Trios®

Table Base

Owner's Manual

Available Translations:

- English (en)
- Spanish (es)
- French (fr)
- German (de)
- Italian (it)
- Portuguese (ptbr)
- Danish (da)
- Japanese (ja)
- Chinese (zh)
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MIZUHO | OSI®

MIZUHO OSI
30031 Ahern Avenue
Union City, CA 94587-1234 USA
Inside USA: 1-800-777-4674
Outside USA: +1-510-429-1500
Fax: 1-510-429-8500

CE UKCA

WWW.MIZUHOSI.COM
NEWHIPNEWS.COM

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EC REP

Emergo Europe
Westervoortsedijk 60
6827 AT Arnhem
The Netherlands

UK Responsible Person

Emergo Consulting (UK) Limited
c/o Cr360 - UL International
Compass House, Vision Park Histon
Cambridge CB24 9BZ
United Kingdom

Table of Contents

1 Important Notices 1

1.1 Trademarks and Patents 6

1.2 Disposal of Electrical Components 6

2 Introduction 7

2.1 General Description 7

2.2 Intended Use 8

2.3 User Profile 8

2.4 Training Requirements 8

2.5 Conditions of Use 8

2.6 Product Lifetime 9

2.7 Specifications 9

2.8 Shipping and Storage 9

2.9 Glossary of Terms 10

3 Component Identification 12

3.1 Table Orientation 12

3.2 Head-End Column of the Trios® Table Base 13

3.2.1 Base of the Head-End Column 14

3.2.2 Pivot Assembly 15

3.2.3 IntelliPendant® 16

3.2.4 Auxiliary Control Panel 16

3.3 Foot-End Column of the Trios® Table Base 17

3.4 Model Number and Serial Number 18

4 Basic Operation 19

4.1 Control Operation 19

4.2 Emergency Stop 20

4.3 Auxiliary Control Panel 21

4.4 Floor Locks 22

4.4.1 IntelliPendant® Activated Floor Lock Override 22

4.4.2 Manual Floor Lock Override 22

4.5 Moving the Trios® Table Base 23

4.6 IntelliPendant® 23

4.6.1 Table Functions 26

4.6.2 Defined Function and Setting Symbols 27
4.6.3 Return to Level 29
4.6.4 Soft Key Functions and Settings 30
4.7 Configuration of Trios® Table Base for Transport or Storage 36
4.8 Indicator Lights 40
4.8.1 Level Indicator Light 40
4.8.2 180 Degree Rotation Lock 41
4.9 Traction Pulley Assembly 42

5 Inspection 43
5.1 Acceptance and Transfer 43
5.2 Pre-Procedure/Post-Procedure 43
5.3 Preventative Maintenance 43

6 Installing and Removing a Table Top 44
6.1 Preparing the Table Base for Table Top Installation 44
6.2 Installing the Table Top on the Table Base 45
6.3 Removing the Table Top from the Table Base 52

7 Function Check 54
7.1 General Table Base Function Checks 54
7.2 Floor Lock Checks 55
7.3 IntelliPendant® Function Checks 55
7.4 Battery Operation Checks 56

8 Cleaning, Storage, and Maintenance 57
8.1 Cleaning and Disinfecting 57
8.1.1 Trios® Table Base Exterior 57
8.2 Storage 57
8.3 Maintenance 58
8.3.1 Battery Maintenance 58
8.3.2 Preventative Maintenance 58

9 Electrical System 59
9.1 Description 59
9.2 Detachable Power Cord 59
9.3 Power/Standby Switch 59
9.4 Power/Charging Indicator 59
9.5 Circuit Breakers 60

9.6 Emergency Stop Button 60
9.7 IntelliPendant® 60
9.8 Battery System 60
9.8.1 Charging the Batteries 61
9.8.2 Replacing the Batteries 61

10 Troubleshooting 62
10.1 Electrical System 62
10.2 Base 62
10.3 Hand Pendant 62
10.4 Manual Floor Lock Override 63

11 Software Troubleshooting 64
11.1 Software Error Codes 64
11.2 Software Release Notes 70
11.2.1 Software Enhancements 70
11.2.2 Resolved Software Issues 71

12 Technical Support 73
12.1 Contact for Parts and Service 73
12.2 Order Replacement Parts 73
12.3 Return Damaged Parts 73
12.4 Send a Part for Repair 73
12.5 Warranty 74

13 Appendix 75
13.1 Electromagnetic Emissions 75
13.2 Electromagnetic Immunity 77

1 Important Notices

CAUTION: To ensure safe operation of the equipment, please READ THESE INSTRUCTIONS COMPLETELY and keep this manual readily available for future reference.

Carefully observe and comply with all warnings, cautions and instructions placed on the equipment or described in this manual.

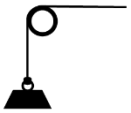
NOTE: *This device is intended for use by trained personnel only. To schedule an in-service, please contact your domestic Mizuho OSI sales representative, or call **1-800-777-4674** inside the USA or **+1-510-429-1500** outside the USA.*

NOTE: *The application techniques outlined in these instructions are the manufacturer's suggested techniques. The final disposition of each patient's care as related to the use of this equipment rests with the attending surgeon.*

The following symbols are used on this product and/or in this manual:

Symbol	Meaning
EC REP 5.1.2 Authorized representative in the European Community[1]	This symbol indicates an authorized representative in the European Community.
CH REP CH-REP Symbol[6]	This symbol indicates the authorized representative in Switzerland.
CE CE marking[7]	This symbol indicates the product is in conformity with European Community harmonization legislation.
UK CA UKCA marking[8]	This symbol indicates the product is in conformity with the requirements of the relevant Great Britain (UK) legislation.
MD 5.7.7 Medical Device[1]	This symbol indicates a medical device.
 3082 Manufacturer[2]	This symbol indicates the Manufacturer of the device.
 2497 Date of manufacture[2]	This symbol indicates the Date of manufacture.
NOTE:	This symbol indicates a comment or instruction of importance.

 0434B Caution[2]	This symbol is to signify CAUTION. It is intended to alert the user to consult the documentation for safety-related information such as warnings and precautions that cannot, for a variety of reasons, be presented on the device itself.
 W001 General Warning sign[3]	This WARNING symbol is intended to alert the user of important operation, maintenance, or safety instructions.
 WEEE symbol[5]	This symbol indicates proper disposal instructions.
 2493 Catalog number[2]	This symbol indicates a product number.
 2498 Serial number[2]	This symbol indicates a serial number.
 M002 Refer to instruction manual/booklet[3]	This symbol indicates that you must read the owner's manual before use.
 1641 Consult instructions for use[2]	This symbol indicates that you are advised to refer to the owner's manual before use.
 5021 Equipotentiality[4]	This symbol indicates an external ground stud that is required to be connected to earth ground (via equipotential connector/busbar) when the AC power cable is not connected to a protective earth ground hospital grade AC outlet in your operating room or facility.
 5840 Type B applied part[4]	This symbol indicates this equipment is an applied part TYPE B in accordance with IEC 60601-1 and is generally suitable for applications involving external or internal contact with the patient, excluding the heart. The patient circuit is connected to protective earth and this equipment should be connected only to hospital grade AC outlets with a protective earth ground.
 W001 General warning sign[3] M002 Refer to instruction manual/booklet[3]	This symbol indicates that a Warning exists related to actions to be taken, and the owner's manual must be read before use.
 5009 Stand-by[4]	This symbol identifies a Power/Standby switch.

 5638 Emergency stop[4]	This symbol represents an Emergency Off.
	This symbol identifies a Hand Pendant Connector.
	This symbol indicates table level.
	This symbol indicates table rotation.
	This symbol indicates Up-Down movement.
	These two symbols indicate a two-step rotation unlock process: lift up, then pull down.
	This symbol indicates pulley for weighted traction.
	This symbol indicates positive and negative terminals for proper attachment of battery cables.
 W012 Warning; Electricity[3]	This symbol indicates Warning, dangerous voltage (related to battery safety).
	This symbol indicates Do not touch, housing energized (related to battery safety).

[1] Standard symbol from "ANSI/AAMI/ISO 15223-1 Medical devices – Symbols to be used with information to be supplied by the manufacturer – Part 1: General requirements."

[2] Standard symbol from "ISO 7000 Graphical symbols for use on equipment."

[3] Standard symbol from "ISO 7010 Graphical symbols – Safety colours and safety signs – Registered safety signs."

[4] Standard symbol from "IEC 60417 Graphical Symbols for use with Equipment."

[5] Symbol from "Directive 2012/19/EU."

[6] Symbol from "Medical Device Ordinance of 1 July 2020: SR 812 213.".

[7] Symbol from Regulation (EC) No 765/2008.

[8] Symbol from "The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019, Schedule 33."

WARNING: To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

WARNING: Proper preoperative and intra-operative procedures must be followed to prevent venous stasis and pooling, pressure sore development, neuropathy, improper electro-surgical tissue grounding, hypertension/hypotension, and hypothermia.

WARNING:  **This symbol indicates an external ground stud that is required for use when the AC power cable is not connected to a protective earth ground hospital grade AC outlet in your operating room or facility. To protect the patient, hospital staff, and the table from possible electrical hazards, an external ground wire connection is required between the external ground stud and earth ground (via equipotential connector/busbar) when the table is in use under battery power.**

WARNING: Medical electrical equipment needs special precautions regarding Electromagnetic Compatibility (EMC) and needs to be installed and put into service according to the EMC information provided in this manual.

WARNING: Portable and Mobile RF Communications Equipment can affect Medical Electrical Equipment.

WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

WARNING: The use of accessories, transducers, and/or cables other than those specified or provided by Mizuho OSI could result in increased emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

WARNING: Portable RF Communications Equipment (including peripheral such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Trios® Surgical Table System, including cables specified by the manufacturer. Otherwise, degradation of the perfomrance of the equipment could result.

WARNING: The weight capacity of the Trios® Table Base is table top specific. Use of the Trios® Surgical Table System (Base with any of the compatible table tops) with patients exceeding the table top specific weight capacity could result in damage to the table, possible injury to the patient, or harm to the healthcare professionals.

 **WARNING: The table tops will only support the specified patient weight when installed patient side up (Patient Weight Limit label and Fixed Table Top Handles are visible) to the Tower installed on the underside of the Crossbar or directly to the Crossbar, as described in Section 6. Placing a patient on a table top that is not installed as described could result in damage to the table, possible injury to the patient, or harm to the healthcare professionals.**

 **WARNING: The Trios® Table Base is to be used by personnel that receive training from either Mizuho OSI or from someone qualified by the medical facility to provide this training. Failure to comply with this requirement may result in damage to the device, possible injury to the patient, or harm to the healthcare professionals.**

 **WARNING: Before and after each use, inspect the Trios® Table Base and its components for possible damage, excessive wear, or non-functioning parts. Carefully inspect all critical, accessible areas, joints, and all moving parts for possible damage or non-function. Damaged or defective parts should not be used or processed. Contact Mizuho OSI Service for repair or replacement (see Section 12).**

 **WARNING: The Trios® Table Base should not be operated in the presence of flammable anesthetics, volatile substances, or other explosive gases, liquids, or atmospheres.**

 **WARNING: Use of components not manufactured or recommended by Mizuho OSI may result in harm to the patient, the device, or the healthcare professionals.**

 **WARNING: Do not perform any service or maintenance work on the device while it is in use with a patient. Servicing the device while in use may cause injury to the patient.**

 **CAUTION: As outlined in the AORN Recommended Practices for Positioning a Patient in the Perioperative Setting, following the positioning of the patient, an assessment of the patient's alignment, tissue perfusion, and skin integrity should be completed. All contact points of the patient with the table pads should be monitored during the procedure.**

 **CAUTION: No modification of the Trios® Table Base or its components is allowed. Any modification to the equipment may result in damage to the table, possible injury to the patient, or harm to the healthcare professionals.**

NOTE: *If the integrity of the AC power source is in doubt, the equipment shall be operated from its internal electrical power source (battery).*

NOTE: *If high-frequency surgical equipment, cardiac defibrillators, or cardiac defibrillator monitors are to be used with the Trios® Surgical Table System, refer to the instructions for use provided by the manufacturer of those devices. Potential hazards that must be considered include, but are not limited to patient burns, explosion hazards, or electric shock of the patient or operator.*

NOTE: *The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B in normally required) this equipment night not offer adequate protection to radio-frequency communication services. The user might need to take mitigating measures, such as relocating or re-orienting the equipment.*

NOTE: *(European Union) Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.*

1.1 Trademarks and Patents

Trios® and IntelliPendant® are registered trademarks of Mizuho OSI.

O-arm® is a registered trademark of Medtronic Inc.

TEMPUR® is a registered trademark of Tempur-Pedic North America, Inc.

Product Protected by:

US Patent Numbers: 10,149,793, 10,888,481, 9,713,562, 9,700,476

1.2 Disposal of Electrical Components



In accordance with the European Union Waste Electrical and Electronic Equipment (WEEE) Directive, all electrical components, batteries, and carbon composite components must be disposed of in accordance with local regulations or returned to Mizuho OSI for proper disposal. Please contact Mizuho OSI Service at **1-800-777-4674** inside the USA or **+1-510-429-1500** outside the USA for further information regarding this requirement.

2 Introduction

2.1 General Description

The Trios® Table Base is the primary component of the Trios® Surgical Table System and is designed to be used with multiple interchangeable table tops. The Trios® Surgical Table System provides the flexibility to position patients for a variety of surgical or radiographic imaging procedures. The Trios® Table Base provides the foundation on which a table top may be mounted, creating a surgical platform free of any obstructions when used with a fluoroscopic C-arm or the O-arm®. The Base is designed for use with the following procedure-specific table tops currently offered: Trios® Spinal Surgery Top, Trios® Radiolucent Imaging Top, and Trios® Orthopedic Trauma Top. The Trios® Table Base has electrically powered positioning and operating functions, which are controlled by means of the IntelliPendant®. The IntelliPendant® provides a visual status display for the Floor Locks, Battery Status, Height Status, Trendelenburg/ Reverse Trendelenburg Angle, and Lateral Tilt Angle.

The Base may also be retracted for storage (see Section 4.7). The Base can be operated under AC power or internal batteries. The product life of the Trios® Table Base is ten (10) years when used and maintained as outlined in this manual.



Figure 1: Trios® Table Base

2.2 Intended Use

With a table top mounted on the Trios® Table Base, an electrically powered mobile operating table is created, designed for temporary (<24 hours) support and positioning of a patient in a prone, supine, or lateral position depending on the specific table top utilized. The Base with a table top mounted is intended for use during surgical procedures, including radiographic imaging during such procedures. The Base with a table top mounted should not be used for patient transport.

The table tops, when mounted on the Trios® Table Base, provide a platform designed to support and position adult and pediatric patients falling within the maximum weight limit allowed for each top as listed below:

- Trios® Spinal Surgery Top: 650 lbs (295 kg)
- Trios® Radiolucent Imaging Top: 650 lbs (295 kg)
- Trios® Orthopedic Trauma Top: 500 lbs (227 kg)

2.3 User Profile

The Trios® Surgical Table System is suitable for use by health care professionals, including but not limited to surgeons, radiologists, anesthesiologists, circulating nurses, surgical technicians, biomedical technicians, and radiology technicians.

2.4 Training Requirements

Before using the Trios® Surgical Table System, the user must read the NW0785 Trios® Table Base Owner's Manual. Depending on the table top(s) used, the user must also read the corresponding Owner's manual(s) listed below:

NW0786 Trios® Spinal Surgery Top Owner's Manual

NW0787 Trios® Radiolucent Imaging Top Owner's Manual

NW0816 Trios® Orthopedic Trauma Top Owner's Manual

It is required that personnel using the Trios® Surgical Table System receive training by either Mizuho OSI or by someone qualified by the medical facility to provide this training.

WARNING: Failure to ensure training prior to use of this device may cause harm to the patient, healthcare professional, or the device.

2.5 Conditions of Use

The Trios® Table Base may be used several times throughout the day and night in medical facilities; e.g. hospitals, and outpatient surgery/imaging centers. The Trios® Table Base will be used in an operating room or other treatment room, and may be rolled between rooms. It shall not be used for patient transport.

2.6 Product Lifetime

The product design life is ten (10) years. At the time of delivery, your product fulfills existing regulations and standards. However, despite proper use, routine inspection, prescribed service, maintenance and repairs, the product is subject to aging and wear. The product's functionality depends on many factors, including but not limited to the frequency of use, maintenance and servicing, and how it's used. Therefore, Mizuho OSI recommends that the table undergo authorized preventative maintenance and repair throughout its lifetime. Contact Mizuho OSI Service for product end-of-life disposal instructions (see Section 12). For product warranty information, see Section 12.5.

2.7 Specifications

The Trios® Table Base has the following specifications:

- When used with each of the procedure-specific table tops, the Trios® Table Base provides the platform on which these table tops are designed to mount. The maximum patient load is table top specific.
- Height range of the Base is 33 inches (83.8 cm) to 50.7 inches (128.8 cm).
- Width of the Base is 32 inches (81.3 cm).
- Maximum length of the Base is 110 inches (279.4 cm), with a retracted length of 68 inches (172.7 cm) for storage.
- Lateral Tilt (left/right) is 25 degrees, and Trendelenburg/Reverse Trendelenburg is 11 degrees.
- Input power requirement is 100-240 VAC, 50/60 Hz, as indicated on the table label.
- The table may also be operated under battery power. The expected working life of a fully charged battery is two normal procedures.
- The Base is IPX4 rated per IEC 60529.
- Operating environment: 15 to 25 °C (59 to 77 °F), relative humidity 30 to 60%, atmospheric pressure 75-105 kPa.
- Class 1 Equipment; Type B per IEC 60601-1.
- The Base is not suitable for use with flammable anesthetic gas mixtures.
- This device is rated for a duty cycle of 4% (2.5 minutes on, 60 minutes off).

2.8 Shipping and Storage

If required to be transported, the Trios® Table Base must be transported using the appropriate shipping crate. Unpacking instructions were included with the original shipping crate and should be included on the outside of the crate if the Trios® Table Base must be transported.

When not in use, the Trios® Table Base should be stored in a clean, dry environment.

The following conditions are required of the shipping and/or storage environment:

- Ambient temperature -4 °F (-20 °C) to 122 °F (50 °C)
- Relative humidity from 10% to 95%, non-condensing
- Atmospheric pressure from 75 to 105 kPa

When in storage, the table cover provided with each respective table top serves as a dust cover and should be used. Also, to ensure that the battery is always fully charged and ready for use, store the Base connected to the AC power that matches the ratings on the manufacturer's label located on the Head-End base cover.

2.9 Glossary of Terms

This glossary of terms assumes that the patient is oriented with his or her head at the Head-End of the table and his or her feet at the Foot-End of the table. The functions of the IntelliPendant® and Auxiliary Control Panel are oriented for this position.

Term	Description
Head-End	Refers to the end of the Base where the Power Cord, Power Switch, and Control Panel are located.
Foot-End	Refers to the end of the Base opposite the Head-End.
Column	Refers to each of the two main column structures of the Base used to support the table top.
Retractable Center Beam	The Retractable Center Beam connects to the Head-End and the Foot-End Columns. The Beam retracts, allowing the table to be transported or stored in a smaller configuration.
Floor Locks Unlocked	Refers to the table casters being fully free to rotate. The button on the IntelliPendant® and the Auxiliary Control Panel used to unlock the Floor Locks is labeled .
Floor Locks Locked	Refers to the table casters being fully locked. The button on the IntelliPendant® and the Auxiliary Control Panel used to lock the Floor Locks is labeled .
Left Side of the Base	Refers to the left side of the Base (as you stand at the Head-End and look towards the Foot-End). The button on the IntelliPendant® and the Auxiliary Control Panel used to laterally tilt (roll) the table top to the left is labeled .
Right Side of the Base	Refers to the right side of the Base (as you stand at the Head-End and look towards the Foot-End). The button on the IntelliPendant® and the Auxiliary Control Panel used to laterally tilt (roll) the table top to the right is labeled .
Raise the Table	Refers to raising the height of the table top. The button on the IntelliPendant® and the Auxiliary Control Panel used to raise the height of the table top is labeled .
Lower the Table	Refers to lowering the height of the table top. The button on the IntelliPendant® and the Auxiliary Control Panel used to lower the height of the table top is labeled .
Trendelenburg	Refers to lowering the height of the Head-End of the table top relative to the Foot-End of the table top. The button on the IntelliPendant® and the Auxiliary Control Panel used to lower the Head-End is labeled .
Reverse Trendelenburg	Refers to lowering the height of the Foot-End of the table top relative to the Head-End of the table top. The button on the IntelliPendant® and the Auxiliary Control Panel used to lower the Foot-End is labeled .
Table Motion	Any one of the three motions: Height, Lateral Tilt, or Trendelenburg.
Return to Level	Refers to the motion of the table required to return the table to the neutral position. When the Return to Level function is activated, the Lateral Tilt Angle returns to 0 degrees, and the Trendelenburg/Reverse Trendelenburg Angle returns to 0 degrees. The button on the IntelliPendant® and the Auxiliary Control Panel used to return the table to the neutral position is labeled .
Home Position	The position of the Trios® when the table top is level head-to-foot and side-to-side, and the height of the table top is 37 inches (94 cm) above the floor.

Hospital Grade AC outlet	Refers to specially designated outlets (receptacles) that include additional grounding reliability, assembly integrity, strength, and durability. A hospital grade outlet in the United States may be indicated by a green colored dot on the face of the outlet.
Slide Assembly	The Slide Assembly at the Head-End Column adjusts superiorly or inferiorly to accommodate for the length adjustments needed when using Trendelenburg and Reverse Trendelenburg.
Traction Pulley Assembly	The Traction Pulley Assembly allows for weighted traction to be pulled by guiding the use of a traction rope.
Table Top	The patient support surface or frame on which patient support accessories are attached. The Trios® Table Base is designed for use with three (3) table tops: Trios® Spinal Surgery Top, Trios® Radiolucent Imaging Top, and Trios® Orthopedic Trauma Top.
Prone (Patient) Position	A body position in which the patient lies face down on a table top.
Supine (Patient) Position	A body position in which the patient lies face up on a table top.

3 Component Identification

3.1 Table Orientation

The Trios® Table Base is described as having a Head-End and a Foot-End. The Head-End of the Base provides the port to which the Hand Pendant is connected and the 180 Degree Rotation Lock handle. The end opposite to it is identified as the Foot-End (Figure 2). Each end also contains a Crossbar that allows for the attachment of a table top. With a table top installed, the patient should be positioned with his or her head oriented towards the Head-End of the Base.



Figure 2: Trios® Table Base

NOTE: *The maximum weight capacity for this table system is specific to each table top as noted in the respective Owner's Manuals and on the safety labels found on the table tops themselves.*

WARNING: Use of the Trios® Table Base and a procedure-specific table top with a patient exceeding the maximum patient weight capacity noted could result in damage to the table, possible injury to the patient, or harm to the healthcare professionals.

3.2 Head-End Column of the Trios® Table Base

The Head-End Column of the Trios® Table Base contains several key controls necessary to operate the Base correctly, as well as important indicator lights and product identification information. Features found on Head-End Column include the 180 Degree Rotation Lock Handle, Emergency Stop button, Auxiliary Control Panel, Hand Pendant Rails, and the Traction Pulley (Figure 3).



Figure 3: Head-End Column of the Trios® Table Base

3.2.1 Base of the Head-End Column

The inside base of the Head-End Column is equipped with the following electrical features (Figure 4):

- Power/Standby Switch
- Power Cord Receptacle
- Two Reset Button Circuit Breakers
- External Ground Stud
- Battery Indicator LED
- AC Power Indicator LED
- Connection Port for diagnostics and service

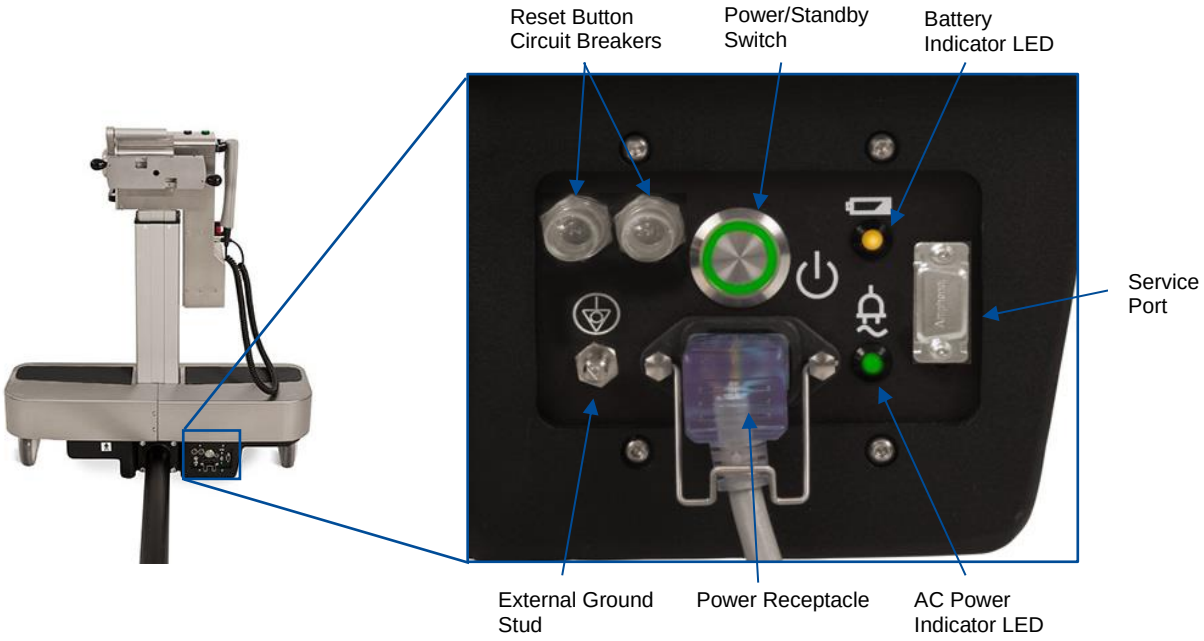


Figure 4: Head-End Column, Inside Base

If the table is running on AC power, the Power/Standby Switch and AC Power Indicator LED will be illuminated green. The Battery Indicator LED will either be illuminated green, indicating batteries are fully charged, or yellow, indicating batteries are charging.

3.2.2 Pivot Assembly

The Head-End Pivot Assembly is equipped with the following two indicator lights (Figure 5):

- 180 Degree Rotation Lock indicator light
- Level indicator light

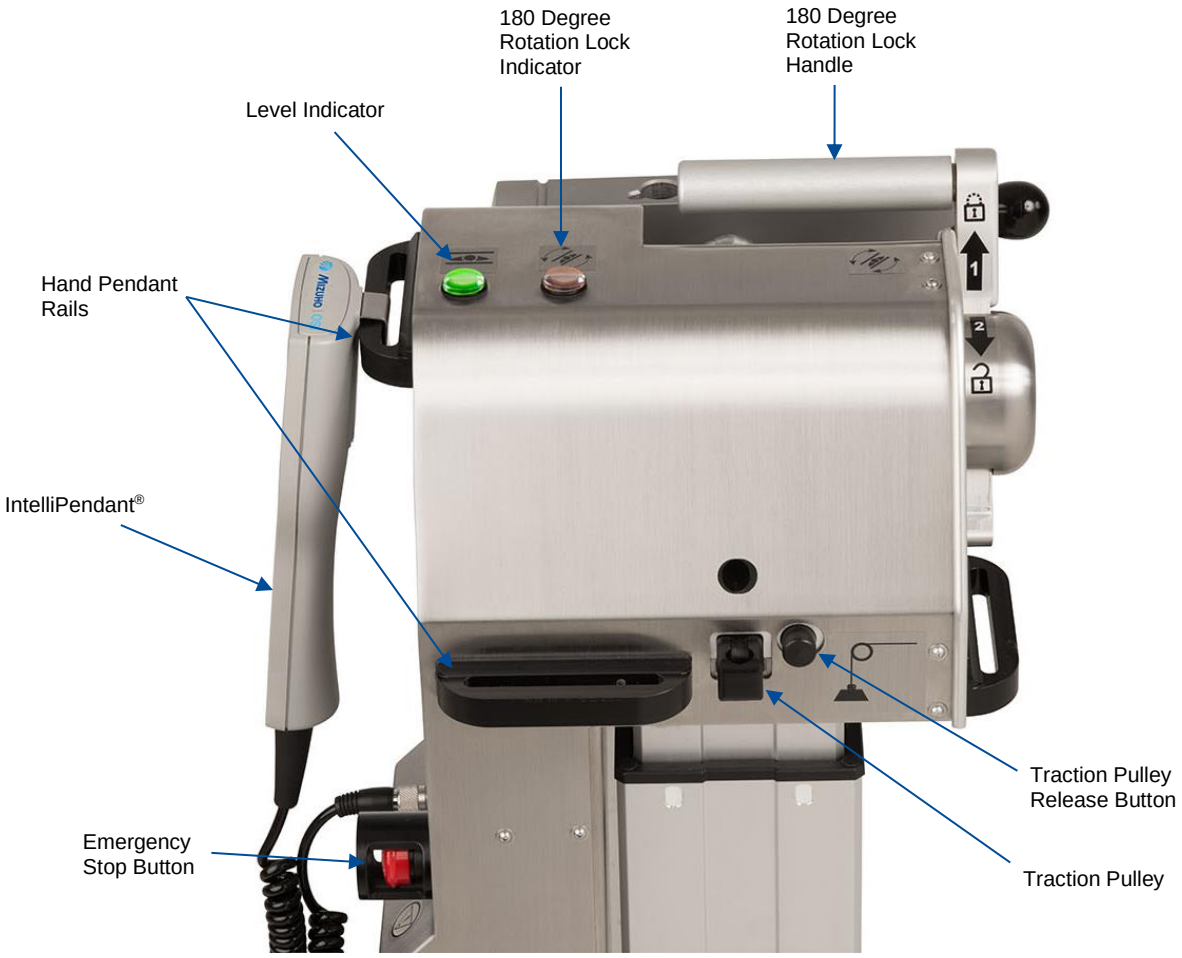


Figure 5: Pivot Assembly of the Head-End Column

The Head-End Pivot Assembly also features the 180 Degree Rotation Lock Handle, the Emergency Stop button, the Traction Pulley, and the Hand Pendant Rails.

3.2.3 IntelliPendant®

The Trios® Table Base functions are controlled by the single hand pendant referred to as the IntelliPendant® (Figure 11).

The graphical display of the IntelliPendant® provides real time information about the table's position: Height, Trendelenburg/Reverse Trendelenburg angle, and Lateral Tilt angle. The IntelliPendant® also informs the user of the table's status for Power and Floor Locks. The table's functions and settings, which include Memory Position, Floor Lock Override, and Storage Configuration, are managed using the IntelliPendant®.

When the table is in use, the current Height is identified on the display screen in inches/centimeters. The angle of Trendelenburg/Reverse Trendelenburg and Lateral Tilt is displayed in degrees.

Detailed instructions for utilizing the IntelliPendant® are provided in Section 4.6.

3.2.4 Auxiliary Control Panel

The Auxiliary Control Panel (Figure 10) is intended to provide a second option for controlling primary table motions and the Floor Lock function. The Auxiliary Control Panel may be utilized to control table Height, Trendelenburg/Reverse Trendelenburg, Lateral Tilt, and Floor Lock operation.

> **NOTE:** *Should the IntelliPendant® stop functioning, the Auxiliary Control Panel will allow the user to execute the basic motions of the table and lock/unlock the Floor Locks.*

Detailed instructions for utilizing the Auxiliary Control Panel are provided in Section 4.3.

3.3 Foot-End Column of the Trios® Table Base

The Foot-End Column of the Trios® Table Base contains a second 180 Degree Rotation Lock indicator light (Figure 6).



Figure 6: Foot-End Column of the Trios® Table Base

3.4 Model Number and Serial Number



Figure 7: Manufacturer's Label, Head-End Base

In addition to the REF product number and SN serial number, the following information is provided on the manufacturer's label:

- Address and contact information for manufacturer, Mizuho OSI
- Address and contact information for authorized representative in the European Community, Emergo Europe

NOTE: *Additional product information may also be found on the manufacturer's label.*

4 Basic Operation

4.1 Control Operation

WARNING: To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

CAUTION: The AC power cord is the primary means for isolating the Trios® Table Base from the electric Supply Mains power. To ensure safe operation of the equipment, do not positon the Base such that it is difficult to connect and disconnect the AC Power Cord.

For use with AC power:

1. Plug the Power Cord into a properly grounded receptacle. Refer to the manufacturer's label at the base of the Head-End column for input voltage requirements (Figure 7).

NOTE: *Only use the Power Cord supplied by Mizuho OSI with the table or if necessary, one of equivalent rating.*

2. Press the Power/Standby Switch and observe that the switch illuminates with a green ring indicating that power is applied to the table.
3. If the system is run on battery without an AC Power Cord present, then the external ground stud should be connected to earth ground via an equipotential connector/busbar (Figure 4).

WARNING: This symbol indicates an external ground stud that is required for use when the table is used under battery power when the AC power cable is not present. Failure to ensure ground may cause harm to the patient, healthcare professionals, or the device.

NOTE: *If the integrity of the AC power source is in doubt, the equipment shall be operated from its internal electrical power source (battery).*

When the table is operated on battery power:

1. Ensure that the battery has been properly charged as outlined in Section 9.8. Press the Power/Standby Switch and observe that the switch illuminates with a green ring indicating that power is applied to the table. The AC Power Indicator LED at the base of the Head-End column will not be illuminated, indicating that the table is being used on battery power (Figure 4).
2. The battery status symbol on the screen of the IntelliPendant® indicates the level of charge in the batteries. If the battery status symbol with one green bar appears, the battery is not charged and the table should only be used with AC power.

WARNING: Failure to ensure the table is properly charged when used on battery power may cause the table to malfunction and may harm the patient, healthcare professional and the table.

3. To protect the patient, hospital staff, and the table from possible electrical hazards, an external ground cable connection is required between the external ground stud and earth ground (via an equipotential connector/busbar) when the table is in use under battery power (Figure 4).

The expected working life of a fully charged battery is approximately two normal procedures. While in storage, it is recommended that the table be plugged in to charge the battery. The table does not need to be turned on. A fully depleted battery will take 24 hours to fully charge. This can be accomplished when using the table under AC power.

If during use, the battery symbol on the IntelliPendant® appears , the table should be connected to AC power. It can continue to be utilized while the battery is charging.

4.2 Emergency Stop

To interrupt the motion of the Trios® Table Base immediately, press the Emergency Stop button located on the side of the Head-End column (Figure 8). The IntelliPendant® will display if the Emergency Stop is engaged (Figure 9). No further table functions will be allowed until the Emergency Stop is reset. To reset the table, turn the Emergency Stop button in the direction of the arrows until it returns to the original position.

NOTE: *A protective casing surrounds the Emergency Stop button to help prevent accidental activation.*



Figure 8: Emergency Stop Button

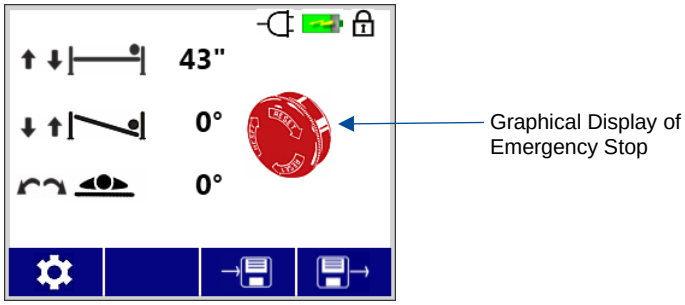


Figure 9: Emergency Stop Display on the IntelliPendant®

4.3 Auxiliary Control Panel

The Auxiliary Control Panel provides function and motion buttons labeled with symbols identifying what function or motion can be achieved (Figure 10). The motion buttons control the Height, Trendelenburg/ Reverse Trendelenburg, Lateral Tilt Right/Left, and Return to Level. The two (2) function buttons control the table's Floor Lock/Unlock capabilities.

A green Light Emitting Diode (LED) illuminates on the face of the Auxiliary Control Panel when the Floor Locks are fully deployed and locked, when the table frame has returned to a level position, and when the table is prepared for storage.

For the motion buttons on the Auxiliary Control Panel to function, the Floor Locks must be locked. To lock the Floor Locks, press the Floor Lock button on the Auxiliary Control Panel or the IntelliPendant®. Confirm the Floor Locks are locked by observing that the Floor Lock LED illuminates green and the Floor Lock symbol is visible on the IntelliPendant®.

To utilize the Auxiliary Control Panel, press and hold a button until the desired motion is achieved. A display on the IntelliPendant® will show the symbol of the motion button when it is activated (Figure 16).

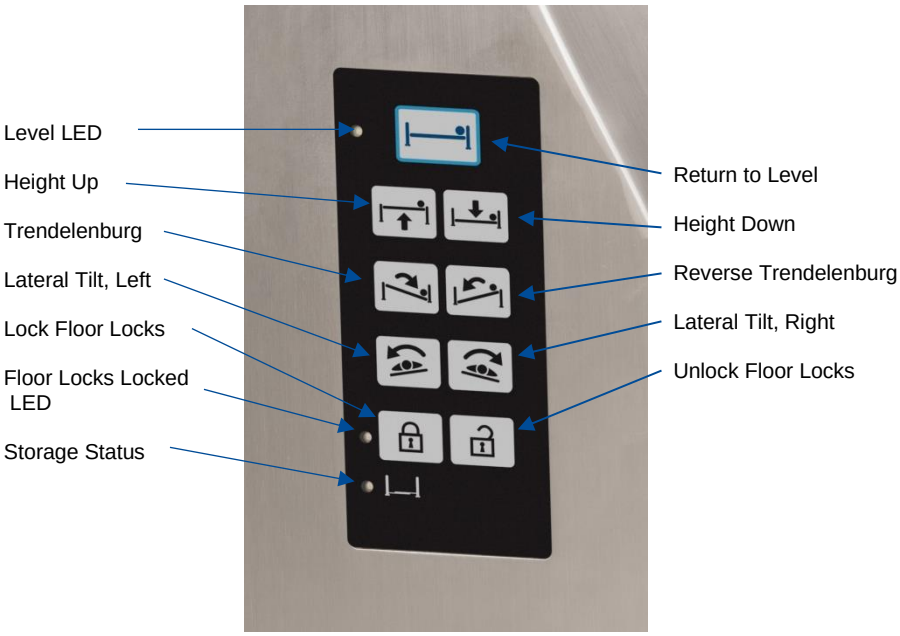


Figure 10: Auxiliary Control Panel

4.4 Floor Locks

When the Trios® Table Base is powered on, the Floor Locks will automatically return to their previous state of being either locked or unlocked.

To lock the Floor Locks via the IntelliPendant® or the Auxiliary Control Panel, press the **Lock Floor Locks** button once (Figure 11) and release to lock the table casters. The IntelliPendant® will display when the table casters are locked (Figure 14). On the Auxiliary Control Panel, the Floor Lock LED will illuminate (Figure 10). To unlock the Floor Locks via the IntelliPendant® or the Auxiliary Control Panel, press the **Unlock Floor Locks** button once to unlock the table casters. The IntelliPendant® will display when the table casters are unlocked (Figure 14). It will take approximately two (2) seconds for the Floor Locks to change position.

NOTE: *The Trios® Table Base will not function until the Floor Locks are locked and the symbol is visible on the IntelliPendant® display.*

4.4.1 IntelliPendant® Activated Floor Lock Override

If the Floor Lock systems fail during table use such that powered table motion is prevented, the IntelliPendant® can be used to activate the Floor Lock Override function (see Section 4.6.4.3). Use of the Floor Lock Override function will allow for 60 seconds of activity during which multiple actions can be taken.

NOTE: *Should a particular motion take longer than 60 seconds, the action will be completed as long as the function button continues to be depressed.*

NOTE: *The Floor Lock Override function allows for changes to Height, Trendelenburg/Reverse Trendelenburg, Lateral Tilt, and Return to Level functions via the Hand Pendant and is intended for use in emergency situations only.*

4.4.2 Manual Floor Lock Override

In the event the table's Floor Locks do not unlock properly to allow for table transport, the Floor Locks can be manually unlocked (see Section 10.4).

NOTE: *The manual Floor Lock override is intended only as a means of transporting the table should the Floor Lock systems fail. Use of this override will not allow the user to activate any of the table functions.*

4.5 Moving the Trios® Table Base

Before moving the Trios® Table Base or preparing it for its storage sequence of movements, ensure the table is returned to its Home position such that it is neutral and at a height of 37 inches (94 cm).

⚠ CAUTION: When moving the Trios® Table Base in its normal configuration, ensure that the table is at a height no greater than its Home position of 37 inches (94 cm) and in a neutral state with the IntelliPendant® reading 0º for Lateral Tilt and Trendelenburg/Reverse Trendelenburg to prevent the table from being unstable during relocation.

After all Floor Locks are unlocked, the table can be rolled for relocation. The Trios® Table Base is heavy, and a minimum of two people is recommended to move it. Position one person at the Head-End of the table and one person at the Foot-End. Care should be taken to control the Base when rolling it.

⚠ CAUTION: If the Trios® Table Base is allowed to roll too fast, it may be difficult to stop or turn. Impact of the table with a stationary object may cause serious damage to the table or the other object. If an impact does occur the table must be visually inspected for damage, and a Function Check must be performed (see Section 7). If damage is discovered or the table does not successfully complete the Function Check, call Mizuho OSI Service (see Section 12).

NOTE: *For easier moving and storage, the Trios® Table Base may also be configured to its retracted position of 68 inches (172.7 cm), as described in Section 4.7.*

4.6 IntelliPendant®

The Trios® Table Base functions are controlled by the IntelliPendant®. When the table is in use, the display screen provides the user with detailed real-time information as to the status of each motion or function. This includes specific data on the table's position, including Height, Trendelenburg/Reverse Trendelenburg Angles, and Lateral Tilt Angle. To activate a function or motion, a button must be pressed and held until the function is complete or the desired position is achieved. The IntelliPendant® also provides important information about the system's operational state, including Power status and Floor Lock status (Figure 11).

Utilizing the Soft Keys allows the user to access and select the following functions and settings: Memory Position and Floor Lock Override (Figure 11).



Figure 11: IntelliPendant®

The IntelliPendant® also provides haptic feedback to the user when a requested action is not possible. This may occur under the following conditions:

- Floor Locks are unlocked and must be locked before continuing.
- The maximum range of a particular motion has been reached.
- The 180 Degree Rotation Lock is disengaged and must be locked before continuing.
- A system error has occurred.

A visual indication of the constrained movement will also be displayed on the IntelliPendant® screen informing the user of the table's state. For instances where a particular table function has reached its limit, the image depicted on the screen will show the location of the error or limit through the use of an orange circle (see Section 4.6.2).

To connect:

1. Align the pins with the port located at the Head-End column of the table (Figure 12). Insert until the locking collar clicks, securing the pins in the port.



Figure 12: Connecting the IntelliPendant®

NOTE: *Only connect the IntelliPendant® supplied with the Trios® Table Base to the IntelliPendant® port.*

2. The IntelliPendant® should remain connected and be stored on the Hand Pendant Rails on the Head-End column when not in use (Figure 5).

Press the Power/Standby Switch on the Head-End base once the IntelliPendant® has been connected. A green ring will illuminate around the switch confirming power is applied to the table (Figure 4). The Graphical Display that appears when the Trios® Table Base is turned on is identified as the IntelliPendant® screen (Figure 13).



Figure 13: IntelliPendant® Screen at Start-Up

The table casters must be locked for the IntelliPendant® or Auxiliary Control Panel motion buttons to function. To lock the table casters, press the **Lock Floor Locks** button once on the IntelliPendant® or the Auxiliary Control Panel and confirm the Floor Lock symbol is visible on the IntelliPendant®, indicating the table casters have been locked (Figure 15).

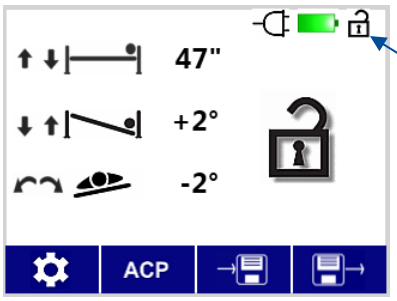


Figure 14: Unlocked Floor Locks Symbol

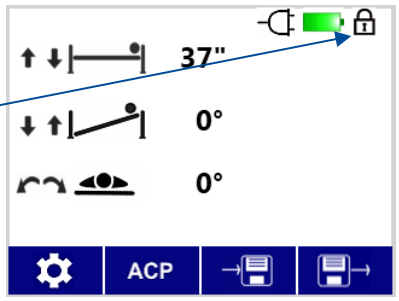


Figure 15: Locked Floor Locks Symbol

Floor Lock Status Icon

4.6.1 Table Functions

When in use, the table's position at any given time is identified on the IntelliPendant® (Figure 16) as follows:

- Height reported in inches/centimeters
- Angle of Trendelenburg/Reverse Trendelenburg reported in degrees
- Angle of Lateral Tilt reported in degrees

The function being executed is also reflected on the IntelliPendant® screen, informing the user of the action taking place (Figure 16 and 17).

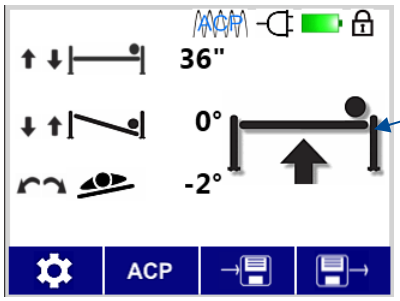


Figure 16: Height Up Action Displayed

Graphical Display of Function

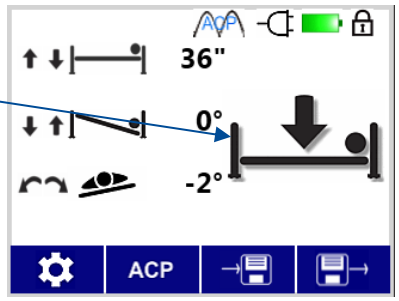
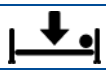


Figure 17: Height Down Action Displayed

4.6.2 Defined Function and Setting Symbols

The following symbols are utilized on the function buttons of the IntelliPendant®, the Auxiliary Control Panel, or on the display screen itself when in use.

Symbol	Meaning
	Height Up
	Height Down
	Trendelenburg
	Reverse Trendelenburg
	Lateral Tilt, Right
	Lateral Tilt, Left
	Lock (Floor Locks) and Locked Position
	Unlock (Floor Locks) and Unlocked Position
	Half-lock Position; indicates the transitional stage of the Floor Locks while they are in the process of being either locked or unlocked
	Lock Error; indicates the Floor Locks must be locked before executing any table function
	Represents Return to Level on function button; also appears on the screen display to indicate height position
	Menu
	Save to Memory Position
	Go to Memory Position
	Back Arrow
	Select/Accept
	Home (Return to Level) Position Achieved
	Floor Lock Override
	Indicates system is running on battery power or AC power, and the battery voltage exceeds the 75% charge threshold
	Indicates system is running on battery power, and the battery voltage exceeds the 50% threshold but not the 75% threshold
	Indicates system is running on battery power, and the battery voltage exceeds the 25% threshold but not the 50% threshold

	Indicates system is running on battery power, and the battery voltage is below the 25% threshold; requires charging and AC power connection
	Indicates the battery is charging when the system is running on mains power, and the battery voltage is below the 25% threshold
	Indicates the battery is charging when the system is running on mains power, and the battery voltage is below the 50% threshold but not the 25% threshold
	Indicates the battery is charging when the system is running on mains power, and the battery voltage exceeds the 50% threshold but not the 75% threshold
	Indicates the battery is charging when the system is running on mains power, and the battery voltage equals or exceeds the 75% threshold
	AC Power Connected
	Displayed when user has saved the current position as M1, or when the table has arrived at the stored M1 position
	Displayed when user has saved the current position as M2, or when the table has arrived at the stored M2 position
	Indicates that the requested motion would exceed a boundary for height up or Trendelenburg angle increase
	Indicates that the requested motion would exceed a boundary for height down or Trendelenburg angle decrease
	Indicates that the requested left tilt motion would exceed a boundary
	Indicates that the requested right tilt motion would exceed a boundary
	Appears when Height Up button is held, and a boundary has been reached
	Appears when Height Down or Home button is held, and a boundary has been reached
	Appears when Trendelenburg button is held, and a boundary has been reached
	Appears when Reverse Trendelenburg button is held, and a boundary has been reached
	Appears when Lateral Tilt, Right button is held, and a boundary has been reached
	Appears when Lateral Tilt, Left button is held, and a boundary has been reached
	Appears when a button is held requesting a tilt right motion, and the Tilt motion lockout is in effect (due to the presence of the Traction Arc). *Note that the Lateral Tilt Right button and Go to Memory Position Soft Key can do this*.
	Appears when a button is held requesting a tilt left motion, and the Tilt motion lockout is in effect (due to the presence of the Traction Arc). *Note that the Lateral Tilt Left button and Go to Memory Position Soft Key can do this*.
	Appears when the 180 Degree Rotation Lock handle is operated and table rotation is prevented, either due to Trendelenburg being greater than 5 degrees or Reverse Trendelenburg being less than -5 degrees

	Appears when the 180 Degree Rotation Lock handle is operated and table rotation is allowed
	Appears when the E-Stop is enabled

The following symbols support the ACP function, a legacy feature that was supported in earlier versions of this product. This option is no longer available in the current product.

	ACP ON/OFF Function
	Advanced Control Pad Cycle, Fast
	Advanced Control Pad Cycle, Slow

4.6.3 Return to Level

The IntelliPendant® is equipped with a Return to Level button  that allows the table to be returned to a neutral position from any current state. When the Return to Level function is activated, the Lateral Tilt Angle returns to 0 degrees and the Trendelenburg/Reverse Trendelenburg Angle returns to 0 degrees. Following a one (1) second pause, if the button continues to be depressed, the table top will return to a height of 37 inches (94 cm) above the floor, which is defined as its Home position.

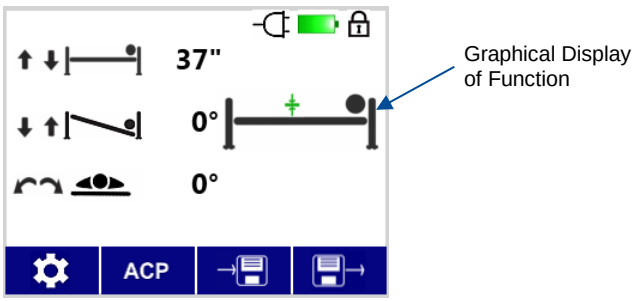


Figure 18: Display when Return to Level Function is Completed

4.6.4 Soft Key Functions and Settings

NOTE: *The ACP function described in the following sections is a legacy feature that was supported in earlier versions of this product. This option is no longer available in current product.*

To control system functions and settings, the Soft Keys corresponding to the icons at the bottom of the screen are utilized (Figure 19).

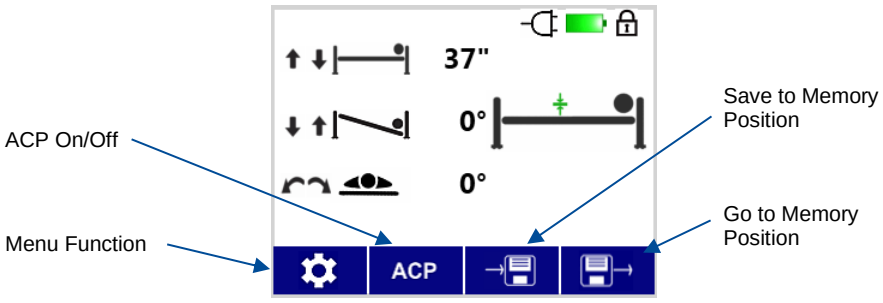


Figure 19: Soft Key Selections

Pressing the Menu Key provides the user with a list of setting choices for the table, which may be selected and customized as needed for each procedure (Figure 20).

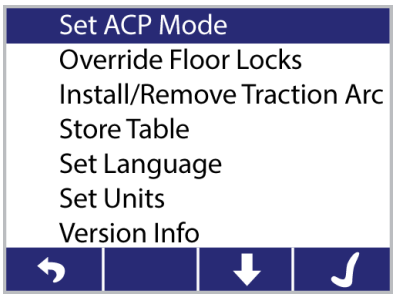


Figure 20: Menu Key Selections

4.6.4.1 Memory Positioning

The Trios® Table Base can store two specified table positions in memory for ease of returning to the desired position later. The table positions can be stored to either Memory Position 1 or Memory Position 2.

Assignment of the table position to memory is completed using the IntelliPendant®.

To assign the table's current position to a memory position:

1. From the Home Screen, press the **Save to Memory Position** Soft Key (Figure 19).
2. Assign the table position to either **Memory Position 1** or **Memory Position 2** using the corresponding Soft Key (Figure 21).

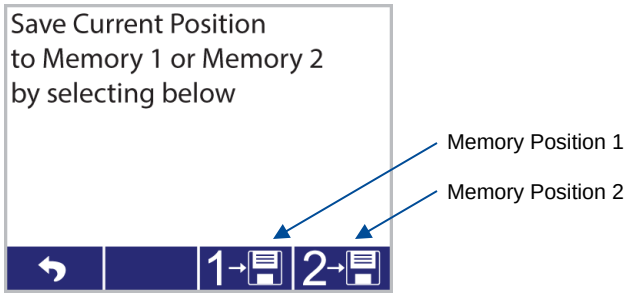


Figure 21: Memory Position Selection

3. The table position is now saved.

To move the table from its current position to a saved memory position:

1. From the Home Screen, press the **Go to Memory Position** Soft Key (Figure 19).
2. Press and hold either the **Memory Position 1** or **Memory Position 2** Soft Key to move the table to the desired position.

4.6.4.2 Legacy Advanced Control Pad System™ (ACP)

To set the ACP cycle speed:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Set ACP Mode**. Press the **Select** Soft Key (Figure 22).

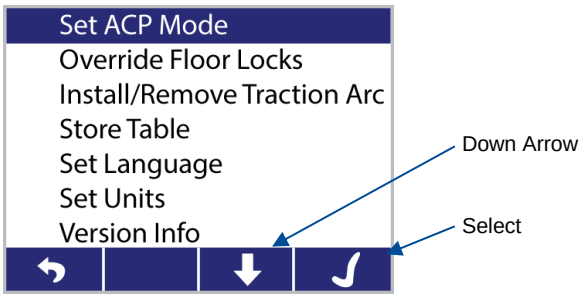


Figure 22: Set ACP Mode Selection

3. Press the **Up Arrow** or **Down Arrow** Soft Key to highlight either **Fast Cycle** or **Slow Cycle**, and then press the **Select** Soft Key to select the desired speed (Figure 23).

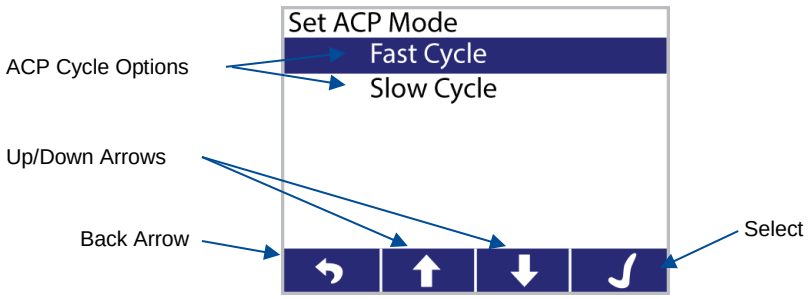


Figure 23: Set ACP Mode Screen

4. Press the **Back Arrow** Soft Key to return to the IntelliPendant® Main Screen (Figure 23).

To activate the ACP system:

1. Press the **ACP** Soft Key to activate the ACP system (Figure 19).

NOTE: *The ACP system will not function if the ACP function is not selected on the Main Screen of the IntelliPendant®.*

2. Selection of the desired ACP setting can be visually confirmed through the corresponding symbol depicted on the IntelliPendant® display (Figure 24 and Figure 25).
   a. The Fast Cycle is represented with the ACP symbol (1 cycle every four (4) seconds).
   b. The Slow Cycle is represented with the ACP symbol (1 cycle every six (6) seconds).

NOTE: *If the ACP system has not been selected, no symbol will appear on the screen, indicating the ACP function is not in use.*

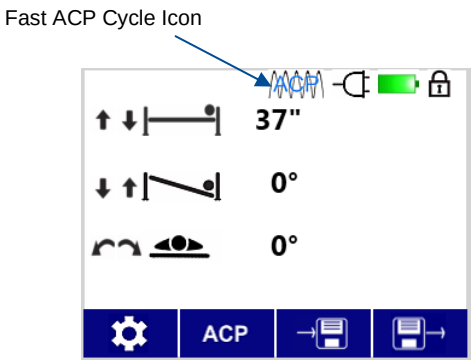


Figure 24: Fast ACP Cycle Selected

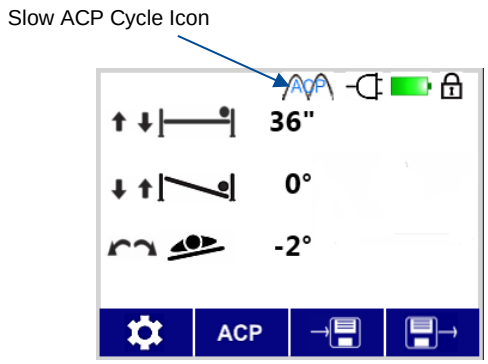


Figure 25: Slow ACP Cycle Selected

4.6.4.3 Floor Lock Override

To allow for the use of the Floor Lock Override functionality:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Override Floor Locks** (Figure 26), and then press the **Select** Soft Key to display the Override Floor Locks Screen.

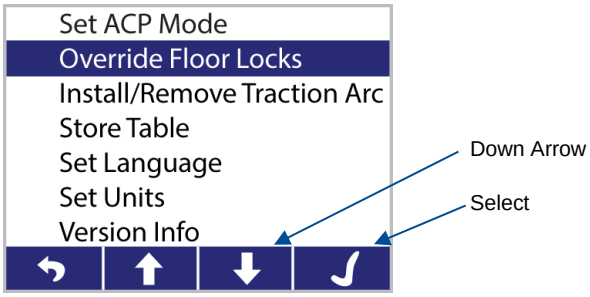


Figure 26: Override Floor Locks Selection

3. Note the instruction displayed (Figure 27), and then press the **Select** Soft Key. This enables the Override functionality.

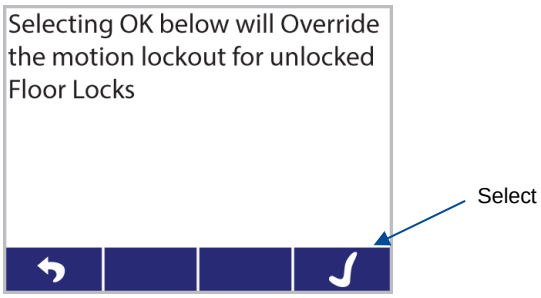


Figure 27: Override Floor Locks Screen

4. Press the appropriate motion button on the IntelliPendant® to achieve the desired table motion. The Floor Lock Override function will allow for 60 seconds of activity during which multiple actions can be taken. Should a desired motion take longer than 60 seconds, the action will be completed as long as the motion button continues to be depressed.
5. Should additional time be required beyond the 60 seconds to complete an additional function or if the motion button has been released once the 60 seconds have elapsed, the Floor Lock Override function will have to be reactivated starting with Step 1 of this procedure.

NOTE: *The Floor Lock Override function allows for changes to Height, Trendelenburg/Reverse Trendelenburg, Lateral Tilt, and Return to Level motions via the IntelliPendant® and is intended for use in emergency situations only.*

4.6.4.4 Traction Arc Wizard Selection

To select the Traction Arc Wizard on the IntelliPendant® when installing or removing the Trios® Traction Arc:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Install/Remove Traction Arc** (Figure 28), and then press the **Select** Soft Key.

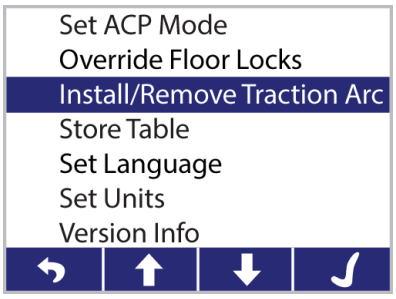


Figure 28: Install/Remove Traction Arc Selection

3. Follow the instructions depicted on the IntelliPendant® to install or remove the Trios® Traction Arc.

NOTE: *For more details on how to install or remove the Trios® Traction Arc, refer to the NW0816 Trios® Orthopedic Trauma Top Owner's Manual.*

4.6.4.5 Language Selection

To select the preferred language display for the IntelliPendant®:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Set Language** (Figure 29), and then press the **Select** Soft Key to display the Set Language Screen.

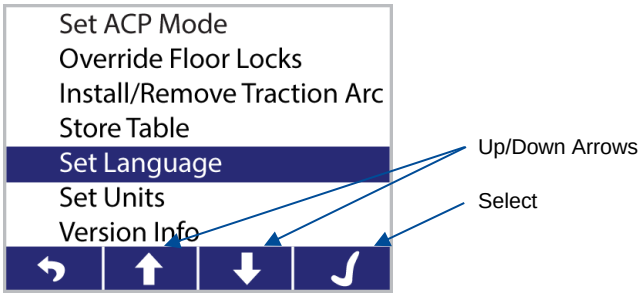


Figure 29: Set Language Selection

3. Press the **Up Arrow** or **Down Arrow** Soft Keys to highlight the desired language, and then press the **Select** Soft Key to set the language mode.

NOTE: *The language setting is preserved when the table is powered off.*

4.6.4.6 Display Units Selection

To select the preferred units to display on the IntelliPendant®:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Set Units** (Figure 30), and then press the **Select** Soft Key to display the Set Units screen.

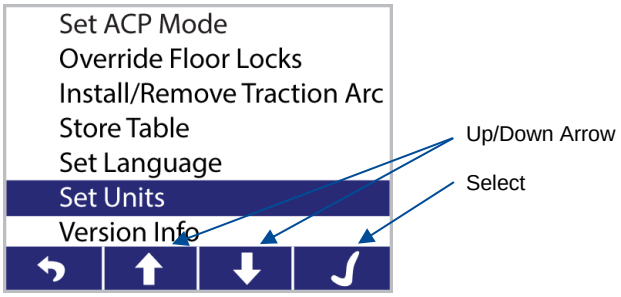


Figure 30: Set Units Selection

3. Press the **Up Arrow** or **Down Arrow** Soft Key to highlight the desired units, and then press the **Select** Soft Key to set the units mode (Figure 31).

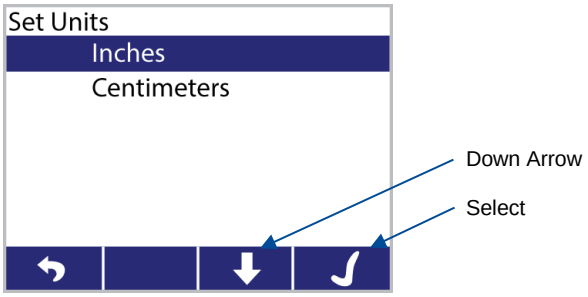


Figure 31: Units Selection Screen

NOTE: *The units setting is preserved when the table is powered off.*

4.6.4.7 Software Version Information

To access information on the Base's software version:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Version Info** (Figure 32), and then press the **Select** Soft Key to display information on the Base's current software version.

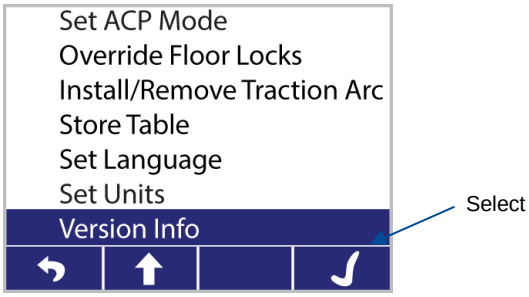


Figure 32: Version Info Selection

NOTE: *Software version information will be used primarily by a service technician should it need to be accessed.*

4.7 Configuration of Trios® Table Base for Transport or Storage

The Trios® Table Base can be configured to a smaller footprint for transport or storage. To prepare the Base to be shipped or stored in a more compact configuration, use the IntelliPendant® to complete the steps outlined. Transporting or storing the Base in the stored configuration reduces the length of the Table Base from 110 inches (279.4 cm) to 68 inches (172.7 cm).

To configure the Base to its stored position:

1. Press the **Menu** Soft Key on the IntelliPendant® (Figure 19).
2. Press the **Down Arrow** Soft Key to highlight **Store Table** (Figure 33), and then press the **Select** Soft Key.

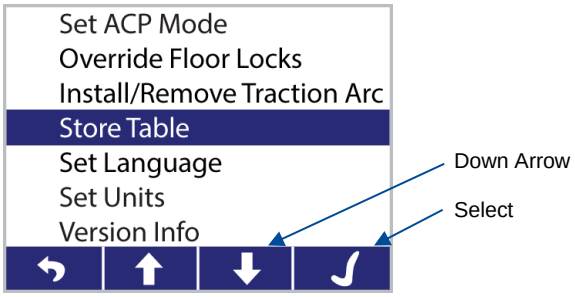


Figure 33: Store Table Selection

3. Following the instructions depicted on the IntelliPendant®, complete the following steps to configure the Base to its stored position.
   a. Remove any table tops, or other components and accessories attached to the Table Base (Figure 34).



Figure 34: Trios® Table Base with Table Tops and Other Components Removed in Preparation for Storage

b. Confirm the selection of storage position using the **Select** Soft Key. After continuing with this selection, confirm the Storage LED light on the Auxiliary Control Panel is illuminated green.

NOTE: *Upon confirmation, the remaining steps must be completed to store the Base.*

c. Loosen the Beam Lock by rotating the Retracting Knob counterclockwise (Figure 35).



Figure 35: Beam Lock Loosened

d. Using the IntelliPendant®, continue to the next step, which allows the Base to configure the Floor Locks such that those on the Head-End are unlocked while those on the Foot-End remain locked.

e. Retract the Base by pushing the Head-End towards the Foot-End (Figure 36).



Figure 36: Collapsing the Trios® Table Base for Storage

f. Secure the Beam Lock by rotating the Retracting Knob clockwise.

g. Using the IntelliPendant® or the Auxiliary Control Panel, unlock the Floor Locks. With the assistance of two people, the Trios® Table Base may now be moved to its storage location.



Figure 37: Trios® Table Base Configured for Storage or Transport

To expand the Base from its retracted position:

1. With the assistance of two people, move the Base to the desired location.
2. Press the Power/Standby Switch on the Head-End base and observe that the green ring around the switch illuminates, confirming power is applied to the table.
3. The IntelliPendant® will now provide step-by-step instructions on how to configure the Base to its expanded position. Complete the following steps in order as directed by the IntelliPendant®:
    a. Loosen the Beam Lock.
    b. Continue to the next step, which allows the Base to configure the Floor Locks such that those at the Head-End are unlocked while those at the Foot-End remain locked.
    c. Expand the table by pulling the Head-End away from the Foot-End.
    d. Tighten the Beam Lock.
4. Using the IntelliPendant®, lock the Floor Locks. Complete the Function Check (see Section 7).
5. Confirm the Storage LED is no longer illuminated on the Auxiliary Control Panel.

4.8 Indicator Lights

WARNING: Failure to ensure that the 180 Degree Rotation Lock indicator lights are not illuminated prior to patient transfer may result in harm to the patient, healthcare professionals, or the device.

4.8.1 Level Indicator Light

The Level indicator light illuminates green when the powered lateral tilt drive mechanism is in the center position of the ±25° Lateral Tilt range, with the Head-End and Foot-End Crossbars level with the end of each respective column. If the Level indicator is not illuminated, use the IntelliPendant® to operate the Lateral Tilt function in the appropriate direction to bring the table top level, resulting in the indicator light illuminating green (Figure 38). The Head-End and Foot-End Crossbars should be horizontal when the Level indicator light is illuminated.

NOTE: *During a patient rotation, or if the Lateral Tilt function is in use, the Level indicator will not be illuminated, indicating the table top is not level.*

NOTE: *The Level indicator light will not illuminate if the Floor Locks are not engaged or if the Trendelenburg angle is extreme (outside ±5°).*



Figure 38: Level Indicator Light

4.8.2 180 Degree Rotation Lock

The 180 Degree Rotation Lock Handle locks out the 180 Degree Rotation function by locking the Head-End and Foot-End Crossbars. This feature is designed to prevent the unintended rotation of the table top. The indicator lights at the Head-End and Foot-End are not illuminated when the 180 Degree Rotation Lock is engaged and the Handle is in the Locked position (Figure 39). To unlock the 180 Degree Rotation Lock, raise and turn the 180 Degree Rotation Lock Handle away from the table top. When the 180 Degree Rotation Lock is first raised, the indicator lights will illuminate amber. Upon full rotation of the Handle and release of the 180 Degree Rotation Lock, the amber lights will continuously flash until the lock is re-engaged. The Level indicator light must be illuminated for the 180 Degree Rotation Lock Handle to function.

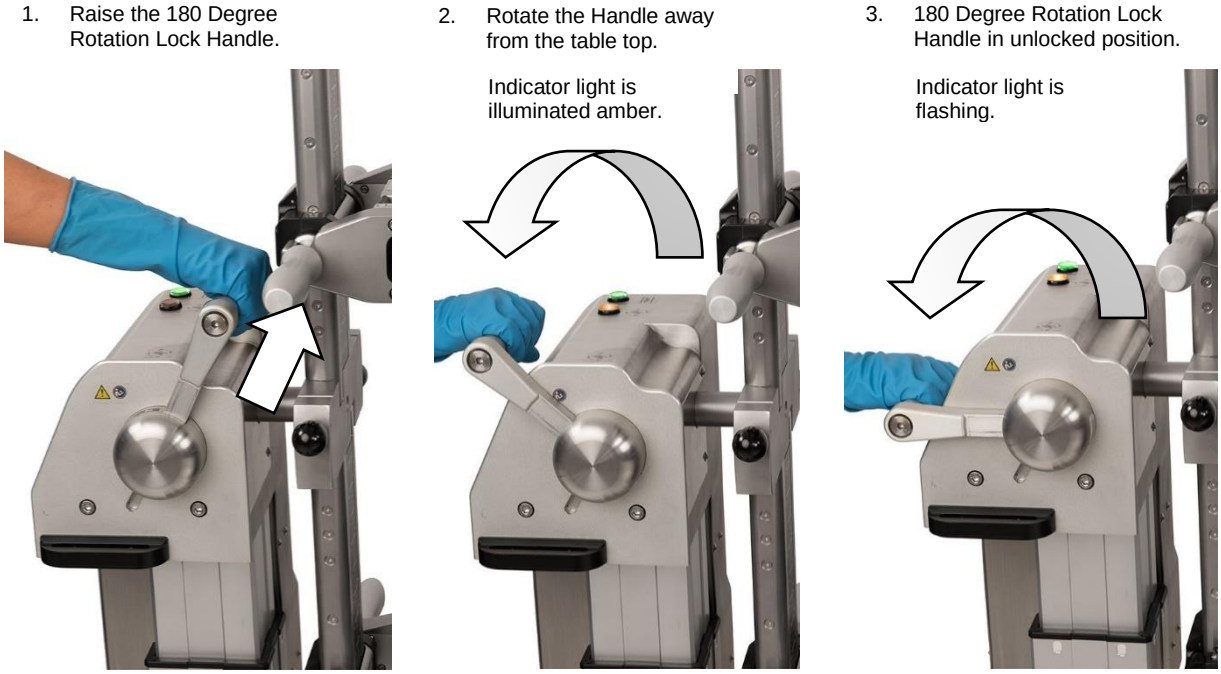


Figure 39: Unlocking the 180 Degree Rotation Safety Lock

Only when the 180 Degree Rotation Lock is in the unlocked position will the Head-End and Foot-End Crossbars move freely, allowing for the attached table tops to be rotated.

NOTE: *This function is specifically used for rotating a patient 180 degrees. When a rotation is not being performed, the 180 Degree Rotation Lock should remain locked with the corresponding indicator lights on the Head-End and Foot-End Columns unlit.*

WARNING: Failure to ensure that the 180 Degree Rotation Lock is locked with the corresponding indicator lights on the Head-End and Foot-End Columns unlit may result in harm to the patient, healthcare professionals, or device.

When the 180 Degree Rotation Lock is engaged and the corresponding indicator lights are unlit, the table top can still be laterally rolled (tilted) by pressing the Left or Right Lateral Tilt button on the IntelliPendant® until the desired position is achieved.

4.9 Traction Pulley Assembly

The Traction Pulley Assembly, located on the Head-End Column, provides a platform for a traction rope to be guided through the pivot shaft and over the pulley system in order to pull weighted traction (Figure 40). To use the Traction Pulley, press the Traction Pulley Release Button to release the pulley assembly, and then pull the Traction Pulley Assembly out until it clicks, indicating it is locked in place. When no longer needed, press the Traction Pulley Release Button while pushing in the Traction Pulley Assembly until it clicks in its stored position.



Traction Pulley Assembly in Stored Position

Traction Pulley Assembly Ready for Use

Figure 40: Releasing Traction Pulley Assembly

5 Inspection

5.1 Acceptance and Transfer

1. Upon receipt of your Trios® Table Base, remove it from the shipping crate. Remove any protective wrapping or packaging. Visually inspect all surfaces for freight damage. Check each caster for proper rolling operation.

NOTE: *Any freight damage must be reported to the freight carrier immediately upon delivery. It is the responsibility of the recipient to make freight damage claims.*

2. Read the model number, serial number, and confirm the power requirements on the manufacturer's label located on the base of the Head-End Column (Figure 7).
3. Perform Function Check (see Section 7).

5.2 Pre-Procedure/Post-Procedure

Before and after each use of the Trios® Table Base, visually inspect all accessible areas, electrical cords, and all movable parts for possible damage that may adversely affect the proper operation of the Base. Damaged or defective products should not be used or processed. Contact Mizuho OSI Service for repair or replacement (see Section 12).

5.3 Preventative Maintenance

A Preventative Maintenance (PM) check (see Section 8.3) on your Trios® Table Base is required at least once every year.

To obtain the PM checklist, call Mizuho OSI Service (see Section 12). PM checks may only be performed by trained service personnel. The PM checklist will only be provided to service personnel with proper training.

6 Installing and Removing a Table Top

NOTE: *This device is intended for use by trained personnel only. To schedule an in-service, please contact your domestic Mizuho OSI sales representative, or call **1-800-777-4674** inside the USA or **+1-510-429-1500** outside the USA.*

6.1 Preparing the Table Base for Table Top Installation

To prepare the Trios® Table Base for installation of a table top, complete the following steps:

1. With the assistance of two people, roll the Base to where it will be used, and orient the Head-End Column toward the anesthesiologist work station.
2. Plug the Power Cord of the Trios® Table Base into a properly grounded receptacle. Refer to the manufacturer's label at the Head-End of the Base for input voltage requirements (Figure 7). If the AC power cable is not connected to an outlet with a protective earth ground, then the external ground stud should be connected to earth ground (via an equipotential connector/busbar).
3. Connect the IntelliPendant® to the port on the Head-End Column (Figure 12).
4. Press the Power/Standby Switch to turn the table on. The ring on the Power/Standby Switch should be illuminated green (Figure 4).
5. If the Base has been in its retracted configuration, follow the step-by-step instructions provided by the IntelliPendant® on how to expand the Base:
    a. Loosen the Beam Lock by rotating the Retracting Knob counterclockwise.
    b. Continue to the next step, which allows the Base to configure Floor Locks such that those at the Head-End are unlocked while those at the Foot-End remain locked.
    c. Expand the table base.
    d. Tighten the Beam Lock by rotating the Retracting Knob clockwise.
6. Confirm the 180 Degree Rotation Lock indicator lights are not illuminated (Figure 41).
7. Confirm the Level indicator light is illuminated green (Figure 41). If the indicator light is not lit, use the IntelliPendant® to bring the table to level and confirm that the Floor Locks are engaged.



Figure 41: Head-End Assembly with Level Indicator Light Illuminated

NOTE: *This manual is intended to be used solely for the device identified and is not a substitute or replacement for the Owner's Manual for each table top. A thorough understanding of each table top and its coupling mechanism to the Base is required prior to use.*

NOTE: *Only Mizuho OSI table tops and accessories have been tested and approved for use with the Trios® Table Base. Other manufacturers' products have not been tested for proper performance when used with the Base, and therefore are not endorsed for use by Mizuho OSI. Use of other manufacturer's products may void the warranty.*

6.2 Installing the Table Top on the Table Base

To install the Trios® Spinal Surgery Top or Trios® Radiolucent Imaging Top:

1. The Head-End Column has a Slide Assembly that adjusts to accommodate Trendelenburg and Reverse Trendelenburg. Fully retract the Slide Assembly to allow adequate space for a table top to be installed.

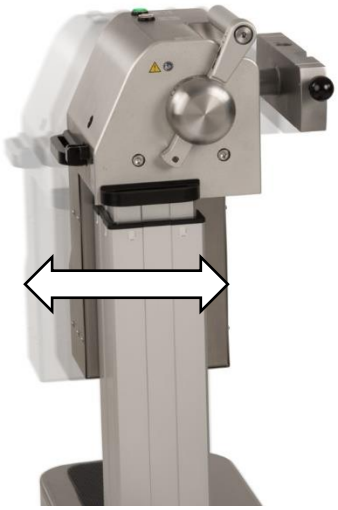


Figure 42: Movement of Slide Assembly

2. Attach the two Towers, one to the underside of the Head-End Crossbar and one to the underside of the Foot-End Crossbar.

   a. Using the Carriage Handles, hold the Tower just underneath the Crossbar at an angle that aligns the round pin on the Tower with the slot on the underside of the Crossbar. Insert the pin into the slot on the underside of the Crossbar.

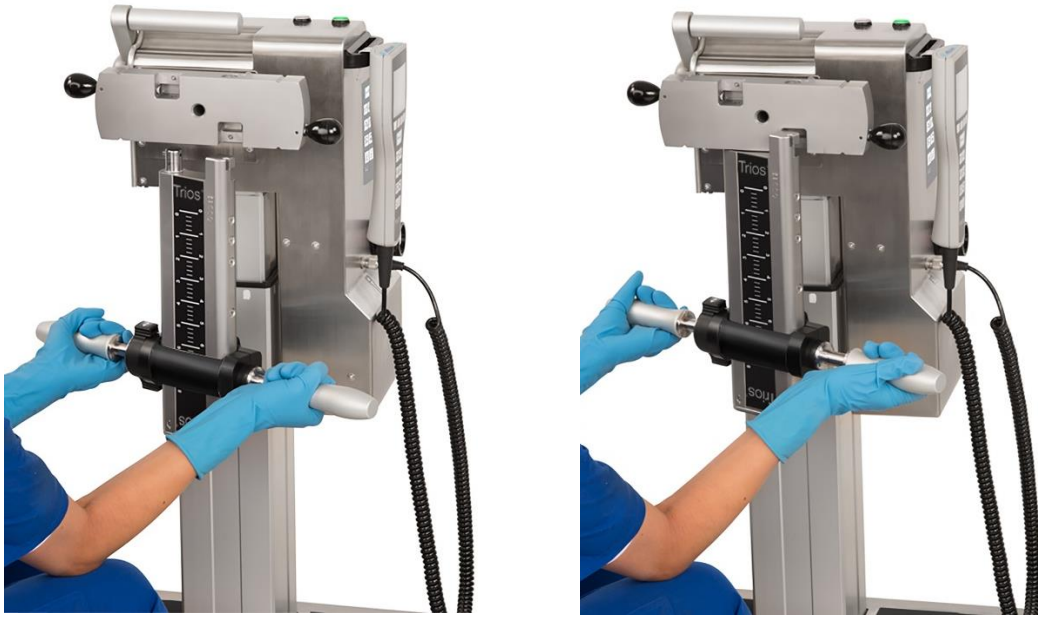


Figure 43: Aligning and Inserting Tower into Slot on Underside of Crossbar

b. Rotate the side of the Tower that was not inserted toward the Crossbar until it clicks into place.



Figure 44: Tower Secured to Underside of Crossbar

3. Once a Tower has been properly secured to the bottom of each Crossbar, a table top may now be mounted on the Carriage Bar on the Towers.

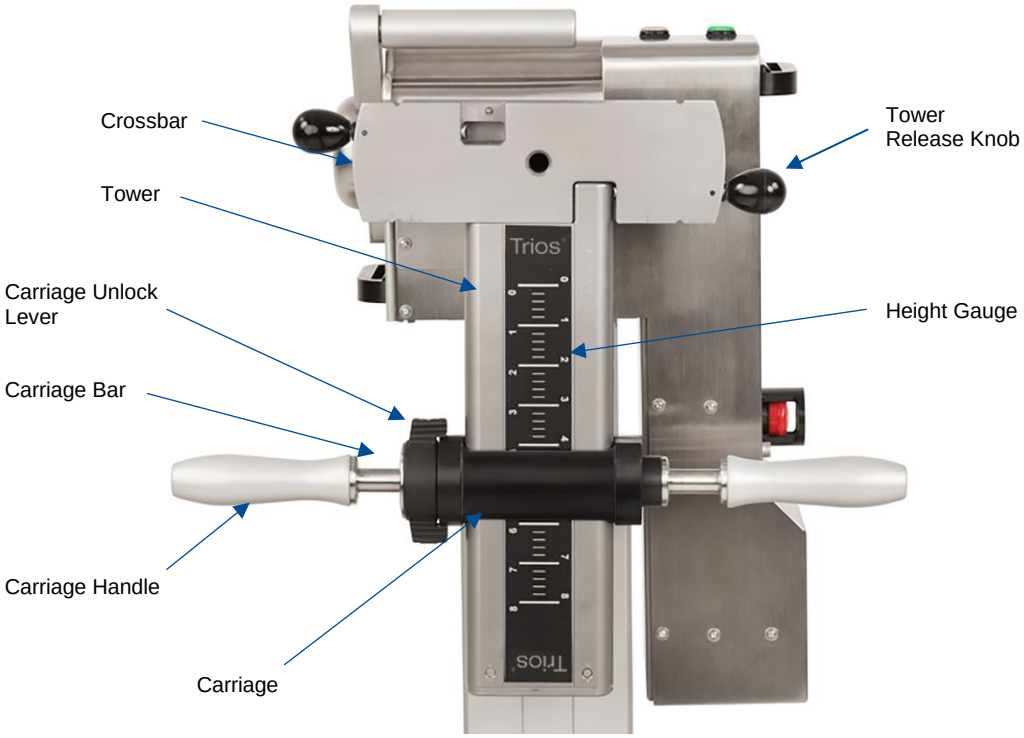


Figure 45: Tower Components

4. Selection of the appropriate height for the Carriage is determined by the patient's size such that his or her center of gravity is at or below the center of rotation of the Crossbar. The specific procedure to be performed and the surgeon's preference should also be considered when choosing the appropriate height for the Carriages.

   a. To adjust the height of the Carriages, lift the Carriage Handles slightly and rotate the Carriage Unlock Lever in either direction to unlock the Carriage. When the red label is exposed, the Carriage is unlocked.



Figure 46: Unlocking the Carriage Unlock Lever

b. Slide the Carriage up or down to the desired height and release the Carriage Unlock Lever while still supporting the table top weight. The lever should move back to its locked position with the red label no longer visible. If necessary, manually rotate the Carriage Unlock Lever to the locked position prior to releasing the Carriage Handles.



Figure 47: Carriage Unlock Lever in Locked Position

c. Verify that the Carriage is secure in its new position.

NOTE: *Align the upper edge of both Carriages to the same number mark on the height gauge on each Tower to ensure the table top is level when installed.*

NOTE: *Further information on setting the appropriate height of the Carriages is available within each of the table top Owner's Manuals.*

NOTE: *This manual is intended to be used solely for the Trios® Table Base and is not a substitute or replacement for the various table top Owner's Manuals.*

5. With the assistance of two people, lift the table top just above the Carriages on the Towers. Ensure that the table top is oriented with the patient side up (Patient Weight Limit label and Fixed Table Top Handles are visible, and Mounting Hooks are facing down). One person should hold the table top by its fixed handle at the Head-End, while the second person holds the table top by its fixed handle at the Foot-End. Align the Mounting Hooks on both ends of the table top (Figure 48) with the Carriage Bars on both Towers. The open portion of the Mounting Hooks should be oriented just above the Carriage Bars when positioned correctly.

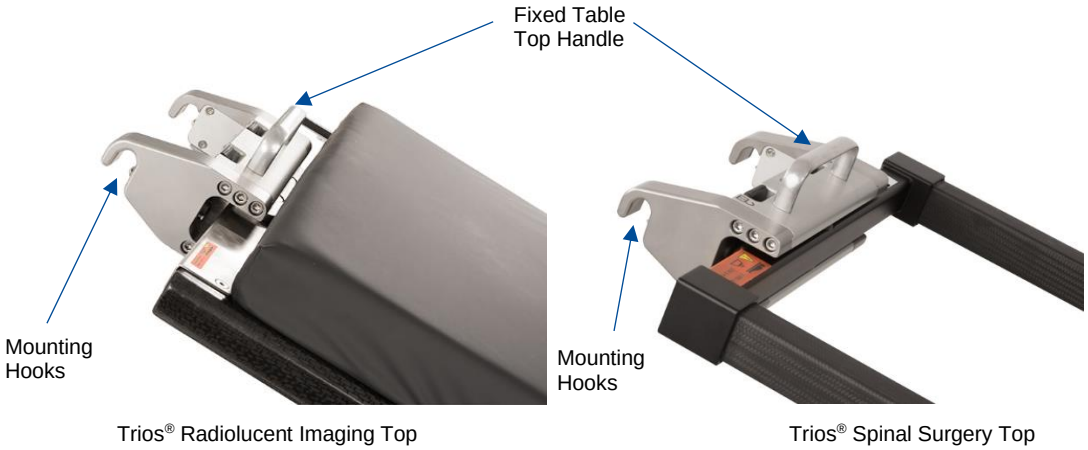


Figure 48: Mounting Hooks on Trios® Radiolucent Imaging Top and Spinal Surgery Top



Figure 49: Proper Alignment of Mounting Hooks to Carriage Bars

6. Secure the table top to the Foot-End Carriage first by lowering the Foot-End of the top and securing the Mounting Hooks on the Foot-End Carriage Bars.
7. To secure the table top to the Head-End Column confirm that the Slide Assembly is pulled away from the Foot-End as appropriate to accommodate the length of the table top (Figure 42). Carefully lower the Head-End of the table top so that the Mounting Hooks are secured on the Head-End Carriage Bars (Figure 50). Lift up sharply on both Table Top Handles to verify both ends are securely latched.

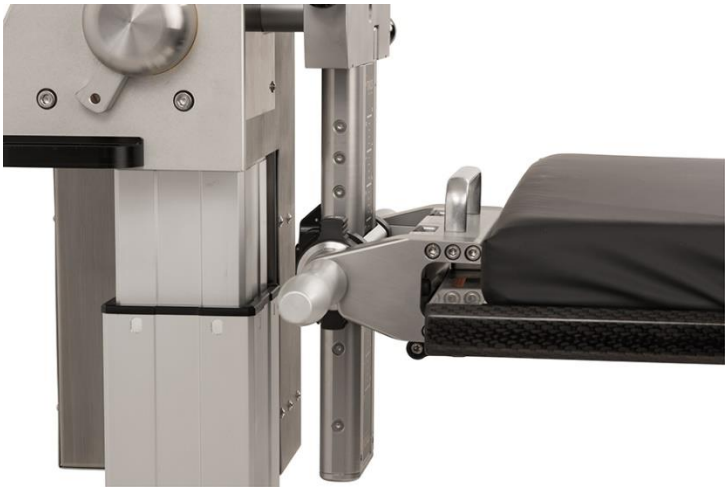


Figure 50: Mounting Hooks Secured to Carriage Bars

NOTE: *To align the Mounting Hooks on both the Head-End and Foot-End properly with the Carriage Bars prior to securing in place, it may be necessary to overshoot, or move one end of the table top further toward the Column beyond the edge of the Carriage.*

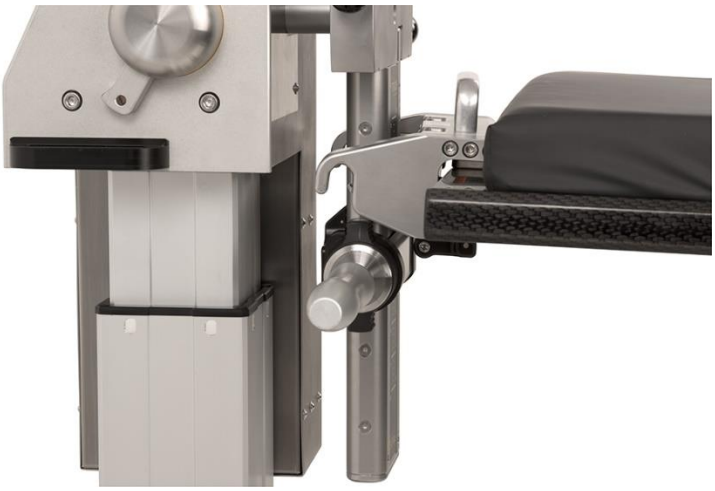


Figure 51: Overshooting the Mounting Hooks Beyond the Edge of the Carriage

8. The table top is now properly mounted to the Trios® Table Base (Figure 52).



Figure 52: Trios® Radiolucent Imaging Top Properly Installed on the Trios® Table Base

6.3 Removing the Table Top from the Table Base

To remove the Trios® Spinal Surgery Top or Trios® Radiolucent Imaging Top:

1. One person should hold the Fixed Table Top Handle at the Head-End, while a second person holds the Fixed Table Top Handle at the Foot-End.
2. While pressing the Table Top Release Levers, the person at the Foot-End should carefully raise the Foot-End of the table top to disengage it from the Carriage Bar.

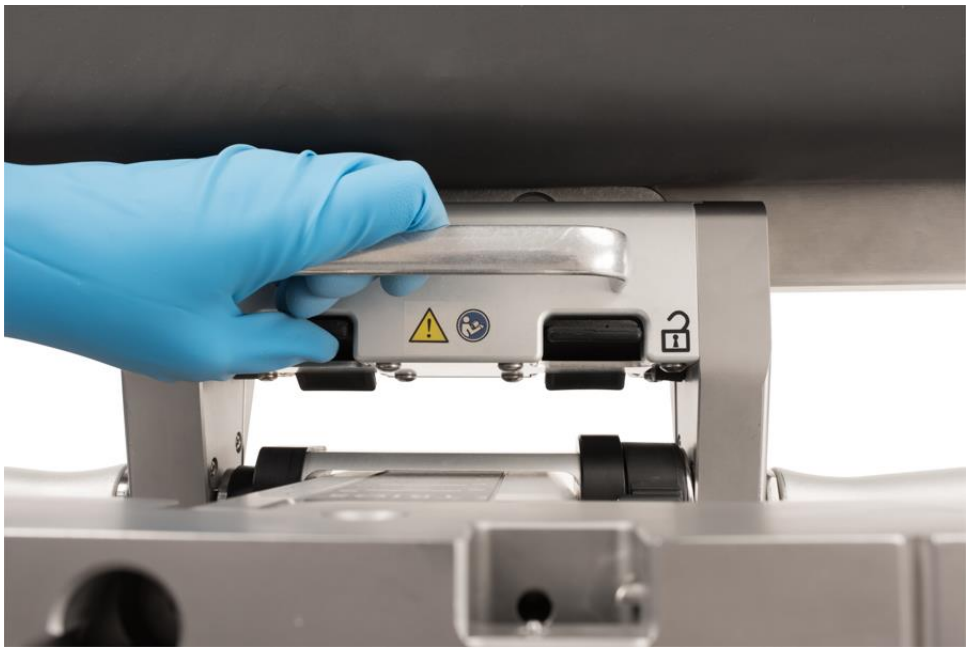


Figure 53: Pressing Table Top Release Lever

3. Once the Foot-End of the Table Top has been released, the person at the Head-End should press the Table Top Release Levers and carefully raise the Head-End of the table top to disengage it from the Carriage Bar.
4. With both people holding the table top by its fixed handles, raise and remove the table top from the Table Base.
5. Remove both Towers from the Head-End and Foot-End Crossbars.
    a. Hold one of the Carriage Handles, and with the other hand, pull the knob on the Crossbar that is closest to the Tower to release the Tower locking mechanism.
    b. Once the Tower is unlocked, rotate it clockwise slightly with one hand, and then hold it with both hands by the Carriage Handles. Continue to rotate it clockwise until the protrusion of the pin on the Tower aligns with the slot on the Crossbar.

⚠ **CAUTION: Be careful to hold the Tower securely with two hands before aligning the pin and slot. The Towers are heavy and may fall if not adequately supported during removal, causing potential damage to the device or injury to the healthcare professionals.**



Figure 54: Tower Unlocked and Rotated Slightly Clockwise

c. Lower the Tower out of the slot and store it on the Equipment Cart.

7 Function Check

NOTE: *Perform all steps of the Function Check before every use of the Trios® Table Base.*

For a complete definition of the terms used in this procedure, please refer to Section 2.9.

7.1 General Table Base Function Checks

1. Confirm the Beam Lock is tightened.
2. Connect the IntelliPendant® cable to the IntelliPendant® port on the Head-End column (Figure 12).
3. Plug the Power Cord into a properly grounded receptacle to use with AC power. Refer to the manufacturer's label on the base of the Head-End column for input voltage requirements (Figure 7).
4. Press the Power/Standby Switch on the Head-End base, and observe that a green ring illuminates around the switch, confirming power is applied to the table (Figure 4).
5. If the AC power cable is not connected to an outlet with a protective earth ground, then the external ground stud should be connected to earth ground via an equipotential connector/busbar (Figure 4).
6. If the table needs to be used under battery power due to AC outage, ensure that the battery has been properly charged as outlined in Section 9.8. Press the Power Switch on the Head-End base, and observe that a green ring illuminates around the switch confirming power is applied to the table. The battery status symbol on the IntelliPendant® should be visible, indicating a charged battery. If the battery status symbol on the IntelliPendant® is the battery is not adequately charged and the table should only be used with AC power. To protect the patient, hospital staff, and the table from possible electrical hazards, an external ground cable connection is required between the external ground stud and earth ground (via an equipotential connector/busbar) when the table is in use under battery power (Figure 4).
7. Lockout mode: The Trios® Table Base motions are only operational if the Floor Locks are locked. The green indicator located on the Auxiliary Control Panel is illuminated and the Floor Lock symbol is visible on the IntelliPendant® display screen when the Floor Locks are locked. Verify that neither the IntelliPendant® nor the Auxiliary Control Panel functions operate except to activate the Floor Locks.

7.2 Floor Lock Checks

Complete a Floor Lock check using the Auxiliary Control Panel (Figure 10).

1. Press the **Lock Floor Locks** button and observe the LED indicator is illuminated on the Auxiliary Control Panel and the Floor Lock symbol is visible on the IntelliPendant® display. The table is locked if it cannot be moved on its wheels.
2. Press the **Unlock Floor Locks** button and observe the LED is no longer illuminated on the Auxiliary Control Panel and the Floor Unlock symbol is visible on the IntelliPendant® display. The table is unlocked if it can move on its wheels.
3. Floor Lock Override Check:
   a. With the Floor Locks unlocked, utilize the IntelliPendant® to select the **Override Floor Locks** function.
   b. With the Override function active, utilize the **Height Up**, **Height Down**, **Lateral Tilt, Right and Left**, or **Trendelenburg/Reverse Trendelenburg** buttons. These buttons should function without the Floor Locks being locked while the Override function is utilized.

7.3 IntelliPendant® Function Checks

1. Utilizing the IntelliPendant®, press the **Lock Floor Locks** button. Observe on the Auxiliary Control Panel that the LED illuminates and that the Floor Lock symbol appears on the IntelliPendant® display after the Floor Locks are locked. Verify that the table casters do not rotate.
2. Press the **Unlock Floor Locks** button. Confirm the LED is not illuminated on the Auxiliary Control Panel and the Floor Unlock symbol appears on the IntelliPendant® display after the Floor Locks are unlocked. Verify that the table casters rotate freely.
3. Repeat Step 1 to ensure the Floor Locks are locked, allowing the rest of the table's functionality to be tested.
4. Press and hold the **Height Up** button. Observe that the table top raises through its entire range. Observe the IntelliPendant® display, and confirm that the Height Up symbol is visible in the action display area of the screen. The number beside the Height Up symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the height range.
5. Press and hold the **Height Down** button. Observe that the table top lowers through its entire range. Observe the IntelliPendant® display, and confirm that the Height Down symbol is visible in the action display area of the screen. The number beside the Height Down symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the height range.
6. Press and hold the **Reverse Trendelenburg** button. Observe that the Foot-End of the table top moves down through its entire range. Observe the IntelliPendant® display, and confirm the Reverse Trendelenburg symbol is visible in the action display area of the screen. The number beside the Reverse Trendelenburg symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the Reverse Trendelenburg range.
7. Press and hold the **Trendelenburg** button. Observe that the Head-End of the table top moves down through its entire range. Observe the IntelliPendant® display, and confirm that the Trendelenburg symbol is visible in the action display area of the screen. The

number beside the Trendelenburg symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the Trendelenburg range.

8. Press and hold the **Lateral Tilt, Left** button. Observe that the table top tilts to the left through its entire range. Observe the IntelliPendant® display, and confirm that the Lateral Tilt, Left symbol is visible in the action display area of the screen. The number beside the Lateral Tilt, Left symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the Lateral Tilt range.

9. Press and hold the **Lateral Tilt, Right** button. Observe that the table top tilts to the right through its entire range. Observe the IntelliPendant® display, and confirm that the Lateral Tilt, Right symbol is visible in the action display area of the screen. The number beside the Lateral Tilt, Right symbol in the motion status area of the screen should be changing, corresponding to where the table top is within the Lateral Tilt range.

10. Re-position the table top by raising the height to 41 inches (104 cm), laterally tilt the table top left or right six (6) degrees, and place the table top in five (5) degrees of Trendelenburg. Confirm this position by reading the display on the IntelliPendant® screen. Press and hold the **Return to Level** button. Observe that the table top levels side to side and head to foot. Continue to depress the button, and after a one-second delay, the table top will move down to its Home height. Observe that the table top is level and at the Home height position of 37 inches (94 cm) off the floor when movement stops. Observe the IntelliPendant® display, and confirm the Height display reads 37 inches (94 cm), the Tilt angle reads 0 degrees, and the Trendelenburg/Reverse Trendelenburg angle reads 0 degrees.

7.4 Battery Operation Checks

1. Observe the Battery Status on the base of the Head-End column. If the LED is illuminated green - OK, then the battery is properly charged. Confirm that the Battery Status icon on the IntelliPendant® is , indicating the battery is fully charged and the table is ready to operate on battery power.

2. If the LED is illuminated red or the Battery Status icon on the IntelliPendant® is , the battery must be charged prior to using the table. To charge the battery, ensure the Power Cord is plugged into a functioning receptacle. The AC LED at the base of the Head-End column will illuminate green indicating that appropriate AC power is applied to the table. The table must remain plugged in for a minimum of three (3) hours to ensure sufficient charging of the battery to operate the table.

3. If the LED remains red and the Battery Status icon is still after three (3) hours, continue to charge the battery for up to 24 hours.

4. If the LED does not illuminate green-OK and the Battery Status icon does not reflect after 24 hours, refer to Section 9.8 for servicing instructions.

NOTE: *The table may be used with AC power even when the Battery Status icon is indicating the battery needs charging. Confirm the green AC power LED at the base of the Head-End column is illuminated.*

8 Cleaning, Storage, and Maintenance

8.1 Cleaning and Disinfecting

NOTE: *Clean and disinfect the Trios® Table Base after each use.*

8.1.1 Trios® Table Base Exterior

The exterior surface, including the casters, should be regularly wiped clean using a mild detergent solution with a damp cloth that has been squeezed free of liquid, and then wiped dry with a soft lint-free cloth.

Care should be taken to avoid exposing the Base to excessive moisture. Flooding, fogging, or steam cleaning is not recommended.

⚠ **CAUTION: Never pour any liquid directly onto the Trios® Table Base. Never subject the Trios® Table Base to an equipment washing machine or spray with water.**

Blood or other fluids, etc., if allowed to remain on the Base for a long period of time, will require special cleaning to remove.

NOTE: *Use of iodophors will cause staining.*

To remove staining or discoloration of plated or stainless steel surfaces, clean with a commercial cleaning compound labeled for stainless steel and then buff the surface by hand.

To disinfectant exterior surfaces, including the casters, use a quaternary ammonium disinfectant compound according to manufacturer's directions for use. Wipe dry with a soft lint-free cloth.

NOTE: *Failure to dry the surface thoroughly after cleaning and disinfecting may result in rust or damage to the surface.*

8.2 Storage

When not in use, the Trios® Table Base should be stored in a clean, dry environment.

The following conditions are required of the shipping and/or storage environment:

- Ambient temperature -4°F (-20°C) to + 122°F (50°C).
- Relative humidity from 10% to 95%, non-condensing.
- Atmospheric pressure from 75 to 105 kPa.

When in storage, the table cover provided with each table top serves as a dust cover and should be used. To ensure that the battery is always fully charged and ready for use, store the table connected to AC power that matches the ratings on the manufacturer's label on the Base of the Head-End column (Figure 7).

8.3 Maintenance

8.3.1 Battery Maintenance

If the battery fails to hold a charge, it should be replaced. Replace only with an identical type and size battery (see Section 9.8).

Replace both batteries at the same time if new batteries are required.

Batteries shall be replaced every five (5) years.

Whenever the battery cover is opened, check the battery for signs of corrosion. The battery terminals should be clean and free from corrosion, oil, grease, dirt, or other contaminants.

Battery ordering number: REF 7803-135 (Replacement Battery Kit)

NOTE: *Failure to use an approved Mizuho OSI battery voids the warranty and may cause harm to the Trios® Table Base.*

8.3.2 Preventative Maintenance

Cleaning the Trios® Table Base surfaces after each use will assure many years of trouble-free service.

All components are lubricated for life at the factory and no other lubrication of the Base is required.

Contact Mizuho OSI Service for a complete preventative maintenance checklist.

For detailed repair information or to order replacement parts, call, or contact via the web, Mizuho OSI Service:

1-800-777-4674, Option 2 (for calls within the USA)

+1-510-429-1500, Option 2 (for calls outside the USA)

+1-510-429-8324 (Fax)

service@mizuhosi.com

www.mizuhosi.com

Mizuho OSI Service is available from 5 AM to 5 PM Pacific Time, Monday through Friday. Please leave a message at extension 2 after normal business hours.

9 Electrical System

9.1 Description

The electrical system provides control of all the table functions and is comprised of the following:

- Detachable Power Cord
- Power/Standby Switch
- Power/Charging Indicator
- Circuit Breakers
- Emergency Stop Button
- IntelliPendant®
- Battery System

9.2 Detachable Power Cord

The Base is equipped with a standard IEC Power Cord with the appropriate hospital grade connector. The Power Cord is connected to the table at the IEC power receptacle located on the inside of the Head-End Column near the Power/Standby Switch. Do not store material near the power inlet nor otherwise impede access to the detachable power cord.

WARNING: Ensure the IEC Power Cord provided is utilized and connected to a properly grounded receptacle that meets the input voltage requirements identified on the manufacturer's label on the base of the Head-End column of the table. Failure to do so may result in harm to the patient, healthcare professional, or the device.

9.3 Power/Standby Switch

A Power/Standby Switch is located on the Head-End base of the Table Base. When the green ring around the switch is illuminated, it indicates that the Base is powered **On** (Figure 55). When the green ring around the switch is not illuminated, but the AC Power Cord is plugged in, the Base is powered Off, but the Battery is charging.

9.4 Power/Charging Indicator

Two indicators (located in the Power Inlet Assembly) provide status of the AC and Battery charger. When connected to AC power, the AC Indicator will illuminate green. The batteries are automatically charged if AC is present. The Battery Indicator will illuminate yellow if the batteries are charging and then turn green when they are fully charged (Figure 55).

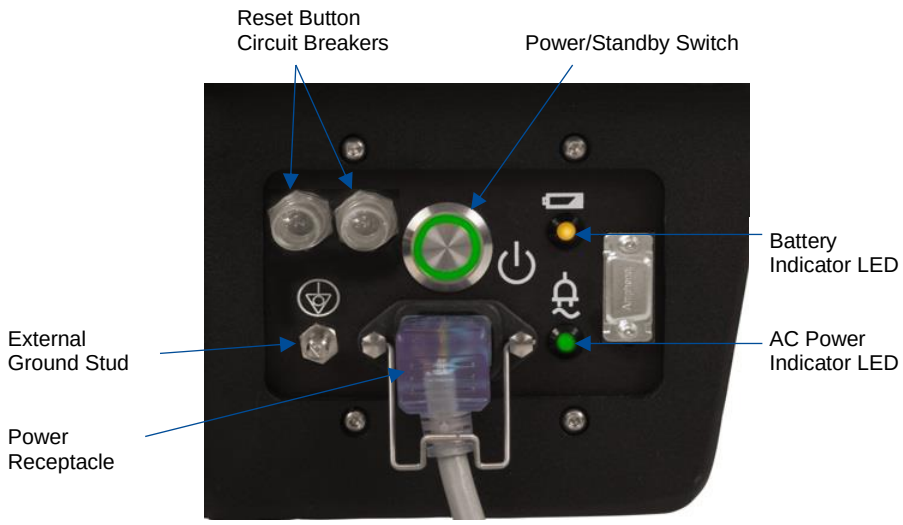


Figure 55: Identification of Power Supply Components

9.5 Circuit Breakers

Two circuit breakers provide overload protection to the Base (Figure 55). They are located in the Power Inlet assembly. The Circuit Breakers pop out if the Base experiences power overload. Before proceeding to reset the Circuit Breakers, investigate the cause of the occurrence. To reset the Circuit Breakers, push them in.

9.6 Emergency Stop Button

The Emergency Stop button is a switch that turns off power to all the motors in the Base if pressed. For more information on the Emergency Stop button, see Section 4.2.

9.7 IntelliPendant®

The IntelliPendant® provides primary user interface to the Base. The IntelliPendant® has a single processor with software that sends commands to the Main Controller PCA and displays status from the Main Controller PCA.

9.8 Battery System

The Trios® Table Base uses two (2) sealed, lead-acid, rechargeable batteries in series to provide 24 volts.

Normal battery operation is approximately eight (8) hours. This will allow for two procedures averaging six (6) minutes of motion time.

Check the battery for signs of corrosion. The battery terminals should be clean and free from corrosion, oil, grease, dirt, or other contaminants.

Battery kit ordering number: REF 7803-135F

9.8.1 Charging the Batteries

When the Battery Status symbol on the IntelliPendant® indicates less charge, the batteries require charging. To charge, plug the Power Cord into an appropriate hospital grade AC outlet.

It is imperative that they be charged within six (6) months of storage, otherwise permanent loss of capacity might occur as a result of sulfation. Using the Base while on AC power will also allow the batteries to charge.

The battery will be fully charged from a completely depleted state in 24 hours. If a battery fails to hold a charge, it should be replaced.

CAUTION: If the Base is running on battery power and is not charged when this Battery Status Symbol displays on the IntelliPendant®, the table will run out of charge and stop functioning.

9.8.2 Replacing the Batteries

When replacing the batteries for the Trios® Table Base:

- Replace only with an identical type and size battery pack.
- Replace both batteries at the same time.
- At a minimum, replace all batteries once every five (5) years.

NOTE: *Failure to use an approved Mizuho OSI battery voids the warranty and can cause harm to the Base.*

WARNING: Electrical shock hazard exists with access covers removed. Use caution when working in exposed areas. Servicing and replacement of batteries should only be performed by trained personnel.

10 Troubleshooting

10.1 Electrical System

In the event of a Base malfunction, confirm that the Power Cord is plugged into a live electrical outlet and the Power/Standby Switch is **On** and illuminated green.

10.2 Base

WARNING: Before removing any sheet metal covers, the Base must be turned off and unplugged. Dangerous high voltage may be present in the circuitry under the covers. Only trained technicians should perform this task.

Symptom	Action
Base will not turn on and none of the indicators are lit	1. Verify that the Power Cord is plugged into an appropriate AC receptacle and into the Power Cord receptacle. 2. Verify that the Power/Standby Switch is On and illuminated green. 3. Verify that the Power Cord receptacle is not damaged. 4. If the table still does not power on, contact Mizuho OSI Service (see Section 12).
Head-End or Foot-End Columns do not function	1. Verify that the Power/Standby Switch is On and illuminated green. 2. Verify that the IntelliPendant® is connected to the Base and the Main Screen is displayed. 3. Verify that the Floor Locks are locked (the Floor Lock symbol appears on the IntelliPendant®). 4. If the problem persists, contact Mizuho OSI Service (see Section 12).
Battery Status indicator is red	1. Verify the Power Cord is plugged into an appropriate AC receptacle and into the Power Cord receptacle. 2. Leave the Base plugged in for 18 hours to charge the batteries. 3. If the indicator is still red, replace the batteries.

10.3 Hand Pendant

Symptom	Action
Height Up/Height Down, Trendelenburg/ Reverse Trendelenburg, and/or Lateral Roll Left/Right buttons do not function	1. Verify that the Power Cord is connected to the Base. 2. Verify that the Power/Standby Switch is On and illuminated green. 3. Verify that the IntelliPendant® is connected to the Base and the Main Screen is displayed. 4. If an Error Screen displays, refer to the Error Code List in Section 11. 5. If the IntelliPendant® is still not functional, contact Mizuho OSI Service (see Section 12).

10.4 Manual Floor Lock Override

In the event of an error where the Floor Locks cannot be unlocked using the IntelliPendant® or Auxiliary Control Panel, the Floor Locks can be manually unlocked.

To manually unlock the Floor Locks:

1. Remove the grey metallic plugs on the side surface of each base cover. There are a total of four grey metallic plugs, with two located on the Head-End Base cover and two located on the Foot-End Base cover (Figure 56).

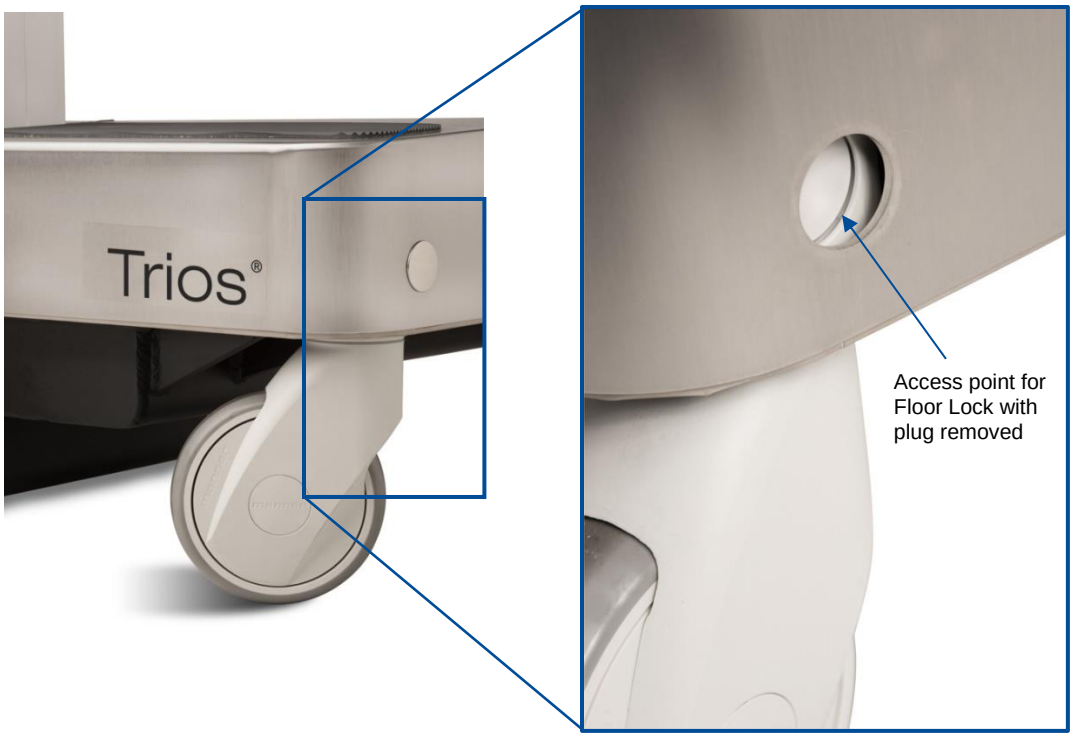


Figure 56: Location of Plugs for Manual Floor Lock Override

2. Press the button that is now exposed after removing the plug.
3. Reinstall the grey metallic plugs, taking care to ensure they form a watertight seal.

11 Software Troubleshooting

11.1 Software Error Codes

If the IntelliPendant® presents an error message, first identify the code and error message that appears on the screen (Figure 57). The error codes contain four hexadecimal digits, SDCC.

- The first two characters displayed (SD) are numerical codes representing the source of the error, and correspond to the text information provided on the top of the screen. In the example in Figure 57, the SD code is 21, which indicates the source of the error is the Head Column Motor Controller.
- The last two characters displayed (CC) indicate the specific error, and correspond to the text information provided in the center of the screen. In the example in Figure 57, the CC code is 02, which indicates the error is a motor stall.

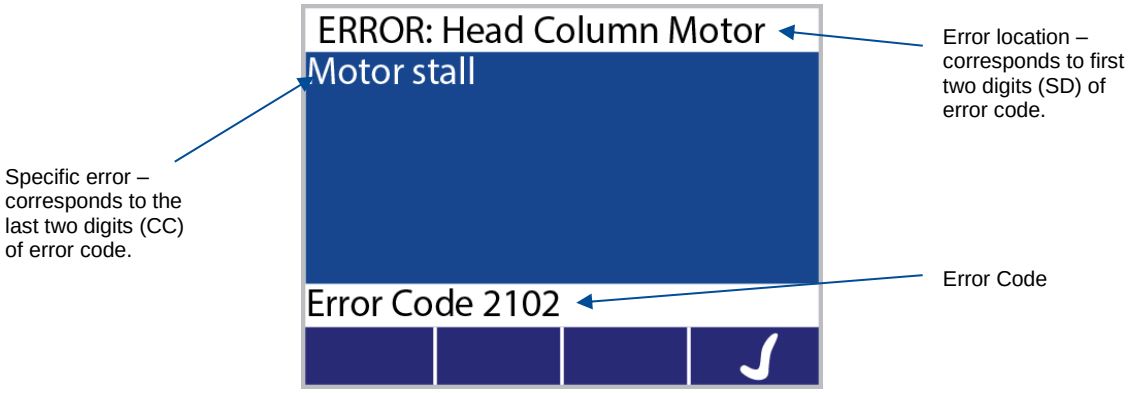


Figure 57: Example of an Error Message Displayed on the IntelliPendant®

The error messages received can be categorized into three different types of errors:

1. Recoverable Error: An error that can be cleared by pressing the check mark soft key and continuing with the desired table functions.
2. Reboot Error: An error that can be cleared by turning the table power off and back on.
3. Call for Service Error: An error that prevents the table from properly operating. In such instances, the user must contact Mizuho OSI Service immediately.

The following table lists the SD error codes and error source messages that may appear on the IntelliPendant®.

Source (SD)	Error Source and Detail
10	Main Controller
21	Motor Controller, Head Column
22	Motor Controller, Head Tilt
23	Motor Controller, Foot Column
24	Motor Controller, Foot Brake
41	Floor Lock, Head-End
42	Floor Lock, Foot End
50	Hand Pendant
60	Control Panel
70	Pump Controller

The following table lists the CC error codes for each SD code and messages that may appear on the IntelliPendant® along with the corresponding potential cause(s) and actions to take in order to troubleshoot the problem.

NOTE: *Some CC error codes are common to all SD codes. These are listed under General Errors.*

NOTE: *The User Action listed as "Acknowledge Error" corresponds to the act of pressing the check mark soft key on the IntelliPendant®.*

NOTE: *Should the problem persist after the user presses the check mark soft key on the IntelliPendant® to "Acknowledge Error," contact Mizuho OSI Service (see Section 12).*

Source (SD)	Code (CC)	Error Message	Potential Cause(s)	User Action(s)
xx	**General Errors (These errors are common to all SD codes.)**			
	C0	Board reset (Power on)	Board was powered on.	Acknowledge error.
	C1	Brown out reset	Board temporarily lost power.	Acknowledge error.
	C2	Watchdog reset	Internal software error.	Acknowledge error.
	C3	Software reset	Internal software error.	Acknowledge error.
	C4	External reset	Internal software error.	Acknowledge error.
	C5	Illegal opcode reset	Internal software error.	Acknowledge error.
	C6	Trap conflict reset	Internal software error.	Acknowledge error.
	C7	Unknown reset	Internal software error.	Acknowledge error.
	C8	Stack overflow reset	Internal software error.	Acknowledge error.
	C9	Stack underflow reset	Internal software error.	Acknowledge error.
	D0	Low Logic supply voltage	The logic voltage into the board is low.	Acknowledge error. Contact Mizuho OSI Service.
	D2	Low Drive supply voltage	The drive voltage into the board is low.	Acknowledge error. Contact Mizuho OSI Service.
	E0	Invalid state transition	Internal software error.	Acknowledge error.
10	**Main Controller Errors**			
	23	Move not stopped	User requested motion but the system timed out waiting for one or more boards to be ready.	Acknowledge error.
	2C	Maximum tilt angle	The table moved past the allowed maximum tilt angle.	Acknowledge error. Contact Mizuho OSI Service.
	2D	Minimum tilt angle	The table moved past the allowed minimum tilt angle.	Acknowledge error. Contact Mizuho OSI Service.
	2E	Table not ready to start new motion	The user requested motion but one of the boards was not ready for motion for a period that exceeded the timeout.	Turn table power off and back on.
	2F	Maximum Head Column height	The table moved past the allowed maximum height of the Head Column.	Acknowledge error. Contact Mizuho OSI Service.
	30	Maximum Foot Column height	The table moved past the allowed maximum height of the Foot Column.	Acknowledge error. Contact Mizuho OSI Service.
	31	Minimum Head Column height	The table moved past the allowed minimum height of the Head Column.	Acknowledge error. Contact Mizuho OSI Service.
	32	Minimum Foot Column height	The table moved past the allowed minimum height of the Foot Column.	Acknowledge error. Contact Mizuho OSI Service.

Source (SD)	Code (CC)	Error Message	Potential Cause(s)	User Action(s)
	41	Communication lost with Motor board	One or more motor boards are not communicating with the main controller.	Turn table power off and back on. Contact Mizuho OSI Service.
	43	Communication lost with Floor Lock board	One or both floor lock boards are not communicating with the main controller.	Turn table power off and back on. Contact Mizuho OSI Service.
	44	Communication lost with Pump board	The ACP board is not communicating with the main controller.	Turn table power off and back on. Contact Mizuho OSI Service.
	45	Table failed Initialize Stage One	The main controller failed to initialize properly.	Turn table power off and back on. If problem persists, contact Mizuho OSI Service.
	46	Table failed Initialize Stage Two	The main controller failed to initialize properly.	Turn table power off and back on. If problem persists, contact Mizuho OSI Service.
	47	Table failed to initialize	The main controller failed to initialize properly.	Turn table power off and back on. If problem persists, contact Mizuho OSI Service.
	48	Self-Test time out <stage> failed	The main controller failed to initialize properly.	Turn table power off and back on.
	60	Motor board version mismatch	The software programmed into one or more motor boards is incompatible with the main controller software.	Contact Mizuho OSI Service.
	62	Floor lock version mismatch	The software programmed into one or both floor lock boards is incompatible with the main controller software.	Contact Mizuho OSI Service.
	63	ACP version mismatch	The software programmed into the ACP board is incompatible with the main controller software.	Contact Mizuho OSI Service
	64	Hand pendant version mismatch	The software programmed into the hand pendant is incompatible with the main controller software.	Contact Mizuho OSI Service.
	65	Control panel version mismatch	The software programmed in to the auxiliary control panel board is incompatible with the main controller software.	Contact Mizuho OSI Service.
	70	ADC failed self-test	The analog-to-digital converter timed out during self-test.	Acknowledge error.
	71	Multiple keys depressed at the same time	Multiple keys were depressed for longer than a specific period after a multiple key press.	Acknowledge error.

Source (SD)	Code (CC)	Error Message	Potential Cause(s)	User Action(s)
	72	Possible stuck key on Pendant or Control Panel.	A single key was still depressed for longer than a specific period after a multiple key press.	Acknowledge error. If problem persists contact Mizuho OSI Service.
	73	Invalid motor calibration data	Table calibration data has been corrupted.	Contact Mizuho OSI Service.
	85	Motor bus voltage low	Something is wrong with the Main Controller power regulators or the loads and the voltage being delivered is too low.	Acknowledge error. Contact Mizuho OSI Service.
	A0	Clock battery failure	The small coin-cell battery on the main controller board is not working.	Acknowledge error. Contact Mizuho OSI Service to replace battery.
	A1	Clock oscillator not running	Internal software error.	Acknowledge error.
	A2	Clock not incrementing	Internal software error.	Acknowledge error.
	A3	Clock failed self-test	Internal software error.	Acknowledge error.
	A4	Clock communication error – Invalid request	Internal software error.	Acknowledge error.
	A5	Clock communication error – Queue full	Internal software error.	Acknowledge error.
	A6	Clock failed to initialize	Internal software error.	Acknowledge error.
	A7	RTC SRAM checksum failure (internal error)	Internal software error.	Acknowledge error.
	A8	RTC EEPROM checksum failure (internal error)	Internal software error.	Acknowledge error.
	AB	RTC SRAM invalid storage mode (internal error)	Internal software error.	Acknowledge error.
	AC	RTC SRAM invalid version (internal error	Internal software error.	Acknowledge error.
	AF	RTC SRAM invalid table position (internal error)	Internal software error.	Acknowledge error.
	B0	IMS red	The table detected impact.	Turn table power off and back on.
2x	**Motor Controller Errors**			
	01	Motor fault	The motor board detected a problem with the motor driver. The system may have attempted to change motor speed too abruptly or the motor position sensors may have failed, among other potential causes.	Acknowledge error.
	02	Motor stall	The motor board detected no motor movement while driving the motor very hard. The position encoder may have failed, the gear train may be sluggish or locked, or the table may be overloaded, among other potential causes.	Acknowledge error. Contact Mizuho OSI Service.
	05	Absolute encoder fault	The motor board failed to read the absolute encoder.	Acknowledge error. Contact Mizuho OSI Service.

Source (SD)	Code (CC)	Error Message	Potential Cause(s)	User Action(s)
	06	Relative encoder fault	During self-test, the motor board determined the relative encoder was disconnected.	Acknowledge error. Contact Mizuho OSI Service.
	08	Brake motor overcurrent	The motor board detected the current in the brake motor above acceptable levels.	Acknowledge error. Contact Mizuho OSI Service.
	09	Brake motor up timeout	The foot brake motor took too long to engage.	Acknowledge error. Contact Mizuho OSI Service.
	0A	Brake stopped out of switch	The foot brake engaged but this was not confirmed by the position switch.	Acknowledge error. Contact Mizuho OSI Service.
	0B	Brake motor down timeout	The foot brake motor took too long to disengage.	Acknowledge error. Contact Mizuho OSI Service.
	0C	Tilt sensor timeout	The tilt motor board lost communication with the tilt sensor.	Acknowledge error. Contact Mizuho OSI Service.
4x	**Floor Lock Errors**			
	03	Motor 1 overcurrent	The motor was drawing more current than expected.	Acknowledge error.
	04	Motor 2 overcurrent	The motor was drawing more current than expected.	Acknowledge error.
	05	Motor 1 unlock timeout	The motor took longer than expected to unlock the floor lock and has not fully unlocked.	Acknowledge error.
	06	Motor 2 unlock timeout	The motor took longer than expected to unlock the floor lock and has not fully unlocked.	Acknowledge error.
	07	Motor 1 lock timeout	The motor took longer than expected to lock the floor lock and has not fully locked.	Acknowledge error.
	08	Motor 2 lock timeout	The motor took longer than expected to lock the floor lock and has not fully locked.	Acknowledge error.
50	**Hand Pendant Errors**			
	01	Stuck pendant keypad button	The hand pendant detected a button press during self-test.	Turn table power off and back on. Contact Mizuho OSI Service to replace pendant.
60	**Auxiliary Control Panel Errors**			
	01	Stuck keypad button	The auxiliary control panel detected a button press during self-test.	Turn table power off and back on. Contact Mizuho OSI Service to replace auxiliary control panel.

11.2 Software Release Notes

11.2.1 Software Enhancements

The following sections describe enhancements to the software in versions 2.1 to 2.6 over the previous version 2.0.

11.2.1.1 International Release

The Trios® Table System is now available in nine (9) languages: English, French, Italian, German, Spanish, Danish, Portuguese (Brazil), Chinese, and Japanese.

11.2.1.2 New Traction Arc Wizard

The Trios® Table System now supports a wizard to assist in the installation of the Trios® Traction Arc. This wizard was available in English language only for version 2.1, and is now available in all supported languages for version 2.2 and 2.3.

11.2.1.3 Improved Tilt Motion Control

The Trios® Table System tilt motion has been improved. Using the gravity inclination sensor only at table power on and using the motor actuator sensor thereafter provides smoother tilt motion and a steadier tilt position display value. This greatly reduces the intermittent flashing on the Control Panel Level LED that was common on the previous version of the table.

NOTE: *This enhancement requires an update to the tilt motor harness. Before upgrading a Trios® Table System from version 2.0 firmware to a later version of firmware, the tilt motor harness must be updated.*

11.2.1.4 Change to the Level Indicator Light

The Level indicator light, which is the green LED on the top of the Trios® Head-End Column, was illuminated when the table was level and the Trendelenburg angle was not extreme. In version 2.1, the Level indicator light has one more condition added: in addition to level and Trendelenburg criteria, the Floor Locks must also be locked for the light to illuminate.

11.2.1.5 Programming Through the Service Port

The Trios® Table System will support firmware updates through the service port for firmware versions that follow version 2.1.

NOTE: *This enhancement requires an update to the Control Panel harness. When upgrading a table from version 2.0 to version 2.1 or later firmware, it is recommended that the Control Panel harness get updated so that subsequent firmware upgrades may be performed through the service port.*

11.2.1.6 New Combined Motor and Floor Lock Board

The Trios® Table System internal electronics are changed to combine the functions of two internal control boards into one. The new electronics are supported with firmware version 2.3.

NOTE: *The combined Motor and Floor Lock board with firmware version 2.3 is backward compatible with Trios® Table Systems with older firmware. However, to support programming through the service port, the main controller must also be upgraded to firmware version 2.3, which may in turn require a hand pendant firmware upgrade.*

NOTE: *The main control board firmware version 2.3 is backward compatible with hand pendant firmware version 2.2.*

11.2.1.7 Communication Diagnostic Enhancements

The Trios® Table System now provides more information to Service personnel, particularly in regard to internal communication. These enhancements were introduced in version 2.6.

11.2.2 Resolved Software Issues

The following sections provide a description for issues previously reported that are now resolved in this revision.

11.2.2.1 Brake Overcurrent

We monitor all motor currents to ensure the correct functioning of the system. In the case of the brake motor in version 2.0, the current monitor was set to be too sensitive. So while the table was actually functioning correctly, the current monitor reported the brake overcurrent error whenever current rose above the monitor threshold. This issue is resolved in version 2.1.

11.2.2.2 Make Impact Error Clear

We monitor electrical voltages in the system to ensure the correct functioning of the system. In the case of the Impact Monitoring System (IMS) in version 2.0 and 2.1, the system monitoring was too sensitive to transient conditions in the table and was incorrectly reporting a problem related to impact on the table. This issue is resolved in version 2.2.

11.2.2.3 Partial Caster Lock Engagement in Some Circumstances

One or more casters on the table could be only partially engaged in some circumstances, with Floor Lock board firmware version 2.0 and 2.1. This issue may occur if a caster is placed in a few discrete positions, both swivel and wheel roll. This issue is resolved in version 2.2 of the Floor Lock board firmware.

11.2.2.4 Caster Lock Issue with Motor and Floor Lock Board

The initial release of firmware for the REF 7803-4890 Combined Motor and Floor Lock board had an issue that may cause the caster locks to fail. This only affected a few Trios Table Systems, only those equipped with the Combined Motor and Floor Lock board and revision 2.3 of the board firmware. This issue is resolved in version 2.4 of the Combined Motor and Floor Lock board firmware.

NOTE: *No tables shipped to customers with this software issue unresolved.*

11.2.2.5 Intermittent Communication Loss

A few systems intermittently experience the nuisance error that communication is lost with either a Floor Lock board or a Motor Controller board. The communication was made more robust in version 2.5, reducing the incidence of this error. In version 2.6, an additional change further improved the robustness of the communication.

11.2.2.6 Indicator Lights Frozen

On one occasion, a system experienced the nuisance that the indicator lights no longer changed with the state of the table until the table was powered off and back on. This issue is resolved in version 2.6.

12 Technical Support

12.1 Contact for Parts and Service

For detailed repair information or to order replacement parts, call Mizuho OSI Service at **1-800-777-4674** for calls within the USA or **+1-510-429-1500** for calls outside the USA. At the prompt, select Option 2.

A Service line is available from 5 AM to 5 PM Pacific Time, Monday through Friday. After business hours, please leave a message.

Please state slowly your name, phone number, your facility name and city, affected equipment model number, and serial number.

An email message may be left anytime at **service@mizuhosi.com** or through the web site: **www.mizuhosi.com.**

12.2 Order Replacement Parts

If unable to identify a part, please call, fax, or e-mail Mizuho OSI Service before placing an order. Once the part number is obtained, follow the instructions below to order the replacement part.

If part is known, please telephone, fax, or e-mail Mizuho OSI Service with the part number and description for price and availability.

12.3 Return Damaged Parts

Identify part or part number to be returned.

Telephone, fax, or e-mail Mizuho OSI Service with the part number and description of the part for return to obtain a Return Goods Authorization (RGA) number.

Complete the Certificate of Decontamination provided by Mizuho OSI Service.

Return the part with RGA number clearly marked on the outside of the package, and include the Certification of Decontamination with the shipment.

12.4 Send a Part for Repair

If unable to identify a part, please telephone, fax, or e-mail Mizuho OSI Service for assistance.

If part number is known, please telephone, fax, or e-mail Mizuho OSI Service with the part number and description of the problem to obtain a Repair Authorization (RA) number.

Clean/disinfect parts prior to shipping and complete the Certificate of Decontamination provided by Mizuho OSI Service.

Ship the part with the RA number clearly marked on the outside of the package, and include the Certificate of Decontamination with the shipment.

The part will be evaluated and the customer will be contacted with the cost of repair, if not covered under table warranty.

After customer approval of repair cost, the part will be repaired and returned to the customer.

12.5 Warranty

Mizuho OSI products come with a one (1) year warranty against manufacturer defect. All expenses for parts and labor for product service calls are covered free of charge for the warranty period, except those products that are misused, altered, or damaged. Defective merchandise will be credited or replaced.

13 Appendix

13.1 Electromagnetic Emissions

WARNING: Medical electrical equipment needs special precautions regarding Electromagnetic Compatibility (EMC) and needs to be installed and put into service according to the EMC information provided in this manual.

WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, the equipment and other equipment should be observed to verify that they are operating normally.

WARNING: The use of accessories, transducers, and cables other than those specified or provided by Mizuho OSI could result in increased electromagnetic emissions or decreased electromagnetic immunity of the equipment and result in improper operation.

WARNING: Portable RF communications equipment (includeing peripherals such as antenna calbes and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Trios® Surgical Table System, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

NOTE: *The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigating measures, such as relocation or re-orienting the equipment.*

Guidance and Manufacturer's Declaration –Emissions		
The Trios® Table Base is intended for use in the electromagnetic environment specified below. The customer or user of the Trios® Table Base should ensure that it is used in such an environment.		
Emissions Test	**Compliance**	**Electromagnetic Environment – Guidance**
RF emissions CISPR 11	Group 1	The Trios® Table Base does not use RF energy for any of its internal functions. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The Trios® Table Base is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonics EN 61000-3-2	Class A	
Flicker EN 61000-3-3	Complies	

13.2 Electromagnetic Immunity

Guidance and Manufacturer's Declaration –Immunity			
The Trios® Table Base is intended for use in the electromagnetic environment specified below. The customer or user of the Trios® Table Base should ensure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment – Guidance**
Electrostatic Discharge (ESD) IEC 61000-4-2	±8 kV Contact ±15 kV Air	±8 kV Contact ±15 kV Air	Floors should be wood, concrete, or ceramic tile. If floors synthetic, the r/h should be at least 30%.
Electrical Fast Transient (EFT) IEC 61000-4-4	±2 kV Mains ±1 kV I/Os	±2 kV Mains ±1 kV I/Os	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV Differential ±2 kV Common	±1 kV Differential ±2 kV Common	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips/Dropout IEC 61000-4-11	>95% Dip for 0.5 Cycle >95% Dip for 1 Cycle 30% Dip for 25/30 Cycles >95% Dip for 250/300 Cycles	>95% Dip for 0.5 Cycle >95% Dip for 1 Cycle 30% Dip for 25/30 Cycles >95% Dip for 250/300 Cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Trios® Table Base requires continued operation during power mains interruptions, it is recommended that the Trios® Table Base be powered from an uninterruptable 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 that of a typical commercial or hospital environment.

Guidance and Manufacturer's Declaration – Immunity			
The Trios® Table Base is intended for use in the electromagnetic environment specified below. The customer or user of the Trios® Table Base should ensure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment – Guidance**
Conducted RF IEC 61000-4-6	3 V 0.15 MHz to 80 MHz 6 V in ISM between 0.15 MHz and 80 MHz 80% AM at 1 kHz	3 V 0.15 MHz to 80 MHz 6 V in ISM between 0.15 MHz and 80 MHz 80% AM at 1 kHz	PROFESSIONAL HEALTHCARE FACILITY ENVIRONMENT
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz	PROFESSIONAL HEALTHCARE FACILITY ENVIRONMENT
Proximity Magnetic Fields IEC 61000-4-39	65 A/m (rms), PM at 2.1 kHz 50% duty cycle, 134.2 kHz 7.5 A/m (rms), PM at 50 kHz 50% duty cycle, 13.56 MHz	65 A/m (rms), PM at 2.1 kHz 50% duty cycle, 134.2 kHz 7.5 A/m (rms), PM at 50 kHz 50% duty cycle, 13.56 MHz	PROFESSIONAL HEALTHCARE FACILITY ENVIRONMENT

Guidance and Manufacturer's Declaration – Immunity						
The Trios® Table Base is intended for use in the electromagnetic environment specified below. The customer or user of the Trios® Table Base should ensure that it is used in such an environment.						
Test Frequency	**Band [1]**	**Service [1]**	**Modulation [2]**	**Maximum Power**	**Distance**	**Immunity Test Level**
MHz	**MHz**			**W**	**Meters**	**(V/m)**
385	380 – 390	TETRA 400	Pulse modulation [2] 18 Hz	1.8	0.3	27
450	430 – 470	GMRS 460, FRS 460	FM [3] ±5 kHz deviation 1 kHz sine	2	0.3	28
710 745 780	704-787	LTE Band 13, 17	Pulse modulation [2] 217 Hz	0.2	0.3	9
810 870 930	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation [2] 18 Hz	2	0.3	28
1720 1845 1970	1700 – 1900	GDM 1800; CDMA 1900; GSM 1900; DECT: LTE Band 1, 3, 4, 25; UMTS	Pulse modulation [2] 217 Hz	2	0.3	28
2450	2400 – 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation [2] 217 Hz	0.2	0.3	9

NOTE: If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the Trios® Table Base may be reduced to 1 m. The 1 m distance is permitted by IEC 61000-4-3.

[1] For some services, only the uplink frequencies are included.

[2] The carrier shall be modulated using a 50% duty cycle square wave signal.

[3] As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.