

SERVICE MANUAL

RESIDENT® Low Bed From Hill-Rom



Product No. P872

For Parts Or Technical Assistance
USA (800) 445-3720 Canada (800) 267-2337
International: Contact your distributor.

man259

RESIDENT® Low Bed Service Manual

Revisions

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Chapter 1

Introduction

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Purpose

This manual provides requirements for the RESIDENT® Low Bed normal operation and maintenance. It also includes parts lists (in chapter 5) for ordering replacement components.

Audience

This manual is intended for use by only facility-authorized personnel. Failure to observe this restriction can result in severe injury to people and serious damage to equipment.

Organization

This manual contains seven chapters.

Chapter 1: Introduction

In addition to a brief description of this service manual, chapter 1 also provides a product overview.

Chapter 2: Troubleshooting Procedures

Repair analysis procedures are contained in this chapter. These procedures are used to gather information, identify the maintenance need, and verify the effectiveness of the repair.

Chapter 3: Theory of Operation

This chapter describes the application of the mechanical, electrical, and hydraulic systems employed in this product.

Chapter 4: Removal, Replacement, and Adjustment Procedures

Chapter 4 contains the detailed maintenance procedures determined necessary in chapter 2.

Chapter 5: Parts List

This chapter contains the warranty, part-ordering procedure, and illustrated parts lists.

Chapter 6: General Procedures

Cleaning, preventive maintenance, and other general procedures are described in this chapter.

Chapter 7: Accessories

A list of additional products, that can be used in conjunction with the RESIDENT® Low Bed, is available in chapter 7. Installation procedures for these accessories are also included.

Typographical Conventions

This manual contains different typefaces and icons designed to improve readability and increase understanding of its content. Note the following examples:

- Standard text—used for regular information.
- **Boldface text**—emphasizes a word or phrase.
- **NOTE:**—sets apart special information or important instruction clarification.
- The symbol below highlights a WARNING or CAUTION:

Figure 1-1. Warning and Caution



- A WARNING identifies situations or actions that may affect patient or user safety. Disregarding a warning could result in patient or user injury.
- A CAUTION points out special procedures or precautions that personnel must follow to avoid equipment damage.
- The symbol below highlights a CAUGHT HAZARD WARNING:

Figure 1-2. Caught Hazard Warning



- The symbol below highlights a CHEMICAL HAZARD WARNING:

Figure 1-3. Chemical Hazard Warning



- The symbol below highlights an ELECTRICAL SHOCK HAZARD WARNING:

Figure 1-4. Electrical Shock Hazard Warning



Introduction

Overview

The RESIDENT® Low Bed is a fully electric, full-featured bed designed for the unique needs of the long-term care marketplace. The bed is very easy to operate for both the geriatric resident population and its caregiver staff.

The RESIDENT® Low Bed helps reduce the risk of lift-related injuries to the caregiver and enhance resident independence through easy egress and bed operation. It improves resident egress through a lower bed height, siderails, and ambulatory assist devices. Also, the bed improves staff productivity by allowing the resident to operate controls and get in and out of bed with less caregiver assistance.

Features

Head/Knee Inclination and Automatic Contour Capability

The head and knee sections separately articulate up or down at the touch of each individual control button within a range of 0° to 65° for head up or down, 0° to 25° for knee up or down, and 0° to 15° for automatic contour. A head elevation indicator shows the head angle in reference to the ground, displaying angles at 15° intervals.

Hilow Function

The entire upper frame moves vertically, parallel to the ground at the touch of the hilow up or down buttons within a range of 11½" to 26" (29.21 cm to 66 cm).

Sleep Surface

The Resident® Low Bed deck will accept any standard-sized mattress, such as the Comfortline® Mattress, the PRIMA™ Prevention Mattress Series, the DynamicAire™ Sleep Surface, and the PRIME•AIRE™ Therapy Surface from Hill-Rom.

Sleep surfaces from Hill-Rom are designed considering various resident and equipment combinations. Therefore, when selecting a sleep surface, the caregiver should evaluate the resident's needs, and ensure that the most appropriate surface is selected for that resident.

Pendant and Lockout Controls

The pendant control clips over siderails or to bed ends, and controls the head, knee, and hillow up and down functions. The RESIDENT® Low Bed contains head, knee, and hillow lockout switches located at the foot end to control each function.

IV Pole Mounting Socket

Pairs of IV pole mounting sockets are provided at the inside of the footboard and outside the headboard to accommodate the standard trapeze and traction equipment.

Base Bumper



CAUTION:

Do not use the RESIDENT® Low Bed without the base bumper in place. Equipment or facility damage could result.

A base bumper mounted to the head end base frame protects the wall from damage during bed operation.

Operating Precautions



CAUTION:

Do not exceed the RESIDENT® Low Bed maximum safe working load of 480 lb (218 kg). Equipment damage could result.

Before operating the bed, read and fully understand the contents of this manual. Strictly adhere to the safety information contained within.

After placing the resident on that surface, the caregiver should inspect to ensure that the gaps between the mattress and siderails do not present an unreasonable risk to that patient. Carefully follow facility protocols for assessing patients at risk for entrapment.

Specifications

Physical Description

For RESIDENT® Low Bed specifications, see table 1-1 on page 1-8.

Table 1-1. Specifications

Feature	Dimension
Width	36" to 42" (91 cm to 107 cm)
Length, including 1" (3 cm) bed ends (76" (193 cm) sleep surface)	84½" to 90 3/8" (214.6 cm to 229.553 cm)
Length, including 1" (2 cm) bed ends (80" (203 cm) sleep surface)	88½" to 94 3/8" (224.8 cm to 239.713 cm)
Hilow height from floor	11½" to 25½" (29.2 cm to 64.8 cm)
Safe working load, including resident and accessories	480 lb (218 kg)
Under bed floor to base clearance with bed in the low position	5" (13 cm)
Head angle range	0° to 65° in 30 s, up or down
Knee angle range	0° to 25° in 10 s, up or down 0° to 15° in 10 s, automatic contour
Sleep surface length	80" (203 cm) standard or 76" (193 cm) option
Sleep surface width	36" (91 cm)
Weight without accessories	275 lb (125 kg)
Storage temperature	40°F to 150°F (4°C to 66°C)
Storage relative humidity	20% to 75%
Ambient operating temperature	50°F to 110°F (10°C to 43°C)
Operating relative humidity	20% to 95%
Maximum braking load	90 lb (41 kg)

Regulations, Standards, and Codes

The RESIDENT® Low Bed meets UL 2601-1/IEC 60601-1, CAN/CSA C22.2 No. 601.1, IEC 60601-1-2, and IEC 60601-2-38 requirements.

General Operation

Siderails



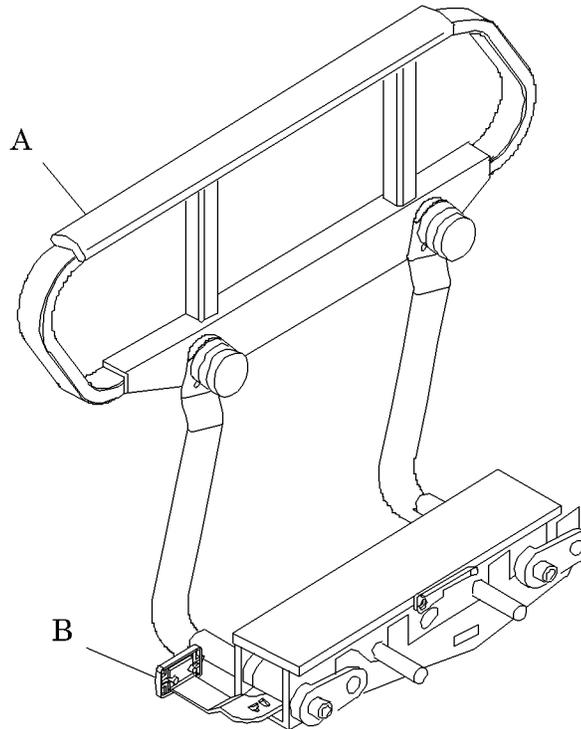
WARNING:

Siderails are visual reminders for residents to locate the edge of the bed, and are not intended for use as a restraint device. Appropriate medical personnel must determine the level of restraint necessary to ensure a resident will remain safely in bed and prevent personal injury.

Raising the Siderail

1. Grasp the siderail (A), and pull it outward from its stored position (see figure 1-5 on page 1-10).

Figure 1-5. Siderails



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2. If the siderail (A) is at the head end, rotate the siderail (A) toward the head end of the bed to its fully-raised position.

3. If the siderail (A) is at the foot end, rotate the siderail (A) toward the foot end of the bed to its fully-raised position.
4. Listen for a click to indicate that the siderail (A) is completely raised and locked in place.
5. Tug on the siderail (A) toward the head and foot end of the bed to verify that the siderail (A) is securely latched.

Lowering the Siderail

1. Grasp the siderail (A) with one hand, and push inward on the release latch (B) with the other.
2. Rotate the siderail (A) to its lowered position, and store it next to the sleep surface frame.

Bed Positioning



SHOCK HAZARD:

The potential of electrical shock exists when working with electrical equipment. Use caution when working with electrical equipment. Failure to do so could result in personal injury.



WARNING:

Operate the bed only when persons are clear of the drive mechanisms. Failure to do so could result in personal injury or equipment damage.

Operating the Hilow Function

To raise or lower the bed, press and hold the hilow button on the pendant or siderail control until the desired height is reached.

Raising or Lowering the Head Section

To raise the head section, press and hold the head up button on the pendant or siderail control until the desired degree of incline is reached.

To lower the head section, press and hold the head down button on the pendant or siderail control until the desired degree of incline is reached.

Raising or Lowering the Knee Section

To raise the knee section, press and hold the knee up button on the pendant or siderail control until the desired degree of incline is reached.

To lower the knee section, press and hold the knee down button on the pendant or siderail control until the desired degree of incline is reached.

Steering



WARNING:

Guide the bed from the corners near the foot end of the bed. This will help to keep your legs clear of the frame and your feet clear of the base frame and caster assemblies. Failure to guide the bed from the corners near the foot end of the bed could result in personal injury or equipment damage.

When moving the bed, guide the bed from the corners near the foot end of the bed. Do not transport the resident on the RESIDENT® Low Bed.

Model Identification

For RESIDENT® Low Bed model identification, see table 1-2 on page 1-12.

Table 1-2. Model Identification

Model Number	Description
P872	RESIDENT® Low Bed

Safety Tips

**WARNING:**

Ensure the transfer gap between the outside of a stored siderail or assist bar and the outside surface of the mattress does not exceed 1.5" (3.8 cm). Failure to do so could result in personal injury or equipment damage.

**WARNING:**

Siderails are visual reminders for residents to locate the edge of the bed, and are not intended for use as a restraint device. Appropriate medical personnel must determine the level of restraint necessary to ensure a resident will remain safely in bed and prevent personal injury.

**WARNING:**

Operate the bed only when persons are clear of the drive mechanisms. Failure to do so could result in personal injury or equipment damage.

**WARNING:**

Guide the bed from the corners near the foot end of the bed. This will help to keep the legs clear of the frame and feet clear of the base frame and caster assemblies. Failure to guide the bed from the corners near the foot end of the bed could result in personal injury or equipment damage.

**WARNING:**

Only facility-authorized personnel should troubleshoot the RESIDENT® Low Bed. Troubleshooting by unauthorized personnel could result in personal injury or equipment damage.

**WARNING:**

Unplug the unit from its power source. Failure to do so could result in personal injury or equipment damage.

**WARNING:**

Lock the casters. Inadvertent movement during inspection or service

could result in personal injury.



WARNING:

It is not necessary or advisable for personnel to be under the bed. If service personnel need to be under the bed, use suitable jack stands to block up the bedframe. Failure to do so could result in personal injury.



CAUTION:

During caster replacement, examine the caster socket for cracks or breaks. Do not install a new caster in a damaged caster socket. Early failure of the new caster or equipment damage could occur.



WARNING:

The RESIDENT® Low Bed weighs 275 lb (125 kg). Have two or more people who can help you lift and turn the bed. Failure to do so could result in personal injury.



WARNING:

Use Loctite®¹ adhesive on the threads of all Torx®² screws before installing them. Failure to do so could allow the fasteners to loosen. This could lead to the sudden collapse of a bed section, which could lead to injury to a resident or caregiver.



WARNING:

If the head and/or knee section cannot be lowered to its full flat position, brace the section securely so it does not collapse suddenly when the support of the actuator motor is removed. Failure to do so could result in serious personal injury.



WARNING:

If the bed cannot be lowered to its lowest position, brace the intermediate frame components securely to prevent sudden collapse when the support of the actuator motor is removed. Failure to do so could result in serious personal injury.

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

**WARNING:**

Only facility-authorized personnel should perform preventive maintenance on the RESIDENT® Low Bed. Preventive maintenance performed by unauthorized personnel could result in personal injury or equipment damage.

**WARNING:**

Adhere to the *Infection Control Policies and Procedures* from Hill-Rom. Failure to do so could result in the spread of infection.

**WARNING:**

Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

**SHOCK HAZARD:**

Exercise extreme caution when handling electrical components and measuring voltage on live electrical circuits. Severe burns or injury could result.

**SHOCK HAZARD:**

The potential of electrical shock exists when working with electrical equipment. Personal injury could occur.

**SHOCK HAZARD:**

Unplug the unit from its power source. Failure to do so could result in personal injury or equipment damage.

**SHOCK HAZARD:**

Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

**CAUTION:**

Do not roll the RESIDENT® Low Bed to turn it over. Lift and turn the bed upside down. Failure to do so could result in damage to the siderails.



CAUTION:

Before attempting to turn the RESIDENT® Low Bed over, secure the head and foot sections to the mid-frame. Failure to do so could result in damage to equipment or personnel.



CAUTION:

Always lay the bed on a protective sheet or other non-abrasive surface. Failure to do so could result in damage to the finish.



CAUTION:

The RESIDENT® Low Bed is made in 76" (193 cm) and 80" (203 cm) lengths. Install the hilow actuator rod tip in the correct support brace hole in order for the hilow function to operate properly. Failure to install the hilow actuator in the correct position for the bed size could result in damage to the unit.



CAUTION:

Do not exceed the RESIDENT® Low Bed maximum safe working load of 480 lb (218 kg). Equipment damage could result.



CAUTION:

Do not use the RESIDENT® Low Bed without the base bumper in place. Equipment or facility damage could result.



CAUTION:

Do not use harsh cleaners, solvents, or detergents. Equipment damage could occur.



CAUTION:

Repeated soaking of the mattress fabric will accelerate wear. Improper cleaning procedures may void the warranty and result in equipment damage.



CAUTION:

Use a diluted solution of ammonia, detergent, and bleach to clean the wood surfaces. If used in high concentrations, many disinfectant cleaners have a softening effect on any painted or finished surface.

Equipment damage could result.



CAUTION:

Do not use silicone-based lubricants. Equipment damage could occur.



CAUTION:

Do not lower the bed frame with the trapeze support installed.
Equipment damage could result.

Warning and Caution Labels

Figure 1-6. Warning and Caution Labels

WARNING: POWERED BED MECHANISMS CAN CAUSE SERIOUS INJURY. OPERATE BED ONLY WITH PERSONS CLEAR OF MECHANISMS.

CAUTION: UNPLUG BED DURING SERVICE OR CLEANING. REFER TO SERVICE MANUAL AND IN-SERVICE MANUAL FOR ADDITIONAL PRECAUTIONS.

MFL

ATTENTION: Ne pas faire fonctionner le lit lorsqu'un est engagé sous le sommier.

ATTENTION: Débrancher le lit pendant l'entretien ou le nettoyage. Se référer au manuel d'utilisation pour toute précaution supplémentaire.

MFL

 **WARNING**

BED IS NOT FOR HOSPITAL USE. BED IS NOT EQUIPPED WITH TRENDLENBURG OR C.P.R. FUNCTIONS. BED IS NOT FOR RESIDENT TRANSPORTATION. ENGAGE ALL BRAKES AT ALL TIMES, EXCEPT WHEN BED MOVEMENT IS NECESSARY. DO NOT PARK OR BRAKE THE BED ON AN INCLINE OR RAMP. BED MAY BECOME UNSTABLE IF LOWERED ONTO FURNITURE OR OTHER OBSTRUCTIONS. DO NOT USE WITH OXYGEN ADMINISTERING EQUIPMENT OTHER THAN THE NASAL OR MASK TYPE. POSSIBLE FIRE HAZARD IF SIDERAIL / PENDANT CONTROL IS IN THE PROXIMITY OF THE RESIDENT WHEN USING OXYGEN ADMINISTERING EQUIPMENT. EQUIPMENT IS NOT SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE ANESTHETIC MIXTURE WITH AIR, OXYGEN OR NITROUS OXIDES. FAILURE TO COMPLY COULD RESULT IN PERSONAL INJURY OR EQUIPMENT DAMAGE.

  **CAUTION**

USE CAUTION WHEN POSITIONING THE BED OVER BED TABLE AND LIFTS. EQUIPMENT DAMAGE COULD RESULT WHEN BED IS LOWERED ONTO OBSTRUCTIONS. BED IS ALWAYS ELECTRIFIED WHEN CONNECTED TO POWER SOURCE. DISCONNECT POWER CORD TO DE-ELECTRIFY BED. TO DEACTIVATE FUNCTION, LOCK OUT FUNCTION AT FOOT END OF BED OR DISCONNECT POWER CORD. KEEP PENDANT AND POWER CORD CLEAR OF ALL MOVING PARTS AND WHEELS. FAILURE TO COMPLY COULD RESULT IN EQUIPMENT DAMAGE.

 **AVERTISSEMENT**

LE LIT NE CONVIENT PAS À UNE UTILISATION EN MILIEU HOSPITALIER. LE LIT N'EST PAS ÉQUIPPÉ DE FONCTIONS TRENDLENBURG OU C.P.R. LE LIT N'EST PAS ADAPTÉ AU TRANSPORT DES RÉSIDENTS. SERRER TOUJOURS TOUTS LES FREINS, SAUF LORSQU'UN DÉPLACEMENT DU LIT EST NÉCESSAIRE. NE JAMAIS LAISSER LE LIT SUR UN PLAN INCLINÉ OU UNE RAMPE, MÊME AVEC LES FREINS. LE LIT PEUT PERDRE SA STABILITÉ S'IL EST ABASSÉ SUR UN MEUBLE OU UN AUTRE OBSTACLE. NE PAS UTILISER AVEC UN APPAREIL DISTRIBUTEUR D'OXYGÈNE, SAUF LES MASQUES ET LES TUBES NASAUX. RISQUE D'INCENDIE SI LA COMMANDE PENDANTE OU ACCROCHÉE AU BAIN LATÉRAL EST LAISSÉE À PROXIMITÉ DU RÉSIDENT PENDANT QU'IL UTILISE UN APPAREIL DISTRIBUTEUR D'OXYGÈNE. CET ÉQUIPEMENT NE DOIT PAS ÊTRE UTILISÉ AVEC UN MÉLANGE ANESTHÉSIOLOGIQUE INFLAMMABLE CONTENANT DE L'AIR, DE L'OXYGÈNE OU DES OXYDES NITRÉS. LE NON-RESPECT DE CETTE CONSIGNE PEUT PROVOQUER DES BLESSURES ET DES DOMMAGES MATÉRIELS.

 **ATTENTION**

FAIRE ATTENTION LORSQUE LE LIT EST PLACÉ AU-DESSUS D'UNE TABLE DE LIT OU D'UN ÉLEVATEUR. DES DOMMAGES MATÉRIELS RISQUENT DE SURVENIR SI LE LIT EST ABASSÉ SUR UN OBSTACLE. LE LIT EST TOUJOURS SOUS TENSION LORSQU'IL EST BRANCHÉ À UNE SOURCE DE COURANT. POUR COUPER L'ALIMENTATION ÉLECTRIQUE, DÉBRANCHEZ LE CORDON. POUR DÉSACTIVER UNE FONCTION, VERROUILLEZ-LA AU PIED DU LIT OU DÉBRANCHEZ LE CORDON D'ALIMENTATION. GARDER LE CORDON PENDANT ET LE CORDON D'ALIMENTATION À BONNE DISTANCE DES PIÈCES MOBILES ET DES ROUES. LE NON-RESPECT DE CETTE CONSIGNE RISQUE DE PROVOQUER DES DOMMAGES MATÉRIELS.

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Chapter 2

Troubleshooting Procedures

2

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Getting Started

**WARNING:**

Only facility-authorized personnel should troubleshoot the RESIDENT® Low Bed. Troubleshooting by unauthorized personnel could result in personal injury or equipment damage.

Begin each procedure in this chapter with step 1. Follow the sequence outlined (each step assumes the previous step has been completed). In each step, the normal operation of the product can be confirmed by answering **Yes** or **No** to the statement. Your response will lead to another step in the procedure, a repair analysis procedure (RAP), or a component replacement. If more than one component is listed, replace them in the given order.

To begin gathering information about the problem, start with **Initial Actions**.

To isolate or identify a problem and to verify the repair after completing each corrective action (replacing or adjusting a part, seating a connector, etc.), perform the **Function Checks**.

After the Function Checks to verify the repair, perform the **Final Actions**.

If troubleshooting procedures do not isolate the problem, call Hill-Rom Technical Support at (800) 445-3720 for assistance.

Initial Actions

To gather information from operators concerning problems with the RESIDENT® Low Bed, use Initial Actions. Note symptoms or other information concerning the problem that the operator describes. This information helps identify the probable cause.

1. Someone who can explain the problem is available.

Yes **No**

↓ → Go to “Function Checks” on page 2-4.

2. Ask that person to demonstrate or explain the problem. The problem can be duplicated.

Yes **No**

↓ → Go to “Function Checks” on page 2-4.

3. The problem is a result of improper operator action.

Yes **No**

↓ → Go to “Function Checks” on page 2-4.

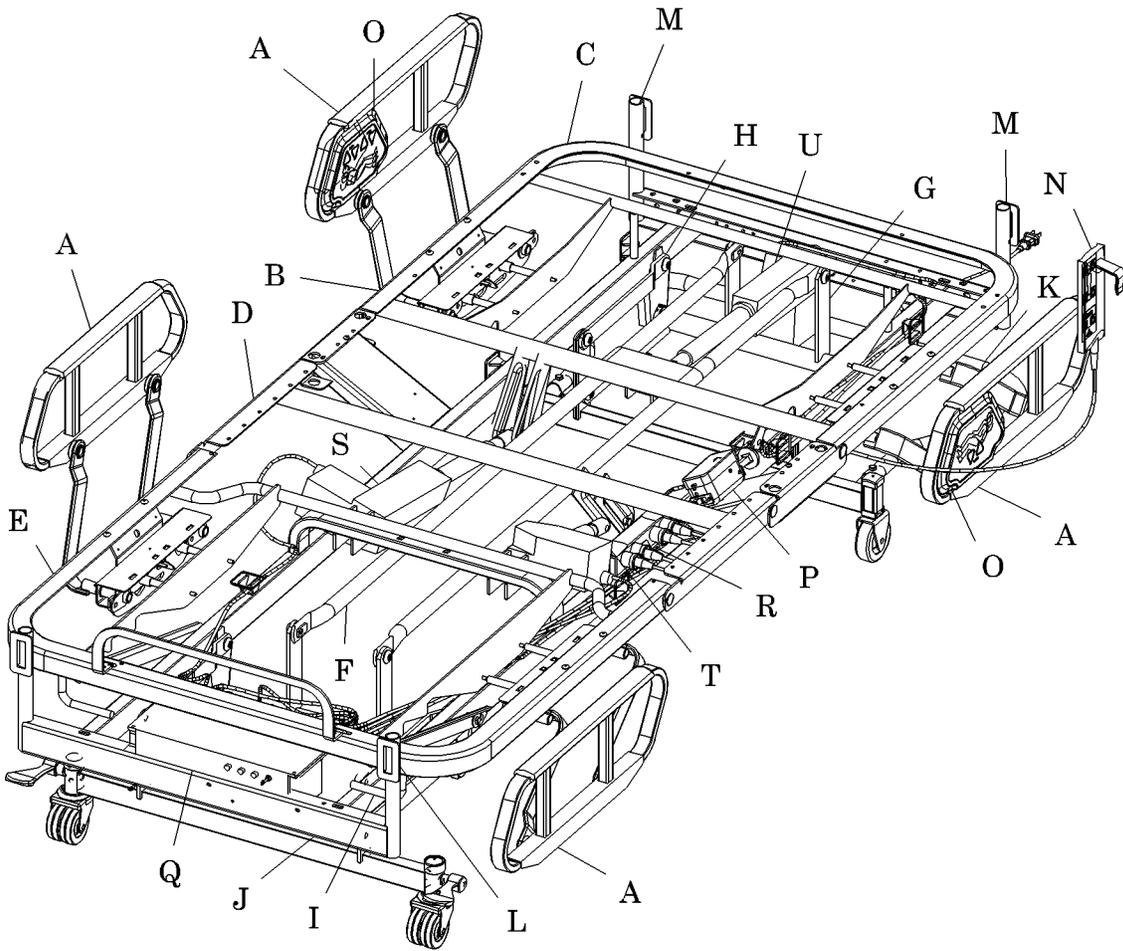
4. Instruct the operator to refer to the procedures in the *RESIDENT® Low Bed User Manual*. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

Function Checks

The major hardware, mechanical and electrical components, and subsystems discussed in these function checks are shown in figure 2-1 on page 2-5.

- Siderail (A)
- Siderail release (B)
- Head section (C)
- Thigh/knee section (D)
- Foot section (E)
- Pivot Connector (F)
- Lower pivot arm assembly (G)
- Upper pivot arm (H)
- Foot rack assembly (I)
- Intermediate frame (J)
- Bumper (K)
- Foot panel support (L)
- Head panel support (M)
- Hand pendant (N)
- Siderail controls (O)
- Automatic contour assembly (P)
- Electrical control/lockout box (Q)
- Junction box (R)
- Head actuator (S)
- Knee actuator (T)
- Hilow actuator (U)

Figure 2-1. RESIDENT® Low Bed

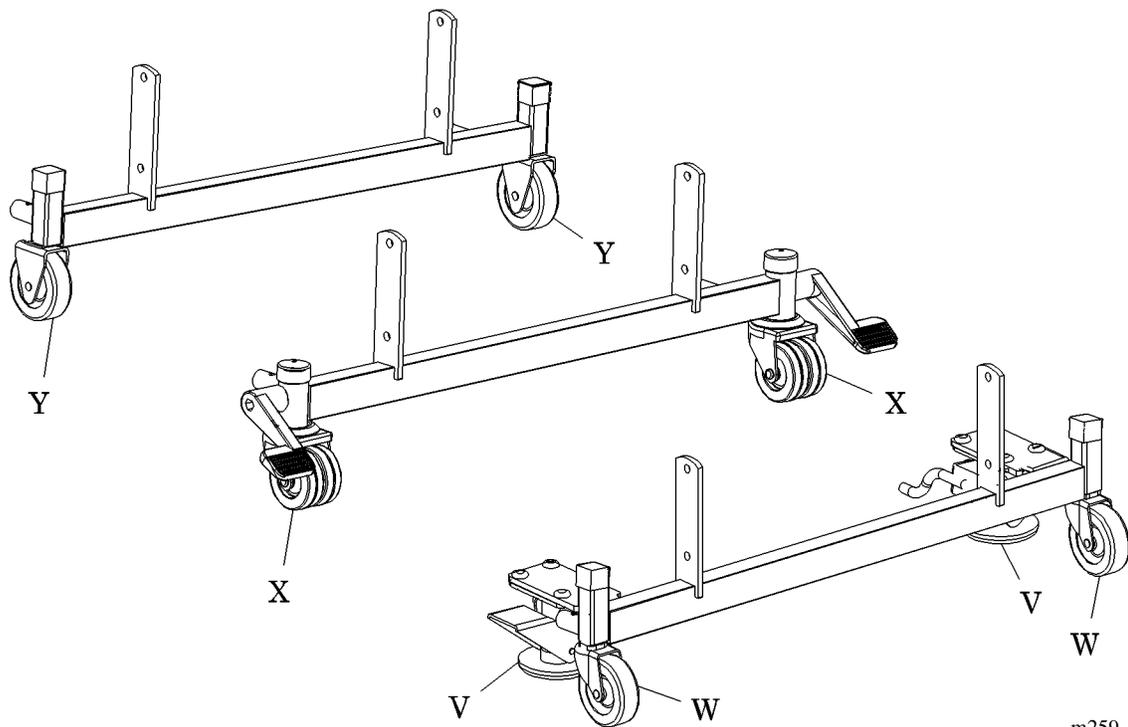


m259_047

The RESIDENT® Low Bed offers the caster options shown in figure 2-2 on page 2-6.

- Floor lock brakes (V) can be used at the head and foot ends or at the foot end only with fixed casters (R) at the head end. The floor lock brakes are always used in conjunction with swivel casters (W).
- Central brake casters (X) can be used at the head and foot ends or at the foot end only with fixed casters (Y) at the head end.
- Fixed casters (Y) are used at the head end only. The foot end may have any style of caster.

Figure 2-2. RESIDENT® Low Bed Caster Options



m259_048

1. Initial Actions have been performed.

Yes **No**

↓ → Go to “Initial Actions” on page 2-3.

2. Inspect all brake pads for wear.

All brake pads are in good condition.

Yes **No**

↓ → Refer to table 2-1 on page 2-7 for the style of brake used and then go to the page number indicated for the diagnostic RAP.

Table 2-1. RESIDENT® Low Bed Brake Types

Type of Brake	Reference
Floor lock system	RAP 2.1
Central brake and steer system	RAP 2.2

2

3. Raise the foot end siderails, and apply the brakes by pressing on the brake pedal(s).

The brakes engage correctly. (If the brake design has a central lock, **both** caster brakes engage when one pedal is pressed.)

Yes **No**

↓ → Refer to table 2-1 on page 2-7 for the style of casters used and then go to the page number indicated for the diagnostic RAP.

4. Release the brakes.

The brakes release easily, and casters roll and turn freely. (If the brake design has a central lock, **both** brakes release when one brake release pedal is used.)

Yes **No**

↓ → Refer to table 2-1 on page 2-7 for the style of casters used and then go to the page number indicated for the diagnostic RAP.

5. Lower and park the siderails.

The siderail latch releases easily, the siderails lower smoothly, and the siderail parks next to the frame without binding or requiring extra force.

Yes **No**

↓ → Go to RAP 2.3.

6. Raise the siderails.

The siderails move easily from the parked position, rise without binding or requiring extra force, and lock securely into position.

Yes **No**

↓ → Go to RAP 2.3.

7. Perform the following:



WARNING:

Unplug the unit from its power source. Inadvertent movement during inspection or service could result in personal injury.

- a. Unplug the unit from its power source.
- b. Release all caster brakes, and move the unit to a convenient location that allows access to all sides of the bed.



WARNING:

Lock the casters. Inadvertent movement during inspection or service could result in personal injury.

- c. Lock all caster brakes.



WARNING:

It is not necessary or advisable for personnel to be under the bed. If service personnel need to be under the bed, use suitable jack stands to block up the bedframe. Failure to do so could result in personal injury.

8. Visually inspect the following:

- Lower frame assembly
- Casters
- Sleep surface
- Moveable and stationary hilow frame components
- Moveable and stationary head/knee frame components
- Headboard and footboard
- Head end bumper

All components and assemblies are in good physical condition, and there are no missing or damaged fasteners.

Yes **No**



→ Repair or replace missing or damaged components or fasteners.
For intermediate or base frame components, go to procedure 4.6.
For intermediate or sleep surface components, go to procedure 4.7.

9. Plug the unit into an appropriate power source.

NOTE:

Ensure that all lockout switches at the foot of the bed are in the unlocked position (buttons are out).

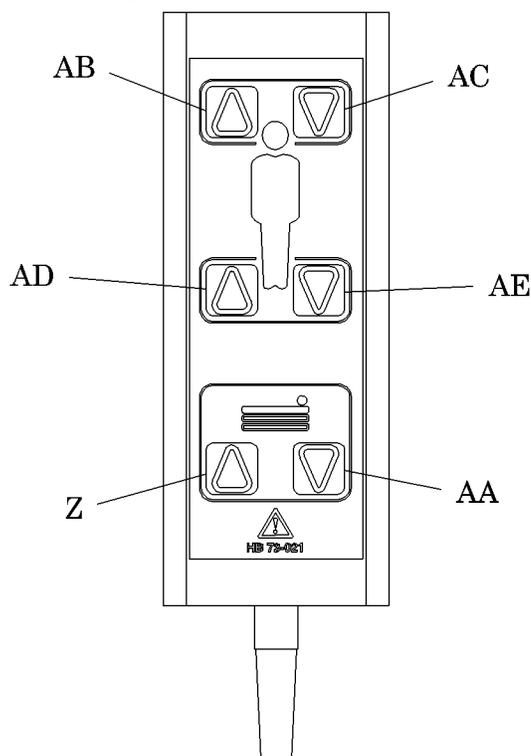
10. Press each hand pendant button to briefly operate each function: hilow, head, and knee.

Each function operates as expected in response to the button pressed, and the motion stops when the button is released.

Yes **No**
 ↓ → Go to RAP 2.5.

11. Press and hold the hilow up button (Z) on the hand pendant until the unit stops by itself (see figure 2-3 on page 2-9).

Figure 2-3. Hand Pendant



m259_006

The unit rises smoothly until the platform is between 25½" and 25¾" (64.77 cm and 65.41 cm) above the floor.

Yes **No**
 ↓ → Go to RAP 2.8.

12. Press and hold the hilow down button (AA) on the hand pendant until the unit stops by itself.

The unit lowers smoothly until the platform is at 11½" (29.21 cm) above the floor.

Yes **No**
 ↓ → Go to RAP 2.8.

13. Press and hold the head up button (AB) on the hand pendant until the unit stops by itself.

The head and knee sections rise simultaneously. The knee section stops rising when it reaches an angle of approximately 15°, but the head section continues to rise until it reaches an angle of 65° (± 2°).

Yes **No**
 ↓ → Refer to table 2-3 on page 2-23, and take the appropriate action.

Table 2-2. Automatic Contour Troubleshooting Options

For this Non-Working Function	Refer to this RAP
The head section fails to rise.	Go to RAP 2.6.
The knee section fails to rise.	Go to RAP 2.7.

14. Press and hold the head down button (AC) on the hand pendant until the unit stops by itself.

The head section begins to lower. When the head section reaches an angle of approximately 25°, the knee section begins to lower. Both sections lower smoothly until they are flat (parallel to the floor).

Yes **No**
 ↓ → Refer to table 2-3 on page 2-23, and take the appropriate action.

15. Press and hold the knee up button (AD) on the hand pendant until the unit stops by itself.

The head and knee sections rise simultaneously. The knee section stops rising when it reaches an angle of approximately 15°, but the head section continues to rise until it reaches an angle of 25°.

Yes **No**
 ↓ → Go to RAP 2.9.

16. Press and hold the knee down button (AE) on the hand pendant until the unit stops by itself.

The head and knee sections lower smoothly until they are flat (parallel to the floor).

Yes **No**
 ↓ → Go to RAP 2.9.

NOTE:

The hilow control buttons are on the **outside** of the siderail. The head and knee control buttons are on the **inside** of the siderail.

17. Press each siderail control button to briefly operate each function: hilow, head, and knee.

Each function operates as expected in response to the button pressed, and movement stops when the button is released.

Yes **No**
↓ → Go to RAP 2.4.

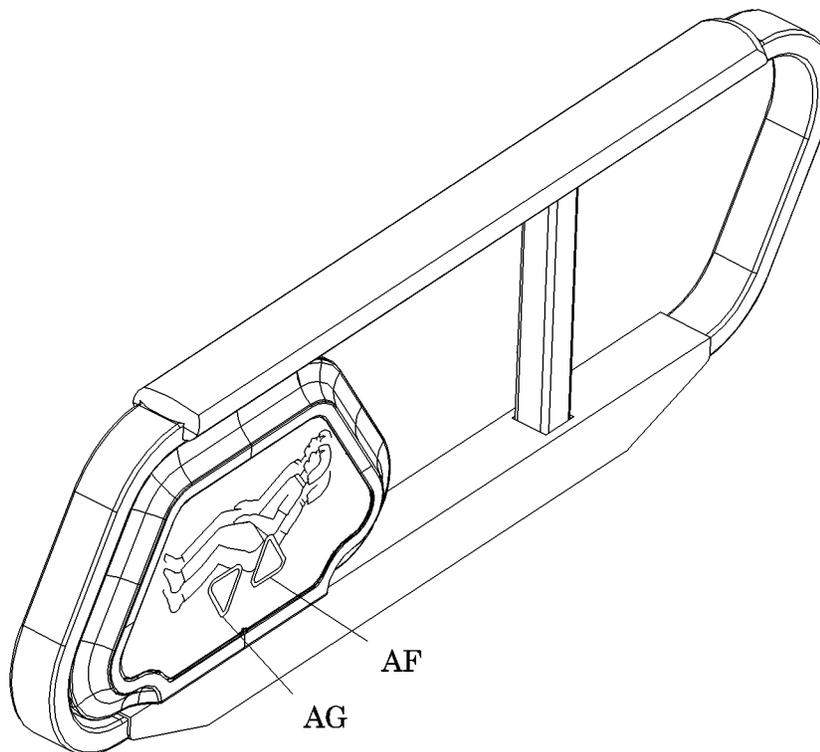
18. Repeat step 17, and test the siderail control buttons on the other side of the unit.

Each function operates as expected in response to the button pressed, and movement stops when the button is released.

Yes **No**
↓ → Go to RAP 2.4.

19. Press and hold the hilow up button (AF) until the unit stops by itself (see figure 2-4 on page 2-11).

Figure 2-4. Siderail Hilow Control Button



m259_007

The unit rises smoothly until the platform is approximately 26½" (67.31 cm) above the floor.

Yes **No**
↓ → Go to RAP 2.9.

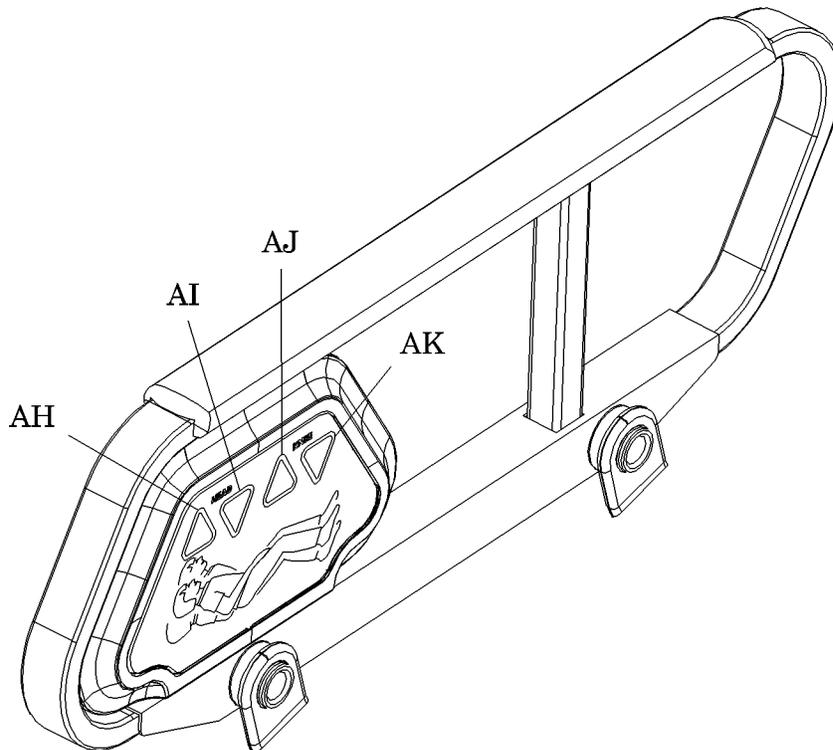
20. Press and hold the hilow down button (AG) until the unit stops by itself.

The unit lowers smoothly until the platform is approximately 11½" (29.21 cm) above the floor.

Yes **No**
↓ → Go to RAP 2.9.

21. Press and hold the siderail head up control button (AH) until the unit stops by itself (see figure 2-5 on page 2-12).

Figure 2-5. Siderail Contour Control Buttons



m259_008

The head and knee sections rise simultaneously. The knee section stops rising when it reaches an angle of approximately 15°, but the head section continues to rise until it reaches an angle of 65° (± 2°).

Yes **No**
↓ → Go to RAP 2.9.

22. Press and hold the siderail head down control button (AI) until the unit stops by itself.

The head section begins to lower. When the head section reaches an angle of approximately 25°, the knee section begins to lower. Both sections lower smoothly until they are flat (parallel to the floor).

Yes **No**
↓ → Go to RAP 2.9.

23. Press and hold the knee up control button (AJ) until the unit stops by itself.

The head and knee sections rise simultaneously. The knee section stops rising when it reaches an angle of approximately 15°, but the head section continues to rise until it reaches an angle of 25°.

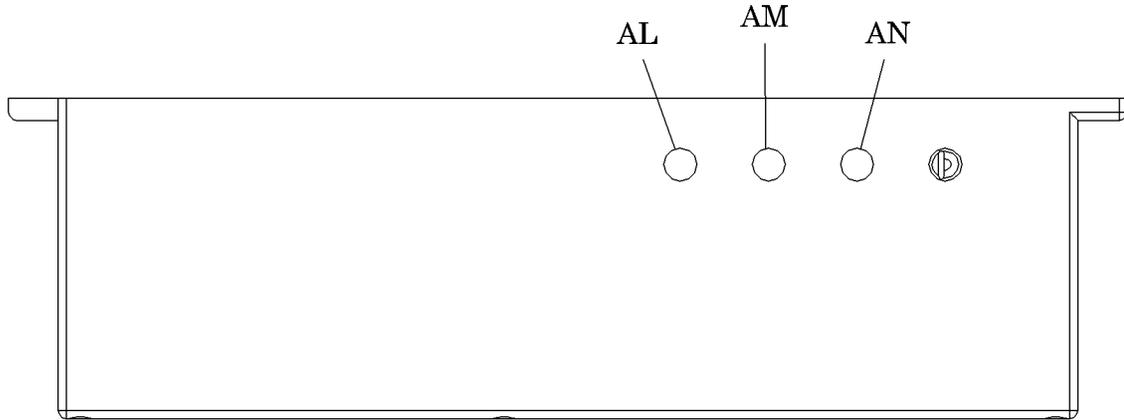
Yes **No**
↓ → Go to RAP 2.9.

24. Press and hold the knee down control button (AK) until the unit stops by itself.

The head and knee sections lower smoothly until they are flat (parallel to the floor).

Yes **No**
↓ → Go to RAP 2.9.

25. At the electrical control/lockout box at the foot of the bed, push in the hilow lockout button (AL) (see figure 2-6 on page 2-14).

Figure 2-6. Electrical Control/Lockout Box

m259_027

26. Press the hilow up button (Z) on the hand pendant (see figure 2-3 on page 2-9).

The unit stays still.

Yes **No**

↓ → If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

27. Push each of the siderail hilow up control buttons (AF) (see figure 2-4 on page 2-11).

The unit stays still when either siderail hilow up button (AF) is pushed.

Yes **No**

↓ → Replace the electrical control/lockout box (refer to procedure 4.9).

28. At the electrical control/lockout box at the foot of the bed, push in the head up/down lockout button (AM) (see figure 2-6 on page 2-14). Then press the head up button (AB) on the hand pendant (see figure 2-3 on page 2-9).

The unit stays still.

Yes **No**
↓ → If the bed moves, replace the electrical control/lockout box (go to procedure 4.9).

29. Push the knee up button (AD) on the hand pendant.

The knee section begins to rise, and the head section remains stationary.

Yes **No**
↓ → If the knee section does not move, go to RAP 2.6. If the head section rises, go to RAP 2.9.

30. Lower the knee section to the full flat position.

At the electrical control/lockout box at the foot of the bed, push in the knee lockout button (AN) (see figure 2-6 on page 2-14). Then press the knee up button (AD) on the hand pendant (see figure 2-3 on page 2-9).

The unit stays still.

Yes **No**
↓ → If the bed moves, replace the electrical control/lockout box. Go to procedure 4.9.

31. At the foot of the bed, unlock the head up/down function (button AM is out) (see figure 2-6 on page 2-14).

32. Press the head up button on the hand pendant.

The head section begins to rise, but the knee section remains flat.

Yes **No**
↓ → If the head does not rise, go to RAP 2.6. If the knee section begins to rise, go to RAP 2.9.

33. Go to “Final Actions” on page 2-16.

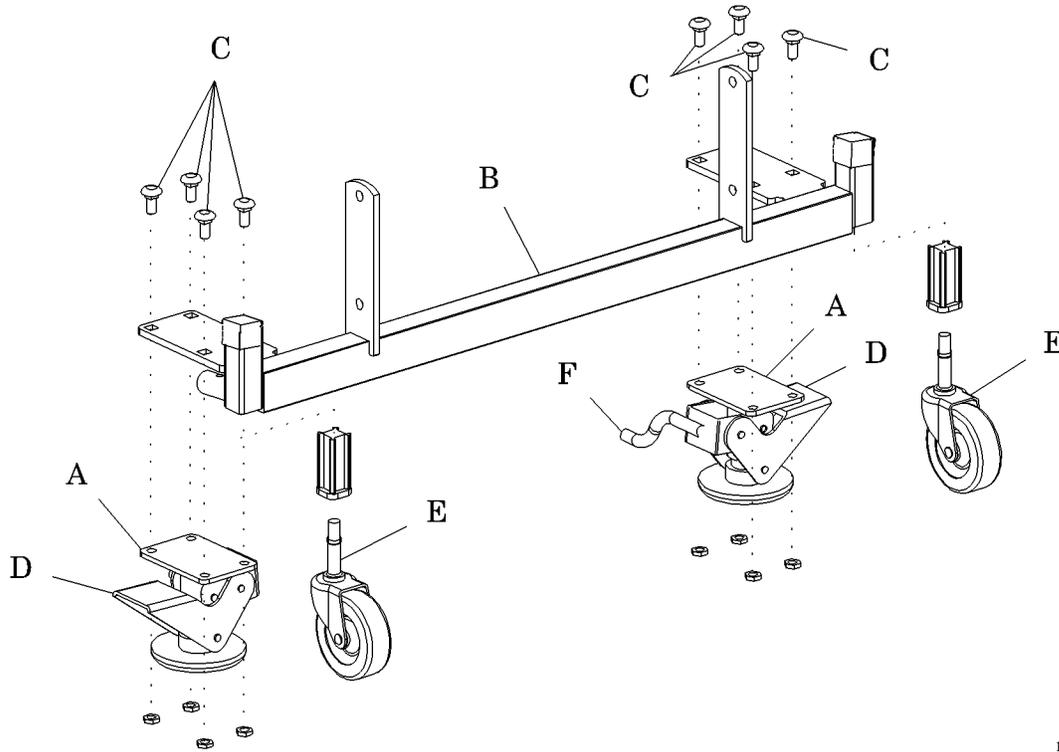
Final Actions

1. Complete the required preventive maintenance procedures. See “Preventive Maintenance Checklist” on page 6-8.
2. Complete all required administrative tasks.
3. Notify the caregiver that the unit can be returned to service.

2.1 Floor Lock Brakes Malfunction

1. The floor lock brake (A) is firmly attached to the base frame (B), and no screws (C) are loose (see figure 2-7 on page 2-17).

Figure 2-7. Floor Lock Brakes and Casters



m259_009

Yes **No**
↓

→ Remove any loose screws (C), apply blue Loctite®¹ adhesive (P/N SA3618), and install the screws (C). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 2.

2. Raise the foot end siderail, and press down on the floor lock pedal (D).

The floor lock brake (A) moves down smoothly and raises the caster (E) off the floor.

Yes **No**
↓

→ Replace the floor lock brake (A) (refer to procedure 4.1).

3. Use the unlocking lever (F) to release the floor lock brake (A).

The floor lock brake (A) releases easily and lowers smoothly to allow the bed to rest on the caster (E).

1. Loctite® is a registered trademark of Loctite Corporation

Yes **No**

↓ → Replace the floor lock brake (A) (refer to procedure 4.1).

4. Release all floor lock brakes (A), and move the bed.

All casters (E) turn freely, and the bed moves easily.

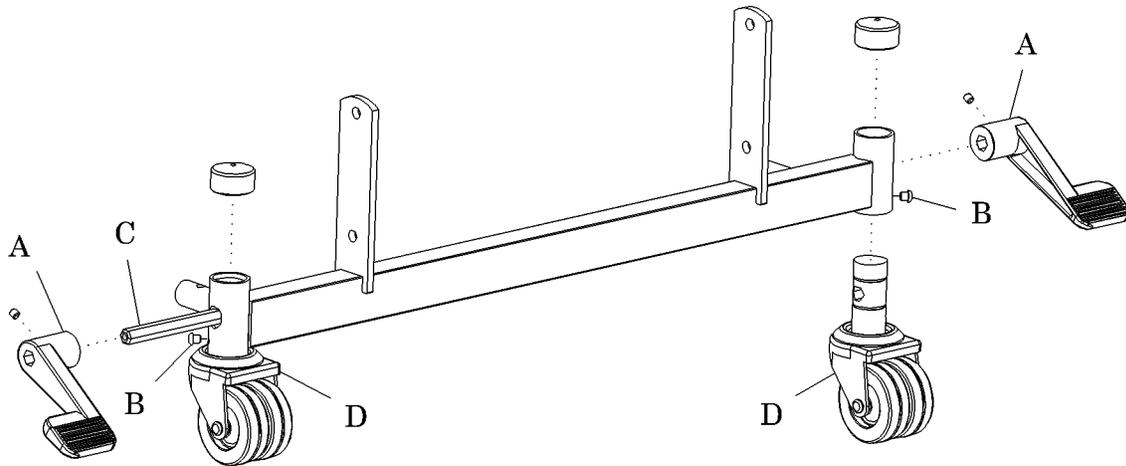
Yes **No**

↓ → Identify and replace the damaged casters (E) (refer to procedure 4.2). If this solves the problem, go to “Final Actions” on page 2-16.

2.2 Central Braking Malfunction

1. Raise the foot end siderails, and press down on one of the brake pedals (A) until it locks (see figure 2-8 on page 2-19).

Figure 2-8. Central Braking System



m259_010

The brake pedal (A) moves with nominal resistance and locks into place.

Yes **No**

↓ → Check that the Allen™ screw (B) is firmly engaged with the hex rod (C) (refer to procedure 4.3). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 2.

2. Repeat step 1 with each of the other brake pedals (A).

The brake pedal (A) moves with nominal resistance and locks into place.

Yes **No**

↓ → Check that the Allen™ screw (B) is firmly engaged with the hex rod (C) (refer to procedure 4.3). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 3.

3. Perform the following:

1. Allen™ is a trademark of Industrial Fasteners, Inc.

- a. Engage the brakes.
- b. Place a jack stand beneath the frame to raise it high enough for the casters (D) to be off the floor.
- c. Attempt to turn each caster (D) wheel by hand.

The caster (D) wheel stays still.

Yes No

↓ → Replace the damaged caster (D) (refer to procedure 4.3). If this solves the problem, go to “Final Actions” on page 2-16.

4. Release the brake, and attempt to turn each caster (D) wheel by hand.

Both caster (D) wheels turn freely, and do not stick or bind at any point.

Yes No

↓ → Replace the damaged caster (D) (refer to procedure 4.3). If this solves the problem, go to “Final Actions” on page 2-16.

5. Call Hill Rom Technical Support at (800) 445-3720.

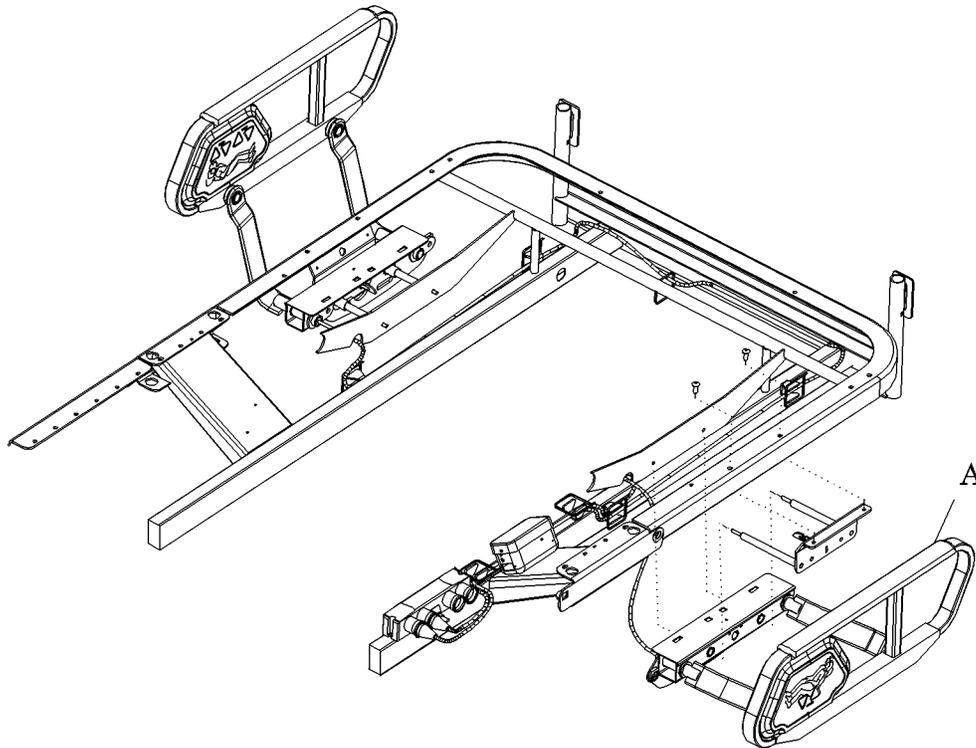
2.3 Siderail Malfunction

NOTE:

The siderail does not tuck under the bed frame. The siderail is in its stored position when it is next to the bed frame.

1. If the siderail (A) is in its stored position (see figure 2-9 on page 2-21), pull it away from the frame, and raise it until you hear a click.

Figure 2-9. Siderail



m259_049

The siderail (A) moves outward, rises smoothly, and locks into the raised position with an audible click.

Yes No

↓ → If the siderail moves easily, but does not lock into place, adjust the siderail latch (refer to procedure 4.5). If the siderail does not move easily, replace it (refer to procedure 4.4).

2. Release the siderail latch, and lower the siderail (A) to its full down position.

The siderail latch releases with minimal effort.

Yes No

↓ → Adjust the damaged siderail latch (refer to procedure 4.5).

3. The siderail (A) lowers until the top is approximately level with the sleep surface.

Yes **No**

↓ → Replace the damaged siderail (A) (refer to procedure 4.4).

4. Push the siderail (A) in until it contacts the bed frame.

The siderail (A) moves in smoothly until it contacts the bed frame.

Yes **No**

↓ → Replace the damaged siderail (refer to procedure 4.4). This solves the problem.

5. Call Hill-Rom Technical Support at (800) 445-3720.

2.4 Siderail Controls Malfunction

1. If none of the function buttons on a siderail control works, go to step 6.
2. All (hilow, head, and knee) functions work as expected using one siderail control, but not the other.

Yes **No**
↓ → If the same function (i.e., hilow) does not work from either siderail control, refer to table 2-3 on page 2-23.

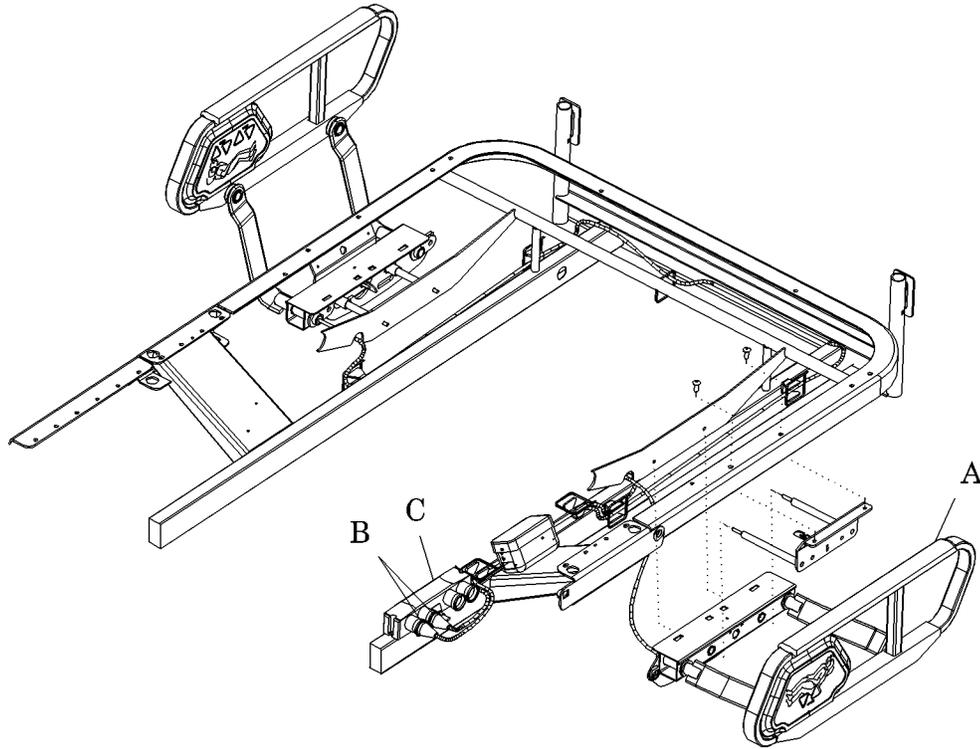
Table 2-3. Function Troubleshooting Options

Function	RAP
Hilow	Go to RAP 2.8.
Head	Go to RAP 2.6.
Knee	Go to RAP 2.7.

3. Switch the siderail control plugs (B) in the junction box (C) (see figure 2-10 on page 2-24).

The siderail control malfunction still exists.

Yes **No**
↓ → Replace the junction box (C) (refer to procedure 4.10).

Figure 2-10. Siderail Control Plug Connection to the Junction Box

m259_011

4. Replace the siderail (A) with the non-working function button (refer to procedure 4.4).

This solves the problem.

Yes **No**
 ↓ → Go to step 6.

5. Go to “Final Actions” on page 2-16.

NOTE:

Siderail control plugs are interchangeable. When checking the connection of the plugs, check both.

6. Check the siderail control plug (B) connection to the junction box (C).

The siderail plug (B) is securely attached to the junction box (C).

Yes **No**
 ↓ → Securely attach the siderail control plug (B) to the junction box (C), and test the siderail controls. If this solves the problem, go to “Final Actions” on page 2-16. Otherwise, go to step 8.

7. Go to “Final Actions” on page 2-16.

8. Move the siderail control plug (B) to one of the other outlets in the junction box (C) except for the one for automatic contour.

This solves the problem.

Yes **No**

↓ → Verify that the junction box (C) is properly connected and functioning. If this solves the problem, go to “Final Actions” on page 2-16. Otherwise, go to step 11.

9. Replace the junction box (C) (refer to procedure 4.10).

This solves the problem.

Yes **No**

↓ → Call Hill-Rom Technical Support at (800) 445-3720.

10. Go to “Final Actions” on page 2-16.

11. Replace the siderail (A) (refer to procedure 4.4).

This solves the problem.

Yes **No**

↓ → Call Hill-Rom Technical Support at (800) 445-3720.

12. Go to “Final Actions” on page 2-16.

2.5 Hand Pendant Malfunction

1. The unit is plugged into an appropriate power source.

Yes **No**

↓

→ Plug the unit into an appropriate power source. If this solves the problem, go to “Final Actions” on page 2-16.

2. All lockouts on the electrical control/lockout box are unlocked (i.e., the buttons are out).

Yes **No**

↓

→ Unlock all lockouts. Press a button to test the hand pendant by pushing each of the control buttons. If the hand pendant now works, go to “Final Actions” on page 2-16. Otherwise, go to step 3.

3. Plug the hand pendant into another outlet on the junction box, except for the outlet for automatic contour.

This solves the problem.

Yes **No**

↓

→ Go to step 6.

4. Replace the junction box (refer to procedure 4.10).

This solves the problem.

Yes **No**

↓

→ Call Hill-Rom Technical Support at (800) 445-3720.

5. Go to “Final Actions” on page 2-16.

6. At the junction box on the patient right side of the bed, unplug the hand pendant, and plug in a hand pendant that is known to work.

All functions work using the new hand pendant.

Yes **No**

↓

→ Go to step 8.

7. Go to “Final Actions” on page 2-16.

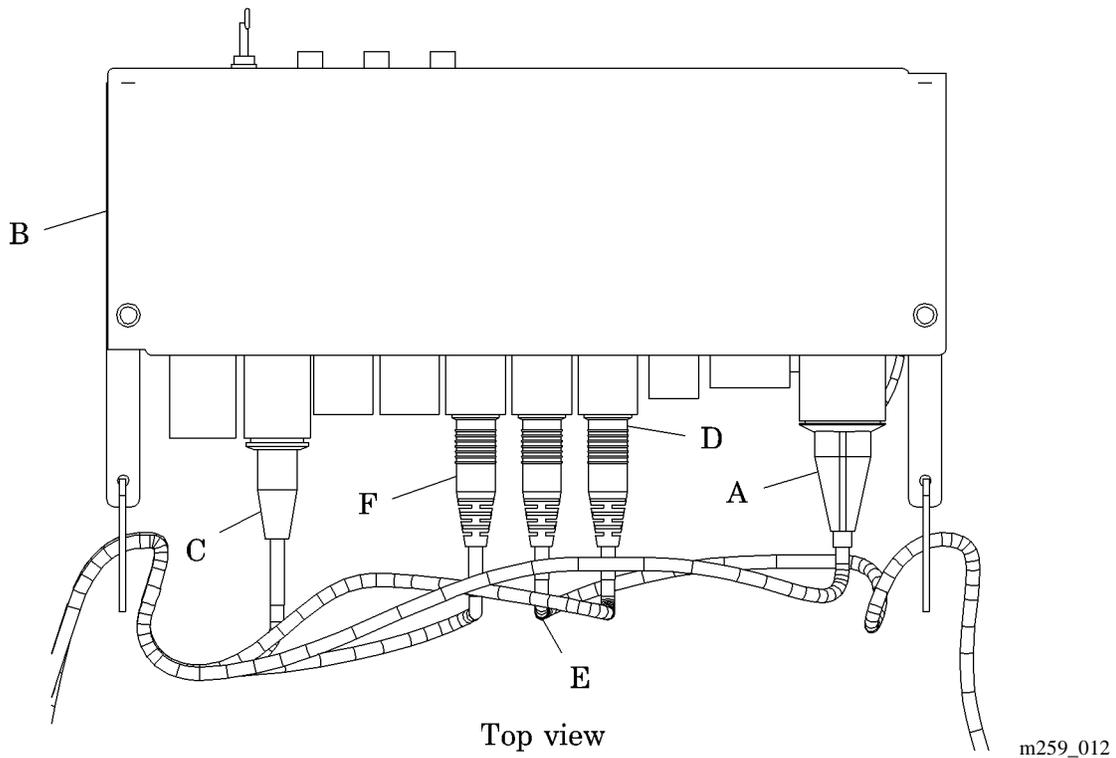


SHOCK HAZARD:

The power cord may have 120V AC running through it. Exercise extreme caution when handling electrical components and measuring voltage on live electrical circuits. Severe burns or injury could result.

8. Unplug the power cord (A) from the electrical control/lockout box (B) (see figure 2-11 on page 2-27).

Figure 2-11. Electrical Control/Lockout Box



9. Using a voltmeter, measure the current at the end of the power cord (A) nearest the electrical control/lockout box (B).

The power reads 115V AC ($\pm 5V$ AC).

Yes No

↓ → Replace the power cord (A) (refer to procedure 4.8).

10. Connect the power cord (A) to the electrical control/lockout box (B). Check the junction box plug (C) connection at the electrical control/lockout box socket.

The junction box plug (C) is securely attached in the electrical control/lockout box socket, and the plug lock is in place.

Yes **No**

↓ → Plug the junction box plug (C) firmly into the electrical control/lockout box (B) socket, and install the plug lock. If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 11.

11. Check the following plug connections at the electrical control/lockout box (B):

- Knee actuator (D)
- Head actuator (E)
- Hilow actuator (F)

All actuator plugs are securely attached to the electrical control/lockout box (B).

Yes **No**

↓ → Plug the actuators securely into their sockets on the electrical control/lockout box (B). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 12.

12. Listen as you press each button on the hand pendant.

As you press each button, you hear a click from the electrical control/lockout box (B).

Yes **No**

↓ → If none of the buttons produces a click, replace the electrical control/lockout box (B) (refer to procedure 4.9). If only some of the buttons produce a click, replace the hand pendant (refer to procedure 4.11). If this solves the problem, go to “Final Actions” on page 2-16. If not, call Hill-Rom Technical Support at (800) 445-3720.

13. Go to “Final Actions” on page 2-16.

2.6 Head Actuator Malfunction

1. The unit is plugged to an appropriate power source.

Yes **No**

↓ → Plug the unit into an appropriate power source. If this solves the problem, go the “Final Actions” on page 2-16. If not, go to step 2.

2. The head and knee lockout buttons on the electrical control/lockout box at the foot of the bed are in the unlocked position (i.e., the buttons are out).

Yes **No**

↓ → Move the head and knee lockout buttons to the unlocked position (i.e., the buttons are out). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 3.

3. Check the head actuator cable connection at the electrical control/lockout box.

The connection is sound.

Yes **No**

↓ → Insert the loose plug firmly into its socket. If this solves the problem, go to “Final Actions” on page 2-16. Otherwise, go to step 4.

4. Check the condition of the cable between the electrical control/lockout box and the head actuator

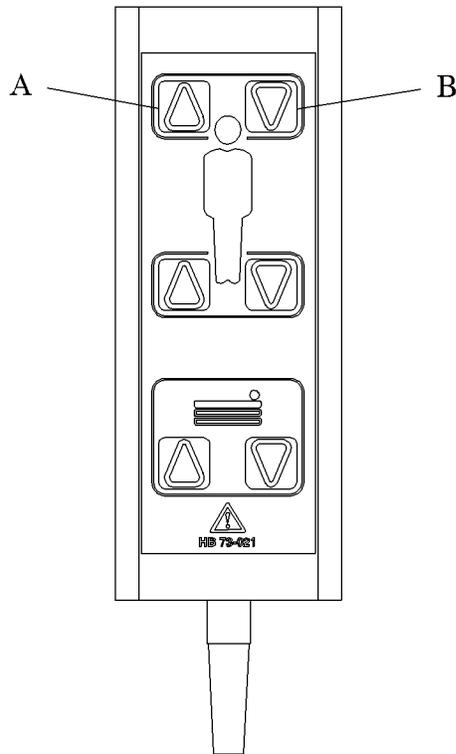
The cable shows no signs of damage.

Yes **No**

↓ → If the cable is damaged, replace the head actuator (refer to procedure 4.12). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 5.

5. Press the head up (A) button and then the head down (B) button on the hand pendant, and listen for a click (see figure 2-12 on page 2-30).

Figure 2-12. Hand Pendant



m259_013

You hear a click each time you press the head up (A) or head down (B) button.

Yes **No**

↓

→ If a only one button produces a click when pushed, go to RAP 2.5. If there is no click when either button is pushed, replace the electrical control/lockout box (refer to procedure 4.9). If this solves the problem, go to “Final Actions” on page 2-16.

6. Press and hold the head up button (A) on the hand pendant.

The head and knee sections rise together until the knee section is at an angle of approximately $15^{\circ} (\pm 2^{\circ})$ and the head section is at an angle of approximately $25^{\circ} (\pm 2^{\circ})$. The knee section stops rising, but the head section continues to rise until it is at an angle of approximately $65^{\circ} (\pm 2^{\circ})$ when it stops automatically.

Yes **No**

↓

→ Check for interference from other parts of the bed. If interference is found, correct it. If no interference is found, replace the head actuator (refer to procedure 4.12).

7. Press and hold the head down button (B) on the hand pendant.

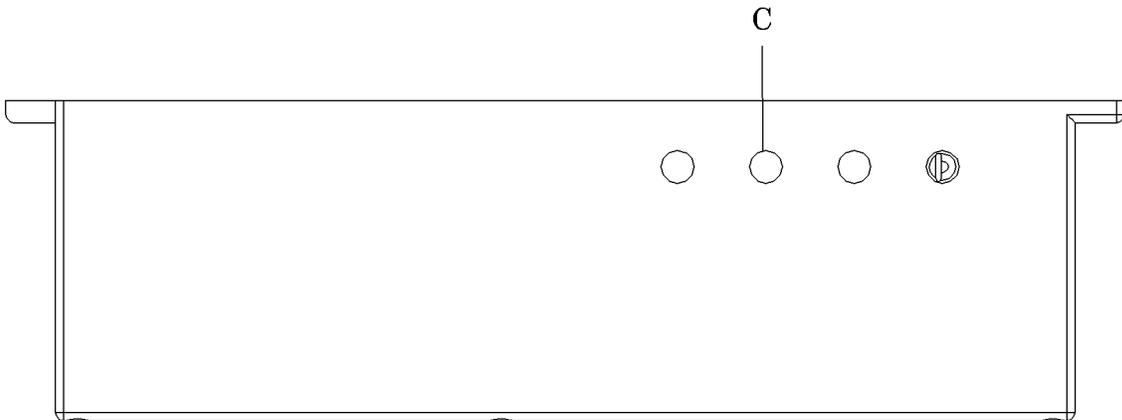
The head section lowers smoothly until it is at an angle of approximately $25^\circ (\pm 2)$, at which point the knee section begins to lower. The sections do not stop lowering until they are flat.

Yes **No**

↓ → Check for interference from other parts of the bed by raising the head section until it is at approximately 30° as indicated by the angle markings on the side rail. If interference is found, correct it. If no interference is found, replace the head actuator (refer to procedure 4.12).

8. At the electrical control/lockout box, push in the head actuator lockout button (C) (see figure 2-13 on page 2-31).

Figure 2-13. Lockout Controls



m259_028

Press and hold the head up button (A) on the hand pendant (see figure 2-12 on page 2-30).

The bed stays still.

Yes **No**

↓ → If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

9. Press and hold the head down button (B) on the hand pendant.

The bed stays still.

Yes **No**

↓

→ If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

10. Go to “Final Actions” on page 2-16.

2.7 Knee Actuator Malfunction

1. The unit is plugged into an appropriate power source.

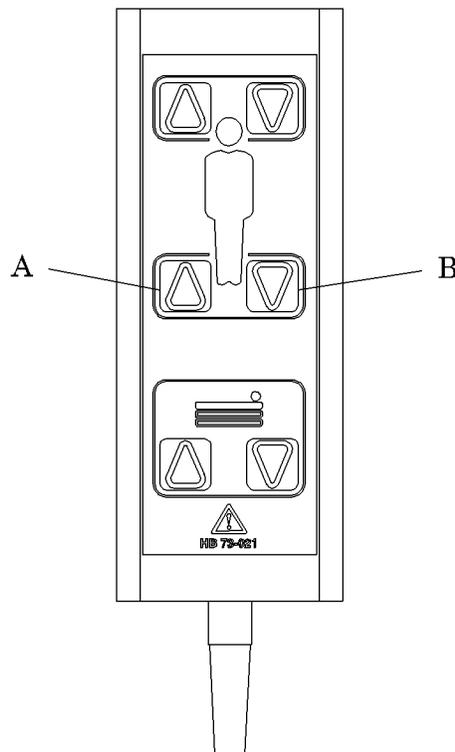
Yes	No
↓	→ Plug the unit into an appropriate power source. If this solves the problem, go the “Final Actions” on page 2-16. If not, go to step 2.

2. The head and knee lockout buttons on the electrical control/lockout box at the foot of the bed are in the unlocked position (i.e., the buttons are out).

Yes	No
↓	→ Move the head and knee lockout buttons to the unlocked position (i.e., the buttons are out). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 3.

3. Press the knee up (A) and then the knee down (B) buttons on the hand pendant, and listen for a click (see figure 2-14 on page 2-33).

Figure 2-14. Hand Pendant



m259_014

You hear a click each time you press the knee up (A) or knee down (B) button.

Yes **No**

↓ → If only one button produces a click when pushed, go to RAP 2.5. If there is no click when either button is pushed, replace the electrical control/lockout box (refer to procedure 4.9).

4. Check the knee actuator cable connection at the electrical control/lockout box.

The connection is sound.

Yes **No**

↓ → Insert the loose plug firmly into its socket. If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 5.

5. Check the condition of the cable between the electrical control/lockout box and the knee actuator.

The cables show no signs of damage.

Yes **No**

↓ → If the cable is damaged, replace the knee actuator (refer to procedure 4.13).

6. Press and hold the knee up button (A) on the hand pendant.

The knee section rises smoothly until it is at an angle of approximately 15° (± 2°) and stops automatically.

Yes **No**

↓ → Check for interference from other parts of the bed. If interference is found, correct it. If no interference is found, replace the knee actuator (refer to procedure 4.12).

7. Press and hold the knee down button (B) on the hand pendant.

The knee section lowers smoothly until it is flat and stops automatically.

Yes **No**

↓ → Check for interference from other parts of the bed by raising the knee until it is at approximately 15°. If interference is found, correct it. If no interference is found, replace the knee actuator (refer to procedure 4.13).

8. At the electrical control/lockout box, push in the knee actuator lockout button (C) (see figure 2-15 on page 2-35).

Figure 2-15. Lockout Controls



m259_029

Press and hold the knee up button (A) on the hand pendant (see figure 2-14 on page 2-33).

The bed stays still.

Yes **No**

↓ → If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

9. Press and hold the knee down button (B) on the hand pendant.

The bed stays still.

Yes **No**

↓ → If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

10. The knee actuator is functioning normally.

Yes **No**

↓ → Call Hill-Rom Technical Support at (800) 445-3720.

11. Go to “Function Checks” on page 2-4 to determine another source of the problem.

2.8 Hilow Actuator Malfunction

1. The unit is plugged into an appropriate power source.

Yes **No**

↓ → Plug the unit into an appropriate power source. If this solves the problem, go the “Final Actions” on page 2-16.

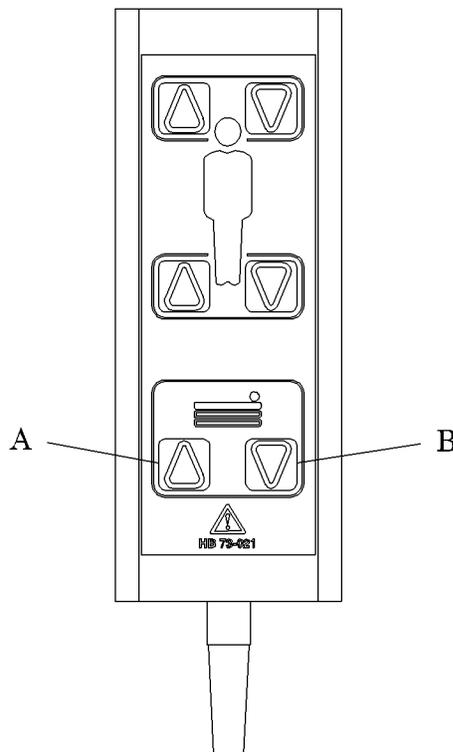
2. The hilow lockout button on the electrical control/lockout box at the foot of the bed is in the unlocked position (i.e., the button is out).

Yes **No**

↓ → Move the hilow lockout button to the unlocked position (i.e., the button is out). If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 3.

3. Press the hilow up (A) then the hilow down (B) buttons on the hand pendant, and listen for a click (see figure 2-16 on page 2-36).

Figure 2-16. Hand Pendant



m259_015

You hear a click each time you press the hilow up (A) or hilow down (B) button.

Yes No

↓ → If a only one button produces a click when pushed, go to RAP 2.5. If there is no click when either button is pushed, replace the electrical control/lockout box (refer to procedure 4.9).

4. Check the hilow actuator motor cable connection at the electrical control/lockout box.

The connection is sound.

Yes No

↓ → Insert the loose plug firmly into its socket. If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 5.

5. Check the condition of the cable between the electrical control/lockout box and the hilow actuator.

The cable shows no signs of damage.

Yes No

↓ → If the cable is damaged, replace the hilow actuator (refer to procedure 4.12).

6. Press and hold the hilow up button (A) on the hand pendant.

The bed rises smoothly until it is between 26" and 26½" (66 cm and 67.31 cm) above the floor, and it stops automatically.

Yes No

↓ → Check for interference from other parts of the bed by pressing and holding the hilow down button (B) on the hand pendant. If interference is found, correct it. If no interference is found, replace the hilow actuator (refer to procedure 4.12).

7. Press and hold the hilow down button (B) on the hand pendant.

The bed lowers smoothly until it is between 10½" and 11" (26.67 cm and 28 cm), and it stops automatically.

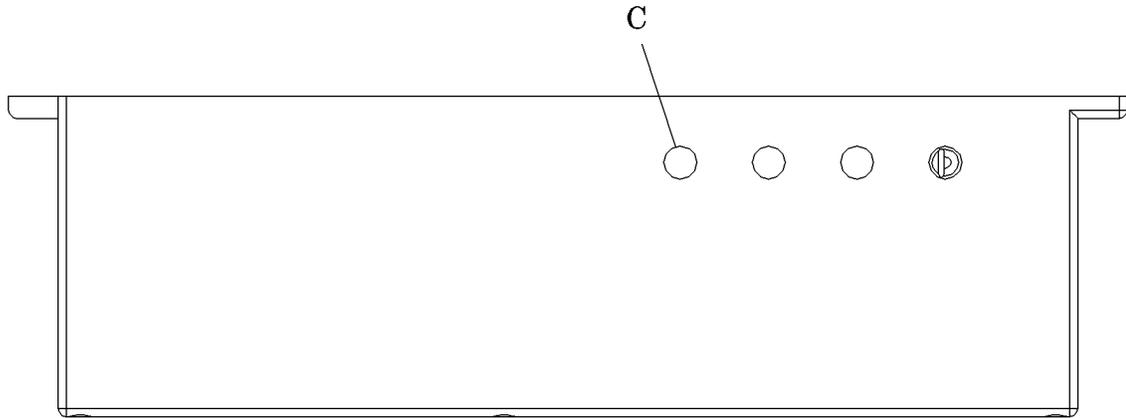
Yes No

↓ → Check for interference from other parts of the bed. If interference is found, correct it. If no interference is found, replace the hilow actuator (refer to procedure 4.12).

8. Press the hilow up (A) button on the hand pendant, and raise the bed until it is approximately 20" (50.8 cm) above the floor.

At the electrical control/lockout box, push in the hilow actuator lockout button (C) (see figure 2-17 on page 2-38).

Figure 2-17. Lockout Controls



m259_030

9. Press and hold the hilow up button (A) on the hand pendant (see figure 2-16 on page 2-36).
The bed stays still.

Yes	No
↓	→ If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

10. Press and hold the hilow down button (B) on the hand pendant.
The bed stays still.

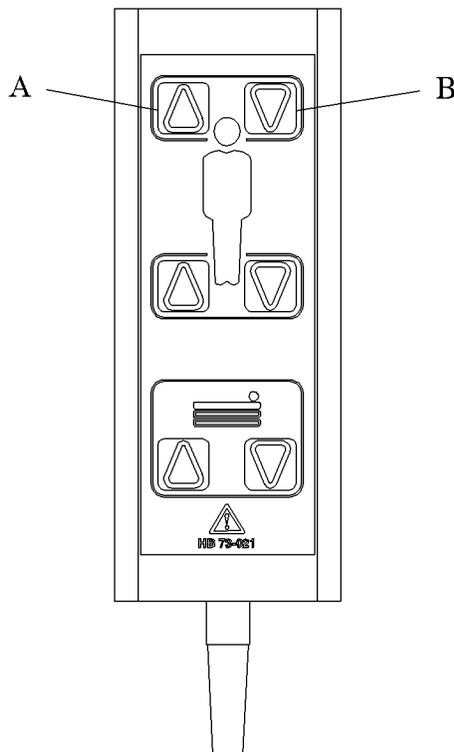
Yes	No
↓	→ If the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

11. Go to “Final Actions” on page 2-16.

2.9 Automatic Contour Malfunction

1. The unit is plugged into an appropriate power source.
Yes **No**
↓ → Plug the unit into an appropriate power source. If this solves the problem, go the “Final Actions” on page 2-16. If not, go to step 2.
2. All lockout controls on the electrical control/lockout box at the head of the bed are in the unlocked position (i.e., the buttons are out).
Yes **No**
↓ → Move all lockout controls to the unlocked position. If this solves the problem, go to “Final Actions” on page 2-16. If not, go to step 3.
3. Press the head up (A) and head down (B) buttons on the hand pendant, and listen for a click (see figure 2-18 on page 2-39).

Figure 2-18. Hand Pendant



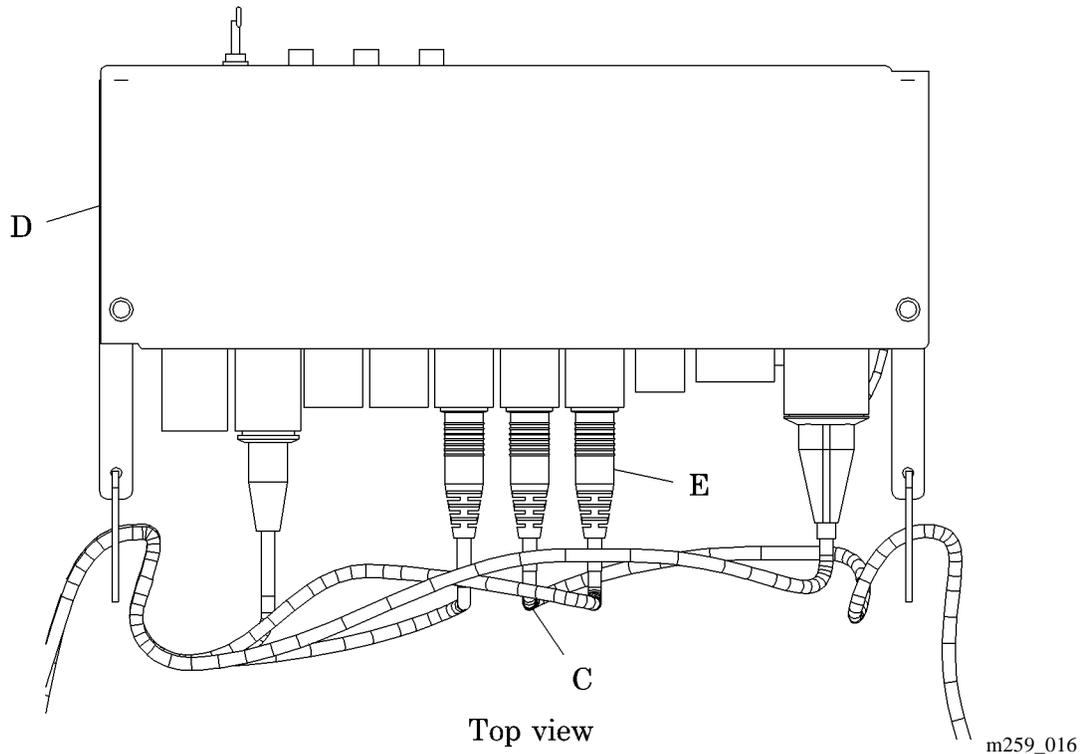
m259_013

You hear a click each time you press the head up (A) or head down (B) button.

- | | |
|------------|--|
| Yes | No |
| ↓ | → If only one button produces a click when pushed, go to RAP 2.5.
If there is no click when either button is pushed, replace the electrical control/lockout box (refer to procedure 4.9). |

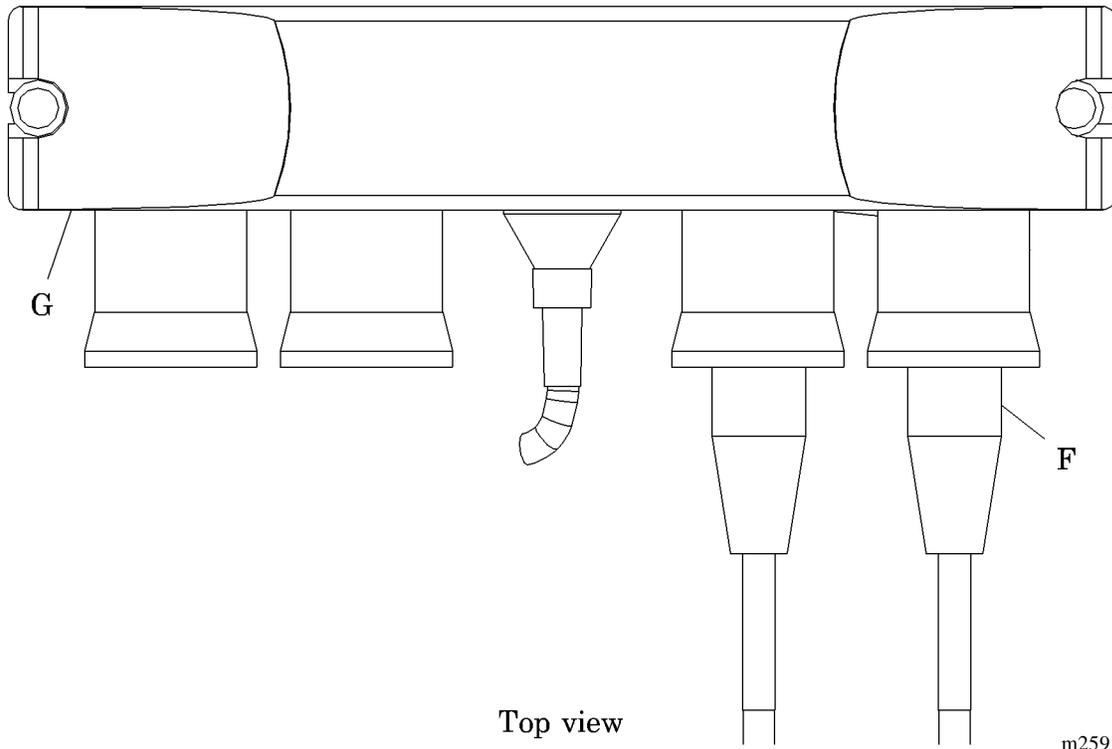
4. Check the following:

- The head actuator cable (C) connection at the electrical control/lockout box (D) (see figure 2-19 on page 2-40)

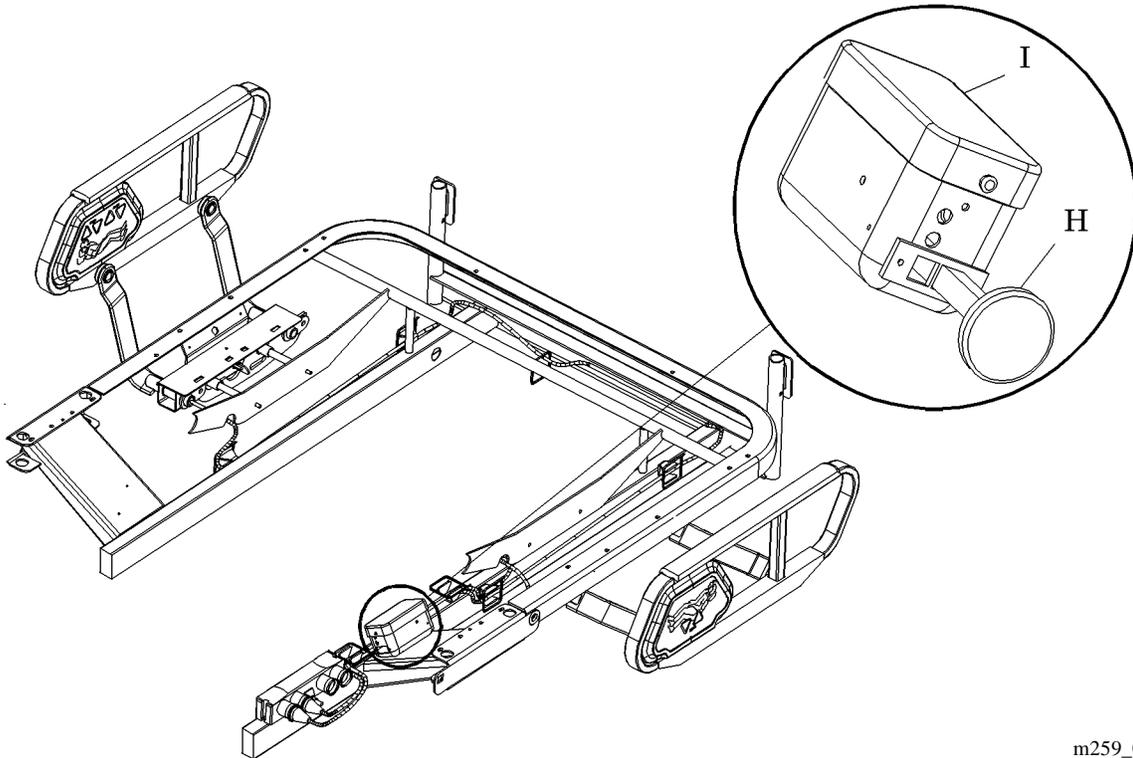
Figure 2-19. Electrical Control/Lockout Box

- The knee actuator cable (E) connection at the electrical control/lockout box (D)
- The condition of the head actuator cable (C) between the electrical control/lockout box (D) and the head actuator
- The condition of the knee actuator cable (E) between the electrical control/lockout box (D) and the knee actuator
- The automatic contour cable (F) connection at the junction box (G) (see figure 2-20 on page 2-41)

Figure 2-20. Junction Box Connections



- The condition of the automatic contour cable (F) between the junction box (G) and the automatic contour assembly
- The condition and mobility of the plunger (H) on the automatic contour assembly (I) (see figure 2-21 on page 2-42)

Figure 2-21. Automatic Contour Assembly

m259_018

All connections and components are sound, and the cables show no signs of damage.

Yes **No**



→ Insert any loose plugs firmly into their sockets. If the plunger (H) is damaged or does not move freely, replace the automatic contour assembly (I) (refer to procedure 4.15). If any cable is damaged, replace the associated actuator. To replace the head actuator, refer to procedure 4.12. To replace the knee actuator, refer to procedure 4.13. If these actions fail to resolve the problem, call Hill-Rom Technical Support at (800) 445-3725.

5. Press and hold the head up button (A) on the hand pendant (see figure 2-18 on page 2-39).

The head and knee sections rise together until the knee section is at an angle of approximately $15^\circ (\pm 2^\circ)$ and the head section is at an angle of approximately $25^\circ (\pm 2^\circ)$. The knee section stops rising, but the head section continues to rise until it is at an angle of approximately $65^\circ (\pm 2^\circ)$ when it stops automatically.

- Yes** **No**
↓ → Check for interference from other parts of the bed. If interference is found, correct it. If no interference is found, refer to table 2-4 on page 2-43.

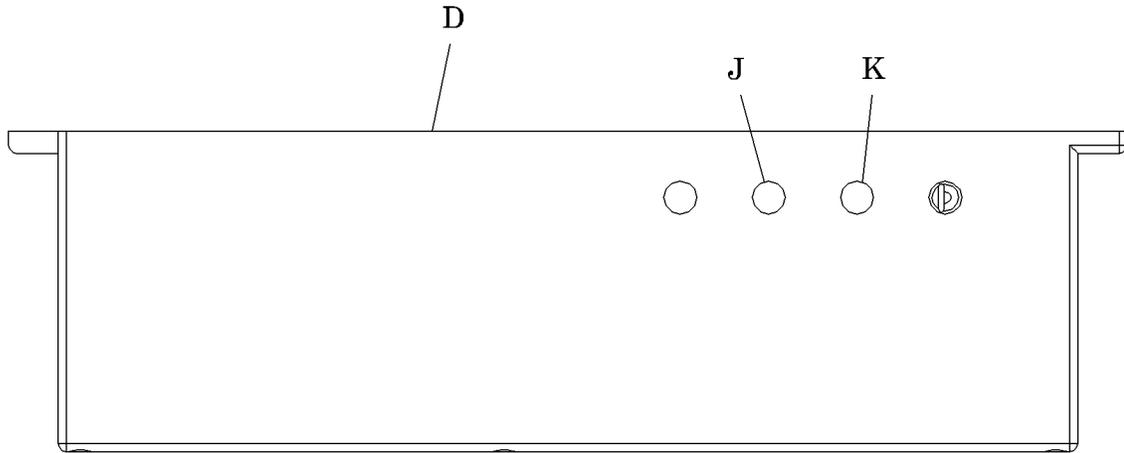
Table 2-4. Automatic Contour Troubleshooting Options

For this Non-Working Function	Refer to this RAP
The head section does not move.	Go to RAP 2.6.
The knee section does not move.	Go to RAP 2.7.

6. Press and hold the head down button (B) on the hand pendant.
The head section lowers smoothly until it is at an angle of approximately 25° (± 2) at which point the knee section begins to lower. The sections do not stop lowering until they are flat.
- Yes** **No**
↓ → Check for interference from other parts of the bed. If interference is found, correct it. If no interference is found, refer to table 2-4 on page 2-43.
7. Raise the head section until the head section is at approximately 25° and the knee section is at approximately 15°.

At the electrical control/lockout box (D), push in the head actuator lockout button (J) (see figure 2-22 on page 2-44).



Figure 2-22. Lockout Controls

m259_031

Press and hold the head up button (A) on the hand pendant (see figure 2-18 on page 2-39).

The bed stays still.

Yes **No**

↓ → If any section of the bed moves, replace the electrical control/lockout box (D) (refer to procedure 4.9).

8. Press and hold the head down button (B) on the hand pendant.

The bed stays still.

Yes **No**

↓ → If any section of the bed moves, replace the electrical control/lockout box (refer to procedure 4.9).

9. At the electrical control/lockout box (D), unlock the head actuator lockout (J) (i.e., the button is out), and lower the head and knee sections to their full flat position (see figure 2-22 on page 2-44).

At the electrical control/lockout box (D), lock the knee actuator lockout (K) (i.e., the button is in).

Press and hold the head up button (A) on the hand pendant (see figure 2-18 on page 2-39).

The head section rises, but the knee section remains flat.

Yes	No
↓	→ Replace the electrical control/lockout box (D) (refer to procedure 4.9).

10. Go to “Final Actions” on page 2-16.

NOTES:

Chapter 3

Theory of Operation

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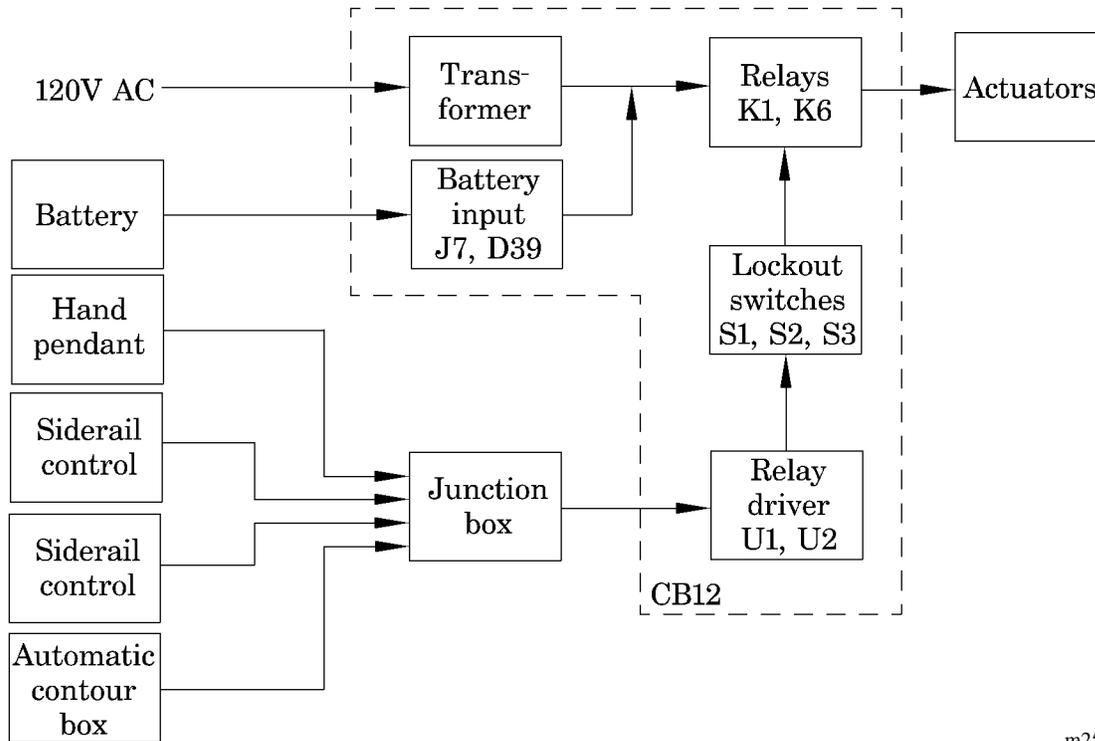
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3

NOTES:

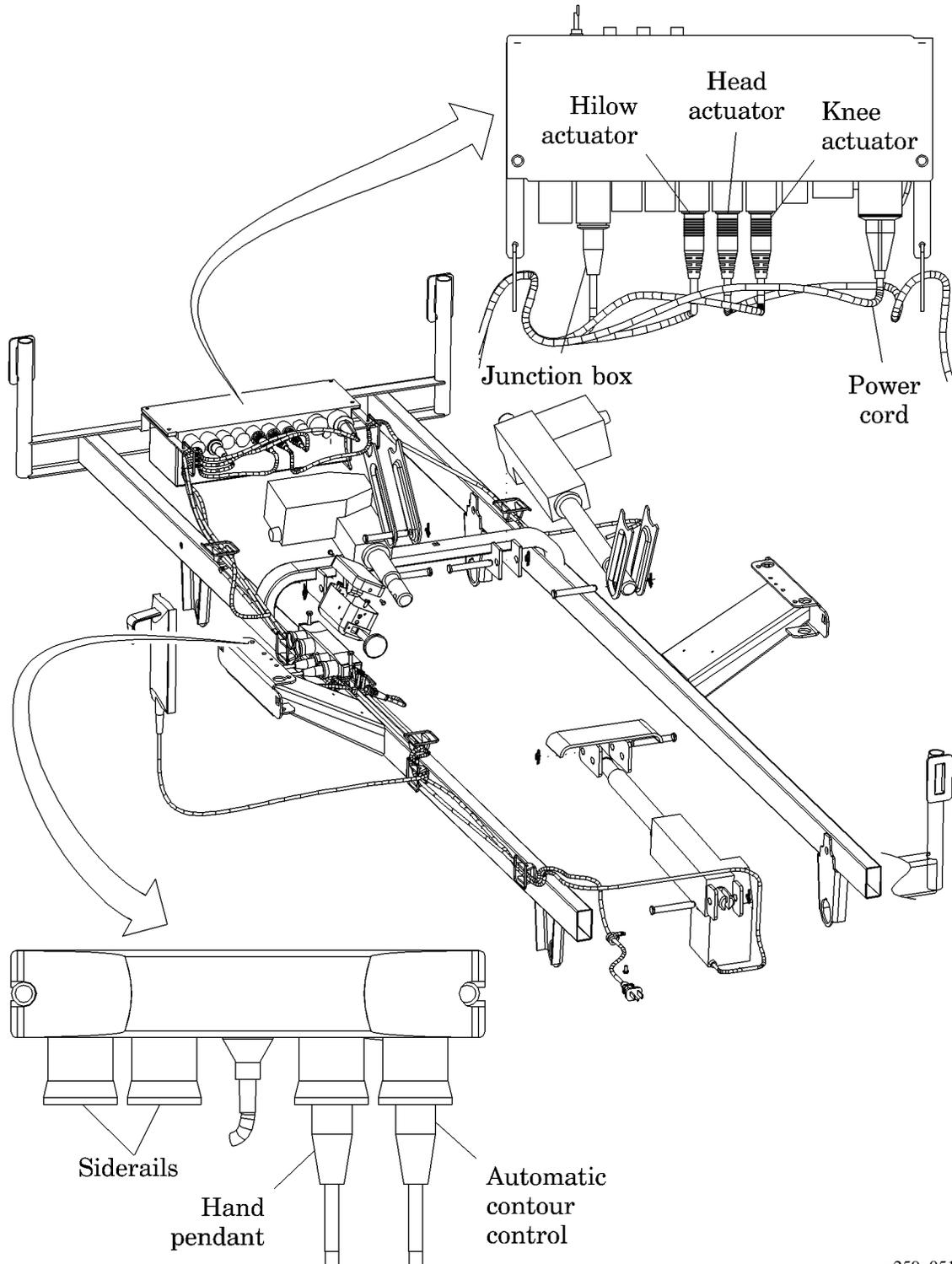
Electrical System

Figure 3-1. Electrical System Block Diagram



m259_019

Figure 3-2. Electrical System Cable Routing



m259_051

Theory of Operation

The RESIDENT® Low Bed is electrically operated by an AC power supply. A battery DC backup system is available as an option. Only the siderails must be operated electrically. The bed functions (head up/down, knee up/down, or hilow), can be operated manually.

Electrical System

The Repair Analysis Procedures (RAPs) for the RESIDENT® Low Bed are designed to identify each electrical component as working or not working. Except for the power cord, no voltage readings or continuity checks are required to make this determination. A component that is diagnosed as not working is removed and replaced with a known working model.

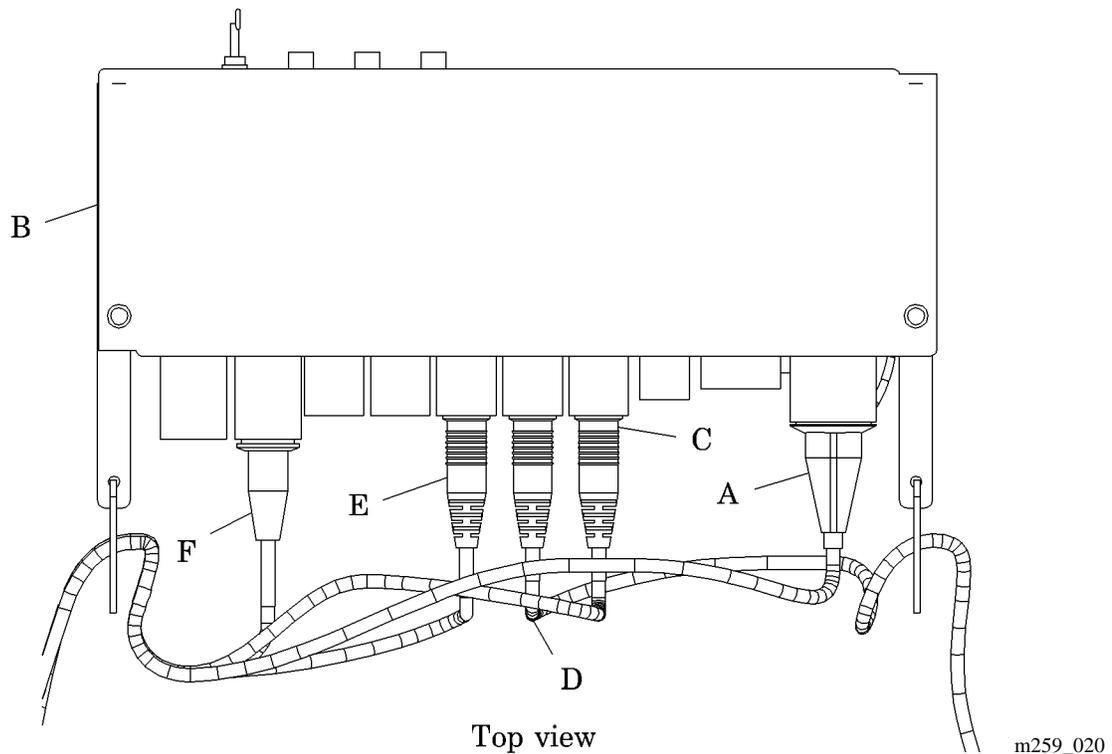
There are nine replaceable electrical components on the RESIDENT® Low Bed: the electrical control/lockout box, the junction box, the automatic contour control assembly, the head actuator, the knee actuator, the hilow actuator, the hand pendant, and two siderail controls.

Electrical Control/Lockout Box

The electrical control/lockout box is located at the foot of the bed to allow the caregiver convenient access to the lockout controls. The electrical control box has no serviceable parts.

Electrical Connections

A replaceable power cord (A) brings 120V AC power from the power supply into the unit (see figure 3-3 on page 3-6). The bed is always energized when the power cord (A) is plugged into a 120V AC power supply.

Figure 3-3. Electrical Control Box Connections

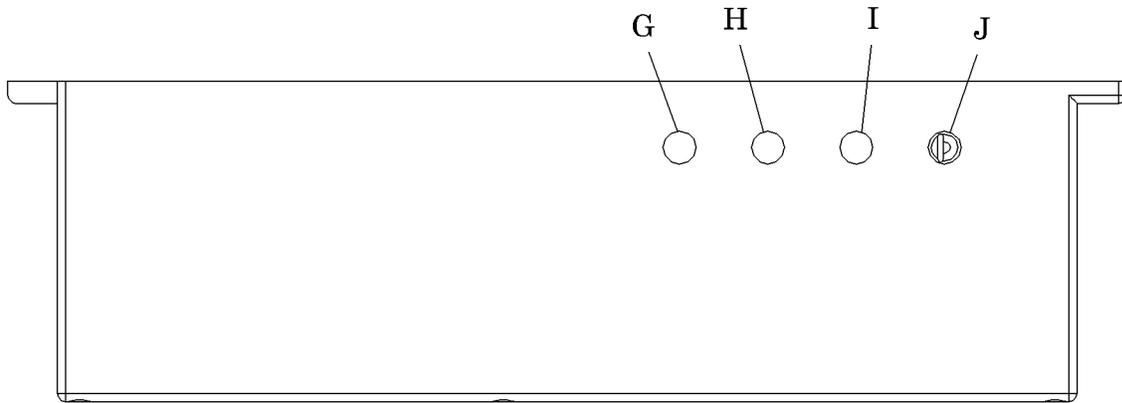
The input power is split within the electrical control/lockout box (B). One branch of the AC power is routed through a series of relays to control the knee actuator (C), head actuator (D), and hilow actuator (E). A second branch is converted to 24V AC, then rectified to 24V DC, and output to the lockout controls and junction box (F).

All components are plug-connected to the electrical control/lockout box (B). Connector plugs for the actuator motors are interchangeable, but the power cord (A), junction box (F), and actuator plugs cannot be connected to one another's terminals.

Lockout Functions

The lockout controls are toggle switches that push in and out. The function is locked (will not operate) when the button is in. Three lockout controls are available: hilow (G), head (H), and knee (I) (see figure 3-4 on page 3-7). If the optional battery backup function is used, the battery connects to the system through the plug-protected port (J) next to the lockout controls.

Figure 3-4. Lockout Controls



m259_032

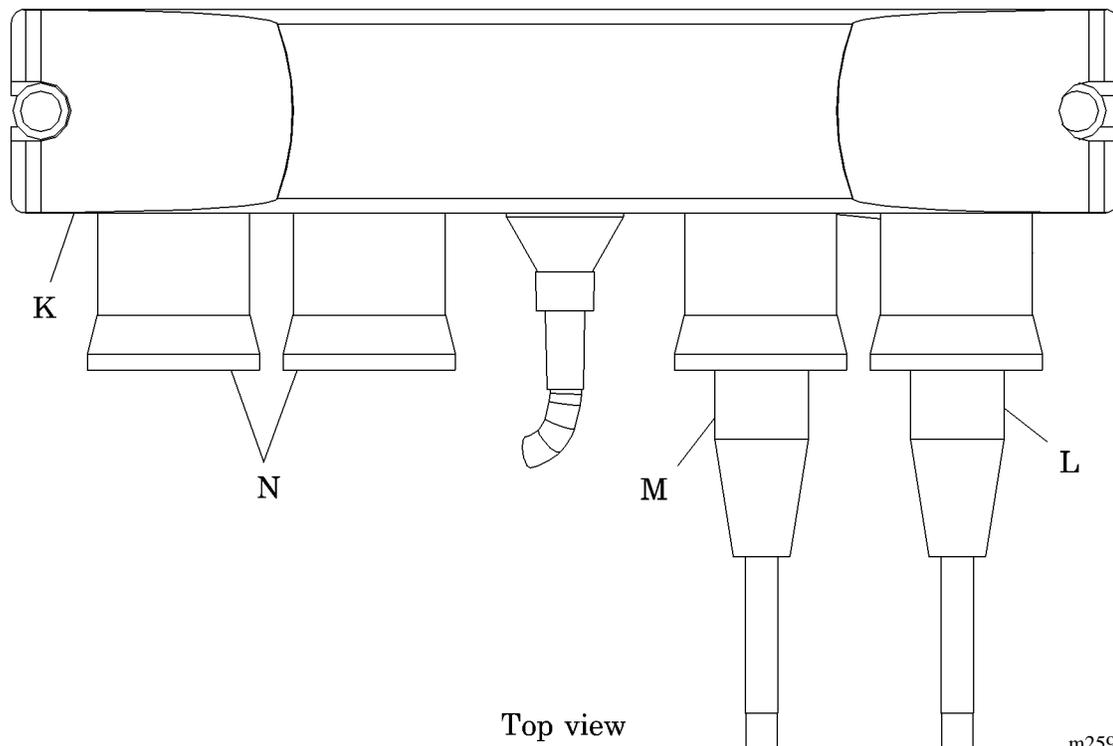
The automatic contour function operates automatically to raise both the head and knee sections when both the head and knee functions are unlocked. Locking either the knee or head function disables the automatic contour as well as the locked function.

Any function can be locked in any position or height it can achieve.

Junction Box

The junction box (K) is located on the patient left side of the bed (see figure 3-5 on page 3-8). The junction box (K) sends and receives signals from the electrical control/lockout box, and it has plug connections for the siderail controls (L), hand pendant (M), and automatic contour control assembly (N).

Figure 3-5. Junction Box Connections



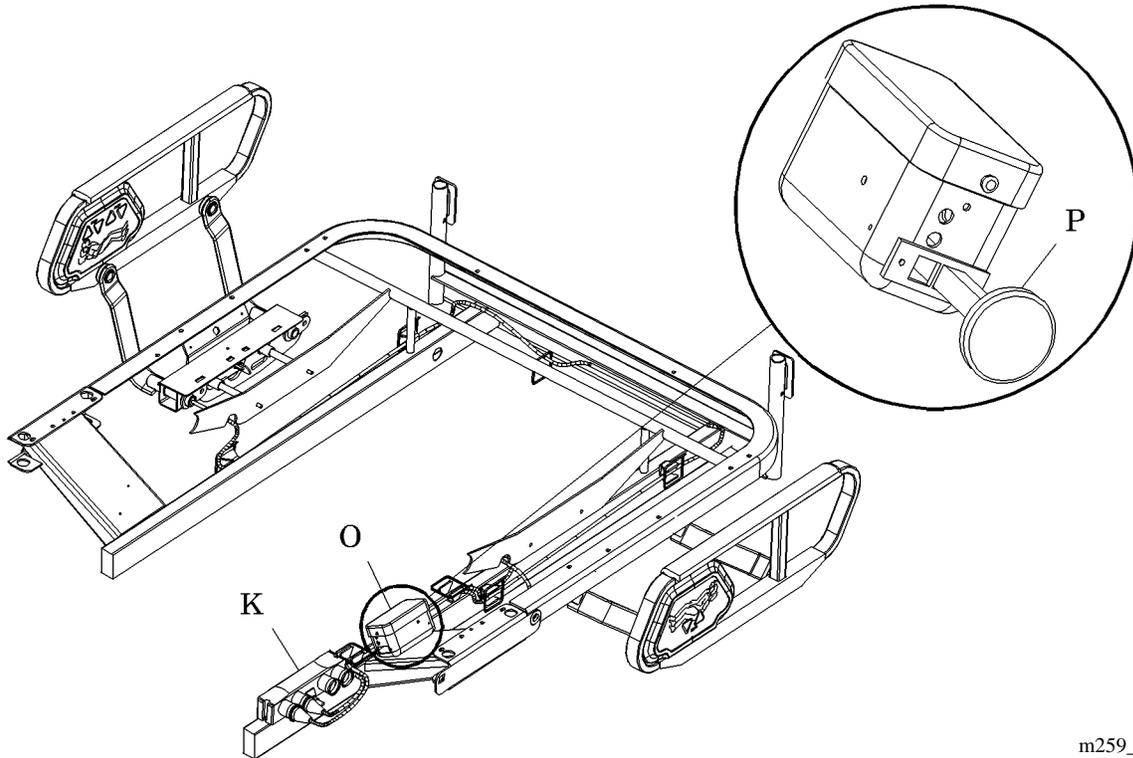
The siderail controls (L) are interchangeable. Pinouts in the hand pendant (M) and automatic contour control (N) plugs keep them from being connected to the wrong ports.

The junction box (K) has no serviceable parts.

Automatic Contour Control Assembly

The automatic contour control assembly (O) is mounted on the frame rail near the junction box (K) (see figure 3-6 on page 3-9).

Figure 3-6. Automatic Contour Control Assembly



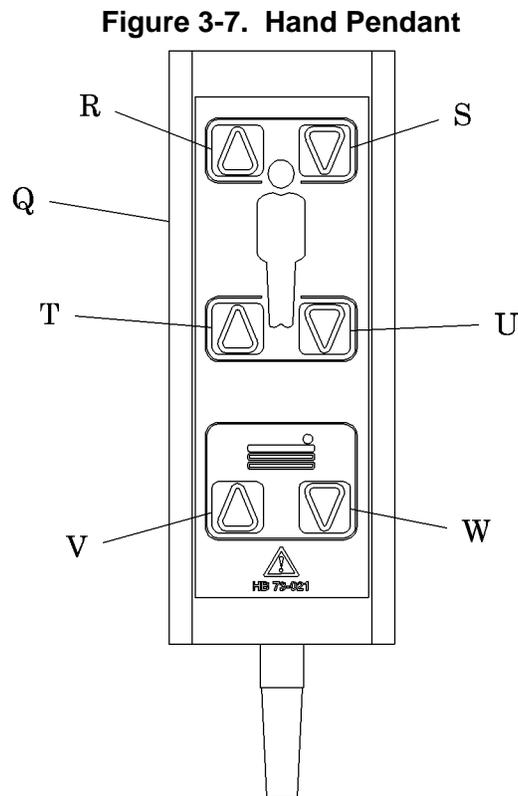
m259_022

The automatic contour control assembly (O) includes a position-measuring plunger (P) that reads the angle as the knee section rises and lowers. The position information is transmitted through a cable that plugs into the junction box (K). From the junction box (K), the signal goes to the electrical control/lockout box where it is used to determine when to deactivate the knee actuator during knee up or automatic contour control assembly (O) operations.

The automatic contour control assembly (O) has no serviceable parts.

Hand Pendant

The hand pendant (Q) is connected to the junction box by a plug-in cable. The hand pendant (Q) is typically hung on the siderail for convenient access by the resident and caregiver (see figure 3-7 on page 3-10).



m259_023

Six graphically identified buttons on the hand pendant (Q) provide control over all of the electrically operated functions. The lockout control for a function must be off for the function to operate.

- Head up (R)
- Head down (S)
- Knee up (T)
- Knee down (U)
- Hilow up (V)
- Hilow down (W)

The hand pendant (Q) has no serviceable parts.

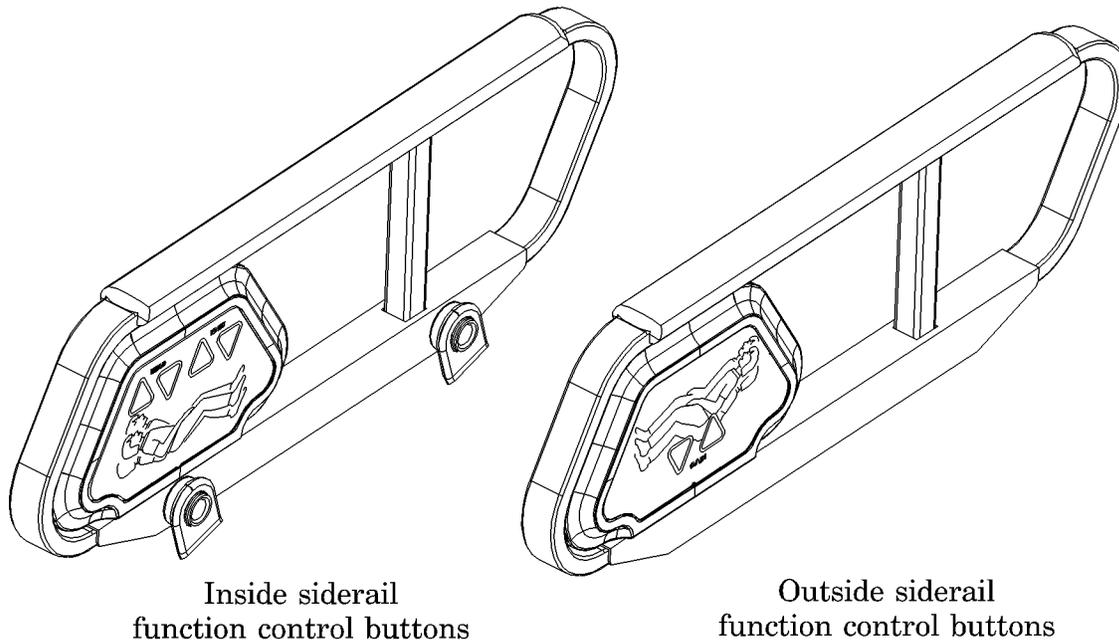
Siderail Controls

Function controls are located on panels mounted in both head end siderails. The control panels connect to the junction box with plug-in cords.

Other graphically identified buttons are located on the inside and outside of the siderail control panels (see figure 3-8 on page 3-11). The inside control buttons

allow the resident to control the contour functions, which are primarily comfort settings. The outside control buttons are intended for caregiver use in setting the sleep surface height. The lockout control for a function must be off for the function to operate.

Figure 3-8. Siderail Function Control Buttons



m259_024

Mechanical Function

The only hand-operated, mechanical functions are raising and lowering the siderails.

When the siderails are in the up position, a spring loaded latch locks them in place. The lock must be manually released before the siderails can be lowered.

In their lowest position, the top of the siderails are approximately even with the top of the sleep surface (based on the use of the standard mattress options available for use on the RESIDENT® Low Bed). When lowered, the siderails move in slightly and store against the bed frame; they do not slide under the platform.

NOTES:

Chapter 4

Removal, Replacement, and Adjustment Procedures

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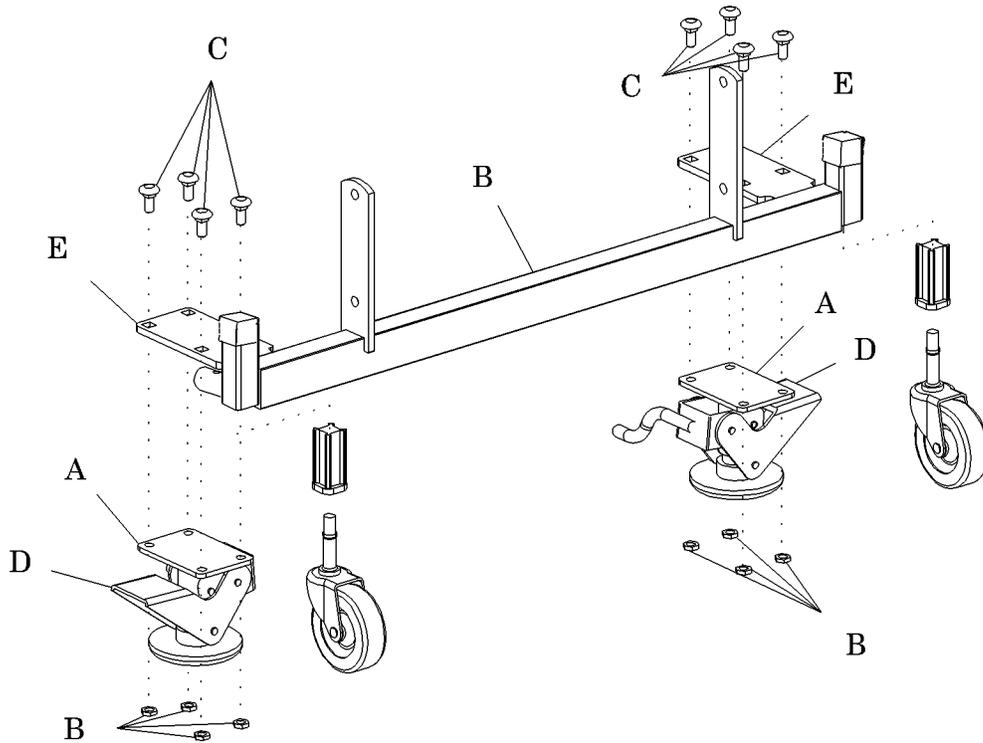
4.1 Floor Lock Brake

Tools required: Blue Loctite®¹ adhesive (P/N SA3618)
 5/16" Torx®² driver bit
 Jack stand

Removal

1. Move the bed to a convenient working location.
2. Place a jack stand beneath the frame to raise it high enough to remove the floor lock brake (A) (see figure 4-1 on page 4-3).

Figure 4-1. Floor Lock Brake



m259_025

3. Using a 5/16" Torx® driver bit, remove the four locknuts (B) that secure the four carriage bolts (C).
4. Remove the four carriage bolts (C) that secure the floor lock brake (A).
5. Remove the floor lock brake (A).

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

Replacement

1. Ensure that the floor lock pedal faces away from the bed.
2. With the floor lock pedal (D) to the outside of the bed, align the holes in the floor lock brake (A) with those in the bed floor lock support (E).
3. Apply blue Loctite®¹ adhesive to the threads of the four carriage bolts (C), and insert them through the floor lock support (E) and the floor lock brake (A).



WARNING:

Do not reuse locknuts. Failure to use a new locknut could allow the floor lock to loosen and fail. This could result in injury to a resident or caregiver.

4. Using a 5/16" Torx®² driver bit, install a new locknut (B) on each carriage bolt (C), and tighten securely.
5. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

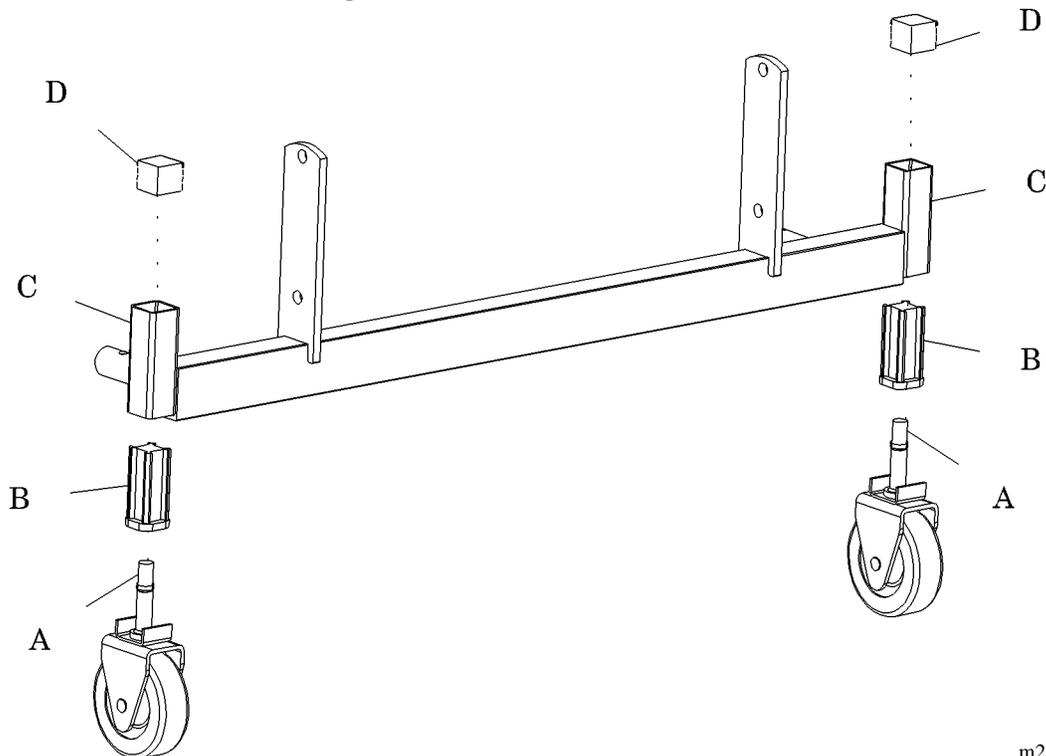
4.2 Fixed Casters

Tools required: Screwdriver
Hammer
Jack stand

Removal

1. Move the bed to a convenient working location.
2. Place a jack stand beneath the frame to raise it high enough to remove the caster.
3. Pull down on the caster (A), and remove it from the caster socket (B) (see figure 4-2 on page 4-5).

Figure 4-2. Standard Casters



m259_026

4. Remove the tube cap (D).
5. Using a hammer and screwdriver, push the caster socket (B) out of the frame leg (C).



CAUTION:

During caster replacement, examine the caster socket for cracks or breaks. Do not install a new caster in a damaged caster socket. Early failure of the new caster or equipment damage could occur.

6. Examine the caster socket (B), and discard it if it shows evidence of cracks or breaks. If the caster socket (B) is sound, retain it.

Replacement

1. Push a caster socket (B) into the frame leg (C) until the flange seats against the metal. If necessary, use a hammer. This should be a tight fit.
2. Select the appropriate caster (A).
3. Insert the caster (A) completely into the caster socket (B).
4. Install the tube cap (D).
5. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.3 Central Lock Casters

Tools required: Blue Loctite®¹ adhesive (P/N SA3618)
Phillips head screwdriver
¼" Allen™² wrench
Jack stand

Removal

1. Move the bed to a convenient working location.
2. Place a jack stand beneath the frame to raise it high enough to remove the caster.

NOTE:

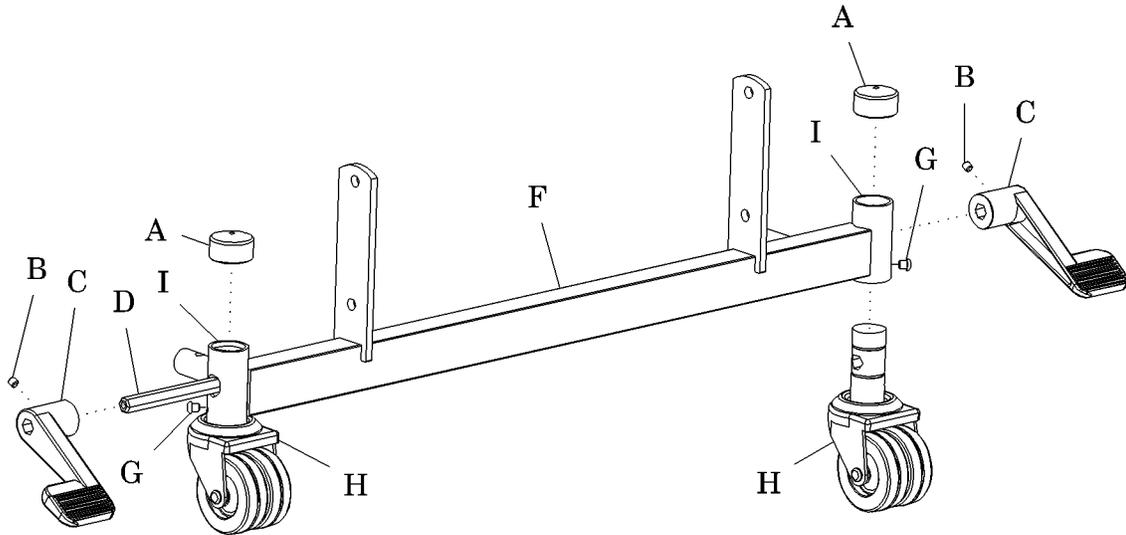
Do not remove the round tube plug in the base pedal lock weldment to remove the locking mechanism. However, inspect the tube plug each time the central lock casters are serviced. Replace the plug only if it is loose or damaged.

3. Inspect the round tube plug (A) and, if damaged, remove it (see figure 4-3 on page 4-8).

1. Loctite® is a registered trademark of Loctite Corporation.

2. Allen™ is a trademark of Industrial Fasteners, Inc.

Figure 4-3. Central Lock Caster Mechanism



m259_033

4. Using the 1/4" Allen™¹ wrench, remove the Allen™ screw (B) that secures either of the brake pedals (C) to the hex rod (D).
5. Pull off the brake pedal (C).
6. From the opposite side of the bed, pull the hex rod (D) out of the base (F).
7. Using the phillips head screwdriver, remove the button head screw (G) that holds the caster (H) in the base tube (I).
8. Pull the caster (H) from the base tube (I).

1. Allen™ is a trademark of Industrial Fasteners, Inc.

Replacement



WARNING:

Before installing a caster, ensure both casters are in the neutral brake position. Failure to do so could result in the casters not braking properly. Personal injury or equipment damage could occur.

1. Ensure both casters are in the neutral brake position.
2. Install a caster (H) in each base tube, and align the holes in the leg of the caster (H) with the holes on the side of the base tube (I).
3. Apply blue Loctite®¹ adhesive to the threads of the button head screw (G).
4. Install the button head screw (G) through the holes in the side of each base tube (I) and caster (H), and tighten securely.
5. Place an appropriate brake pedal (C) on the hex rod (D) with the brake pedal (C) lever aimed toward the foot of the bed.
6. Align the outside of the brake pedal (C) with the end of the hex rod (D).
7. Apply blue Loctite® adhesive to the threads of a ¼" Allen™² screw (B).
8. Install the ¼" Allen™ screw (B) into the hole on the brake pedal (C).
9. Slide the hex rod (D) through the hole in the base tube (I) and casters (H) until it exits through the opposite side of the base (F).
10. Apply blue Loctite® adhesive to the threads of a ¼" Allen™ screw (B).
11. Install the ¼" Allen™ screw (B) into the hole on the brake pedal (C).
12. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Loctite® is a registered trademark of Loctite Corporation

2. Allen™ is a trademark of Industrial Fasteners, Inc.

4.4 Siderail

Tools required: Pliers
5/16" Torx®¹ driver bit
Cable tie tool

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. Raise the head section to gain access to the underside of the deck.



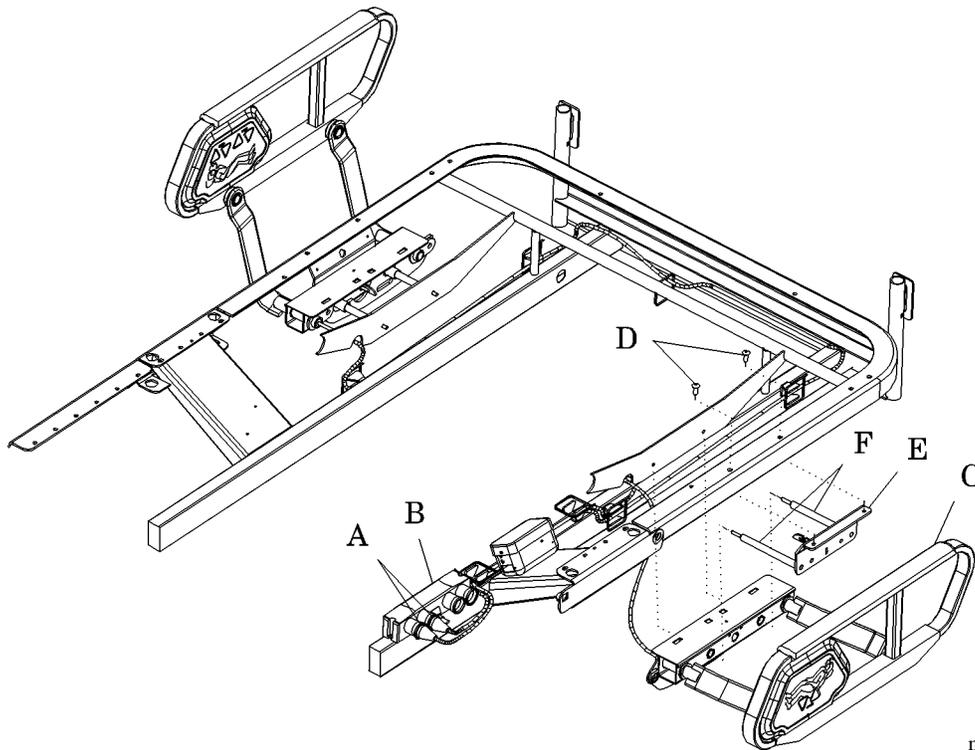
WARNING:

The bed is always energized when connected to a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.
5. Unplug the siderail control connector (A) from the junction box (B).
6. Note the routing, and cut any cable ties that secure the siderail control connector (A) cable to the bed frame (see figure 4-4 on page 4-11).

1. Torx® is a registered trademark of Textron, Inc.

Figure 4-4. Siderail



m259_034

7. Raise the siderail (C).
8. Support the siderail (C), and remove the two Torx®¹ screws (D) using the 5/16" Torx® bit.
9. Remove the siderail (C) and mounting plate (E) from the frame.

Replacement

NOTE:

Siderails are available as patient-left and patient-right head and foot models. Ensure that you have the correct siderail model for the application.

1. Align the mounting holes in the siderail (C) with the holes in the mounting plate (E).
2. Ensure that the guide pins (F) on the mounting plate (E) correctly enter the holes in the frame.
3. Install the Torx® screws (D), and tighten them securely.

1. Torx® is a registered trademark of Textron, Inc.

4. Route the siderail control connector (A) cable along the frame to the junction box (B), and plug it into either receptacle.
5. Secure the siderail control connector (A) cable to the frame with cable ties, and cut away the excess.
6. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.5 Siderail Latch

Tools required: Drift punch
Hammer
Crescent wrench
Teflon®¹ lubricant (P/N SA0646)

Adjustment

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. Raise the bed to its highest position.



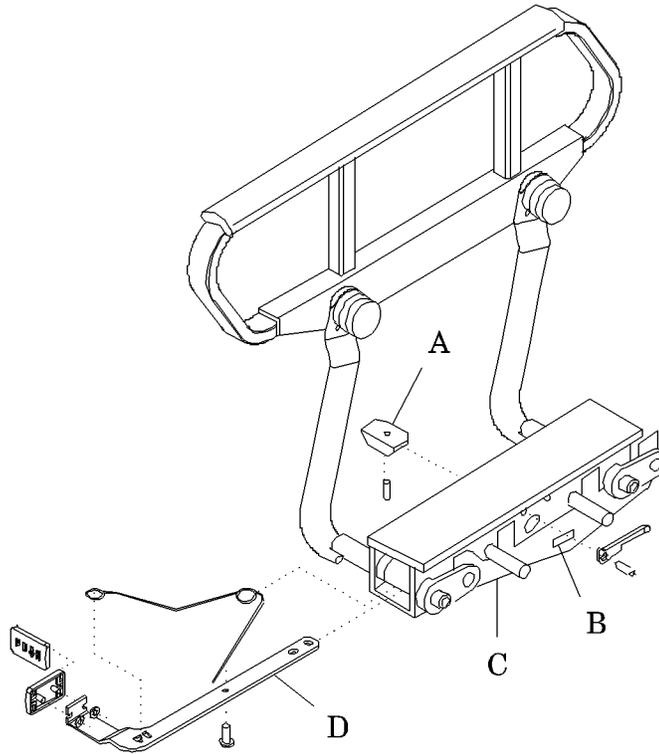
WARNING:

The bed is always energized when connected to a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.
5. If necessary, raise the siderail.
6. If necessary, align of the latch block (A) with the notch (B) in the strap assembly (C) (see figure 4-5 on page 4-14).
 - a. Using a punch and hammer, move the latch block (A) upward.
 - b. Using a crescent wrench, bend the strap assembly (C) until the latch block (A) aligns with the notch (B).

1. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.

Figure 4-5. Siderail Latch Mechanism



m259_050

7. Lubricate the latch mechanism (D) with Teflon®¹ lubricant.
8. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.

4.6 Base Frame Components

Tools required:

- Screwdriver
- E-ring tool
- Blue Loctite®¹ adhesive (P/N SA3618)
- 5/16" Torx®² driver bit
- 7/16" Torx® driver bit
- Hammer
- Pliers
- Phillips head screwdriver
- Safety strap

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower all sections to the full flat position, and lower the bed to the lowest hilow position.



WARNING:

The bed is always energized when connected to a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.



CAUTION:

Always lay the bed on a protective sheet or other non-abrasive surface. Failure to do so could result in damage to the finish.

5. Lay a protective sheet on the floor.

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.



CAUTION:

Before attempting to turn the RESIDENT® Low Bed over, secure the head and foot sections to the mid-frame. Failure to do so could result in damage to equipment or personnel.

6. Using a safety strap, secure the head and foot sections to the mid-frame.



WARNING:

The RESIDENT® Low Bed weighs 275 lb (125 kg). Have two or more people who can help you lift and turn the bed. Failure to do so could result in personal injury.



CAUTION:

Do not roll the RESIDENT® Low Bed to turn it over. Lift and turn the bed upside down. Failure to do so could result in damage to the siderails.

7. Have two or more people help you lift and turn the bed upside down for access to the base components.

NOTE:

Remove or disconnect only the components necessary to replace a damaged part.

NOTE:

The intermediate frame, itself, is not field replaceable. The intermediate frame contains the unit's serial number, which cannot be changed or transferred.

8. To remove the following parts, use the proper tools and techniques, and remove any fasteners that connect them to other components or the intermediate frame (A) (see figure 4-6 on page 4-18):
 - a. To remove the bumper (B), remove the two wingnuts (C), two hex head machine bolts (D), and four washers (E) that secure the it to the base weldment (F).
 - b. To remove the lower pivot arm (G), remove the four shoulder screws (H) and four bushings (I) that secure the it to the base weldment (F) and the connector weldment (J), and use the screwdriver to pry off the two pointers (K), two retaining rings (L), and two bushings (M) that secure it to the intermediate frame (A).
 - c. To remove the upper pivot arm (N), remove the two shoulder screws (O) and two bushings (P) that secure the it to the base weldment (F) and the intermediate frame (A).
 - d. To remove the connector weldment (J), remove the four shoulder screws (H) and four bushings (I) that secure the it to the two lower pivot arms (G).

Replacement



WARNING:

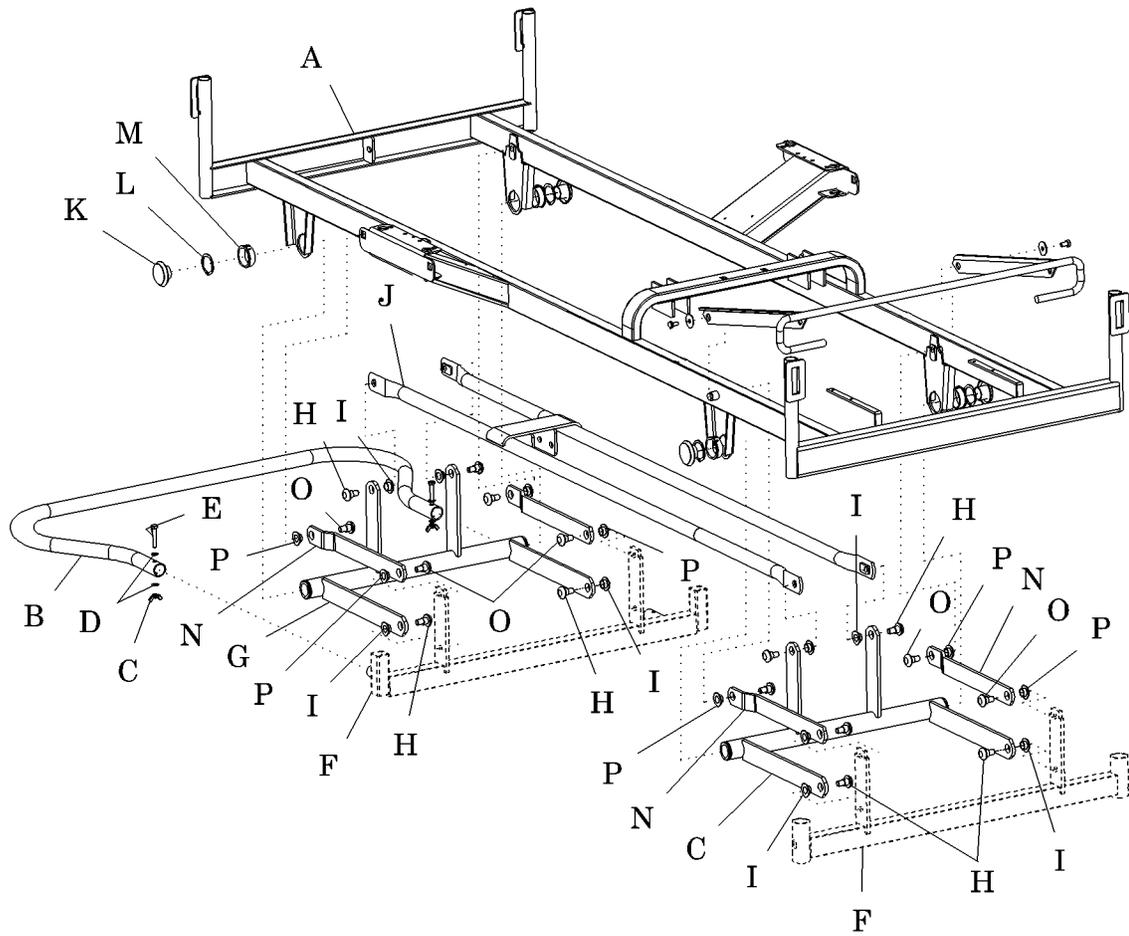
Use Loctite®¹ adhesive on the threads of all Torx®² screws before installing them. Failure to do so could allow the fasteners to loosen. This could lead to the sudden collapse of a bed section, which could lead to injury to a resident or caregiver.

1. Apply Loctite® adhesive on the threads of all Torx® screws before installing them.
2. Perform the removal steps in reverse.
3. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

Figure 4-6. Base Frame Component Connections to Intermediate Frame



m259_035

4.7 Sleep Surface Components

Tools required:

- Screwdriver
- Blue Loctite®¹ adhesive (P/N SA3618)
- 5/16" Torx®² driver bit
- 7/16" Torx® driver bit
- Hammer
- Pliers
- Phillips head screwdriver
- 9/16" open end wrench

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower all sections to the full flat position, and lower the bed to the lowest hilow position.



WARNING:

The bed is always energized when connected to a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.

NOTE:

Remove or disconnect only the components necessary to replace a damaged part.

1. Loctite® is a registered trademark of Loctite Corporation.

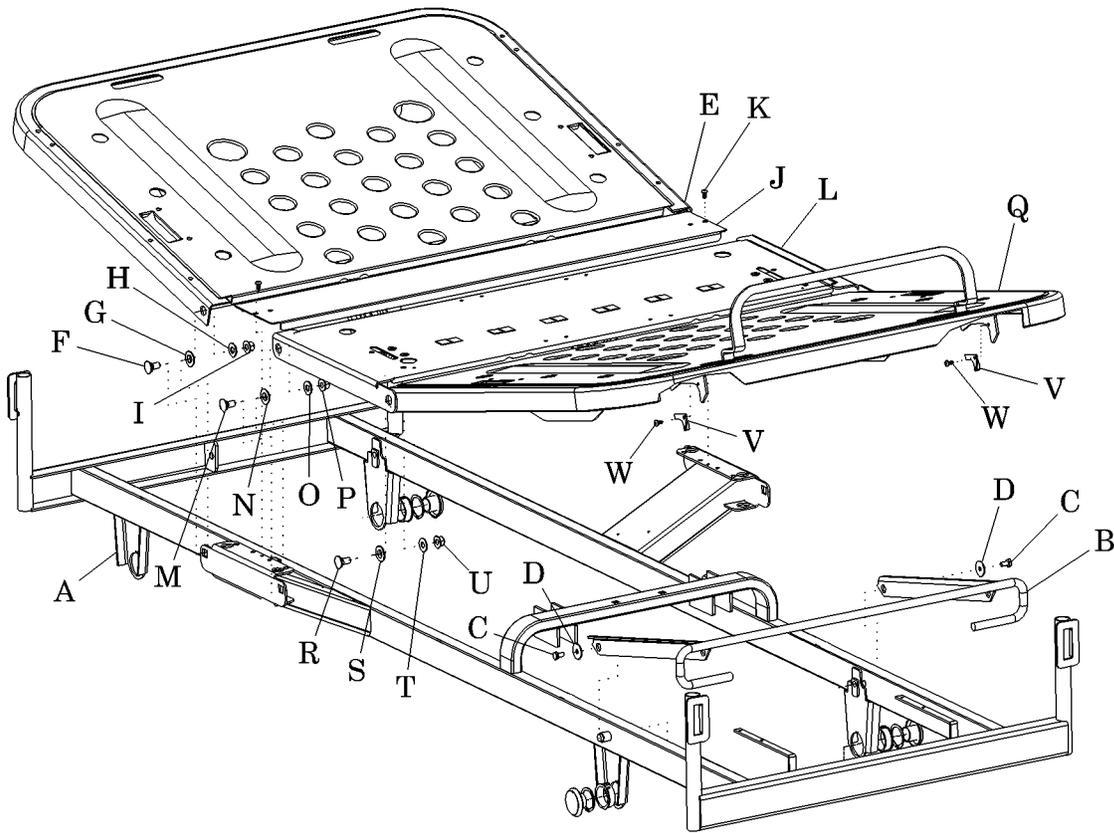
2. Torx® is a registered trademark of Textron, Inc.

5. To remove the following parts, use the proper tools and techniques, and remove any fasteners that connect them to other components or the intermediate frame (A) (see figure 4-7 on page 4-21):
 - a. To remove the foot rack weldment (B), use the 9/16" open end wrench to remove the two hex bolts (C) and washers (D) that secure it to the intermediate frame (A).
 - b. To remove head section deck (E), remove the head actuator (refer to procedure 4.12), and use the 9/16" open end wrench to remove the two shoulder screws (F), two Oilite®¹ bushings (G), two washers (H), and two locknuts (I) that secure it to the intermediate frame (A).
 - c. To remove the seat pan (J), remove the two Torx®² button head screws (K) that secure it to the intermediate frame (A).
 - d. To remove the thigh section deck (L) and foot section deck (Q), remove the knee actuator (refer to procedure 4.13), and use the 9/16" open end wrench to remove the two shoulder screws (M), two Oilite® bushings (N), two washers (O), and two locknuts (P) that secure it to the intermediate frame (A).
 - e. To remove the foot section deck (Q) from the thigh section deck (L), use the 9/16" open end wrench to remove the two shoulder screws (R), two Oilite® bushings (S), two washers (T), and two locknuts (U) that secure the foot section deck (Q) to the thigh section deck (L).
 - f. To remove the foot rack insert (V), remove the Torx® button head screw (W) that secures it to the foot section deck (Q).

1. Oilite® is a registered trademark of Beemer Precision, Incorporated.

2. Torx® is a registered trademark of Textron, Inc.

Figure 4-7. Sleep Surface Component Connections to Intermediate Frame



m259_036

Replacement



WARNING:

Use Loctite®¹ adhesive on the threads of all Torx®² screws before installing them. Failure to do so could allow the fasteners to loosen. This could lead to the sudden collapse of a bed section, which could lead to injury to a resident or caregiver.

1. Perform the removal steps in reverse.
2. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Loctite® is a registered trademark of Loctite Corporation.
2. Torx® is a registered trademark of Textron, Inc.

4.8 Power Cord

Tools required: Screwdriver

Removal

1. Move the bed to a convenient working location.

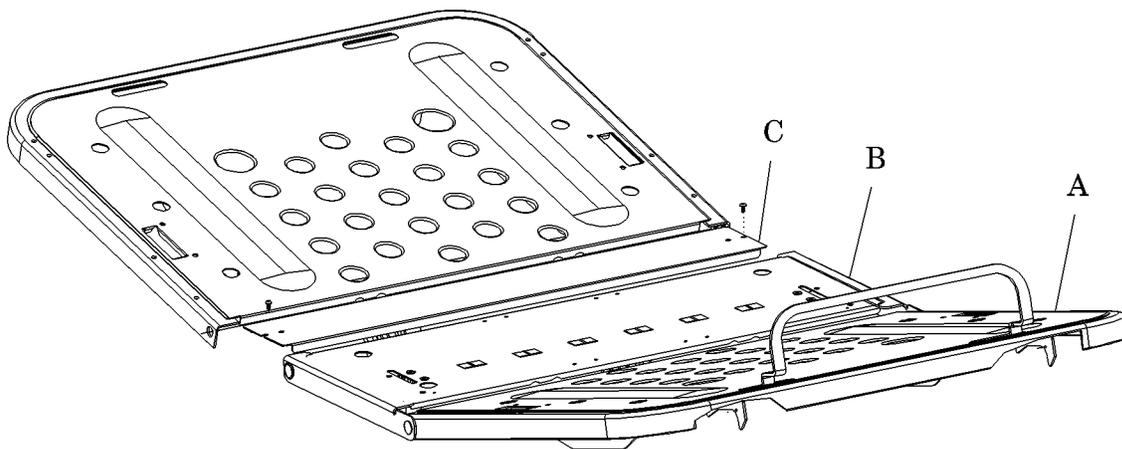


WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. Flip the foot deck panel (A) back onto the thigh section (B) and seat section (C) to gain access to the underside electrical components (see figure 4-8 on page 4-23).

Figure 4-8. Sleep Surface

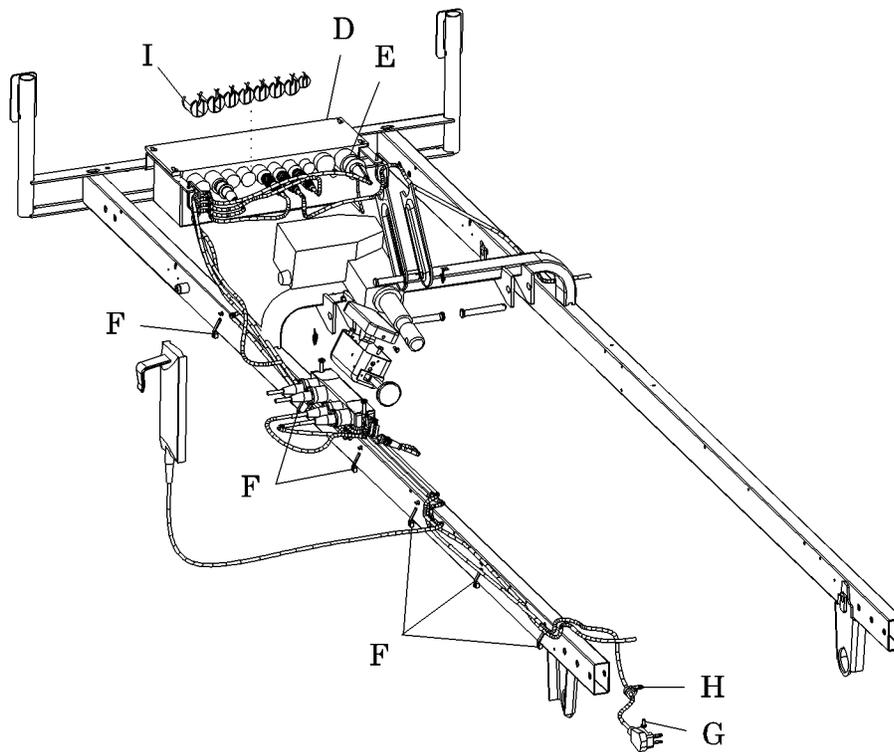


m259_060

**WARNING:**

The bed is always energized when connected to a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.
5. Using a screwdriver, pry the plug lock (I) from the plug ports on the electrical control/lockout box (D) (see figure 4-9 on page 4-24).

Figure 4-9. Power Cord

m259_037

6. Unplug the power cord (E) from the electrical control/lockout box (D).
7. Cut wire ties (F) along the frame.
8. Using a screwdriver, remove the screw (G) that secures the speed clamp (H) to the frame.
9. Remove the power cord (E) from the frame.

Replacement

1. Plug a new power cord (E) into the electrical control/lockout box (D).
2. Install new wire ties (F) at each support position along the frame.
3. Install the plug lock on the underside of the plug ports.
4. Using a screwdriver, install the screw (G) that secures the speed clamp (H) to the frame.
5. Plug the unit into an appropriate power supply.
6. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.9 Electrical Control/Lockout Box

Tools required: Screwdriver
Phillips head screwdriver

Removal

1. Move the bed to a convenient working location.

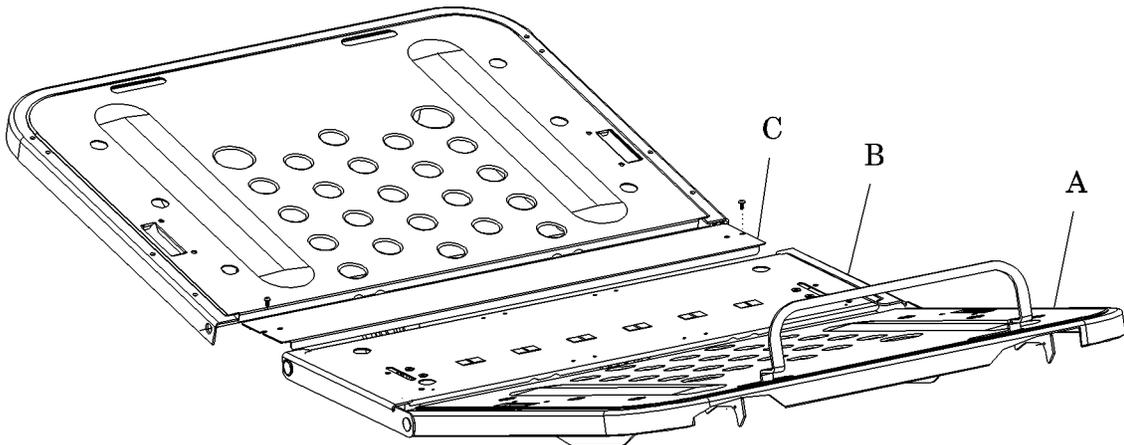


WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. Flip the foot deck panel (A) back onto the thigh section (B) and seat section (C) to gain access to the underside electrical components (see figure 4-10 on page 4-26).

Figure 4-10. Sleep Surface



m259_060

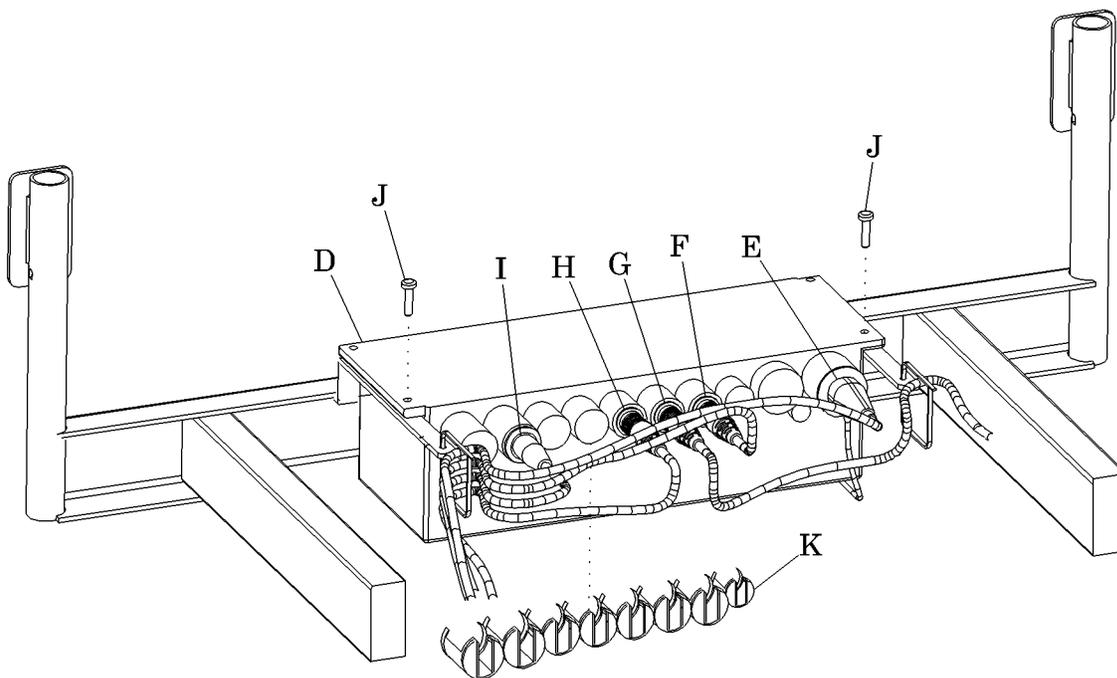


WARNING:

The bed is always energized when plugged into a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit from its power source.
5. Using a screwdriver, pry the plug lock (K) from the plug ports on the electrical control/lockout box (D) (see figure 4-11 on page 4-27).

Figure 4-11. Electrical Control/Lockout Box Connections



m259_038

6. Unplug the power cord (E), knee actuator (F), head actuator (G), hi/low actuator (H), and junction box (I) plugs from the electrical control/lockout box (D).
7. Using a phillips head screwdriver, remove the two screws (J) that secure the electrical control/lockout box (D) to the support brackets.

Replacement

1. Place the electrical control/lockout box (D) on the support brackets, and align the fastener holes.

2. Using a phillips head screwdriver, install the two screws (J) through the electrical control/lockout box (D) overhang into each support bracket.
3. Insert the following plugs into the correct ports on the electrical control/lockout box (D): junction box (I), hilow actuator (H), head actuator (G), knee actuator (F), and power cord (E).
4. Install the plug lock on the underside of the plug ports.
5. Plug the unit into an appropriate power source.
6. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.10 Junction Box

Tools required: Phillips head screwdriver

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

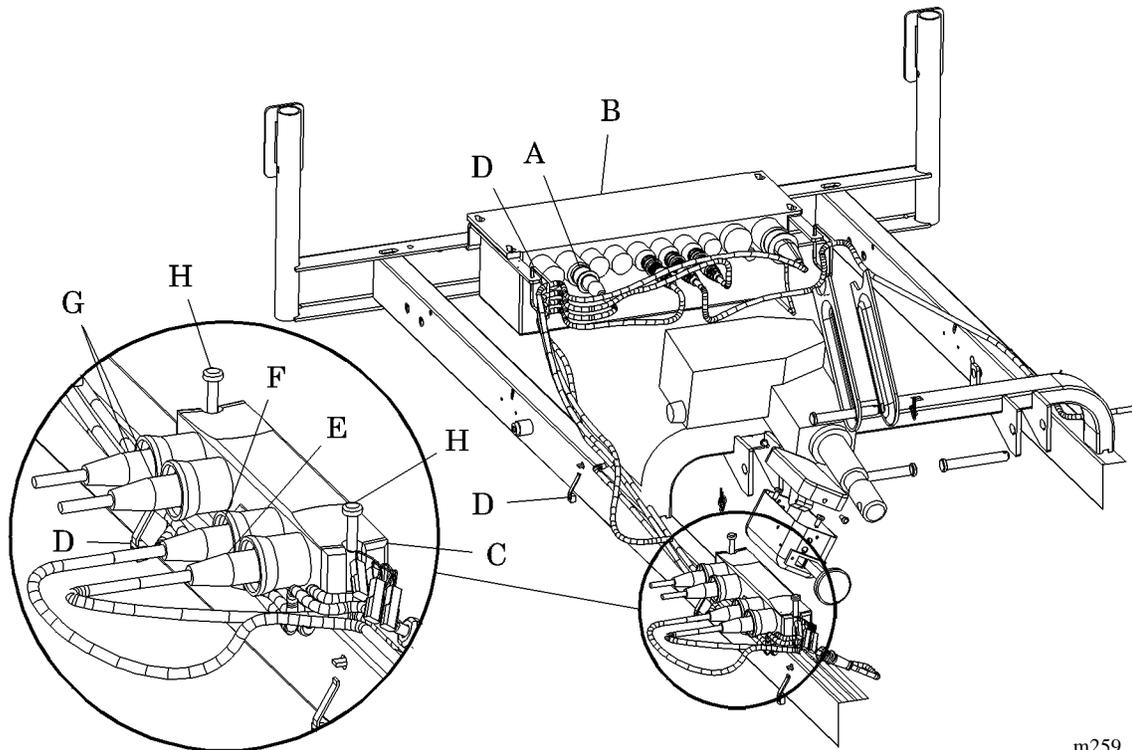
2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. Flip the foot deck panel back onto the thigh and seat sections to gain access to the underside electrical components.



WARNING:

The bed is always energized when plugged into a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the unit its power source.
5. Disconnect the junction box plug (A) from the electrical control/lockout box (B) (see figure 4-12 on page 4-30).

Figure 4-12. Junction Box Connections

m259_039

6. Note the junction box (C) cable routing, and cut all cable ties (D) that secure the junction box (C) cable to the frame rail.
7. Remove the automatic contour plug (E), hand pendant plug (F), and two siderail plugs (G) from the junction box (C).
8. Remove the two screws (H) that secure the junction box (C) to the frame rail.

Replacement

1. Place the new junction box (C) on the frame rail, and align the mounting holes.
2. Install a screw (H) through the mounting hole on each side of the junction box (C) into the frame rail.
3. Insert the two siderail plugs (G), hand pendant plug (F), and automatic contour plug (E) into the appropriate ports on the junction box (C).

4. Route the junction box (C) cable along the frame rail to the electrical control/lockout box (B), and attach the junction box (C) cable to the rail with cable ties (D).
5. Insert the junction box plug (A) into the electrical control/lockout box (B).
6. Plug the bed into an appropriate power source.
7. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.11 Hand Pendant

Tools required: None

1. Move the bed to a convenient working location.

Removal



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.

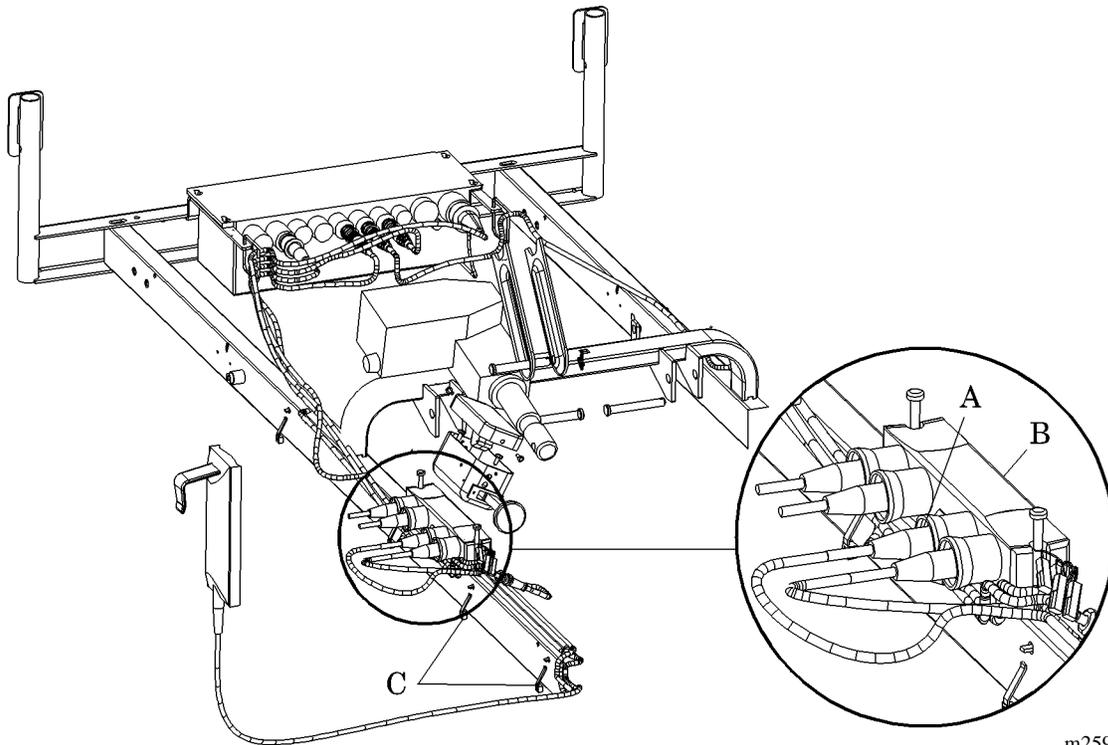


WARNING:

The bed is always energized when plugged into a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

3. Unplug the unit from its power source.
4. Remove the hand pendant plug (A) from the junction box (B) (see figure 4-13 on page 4-33).

Figure 4-13. Hand Pendant



m259_040

5. Cut and remove tie wraps (C) that hold the pendant cord to the frame.

Replacement

1. Insert the new hand pendant plug (A) into the junction box (B).
2. Install new tie wraps (C) to secure the pendant cord to the frame.
3. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.12 Head Actuator

Tools required: Screwdriver
 Pliers
 Cable tie tool

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower the head to the full flat position.

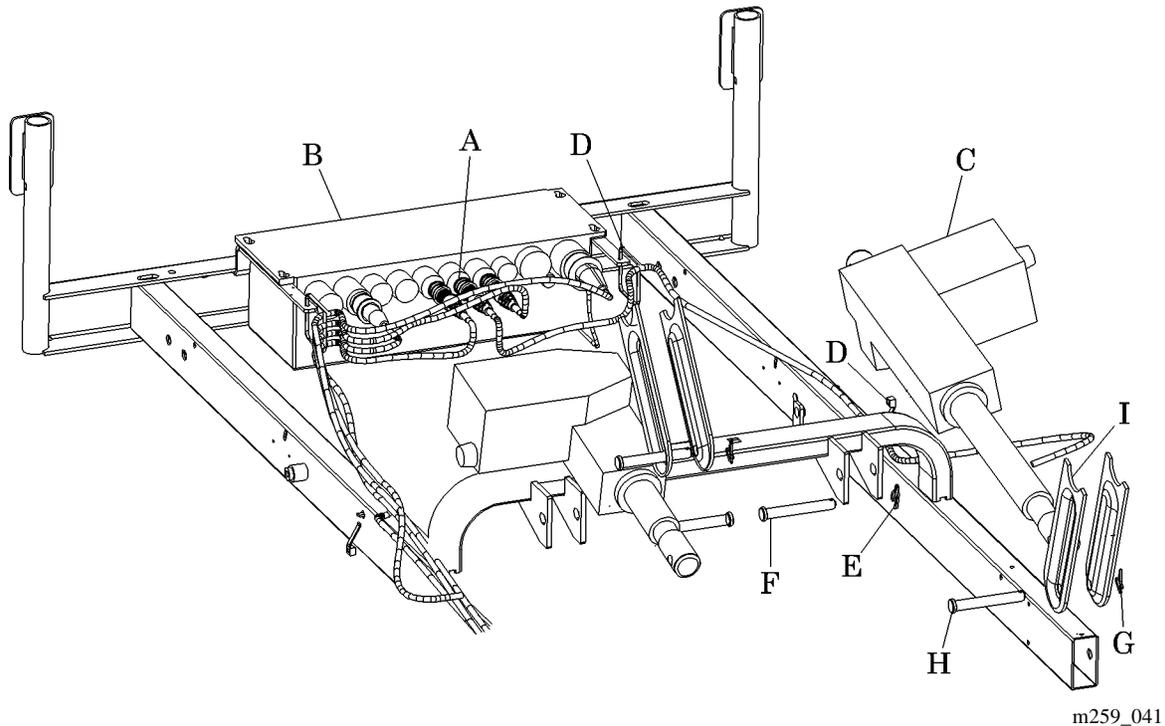


WARNING:

The bed is always energized when plugged into a power source. Unplug the bed from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the bed from its power source.
5. Remove any mattress from the unit.
6. Remove the head actuator plug (A) from the electrical control/lockout box (B) (see figure 4-14 on page 4-35).

Figure 4-14. Head Actuator Motor Frame Connection



7. Note the head actuator (C) cable routing, and cut the cable ties (D) that secure the head actuator (C) cable to the bed frame.

**WARNING:**

If the head and/or knee section cannot be lowered to its full flat position, brace the section securely so it does not collapse suddenly when the support of the actuator motor is removed. Failure to do so could result in serious personal injury.

8. If necessary, brace the head section in its raised position.
9. Remove the rue ring (E) that secures the head actuator (C) motor to the frame support bracket.
10. Support the head actuator (C) motor, and remove the clevis pin (F).
11. Lower the head actuator (C) motor, and let it rest on the floor.
12. Remove the rue ring (G) and clevis pin (H) that secure the tip of the head actuator (C) rod to the head section support brace (I).

Replacement

1. Align the hole in the tip of the head actuator (C) rod between the holes in the head section support brace (I).
2. Insert a clevis pin (H) through the aligned holes, and secure it with a rue ring (G).
3. Lift the head actuator (C) motor, and align the hole in the support knob with the holes in the frame bracket.
4. Insert a clevis pin (F) through the aligned holes, and secure it with a rue ring (E) (see figure 4-14 on page 4-35).
5. Route the head actuator (C) cable along the same path it was removed from, and secure the head actuator (C) cable to the frame with cable ties (D).
6. Insert the head actuator plug (A) into the appropriate port on the electrical control/lockout box (B).
7. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.13 Knee Actuator

Tools required: Screwdriver
 Pliers
 Cable tie tool

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

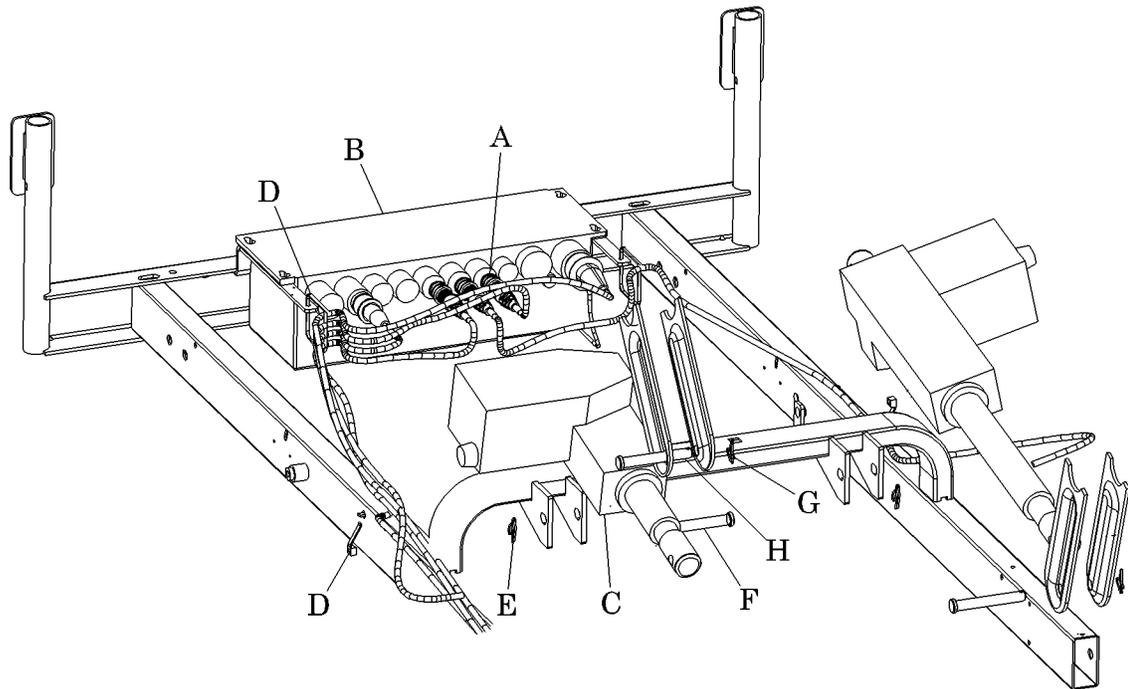
2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower the head and knee sections to the full flat position.



WARNING:

The bed is always energized when plugged into a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the bed from its power source.
5. Remove any mattress from the unit.
6. Remove the knee actuator plug (A) from the electrical control/lockout box (B) (see figure 4-15 on page 4-38).

Figure 4-15. Knee Actuator Motor Frame Connection

m259_042

7. Note the knee actuator (C) cable routing, and cut the cable ties (D) that secure the knee actuator (C) cable to the bed frame.

**WARNING:**

If the head and/or knee section cannot be lowered to the full flat position, brace the section securely to prevent sudden collapse when the support of the actuator motor is removed. Failure to do so could result in serious personal injury.

8. If necessary, brace the head and knee sections in their raised position.
9. Remove the rue ring (E) that secures the knee actuator (C) motor to the frame support bracket.
10. Support the knee actuator (C) motor, and remove the clevis pin (F).
11. Lower the knee actuator (C) motor, and let it rest on the floor.
12. Remove the rue ring (G) and clevis pin (H) that secure the tip of the knee actuator (C) rod to the knee section support brace (I).

Replacement

1. Align the hole in the tip of the knee actuator (C) rod between the holes in the knee section support brace (I).
2. Insert a clevis pin (H) through the aligned holes, and secure it with a rue ring (G).
3. Lift the knee actuator (C) motor, and align the hole in the support knob with the holes in the frame bracket.
4. Insert a clevis pin (F) through the aligned holes, and secure it with a rue ring (E).
5. Route the knee actuator (C) cable along the same path it was removed from, and secure the knee actuator (C) cable to the frame with cable ties (D).
6. Insert the knee motor actuator plug (A) into the appropriate port on the electrical control/lockout box (B).
7. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.14 Hilow Actuator

Tools required: Screwdriver
 Pliers
 Cable tie tool

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

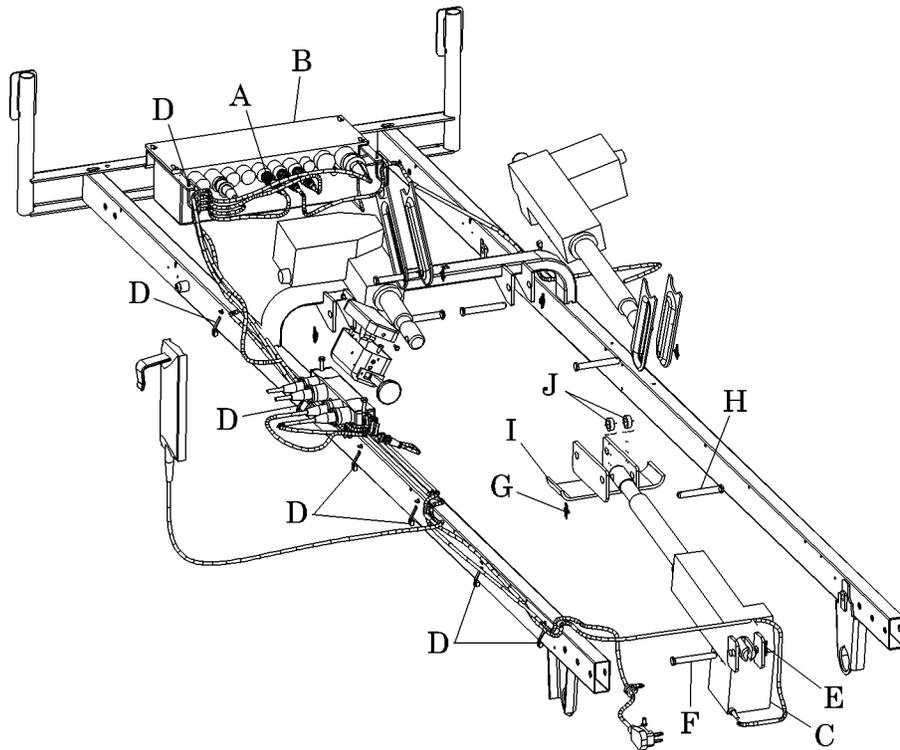
2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower the bed to its lowest position.



WARNING:

The bed is always energized when connected to a power source. Unplug the bed from its power source before performing any service on the bed. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the bed from its power source.
5. Remove any mattress from the unit.
6. Raise the head section to its highest elevation to provide easy access to the hilow actuator.
7. Remove the hilow actuator plug (A) from the electrical control/lockout box (B) (see figure 4-16 on page 4-41).

Figure 4-16. Hilow Actuator Motor Frame Connection

m259_043

8. Note the hilow actuator (C) cable routing, and cut the cable ties (D) that secure the hilow actuator (C) cable to the bed frame.

**WARNING:**

If the bed cannot be lowered to its lowest position, brace the intermediate frame components securely to prevent sudden collapse when the support of the actuator motor is removed. Failure to do so could result in serious personal injury.

9. If necessary, brace the intermediate frame sections in their raised position.
10. Remove the ring (E) that secures the hilow actuator (C) motor to the frame support bracket.
11. Support the hilow actuator (C) motor, and remove the clevis pin (F).
12. Lower the hilow actuator (C) motor, and let it rest on the floor.
13. Mark the support brace holes that you remove the clevis pin from.

NOTE:

The new actuator tip must be installed in the same holes.

14. Remove the rue ring (G) and clevis pin (H) that secure the tip of the hilow actuator (C) rod and the two spacers (J) to the hilow section support brace (I).

Replacement



CAUTION:

The RESIDENT® Low Bed is made in 76" (193 cm) and 80" (203 cm) lengths. Install the hilow actuator rod tip in the correct support brace hole in order for the hilow function to operate properly. Failure to install the hilow actuator in the correct position for the bed size could result in damage to the unit.

1. Align the hole in the tip of the hilow actuator (C) rod between the two spacers (J) and the appropriate holes in the hilow section support brace (I).
2. Insert a clevis pin (H) through the aligned holes, and secure it with a rue ring (G).
3. Lift the hilow actuator (C) motor, and align the hole in the support knob with the holes in the frame bracket.
4. Insert a clevis pin (F) through the aligned holes, and secure it with a rue ring (E).
5. Route the hilow actuator (C) cable along the same route it was removed from, and secure the hilow actuator (C) cable to the frame with cable ties (D).
6. Insert the hilow motor actuator plug (A) into the appropriate port on the electrical control/lockout box (B).
7. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

4.15 Automatic Contour Assembly

Tools required: Blue Loctite®¹ adhesive (P/N SA3618)
Phillips head screwdriver
7/16" Torx®² driver bit
Cable tie tool

Removal

1. Move the bed to a convenient working location.



WARNING:

Lock all caster brakes. Failure to do so could result in inadvertent movement of the bed. This could cause equipment damage or personal injury.

2. Raise the foot end siderails, and lock all caster brakes or floor lock brakes.
3. If possible, lower the bed to its lowest position.



WARNING:

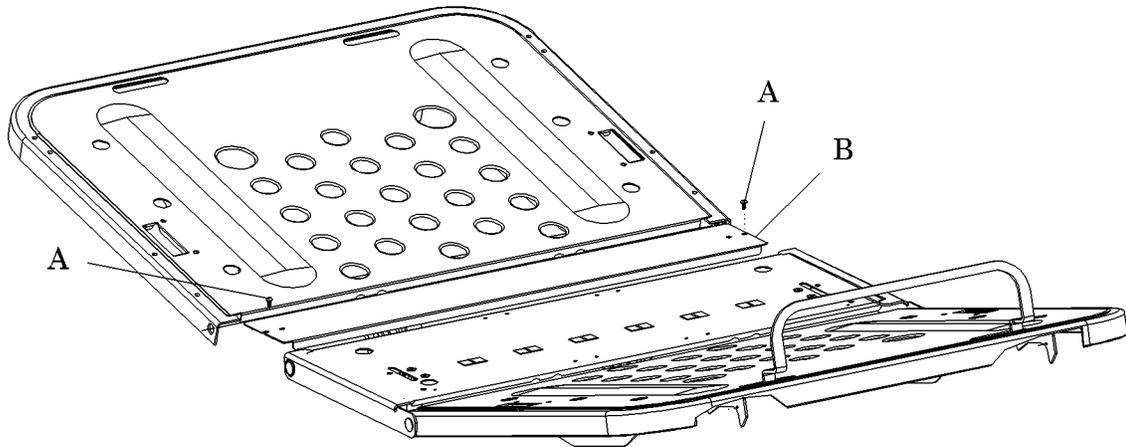
The bed is always energized when plugged into a power source. Unplug the unit from its power source. Failure to do so could result in inadvertent movement of the bed and could cause personal injury.

4. Unplug the bed from its power source.
5. Remove any mattress from the unit.
6. Remove the two Torx® head screws (A) that secure the seat pan (B) to the intermediate frame (see figure 4-17 on page 4-44).

1. Loctite® is a registered trademark of Loctite Corporation.

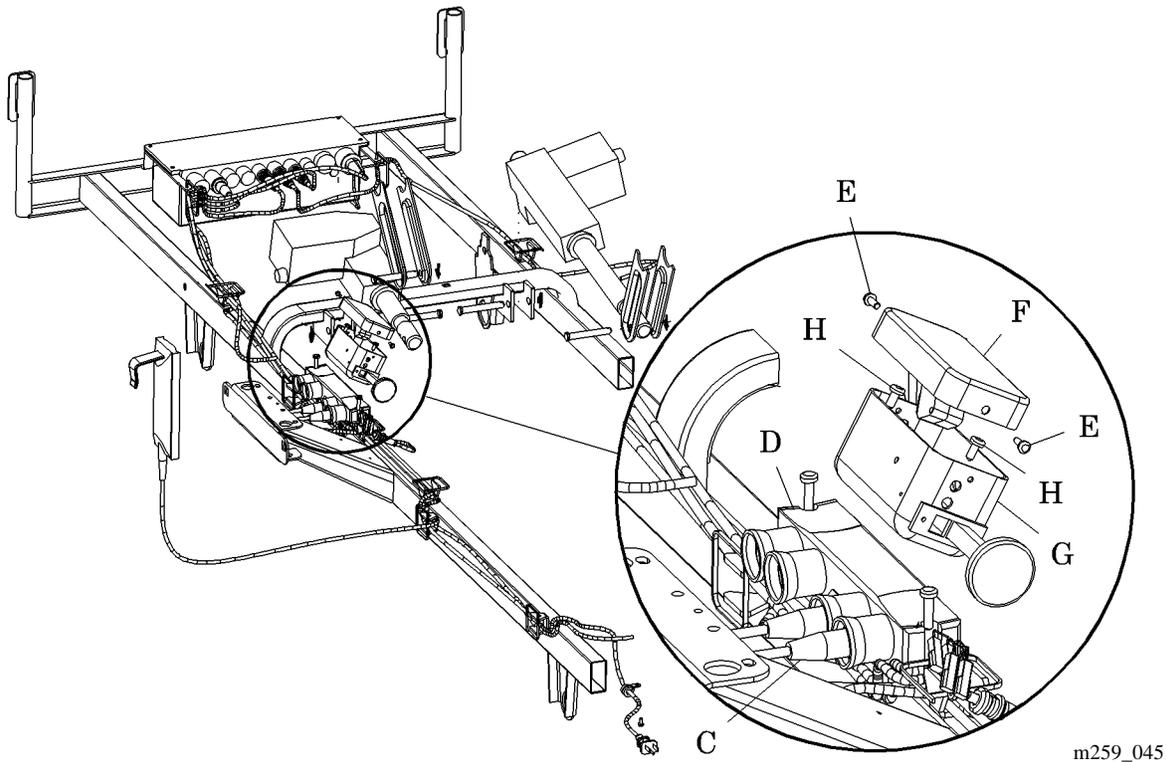
2. Torx® is a registered trademark of Textron, Inc.

Figure 4-17. Seat Pan Attachment



m259_044

7. Remove the automatic contour plug (C) from the junction box (D) (see figure 4-18 on page 4-45).

Figure 4-18. Automatic Contour Control Assembly

m259_045

8. Remove the two screws (E), and lift the cover (F) from the automatic contour control assembly (G).
9. Remove the two screws (H) that hold the automatic contour control assembly (G) to the frame.

Replacement

1. Align the mounting holes in the bottom of the automatic contour control assembly (G) with the mounting holes on the frame.
2. Insert the two screws (H) to secure the automatic contour control assembly (G) to the frame.
3. Place the cover (F) on the automatic contour control assembly (G), and secure it with two screws (E).
4. Insert the automatic contour plug (C) into the junction box (D).
5. Place the seat pan (B) in position on the frame (see figure 4-17 on page 4-44).

6. Apply Loctite®¹ adhesive to two Torx®² head screws (A), and install them through the seat pan (B) to secure it to the frame.
7. To ensure proper operation of the RESIDENT® Low Bed, perform the “Function Checks” on page 2-4.

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

Chapter 5

Parts List

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NOTES:

Warranty

HILL-ROM, INC. LIMITED WARRANTY

Hill-Rom, Inc. (Hill-Rom) has a long tradition of providing superior products and service to our customer. Our goal is "Total Customer Satisfaction". In that spirit, Hill-Rom is proud to offer the following warranty.

GENERAL WARRANTY (APPLICABLE UNLESS A SPECIFIC WARRANTY IS LISTED)

Hill-Rom warrants to the original purchaser that its products and replacement parts shall be free from defects in material and workmanship for a period of one (1) year from date of delivery. Hill-Rom's obligation under this warranty is expressly limited to supplying replacement parts and/or service for, or replacing, at its option, any product which is, in the sole discretion of Hill-Rom, found to be defective. In addition to the foregoing one year warranty, Hill-Rom warrants to the original purchaser that the frame and welds on its products will be free from structural defects for the life of the product. Any product upgrade or modification initiated by Hill-Rom does not affect the original product warranty.

SPECIFIC WARRANTIES

MATTRESS WARRANTIES

Hill-Rom warrants to the original purchaser that its mattress product shall be free from defects in material and workmanship for a period of two (2) years from date of delivery. However, electro mechanical mattress components (compressors, valves, printed circuit boards, hoses, and couplers) are covered by the general one (1) year warranty.

EXPENDABLES WARRANTIES

A sixty (60) day limited warranty from date of delivery applies to expendable parts such as cushions, coverlets, software diskettes, locator badge batteries, dome light incandescent bulbs, overhead fluorescent tubes, heating elements, temperature probes, filter sheets, and microspheres. This warranty is limited to replacement of the parts covered.

TO OBTAIN PARTS AND SERVICE

In the United States, call Hill-Rom Technical Support Department at (800) 445-3720, Monday through Friday. In Canada, call Hill-Rom Technical Support Department at (800) 267-2337, Monday through Friday. Outside the United States and Canada, call your authorized Hill-Rom Distributor. In order to expedite service, we request you furnish the following information: customer identification number, product model number, serial number, and description of problem. A qualified specialist will provide, via telephone (United States and Canada), or FAX (Outside the United States and Canada), troubleshooting assistance for facility personnel and provide necessary parts to make repairs. If troubleshooting determines the need for on-site technical service, a qualified service representative will be dispatched. Replacement of non-technical items will be the responsibility of the customer. If requested by Hill-Rom, products or parts for which a warranty claim is made shall be returned prepaid to Hill-Rom's factory.

OUT OF WARRANTY EXCHANGE POLICY

After the expiration of the original warranty, upon request, Hill-Rom will ship as a replacement, components such as selected: motors and printed circuit boards, for like units returned to Hill-Rom by the original purchaser at a substantial savings. Please call Hill-Rom Technical Support Department for current pricing.

PARTS AVAILABILITY POLICY

Hill-Rom will offer parts for new and remanufactured products for ten (10) years from date of sale; for communications products for five (5) years from date of sale.

Note: Some original component parts and assemblies may not be available; functional equivalents may be substituted.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE. HILL-ROM'S OBLIGATION UNDER THESE WARRANTIES SHALL NOT INCLUDE ANY LIABILITY FOR LOSS OF PROFITS, DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES OR DELAYS.

Some states, provinces, or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply. Any improper or negligent use, any alterations or repairs not in accordance with Hill-Rom's manuals or performed by others in such manner as in Hill-Rom's sole judgment affects the product materially and adversely, shall void these warranties. These warranties do not cover failures due to misuse, abuse, neglect, or lack of routine maintenance. No employee or representative of Hill-Rom is authorized to change these warranties in any way or grant any other warranty unless in writing and signed by a Hill-Rom officer. These warranties provide specific legal rights; but, there may be other available rights, which vary from state to state, province to province, or country to country.

Revised October 20, 1998

Warranty

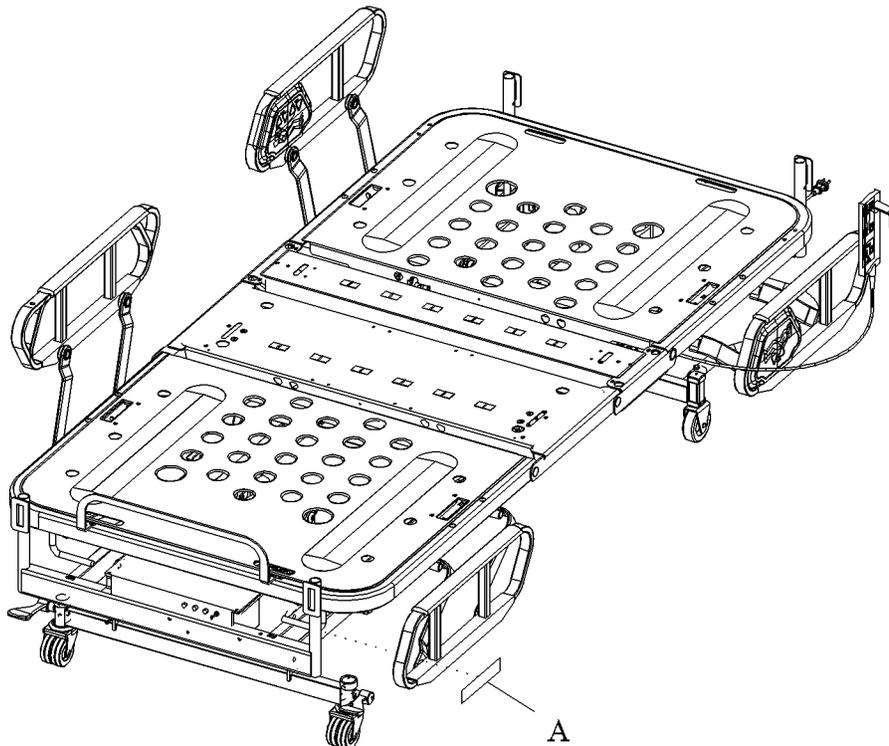
Chapter 5: Parts List

NOTES:

Service Parts Ordering

Using the parts lists in this manual, identify the part number(s) you require. Find the product number and serial number on the product identification label (A) (see figure 5-1 on page 5-5).

Figure 5-1. Product Identification Label Location



m259_056

Call Hill-Rom Technical Support at (800) 445-3720 with the following information:

- Six-digit customer account number
- Purchase order number
- Product number
- Serial number
- Part number(s)

Hill-Rom also provides a fax number to promptly order parts, request part prices and availability, or follow up on a service order. The fax number is (812) 934-8472.

Terms:

- Net 30 days
- F.O.B. Batesville, IN
- Prepaid shipping charges added to invoice
- All orders shipped UPS ground unless specified

Address all inquiries to:

ATTN TECHNICAL SUPPORT—PARTS
HILL-ROM COMPANY, INC.
1069 STATE ROUTE 46 E
BATESVILLE IN 47006-9167

Address all return goods to:

ATTN SERVICE STORES
DISTRIBUTION CENTER DOOR D23
HILL-ROM COMPANY, INC.
COUNTY ROAD 300E
BATESVILLE IN 47006-9167

NOTE:

To eliminate possible delays or incorrect billings, **do not** return any items without a Return Material Authorization (RMA) number. When a return is requested, an RMA packet is included with each order. This packet includes an RMA number, instructions, and a shipping label. If an RMA number is not available, obtain one by phoning Hill-Rom Technical Support at (800) 445-3720.

Exchange Policy

The following are policies for in-warranty and out-of-warranty exchanges from Hill-Rom.

In-Warranty Exchanges

In some cases, Hill-Rom will request that parts/products be returned for inspection. When this occurs, you are expected to return parts/products within 30 days of receipt of the exchange part. If you fail to return the inoperative parts/products within the 30 day period, Hill-Rom will invoice your facility for the full selling price of the parts/products.

NOTE:

The preceding billing procedure pertains **only** to parts/products that Hill-Rom requests to be returned.

In some cases, the invoice accompanying the parts will show the full selling price (only for internal use at Hill-Rom). Do not confuse this price with your price.

Do not return any parts without an RMA number. When parts/products have been requested to be returned, Hill-Rom will include an RMA packet with the parts/products shipment. If an RMA number is not available, obtain one by phoning Hill-Rom Technical Support at (800) 445-3720.

Out-of-Warranty Exchanges

You are expected to return the inoperative parts/products within 30 days of receipt of the exchange part. Hill-Rom will include an RMA packet with the parts/products shipment. If an RMA number is not available, obtain one by phoning Hill-Rom Technical Support at (800) 445-3720. Hill-Rom will invoice your facility for the full selling price of the parts/products. Upon return of the inoperative parts/products, Hill-Rom will issue a credit to your facility for the difference between the exchange price and the full selling price of the parts/products.

Recommended Spare Parts

For a recommended spare parts list to service five or more units, see table 5-1 on page 5-8.

Table 5-1. Recommended Spare Parts

Part Number	Quantity	Description
8252 (872)	1	2 oz. M-1 Oil
SA3351 (872)	1	4 oz. lithium grease
SA0646 (872)	1	Teflon® lubricant
65509 (872)	1	Pendant, handset (optional)
65507 (872)	1	Box, control
65510 (872)	1	Box, junction
65517 (872)	1	Cable, power supply
19124 (872)	10	Large cable tie
SA3618 (872)	1	Blue Loctite® ^b 10 cc bottle

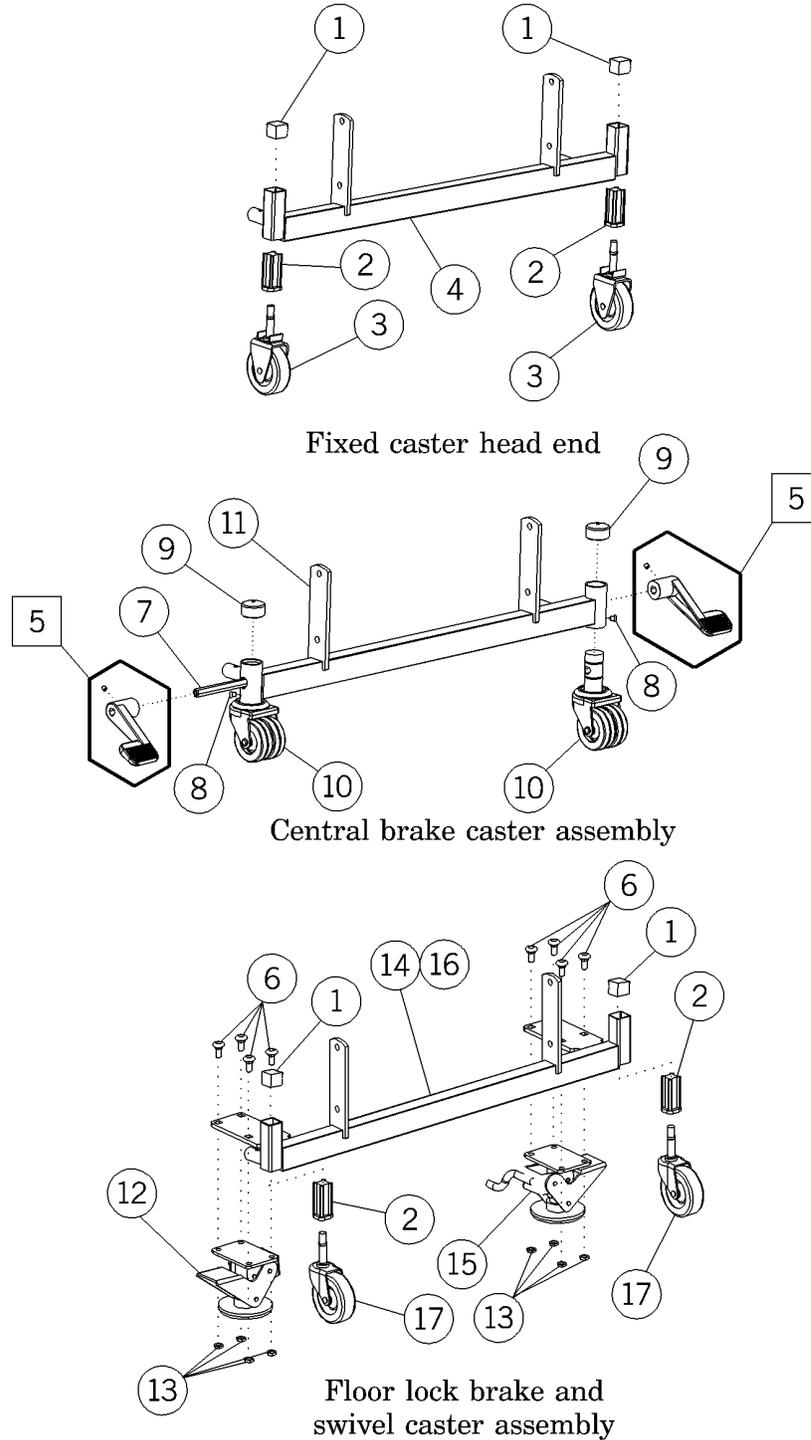
a. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.

b. Loctite® is a registered trademark of Loctite Corporation.

NOTES:

Base Frame and Caster Assemblies

Figure 5-2. Base Frame and Caster Assemblies



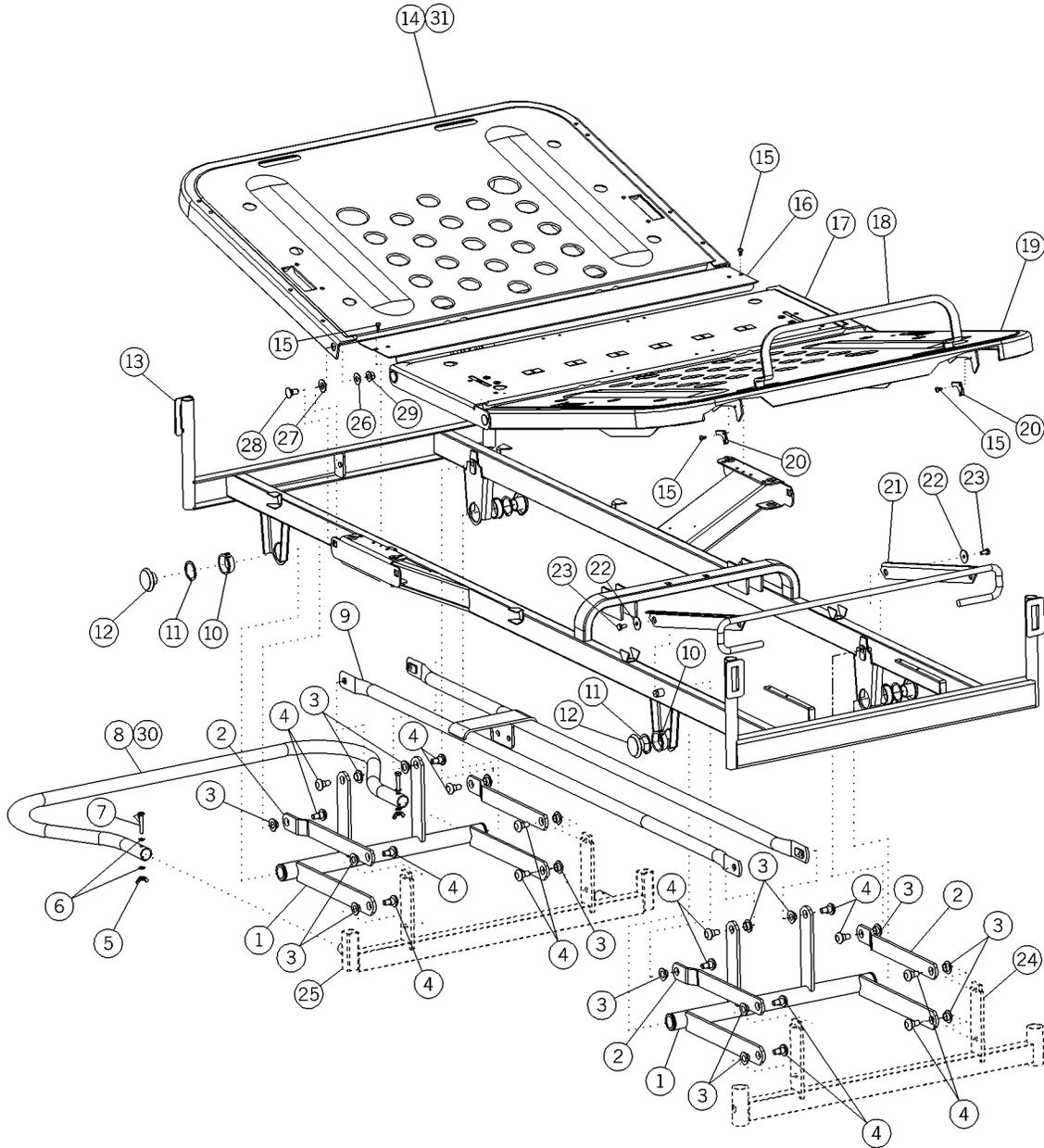
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Table 5-2. Base Frame and Caster Assemblies

Item Number	Part Number	Quantity	Description
1	65770 (872)	2 or 4	Cap 1" square (models with fixed caster head end or floor lock brakes only)
2	63067 (872)	2 or 4	Caster socket (models with fixed caster head end or floor lock brakes only)
3	63316 (872)	2	Caster, fixed (models with fixed caster head end only)
4	65413 (872)	1	Base, fixed caster weldment (models with fixed caster head end only)
5	65468 (872)	2 or 4	Pedal brake (models with central brake casters only)
6	65532 (872)	16	Bolt, carriage 5/16"-18 (models with floor lock brakes only)
7	65446 (872)	1 or 2	Rod, hex (models with central brake casters only)
8	63862 (872)	2 or 4	Cap screw, #10-24 x ¼", button (models with central brake casters only)
9	65769 (872)	2 or 4	Cap 1¼" outer diameter (models with central brake casters only)
10	6385501 (872)	2 or 4	Caster, central brake (models with central brake casters only)
11	65412 (872)	1 or 2	Base, pedal lock weldment (models with central brake casters only)
12	6552301 (872)	1 or 2	Brake, floor lock (lh) (models with floor lock brakes only)
13	32909 (872)	16	Locknut (models with floor lock brakes only)
14	65414 (872)	1	Base, floor lock weldment (models with floor lock head end only)
15	65523 (872)	1 or 2	Brake, floor lock (rh) (models with floor lock brakes only)
16	65524 (872)	1	Base, floor lock foot end (models with floor lock brakes only)
17	65525 (872)	2 or 4	Caster, swivel (models with floor lock brakes only)

Main Frame

Figure 5-3. Main Frame



m259_002

Table 5-3. Main Frame

Item Number	Part Number	Quantity	Description
1	65408 (872)	2	Pivot arm, lower assembly
2	4972833 (872)	4	Pivot arm upper
3	49800 (872)	16	Bushing
4	62828 (872)	16	Shoulder screw 3/8"-16
5	61078 (872)	2	Nut wing 1/4"-20
6	27251 (872)	4	Washer
7	90018-24 (872)	2	1/4"-20 x 1 1/2" hex head machine bolt
8	610350733 (872)	1	Bumper, base board (76" model only)
9	65463 (872)	1	Connector, weldment (pivot) (76" model only)
10	24452 (872)	4	Bushing
11	24449 (872)	4	Retaining ring
12	33355-33 (872)	4	Pointer
13	Reference only	1	Intermediate frame weldment
14	65388 (872)	1	Deck, head section weldment (76" model only)
15	43878 (872)	4	Torx® button head screw
16	65379 (872)	1	Pan, seat
17	65397 (872)	1	Deck, thigh section weldment
18	39901 (872)	1	Mattress stop—powder-coated
19	65394 (872)	1	Deck, foot section weldment
20	19887 (872)	2	Foot rack insert
21	65411 (872)	1	Rack, foot weldment
22	3869 (872)	2	Washer 1" outer diameter
23	9936 (872)	2	Hex bolt, 1/4"-20 x 1/2"
24	65412 (872)	1	Base, pedal lock weldment
25	65413 (872)	1	Base, fixed caster weldment
26	4540 (872)	6	Washer
27	4630 (872)	6	Oilite® bushing

a. Torx® is a registered trademark of Textron, Inc.

b. Oilite® is a registered trademark of Beemer Precision, Incorporated.

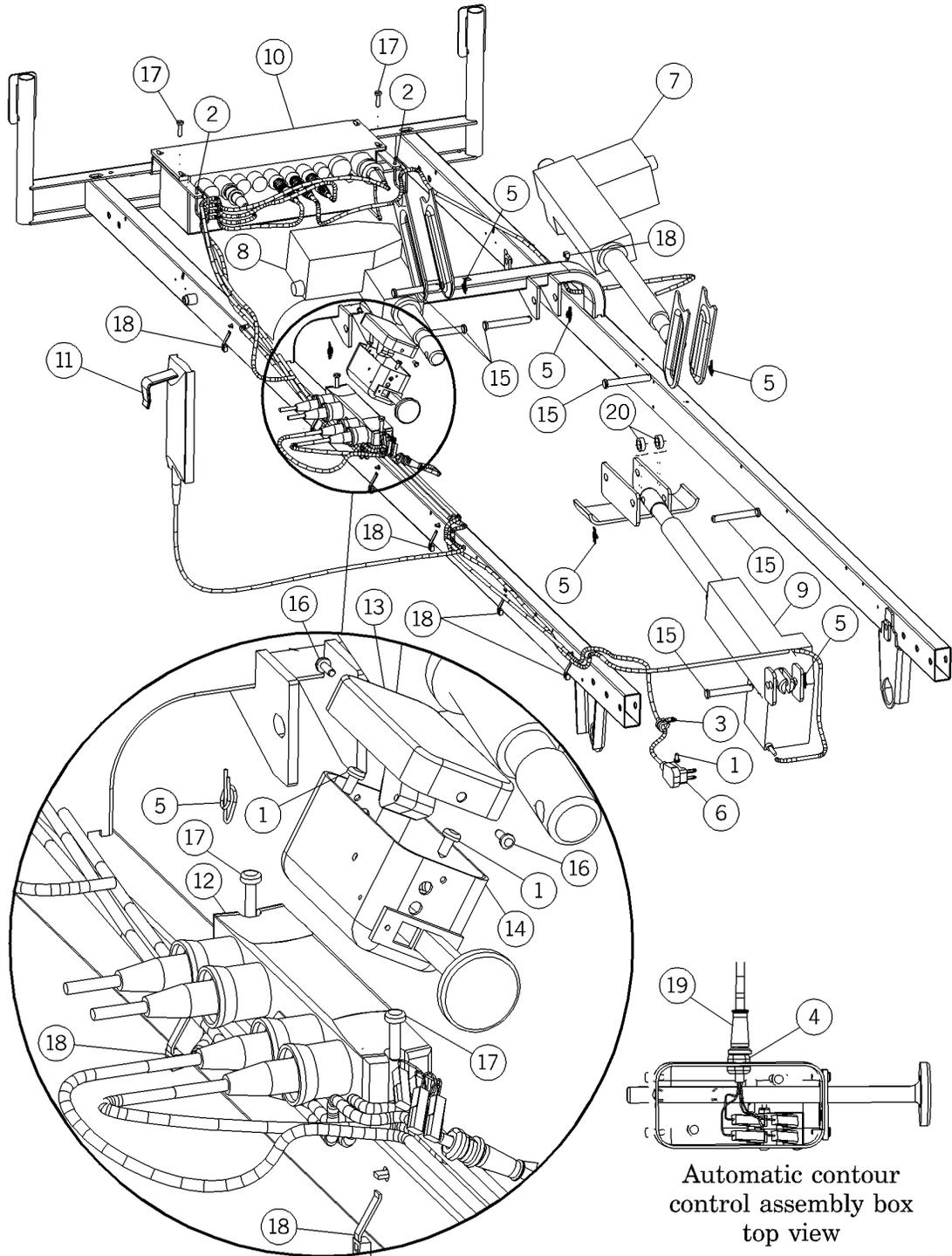
Item Number	Part Number	Quantity	Description
28	37104 (872)	6	Shoulder screw, 3/8"-24 black
29	90234-22 (872)	6	Locknut
30	610350233 (872)	1	Bumper, base board (80" model only)
31	653880133 (872)	1	Deck, head section weldment (80" model only)

NOTES:



Electrical Assemblies

Figure 5-4. Electrical Assemblies



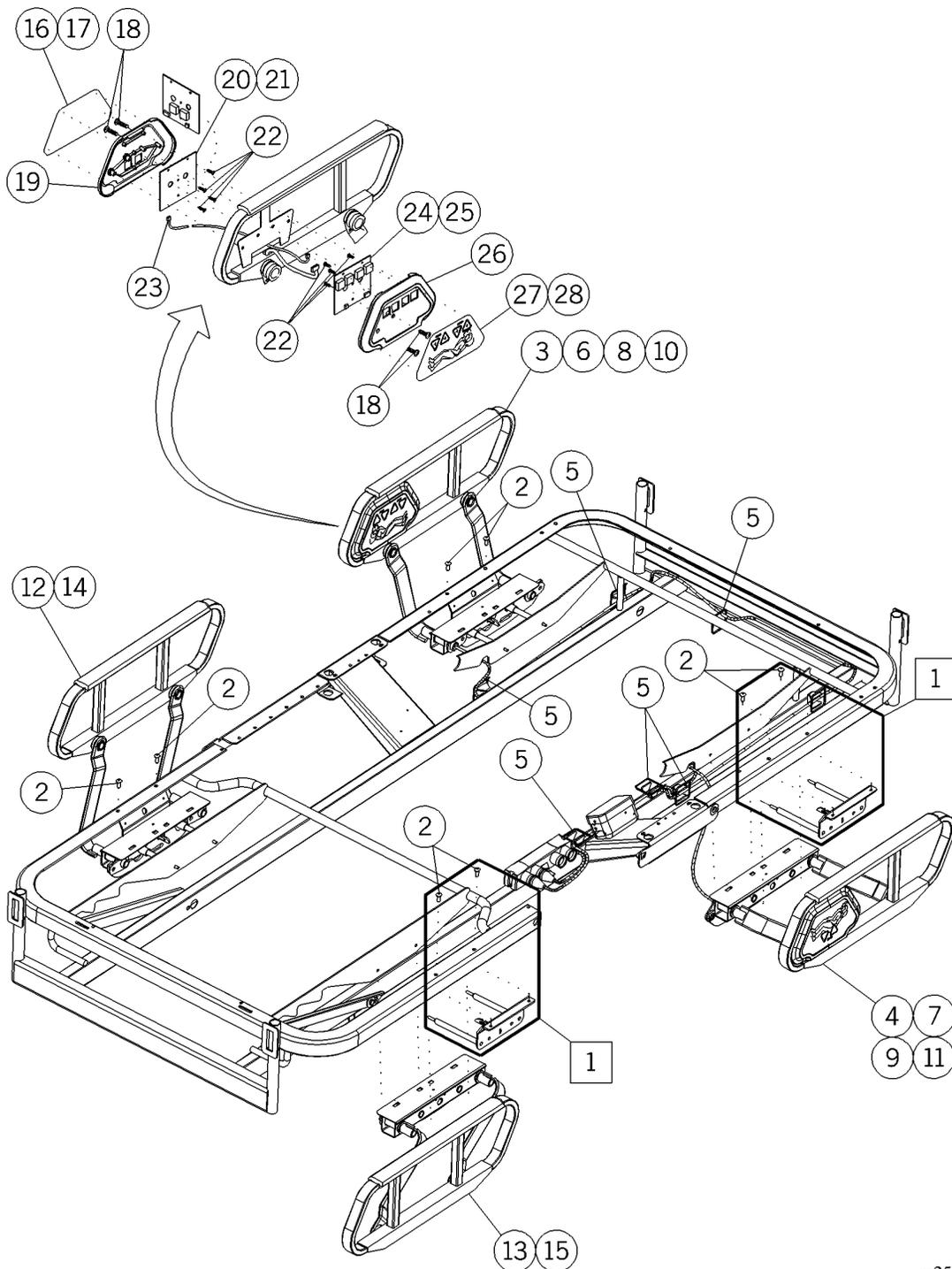
m259_005

Table 5-4. Electrical Assemblies

Item Number	Part Number	Quantity	Description
1	18252 (872)	3	Screw
2	19124 (872)	9	Large cable tie
3	25200 (872)	1	Speed clamp
4	34844 (872)	1	Strain relief
5	61615 (872)	6	Rue ring cotter
6	65517 (872)	1	Cable, power supply
7	65441 (872)	1	Actuator, head
8	65442 (872)	1	Actuator, knee
9	65443 (872)	1	Actuator, hilow
10	65507 (872)	1	Box, control
11	65509 (872)	1	Pendant, handset (optional)
12	65510 (872)	2	Box, junction
13	2231901 (872)	1	Automatic contour cover
14	65543 (872)	1	Box, automatic contour control assembly
15	6314301 (872)	6	Clevis pin, 2½"
16	9023506 (872)	2	Screw
17	41663 (872)	4	Screw
18	66069 (872)	7	Wire tie push mount
19	65511 (872)	1	Cable, automatic contour
20	6333402 (872)	2	Spacer

Siderail Assemblies

Figure 5-5. Siderail Assemblies



m259_046

Table 5-5. Siderail Assemblies

Item Number	Part Number	Quantity	Description
1	SA1672 (872)	2 or 4	Slide bracket, screws
2	43880 (872)	4 or 8	Torx® pan head screw
3	6562202 (872)	1	Head siderail assembly with controls, rh (optional)
4	6562201 (872)	1	Head siderail assembly with controls, lh (optional)
5	19124 (872)	7	Large cable tie (for use with siderail assemblies with controls only)
6	6579802 (872)	1	Head siderail assembly without controls, rh (optional)
7	6579801 (872)	1	Head siderail assembly without controls, lh (optional)
8	6562204 (872)	1	Head siderail assembly with controls and extension, rh (optional)
9	6562203 (872)	1	Head siderail assembly with controls and extension, lh (optional)
10	6579804 (872)	1	Head siderail assembly with extension and no controls, rh (optional)
11	6579803 (872)	1	Head siderail assembly with extension and no controls, lh (optional)
12	6562102 (872)	1	Foot siderail assembly with top cane, rh (optional)
13	6562101 (872)	1	Foot siderail assembly with top cane, lh (optional)
14	6562104 (872)	1	Foot siderail assembly with extension, rh (optional)
15	6562103 (872)	1	Foot siderail assembly with extension, lh (optional)
16	6007101 (872)	1	Siderail control label, outer, lh (lh siderail assembly only)
17	6007102 (872)	1	Siderail control label, outer, rh (rh siderail assembly only)
18	9018816 (872)	4	Hilow screw
19	4991702 (872)	1	Side reminder switch housing (outboard)

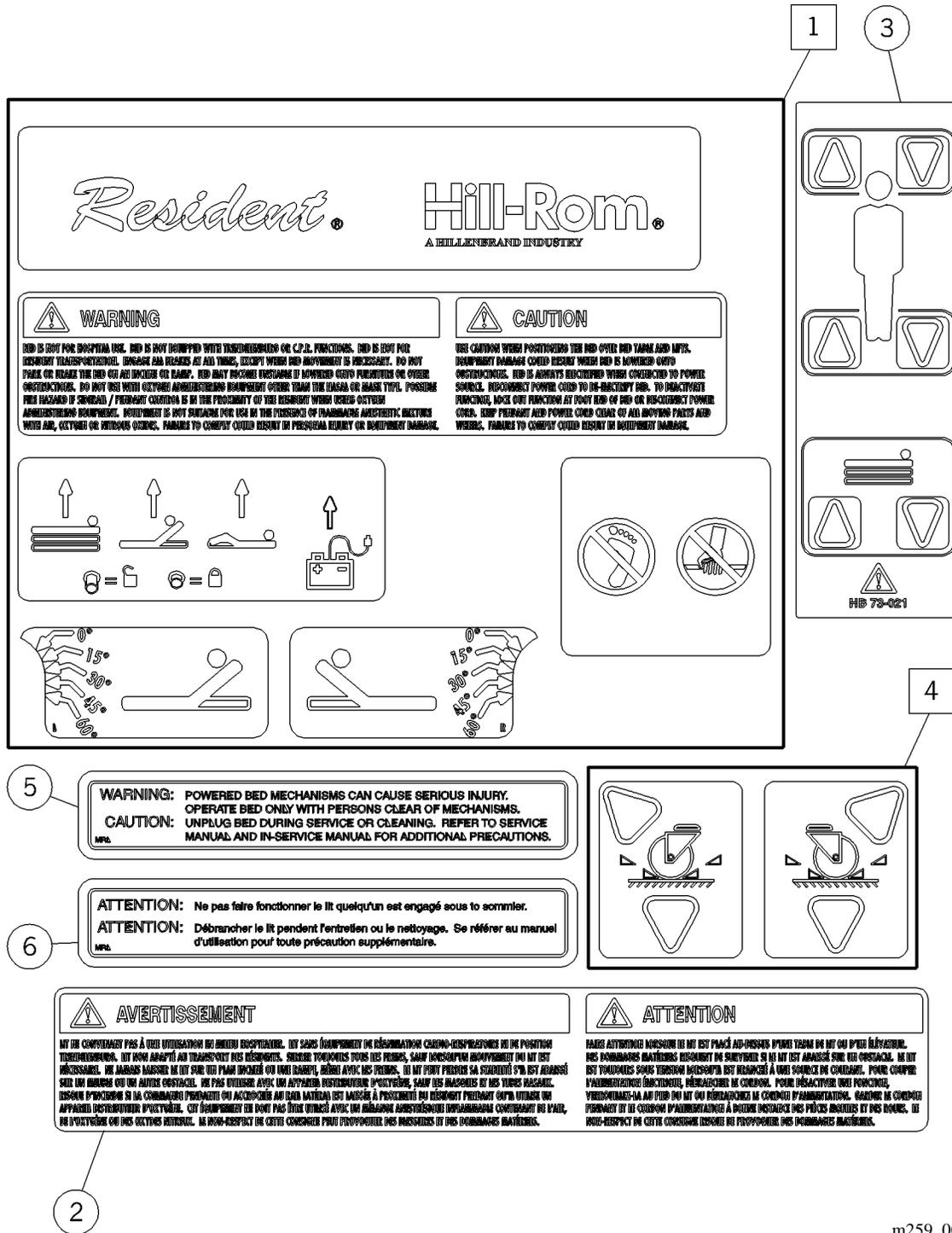
a. Torx® is a registered trademark of Textron, Inc.

Item Number	Part Number	Quantity	Description
20	6011303 (872)	1	Siderail control, lh, outer (lh siderail assembly only)
21	6011302 (872)	1	Siderail control, rh, outer (rh siderail assembly only)
22	90349-05 (872)	8	Hilow screw
23	49932 (872)	2	Cable, interconnect
24	6011304 (872)	1	Siderail control, lh, inner (lh siderail assembly only)
25	6011301 (872)	1	Siderail control, rh, inner (rh siderail assembly only)
26	4991701 (872)	1	Side reminder switch housing (inboard)
27	6007601 (872)	1	Siderail control label, inner, lh (lh siderail assembly only)
28	6007602 (872)	1	Siderail control label, inner, rh (rh siderail assembly only)

NOTES:

Labels

Figure 5-6. Labels



m259_003

Table 5-6. Labels

Item Number	Part Number	Quantity	Description
1	65508 (872)	1	Label, bundle
2	65541 (872)	1	Label, warning (French)
3	Reference only	1	Label, pendant
4	61208 (872)	1	Label, brake LTC
5	41696-02 (872)	2	Warning/caution label
6	416960201 (872)	2	Warning/caution label—French

NOTES:

Chapter 6

General Procedures

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NOTES:

Cleaning and Care

**WARNING:**

Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

**SHOCK HAZARD:**

Unplug the unit from its power source. Failure to do so could result in personal injury or equipment damage.

**SHOCK HAZARD:**

Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

**CAUTION:**

Do not use harsh cleaners, solvents, or detergents. Equipment damage could occur.

General Cleaning

Clean the unit with a lightly dampened cloth and ordinary disinfectants. Do not use excessive liquid.

Steam Cleaning

Do not use any steam cleaning device on the RESIDENT® Low Bed. Excessive moisture can damage mechanisms in this unit.

Cleaning

To remove difficult spots or stains, use standard household cleaners and a soft bristle brush. To loosen heavy, dried-on soil or excreta, you may first need to saturate the spot.

Disinfecting

Dilute disinfectants and germicides as specified on the manufacturer's label.

Mattress Care



CAUTION:

Repeated soaking of the mattress fabric will accelerate wear. Improper cleaning procedures may void the warranty and result in equipment damage.

Clean the mattress fabric with neutral soap suds and lukewarm water. Rinse with clear water, and allow the fabric to dry.

Care of Wooden Headboards and Footboards

Wood products from Hill-Rom are treated with a resin-based sealer and finish which provide resistance to abrasion, staining, fluids, and fire.



CAUTION:

Use a diluted solution of ammonia or household detergent to clean the wood surfaces. If used in high concentrations, many cleaners have a softening effect on any painted or finished surface. Equipment damage could result.

Clean the headboard and footboard by wiping with a soft cloth dampened with the Hill-Rom-approved or facility-approved disinfectant followed by a dry cloth. Use diluted solutions of ammonia or household detergent to clean the wood surfaces.

Do not allow a wet cloth to lay on wooden surfaces. Immediately wipe up any liquid spilled on the surface to prevent possible finish damage.

Apply a liquid furniture polish to the wooden surfaces to protect the finish.

Lubrication Requirements



WARNING:

Follow the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.



CAUTION:

Do not use silicone-based lubricants. Equipment damage could occur.

Oilite®¹ bearings and bushings are utilized in several places on the system. By retaining oil, the pores give a self-lubricating quality to the bearings and bushings. If any silicone-based lubricant is applied to the bearings and bushings or anywhere else on the system, this self-lubricating quality is neutralized.

It is safe to apply the following lubricants to the system (see table 6-1 on page 6-5):

Table 6-1. Lubricants

Part Number	Description
8252 (872)	2 oz. M-1 Oil (apply to Oilite® bearings and bushings)
SA3351 (872)	4 oz lithium grease
SA0646 (872)	Teflon® ² lubricant (apply to areas where oil or grease are inappropriate, or where physical contact by the resident is possible)

1. Oilite® is a registered trademark of Beemer Precision, Incorporated.
2. Teflon is a registered trademark of E. I. du Pont and de Nemours and Company.

Preventive Maintenance



WARNING:

Only facility-authorized personnel should perform preventive maintenance on the RESIDENT® Low Bed. Preventive maintenance performed by unauthorized personnel could result in personal injury or equipment damage.

The RESIDENT® Low Bed requires an effective maintenance program. We recommend that you perform annual preventive maintenance (PM) and testing for Joint Commission on Accreditation of Healthcare Organizations (JCAHO). PM and testing not only meet JCAHO requirements but will help ensure a long, operative life for the RESIDENT® Low Bed. PM will minimize downtime due to excessive wear.

The following PM schedule guides you through a normal PM procedure on the RESIDENT® Low Bed. During this PM process, check each item on the schedule, and make the necessary adjustments.

Follow the PM schedule with the corresponding PM checklist. This checklist is designed to keep a running maintenance history and subsequent repair costs for one RESIDENT® Low Bed. However, your facility can modify this checklist or design another to fit your needs. Keeping close records and maintaining the RESIDENT® Low Bed are two effective ways to reduce downtime and ensure the patient remains comfortable.

Preventive Maintenance Schedule

Table 6-2. Preventive Maintenance Schedule

Function	Procedure
Hilow limits	Position the hilow function to its upper and lower limits of 26" to 11.5" (66 cm to 29.2 cm) to ensure proper function of the hilow drive assembly. Lubricate the hilow drive assembly.
Automatic contour	Raise the head section from its full-flat position, and verify that the knee section begins to rise to an angle of 15°.
Head section limits	Position the head section from its full-flat position to its maximum angle of 65° to ensure proper function of the head drive assembly. Lubricate the head drive assembly.
Knee section limits	Position the knee section from its full-flat to its maximum angle of 25° to ensure proper function of the knee drive assembly. Lubricate the knee drive assembly.
Brakes	Test the brakes to determine if bed movement occurs when the brakes are engaged.
Casters	Test the swivel casters to ensure they do not bind. Check all casters for cuts, wear, tread, etc. Replace if necessary.
Siderails	Inspect the siderails for proper up, down, and storage operation. Inspect the release latch for proper operation. Lubricate the release latch mechanism.
Lockout box	Test each control lockout switch individually to ensure proper operation.
Pendant control	Test each pendant control switch individually to ensure the corresponding function operates properly and stops once the switch is released.
Wiring	Inspect the power cord, plug, and wiring for cuts, nicks, or breaks. Ensure that the wiring is routed to avoid pinching. Replace if necessary.
Pivot points	Using Teflon [®] lubricant, lubricate all pivot points on the bed.
Headboard and footboard	Inspect the headboard and footboard for proper aesthetics. Clean and touch-up the headboard and footboard as necessary.
Overall appearance	Inspect the condition of the labels, paint, and general aesthetics. Replace the labels, touch-up the paint, and clean as necessary.

a. Teflon[®] is a registered trademark of E. I. du Pont and de Nemours and Company.

Preventive Maintenance Checklist

Table 6-3. Preventive Maintenance Checklist

Date																Function	
Hill-Rom	Manufacturer																Hilow limits
																	Automatic contour
																	Head section limits
																	Knee section limits
																	Brakes
																	Casters
																	Siderails
	Model Number															Lockout box	
																Pendant control	
																Wiring	
																Pivot points	
																Headboard/footboard	
																Overall appearance	
	Serial Number																
Total Cost for this Page															Labor Time:		
															Repair Cost:		
															Inspected by:		
														Legend L=Lube C=Clean A=Adjust R=Repair or Replace O=Okay N=Not Applicable Remarks:			

Tool and Supply Requirements

To service the RESIDENT® Low Bed, the following tools and supplies are required:

- ½" socket
- Drive ratchet
- Blue Loctite®¹ adhesive (P/N SA3618)
- 5/16" Torx®² driver bit
- 7/16" Torx® driver bit
- Screwdriver
- Phillips head screwdriver
- ¼" Allen™³ wrench
- ½" wrench
- Hammer
- Pliers
- Drift punch
- Crescent wrench
- Teflon®⁴ lubricant (P/N SA0646)
- E-ring tool
- Cable tie tool

1. Loctite® is a registered trademark of Loctite Corporation.

2. Torx® is a registered trademark of Textron, Inc.

3. Allen™ is a trademark of Industrial Fasteners, Inc.

4. Teflon® is a registered trademark of E. I. du Pont and de Nemours and Company.

NOTES:

Chapter 7

Accessories

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NOTES:

Accessories

For RESIDENT® Low Bed accessories, see table 7-1 on page 7-3.

Table 7-1. Accessories List

Product Number	Description
P2217 (872)	IV rod
P846A01 (872)	Trapeze support (80" model bed only)
P846A01-1 (872)	Trapeze support (76" model bed only)
P9912A01 (872)	Bed extender
P442 (872)	Auxiliary power supply
P4071 (872)	Hearthside head panel and foot panel
P4072 (872)	Heirloom head panel and foot panel
P4073 (872)	Artisan Post head panel and foot panel
P4074 (872)	Artisan Dentil head panel and foot panel

7.1 IV Rod—P2217

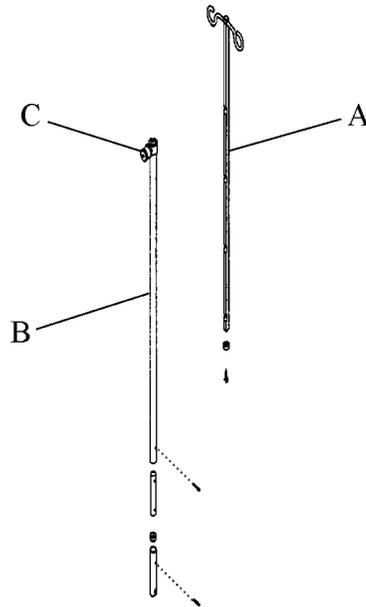
Tools required: None

The two-sectioned, telescopic IV rod mounts in any of the sockets located at the four corners of the bed. The IV rod is adjustable in length so that it may be raised or lowered.

Installation

Insert the IV rod (A) into the desired socket, and twist the lower section (B) clockwise to lock in place (see figure 7-1 on page 7-4).

Figure 7-1. IV Rod



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Adjustment

1. To extend the IV rod (A), pull upward on the upper section to the desired height.
2. To lower the IV rod (A), pull the release knob (C) out, and manually lower the upper section into the lower section (B).

Removal

Twist the lower section (B) counterclockwise, and lift the IV rod (A) from the socket.

7.2 Trapeze Support—P846A01 and P846A01-1

Tools required: ½" socket
 Drive ratchet
 ½" wrench

The trapeze support secures to either the head end or foot end of the bed, and has a maximum weight limit of 180 lb (82 kg).

Installation

1. Position the trapeze support on the main frame.
2. Using the ½" socket, ratchet, and ½" wrench, install the four bolts and two locknuts that secure the trapeze support to the main frame.
3. Using the ½" socket, ratchet, and ½" wrench, install the two bolts and two locknuts to prevent trapeze support slippage.



CAUTION:

Do not lower the bed frame with the trapeze support installed. Equipment damage could result.

4. Lockout the hilow feature at the lockout control box.

Removal

Perform the installation procedure in reverse order.

7.3 Ambulatory Assist Rail—P441

The ambulatory assist rail aids the resident when getting into or exiting the bed.

7.4 Bed Extender—P9912A01

The bed extender assembles to the foot end of the bed to enable taller residents to keep their feet on the bed.

7.5 Auxiliary Power Supply—P442

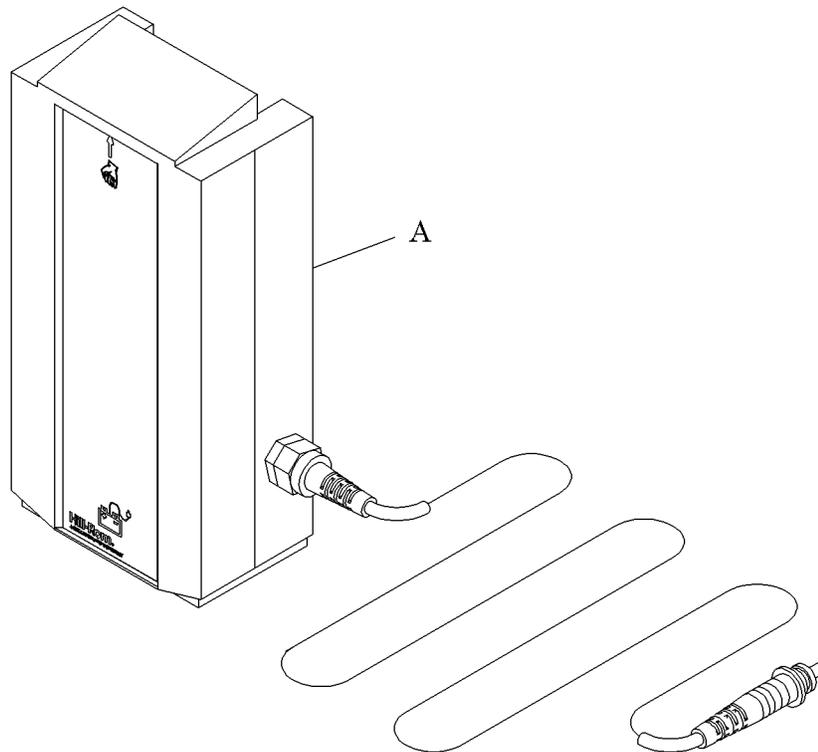
Tools required: None

The auxiliary power supply enables operation of the actuators to position the bed in the event of a power failure. The auxiliary power supply charges through a standard 120V AC, 60-cycle outlet, and can be fully charged in 24 hours. The auxiliary power supply allows up to 15 complete cycles of the hilow and head section when fully charged.

Installation

1. Charge the auxiliary power supply (A) before a power failure (see figure 7-2 on page 7-9).

Figure 7-2. Auxiliary Power Supply



2. During a power failure, plug the auxiliary power supply (A) into the electrical control/lockout box.

Removal

Unplug the auxiliary power supply (A) from the electrical control/lockout box.

7.6 Head Panel and Foot Panel—P4071, P4072, P4073, and P4074

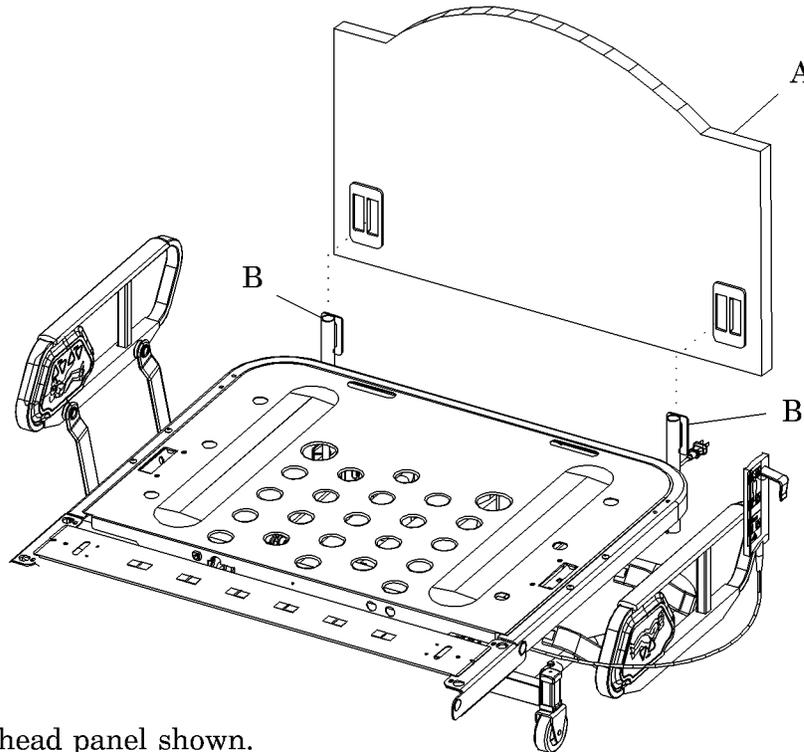
Tools required: None

The Hearthside head panel and foot panel (P4071), Heirloom head panel and foot panel (P4072), Artisan Post head panel and foot panel (P4073), and Artisan Dentil head panel and foot panel (P4074) are available as accessories.

Installation

1. Align the brackets on the head panel or foot panel (A) with the mounting posts (B) (see figure 7-3 on page 7-10).

Figure 7-3. Head Panel and Foot Panel



NOTE:
Hearthside head panel shown.

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2. Slide the head panel or foot panel (A) downward until it is fully engaged.

Removal

Lift the head panel or foot panel (A) vertically from the mounting posts (B).