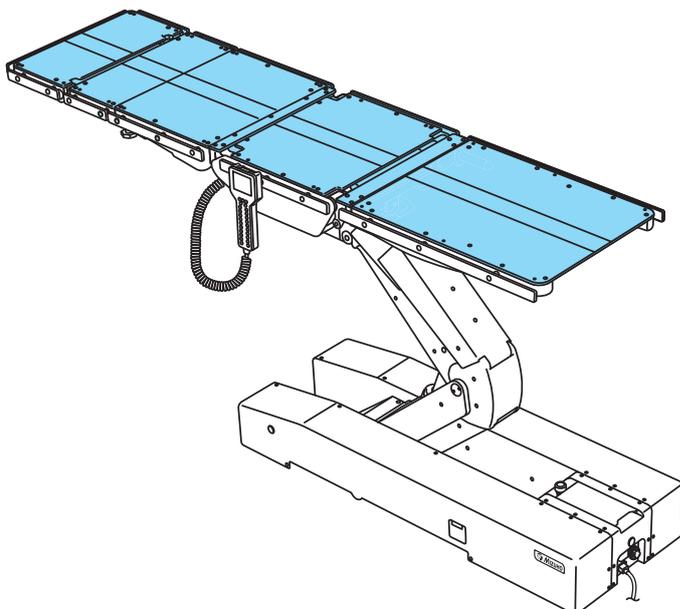


## Lateral tilt

Tabletop of the operating table moves to the left-down or the right-down position.

## Tabletop

The light-blue portion of the figure below.



## Trendelenburg

Tabletop of the operating table moves to the head-up or the head-down position.

# Revision Record

2017-03-02	REV.1	New release
2017-05-08	REV.2	Revision
2018-03-09	Ver.3	Revision
2019-05-20	Ver.4	Revision
2021-06-04	Ver.5	Revision
2021-10-01	Ver.6	Revision
2023-07-27	Ver.7	Revision
2023-10-02	Ver.8	Revision
2024-10-01	Ver.9	Revision





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