SERVICE MANUAL

The Patient Care Bed

Remanufactured By Hill-Rom®

Product No. P8200/P8350

For Parts Or Technical Assistance **man039rb**
USA 1-800-445-3720 Canada 1-800-267-2337

Patient Care Bed Service Manual

Revisions

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The only product warranty intended by Hill-Rom is the express, written warranty accompanying the bill of sale to the original purchaser. Hill-Rom makes no other warranty, express or implied, and in particular, makes no warranty of merchantability or fitness for particular purpose.

Additional copies of this manual can be obtained from Hill-Rom.

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Chapter 1 Introduction

Chapter Contents

NOTES:

Purpose of this Manual

This manual provides the information required for normal operation and maintenance of the Hill-Rom Patient Care bed. It also includes a complete parts list for ordering replacement components. The parts list is located in chapter 5.

Who Should Use This Manual

This service manual is intended for use by qualified and authorized maintenance personnel only. Failure to observe this restriction can result in serious damage to material and/or severe injury to people.

Organization of this Manual

This service manual contains seven chapters.

Chapter 1: Introduction

You are currently reading chapter 1. This chapter defines the manual's purpose and who should use the information in the manual. It also describes the manual's organization and explains the meaning of the various typographical conventions used throughout the manual.

Chapter 2: Troubleshooting Procedures

Chapter 2 contains the proper Patient Care bed troubleshooting procedures. Included are troubleshooting introduction, initial actions, function checks, final actions, and repair analysis procedures.

Chapter 3: Theory of Operation

Chapter 3 contains the theory of operation for the installed electrical controls used on the Patient Care bed. Included are overall wiring and block diagrams, cable wiring diagrams, connector pinouts, component schematics, and subsystem theories.

Chapter 4: Removal, Replacement, and Adjustment Procedures

Chapter 4 contains removal, replacement, and adjustment procedures for the components of the Patient Care bed.

Chapter 5: Parts List

Chapter 5 contains Hill-Rom's warranty, replacement part ordering procedure, exchange policy, recommended spare parts lists, illustrated parts lists, and general service information.

Chapter 6: General Procedures

Chapter 6 contains cleaning and care, lubrication requirements, preventive maintenance, and Patient Care bed tool and supply requirements.

Chapter 7: Accessories

Chapter 7 includes available Patient Care bed accessories, illustrations, and mounting instructions.

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 Symbol

  - 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 an electrical shock hazard WARNING:

Figure 1-2. Electrical Shock Hazard Warning

Introduction to the Patient Care Bed

Operating Precautions

Before operating the Patient Care bed, be sure that you have read and understand in detail the contents of this manual. It is important that you read and strictly adhere to the aspects of safety immediately following. Any reference to a side of the bed is from the patient's view lying in the bed.

Bed Positions

The Patient Care bed has four sections: the head, seat, knee, and foot (see figure 1-3 on page 1-8). Bed positions are shown in figures 1-3 through 1-6.

Figure 1-3. Bed Location Description

Head section articulation position

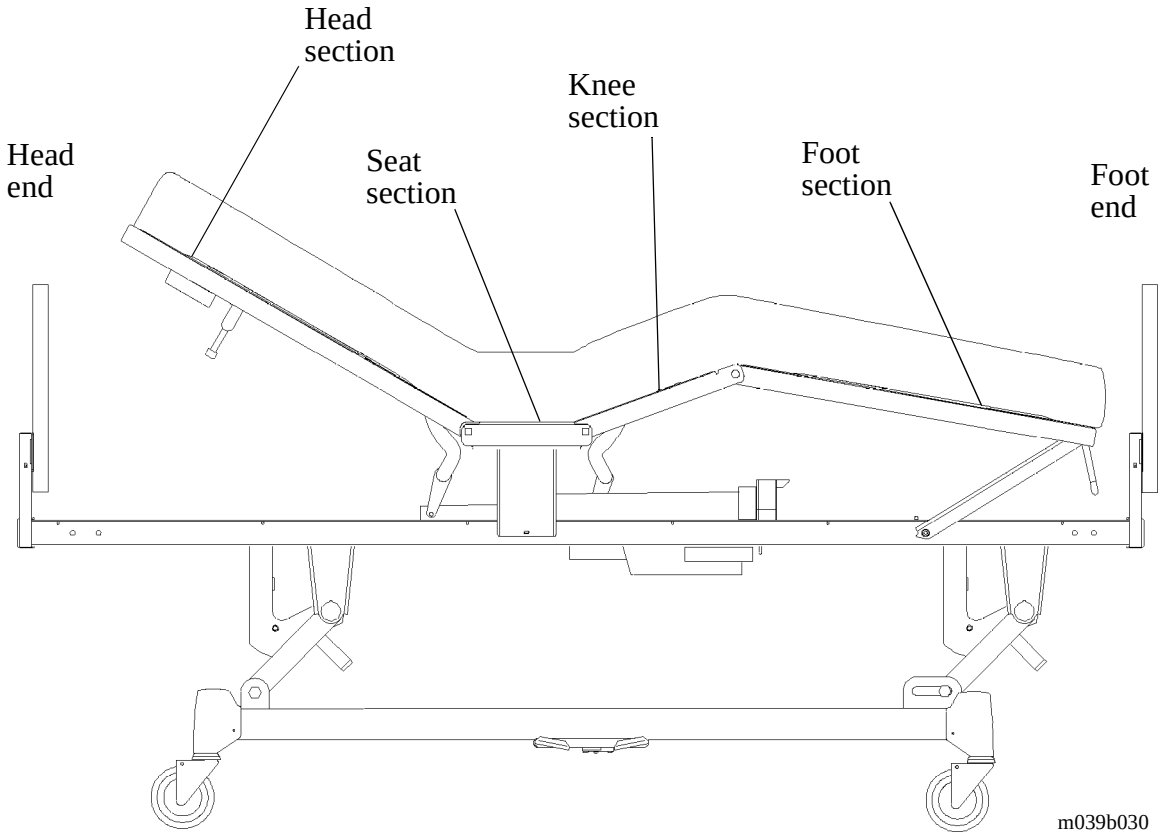


Figure 1-4. Hilow Positions

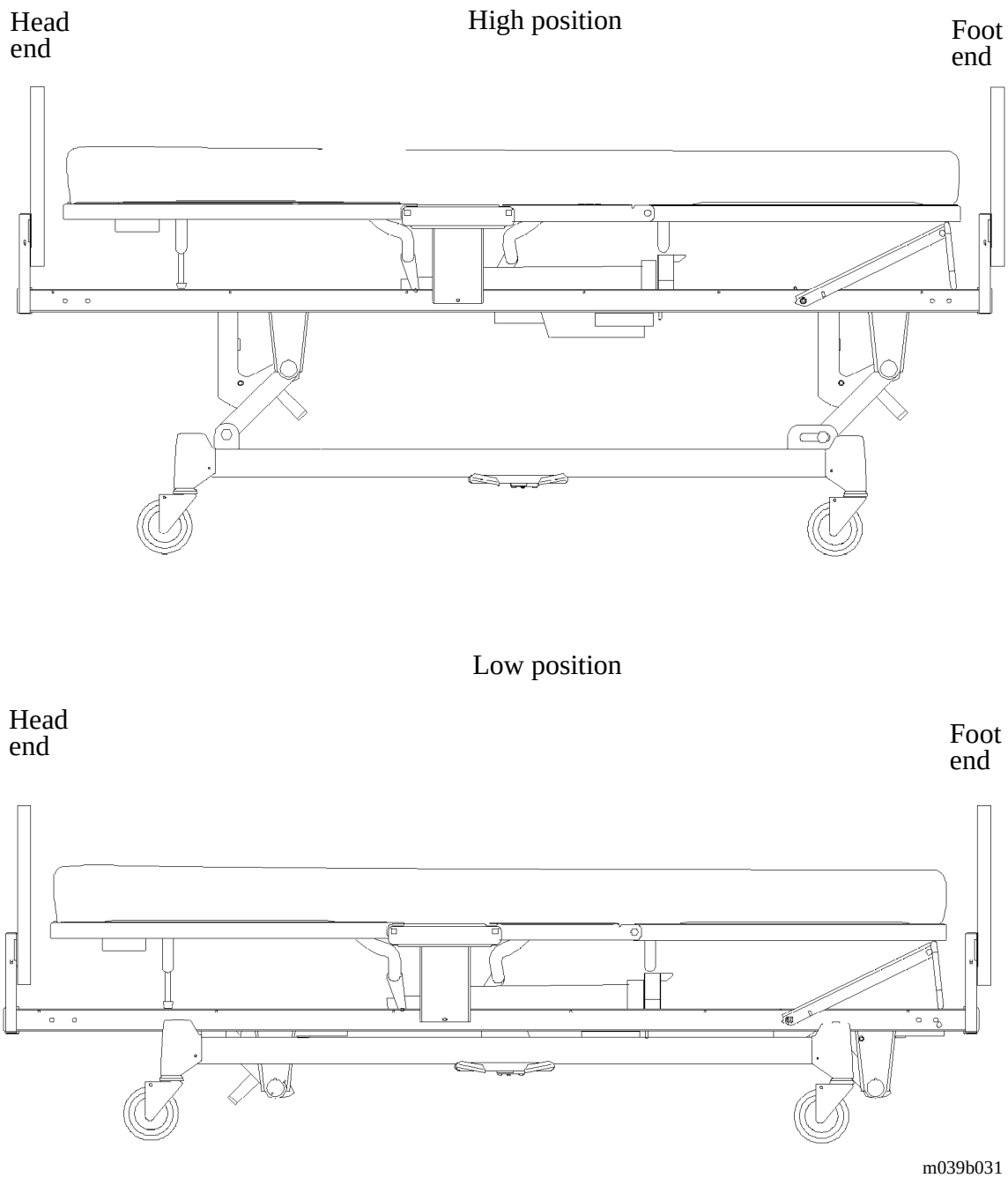


Figure 1-5. Automatic Contour Position

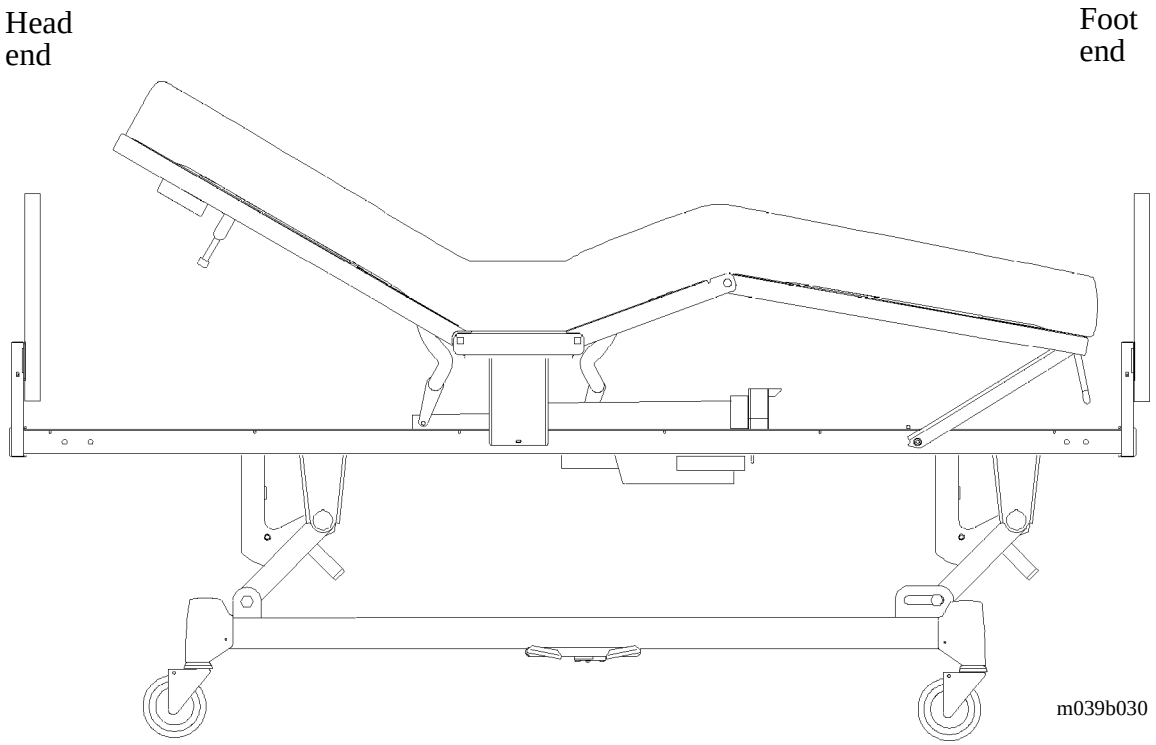
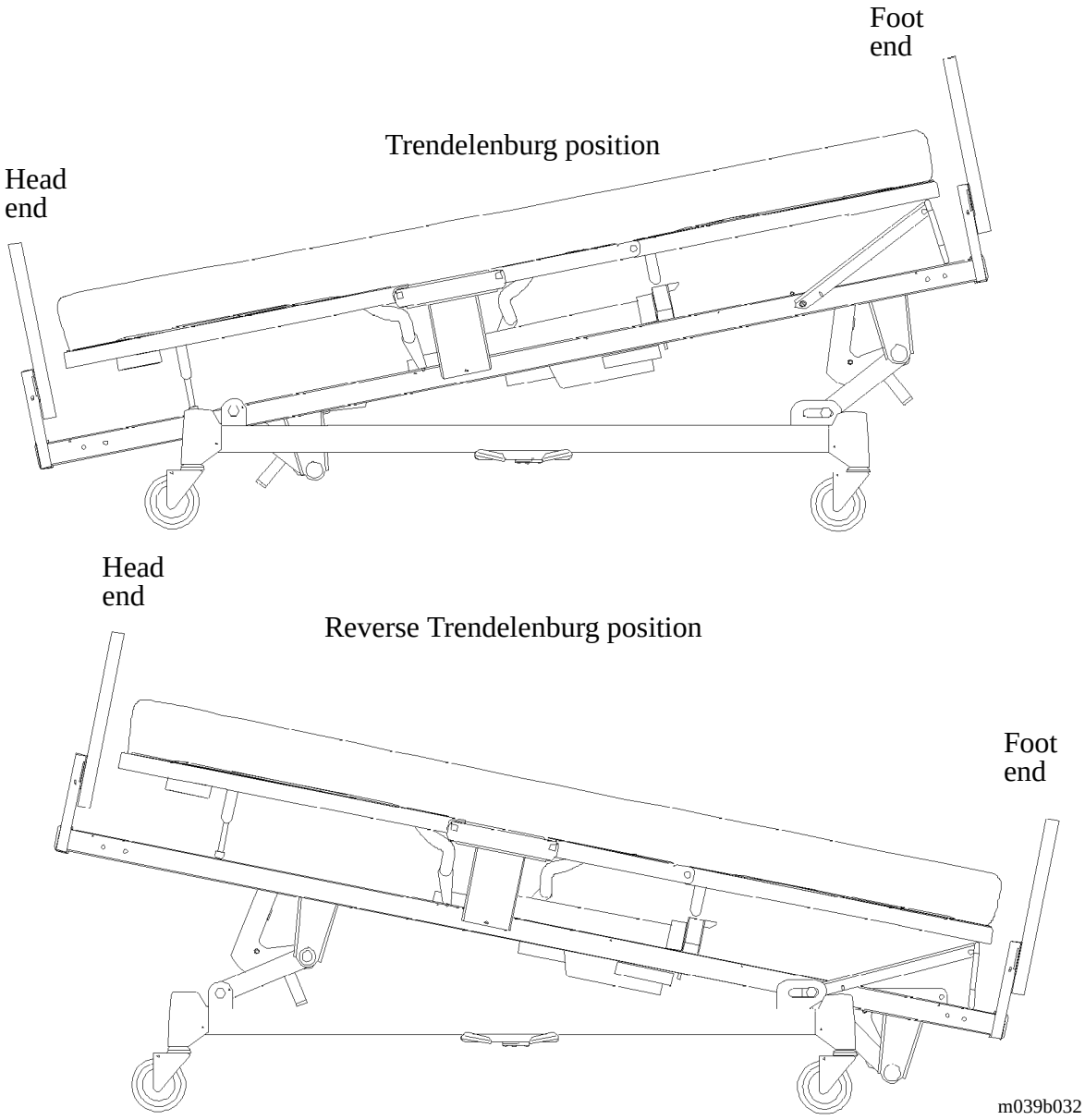


Figure 1-6. Trendelenburg/Reverse Trendelenburg Positions



Specifications

Physical Description

See table 1-1 on page 1-12 for Patient Care bed specifications.

Table 1-1. Specifications

Feature	Dimension
Height—floor to top of mattress support surface—high position	30" (76.2 cm)
Height—floor to top of mattress support surface—low position	18.5" (47 cm)
Overall length (without bumpers)	87" (221 cm)
Overall width (siderails up)	42" (106.7 cm)
Overall width (siderails stored)	36.5" (92.7 cm)
Minimum head siderail to foot siderail gap	6.5" (16.5 cm)
Clearance under base (5" casters)	6.5" (16.5 cm)
Wheel base, center to center—length	60.5" (153.7 cm)
Wheel base, center to center—width	27.5" (69.8 cm)
Maximum safe working load	500 lb (227 kg)

Head Section Inclination

The bed is mechanized such that the occupant may elevate the head section by voluntary selection of a finger touch activator. The head up/down activators are of a momentary type. The activators are pictorially labeled to indicate their function. The activators are fixed in relation to the head section within easy access of the occupant regardless of degree of inclination.

CPR Release (Optional)

The head section can be mechanized for emergency lowering. A releasing mechanism is included for rapid lowering. The release mechanism requires positive (intentional) action for release.

NOTE:
The CPR release is not standard on P8200 or P8350 beds.

Knee Section Inclination

The bed is mechanized such that the occupant may elevate the knee section by voluntary selection of a finger touch activator. The knee up/down activators are of a momentary type. The activators are pictorially labeled to indicate their function. The activators are fixed in relation to the head section within easy access of the occupant regardless of degree of inclination.

Foot Section Inclination

The foot section may be independently elevated by manually raising and engaging the support arm. Such repositioning does not affect other bed features or operation.

High Low Sleeping Surface (Hilow)

The bed is mechanized such that a patient attendant may raise or lower the sleeping surface to facilitate examination or bed ingress/egress. The activators are pictorially labeled and fixed in relation to the head section of the bed. The activators face toward the attendant position but are accessible for occupant activation. The activator(s) are a momentary type contact.

Mobility/Braking and Steer System

The bed is mounted on four precision bearing swivel type casters. The standard caster has molded rubber wheels, 5" (127 mm) in diameter, and a minimum tread width of 31/32". Wheels have precision bearing axles and swivels for high mobility and are easily removed for cleaning or replacing. Four inch diameter casters are also available.

Central Brake and Steer

The caster braking system is activated by a foot pedal located on either side to allow single foot operation to lock two casters (wheels and swivels). Activation of the steer system locks the swivel on one caster (steer lock) to allow for easy steering of the bed. Foot pedals for operation of the braking system and steering system are located as indicated in convenient, accessible locations on both sides of the bed and are identified clearly as to proper operation of the central locking system.

Individual Brake and Steer

The individual caster braking system is activated by a foot pedal located near each caster to allow single foot operation to lock casters (wheels and swivels). Activation of the steer system locks the swivel on one caster (steer lock) to

allow for easy steering of the bed. Foot pedals for operation of the individual braking system and steering system are located as indicated in convenient, accessible locations on each caster and are identified clearly as to proper operation of the individual locking system.

Trendelenburg/Reverse Trendelenburg

The bed is mechanized such that Trendelenburg or Reverse Trendelenburg may be achieved from the attendant control console only. The activation is a single operation from the high position of the hilow function.

There is a visual indicator showing the degree and inches of Trendelenburg as it is being obtained. Use the hilow switch to automatically bring the bed back out of either Trendelenburg position.

Manual Operation

The bed is mechanized such that the hilow, head, and knee positions may be manually moved in case of emergency, power failure, or remote location (e.g. hallway).

Lockouts

Lockouts are provided in the attendant control console to inhibit patient operation of the head, knee, and hilow features. An optional lockout also prevents patient adjustment of the mattress pressure. Activation of the knee lockout precludes knee section movement for contour when the head operating switch is actuated.

Attendant Control Console

The attendant control console is located at the foot end of the bed. Access is limited so that the bed occupant cannot accidentally activate these functions.

The control console houses:

- Trendelenburg/Reverse Trendelenburg control lever
- Hilow control switch
- Hilow function lockout switch
- Knee function lockout switch
- Head function lockout switch

DynamicAire Sleep Surface Control Box (Optional)

The DynamicAire Sleep Surface control box is located at the foot end of the bed, below the attendant control console. The control box's indicator lights are visible at all times. Access is limited so that the bed occupant cannot accidentally activate any functions on this control box.

The DynamicAire Sleep Surface control box houses:

- DynamicAire Sleep Surface system power lockout switch
- DynamicAire Sleep Surface mattress adjustment
- Prevention/comfort selector switch

The DynamicAire Sleep Surface control box contains:

- DynamicAire Sleep Surface power indicator light
- Excessive airloss indicator light

Mattress/Frame Interface

The mattress supporting adjustable frame is 36" x 80" (91.4 cm x 203.2 cm) and is equipped with national fabric, zinc plated after the fabric is assembled. The fabric has approximately 2" x 4" (5.08 cm x 10.16 cm) space with 92 helical springs (12 gauge wire, zinc plated) to support the fabric on four sides. The fabric links are made of 0.114" (.28596 cm) diameter (minimum) direct drawn industrial quality wire. Smaller wire is not acceptable.

Or

The mattress supporting adjustable frame is 36" x 80" (91.4 cm x 203.2 cm) and is covered with four 16 gauge (0.060") thick formed steel panels. The panels have formed down outer surfaces to prevent sharp edges.

Both steel and fabric sleep surfaces have drainage bag holders and a mattress stop. The steel sleep surface also includes restraint attachments. The restraint attachments are bolted to the underneath side of the head and foot sections. The restraint attachments and drainage bag holders are made of 3 gauge (0.243") diameter steel wire. The adjustable frame has a rigid mattress stop attached to the foot section that can be folded down when not in use. The mattress stop is made of 0.188" x 0.750" (.4775 cm x 1.905 cm) wide round edge strip steel, not less that 3.750" (9.525 cm) high.

IV Rod Accommodation

There are six locations to accommodate the installation of an IV rod—two at the head end, two in the seat section, and two at the foot end. Each location has sufficient structural integrity that fracture frame equipment may be used without degradation of function or structure.

Docking/Wall Protection

The bed can be equipped with wall protecting roller bumpers and can be retrofitted as desired).

Siderails

The bed has two sectionalized (1/2 length) head siderails as standard equipment. The siderails retract and are storable within the confining limits of the head and foot panels or sleeping surface frame.

Each sectionalized head siderail contains patient (head and knee) controls and a hilow control. Each sectionalized head siderail accepts the Patient Phone.

There are additional siderail options available. The bed can be equipped with additional half length foot siderails. The additional foot siderails work with the standard sectionalized head siderail. The foot siderails are equipped with an intermediate stop allowing greater access for occupant ingress/egress.

The bed can also be equipped with optional 3/4 or full length siderails. The additional siderails replace the standard sectionalized head and foot siderails.

The bed is configured such that the following functions may be included as part of one or both of the head siderails:

- Nurse call activator (both sides required)
- Ambient light actuator (both sides required)
- Entertainment center actuator (music, TV, radio) (both sides required)
- Patient exit on/off switch, bed exit delay switch, and indicator light (one side only)
- Patient Phone

Night Light

The bed can contain an optional low level night light that illuminates the general foot contact area for ingress/egress. The light is protected against

breakage. Lighting is configured such that adjacent patient locations have a minimal annoyance factor.

Bed Exit System

The bed exit system is an optional feature. The bed can be mechanized such that a warning signal is placed through the nurse call system if a patient exits the bed. This function can be selected by activating the on/off switch in the head siderail. There is a selectable 2, 4, or 6 second delay in the audible signal. The selectable delay switch is located in the head siderail. To reset the bed exit system, turn the patient exit switch off, and then back on.

Regulations, Standards, and Codes

UL Classification

- Class grounded equipment per UL 544
- CSA risk class 2G per CA per CSA 22.2

Model Identification

Below are the model identifications for the Patient Care bed.

Product Number	Description
P8200	Remanufactured Hill-Rom P715, P720, P815, and P820 beds
P8350	Remanufactured Hill-Rom P835 bed

General Operation

The Hill-Rom Patient Care bed incorporates independent motors to achieve the following operational features:

- Bed height—up/down
- Foot section—up/down
- Head section—up/down
- DynamicAire Sleep Surface—inflate/deflate

These features are governed by circuit board logic. They are controlled by the patient or attendant using the siderail or pendant control, or by the attendant

using the attendant control console and DynamicAire Sleep Surface control box.

DynamicAire Sleep Surface

The optional DynamicAire Sleep Surface includes two air bladders encompassed with foam. Electronics monitor this closed integrated air support system to ensure proper inflation. The system operates in two modes, comfort and prevention. Its life expectancy is 5 years or more, based on Hill-Rom's recommended operating and cleaning procedures.

Comfort Mode

The occupant can adjust the firmness or softness of the DynamicAire Sleep Surface by activating a momentary type switch located in the pendant control. In addition, the attendant can adjust the pressure from the DynamicAire Sleep Surface control console, located at the foot end of the bed.

Prevention Mode

In the prevention mode, neither the occupant nor the attendant can control the firmness or softness of the DynamicAire Sleep Surface. The system automatically maintains the air bladders at: (values at P.S.I.G.)

- Bottom bladder 0.4 + 0.1/ -0.15
- Top bladder 0.20 ± 0.05

The system maintains this pressure regardless of bed articulation.

Automatic Contour (Optional)

The Patient Care bed has an optional feature called automatic contour. This feature raises the knee section of the bed up to a full 15^{o} automatically as you raise the head section. Automatic contour prevents patients from sliding to the foot end of the bed when the head section is raised. Limit switches control this feature. If automatic contour is not wanted, position the knee lockout switch, located at the attendant control console, to off. This switch also eliminates the normal operation of the knee function. You can temporarily disable the automatic contour function by simultaneously depressing the head up and knee down on the siderail.

Bed End Panels

Patient Care beds have post-type mountings for bed end panels. The bed end panels fit over two vertical mounting posts located at each end of the bed. You remove the panels by lifting them vertically off the mounting posts.

If it becomes necessary to replace parts, or an entire bed end panel, obtain the correct part numbers from the parts list located in chapter 5 of this manual. If you order an HPL decorator panel or stain, or an entire bed end panel, you must specify the color of the decorator panel or stain. If you do not know the color, send a 2" or 3" inch square of the old HPL decorator panel or wood with stain for color matching.

CPR Release (Optional)

The CPR release is an optional feature. Beds with the CPR release feature have two CPR release handles located on each side at the head end of the head section. Use either CPR release handles to lower the head section in an emergency.

The CPR release lowers the head section from any elevated position. You activate it by pushing a button on the CPR release handle and pulling out on the handle. Continue to pull out on the CPR release to lower the head section.

Head Section Elevation/Operation

Raise the head section using the controls in the siderail or, if electrical power is not available, by manually cranking the head drive screw assembly. See the section “Cranking Procedure for Manual Operation of Bed (When Electric Power is Not Available)” on page 1-26.

NOTE:
See “Head Function—Beds With CPR Release” on page 1-23 for beds equipped with the optional CPR function.

Motor Assemblies

Thermals

Thermals are an integrated part of the motors, protecting them in the event that an overload condition occurs. They stop the motor automatically if it heats up to a certain temperature. Motors will not run again until the thermal resets. Some hilow motors must be manually reset.

NOTE:
Ensure the motor has had time to cool before manually resetting the thermal.

WARNING:
The motor can continue operation once the thermal is reset, which could cause possible injury to service personnel or damage to the bed.

Manual Operation of Bed (When Electric Power is Not Available)

Head Function—Beds Without CPR Release

WARNING:
Unplug the bed from its power source before inserting the IV rod for manual operation. Failure to do so could result in personal injury or equipment damage.

You can raise or lower the bed using a Hill-Rom P2217 IV rod (A) as a crank (see figure 1-7 on page 1-21). Access the head screw assembly (B) from the head end of the bed for P8350 models only. Access the head screw assembly (B) from the foot end of the bed for P8200 models only (see figure 1-8 on page 1-22). See “Cranking Procedure for Manual Operation of Bed (When Electric Power is Not Available)” on page 1-26.

Figure 1-7. Head Function—P8350 Beds Without CPR Release

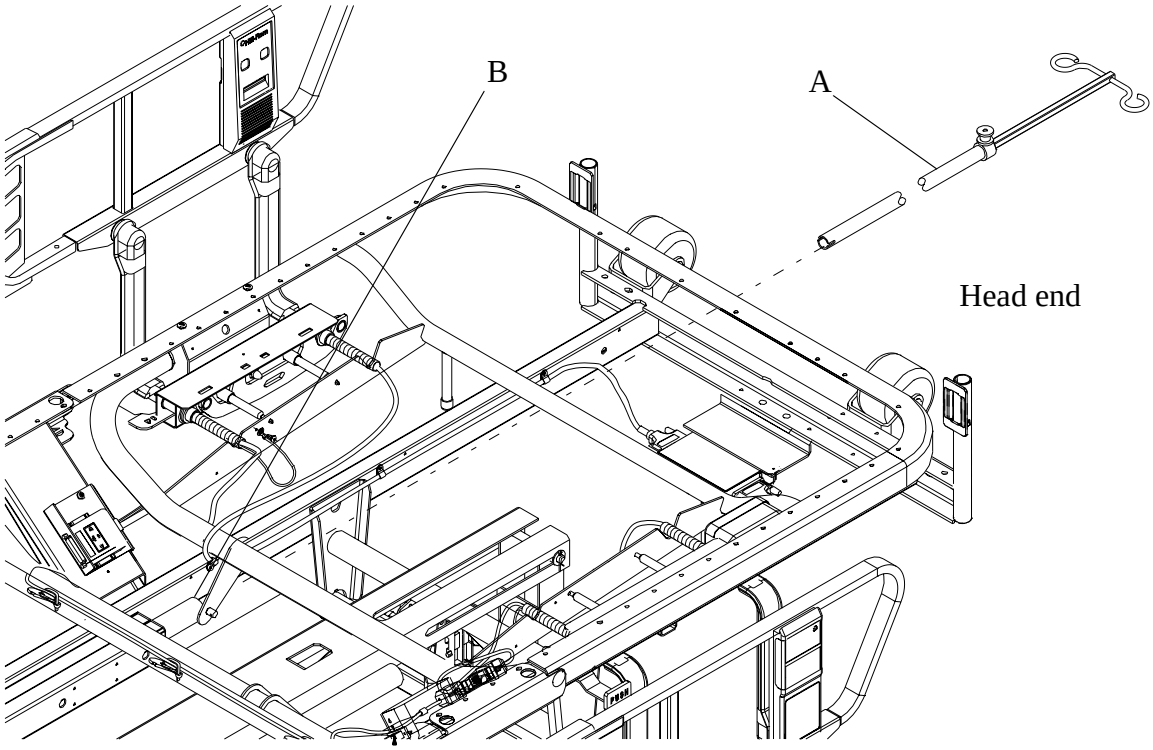


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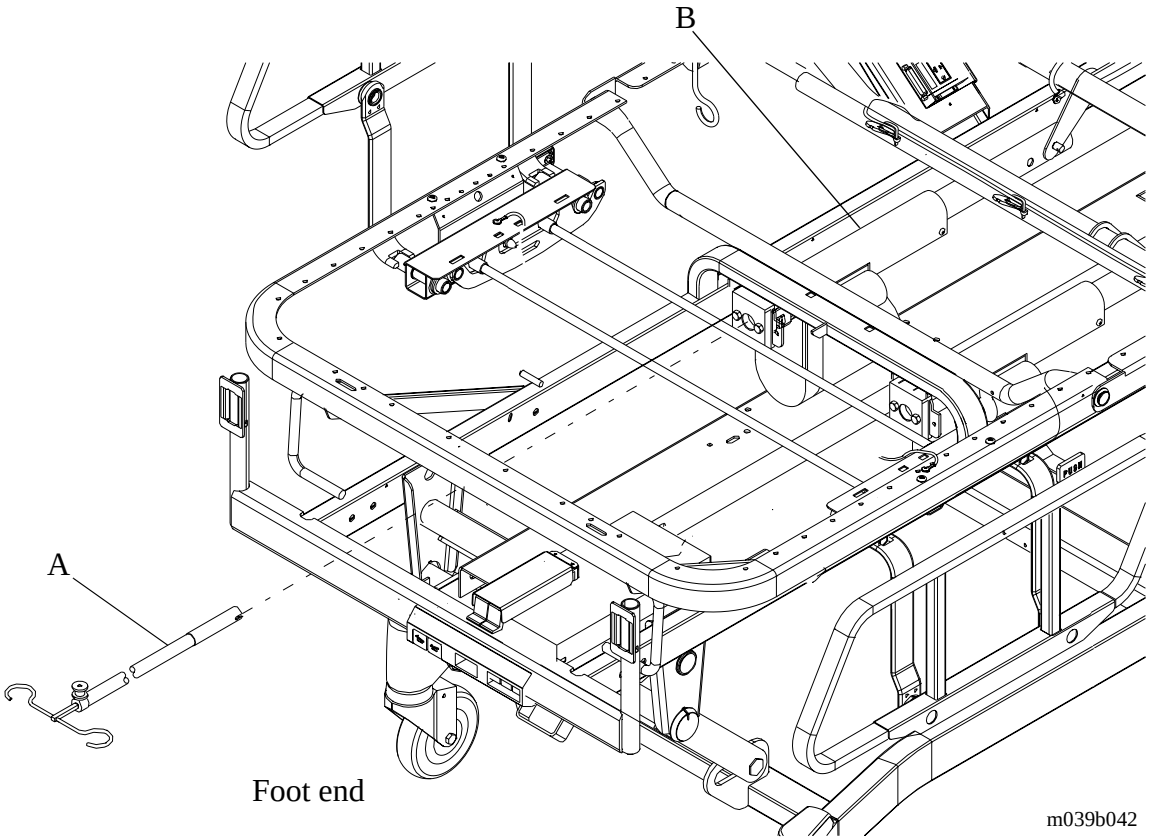
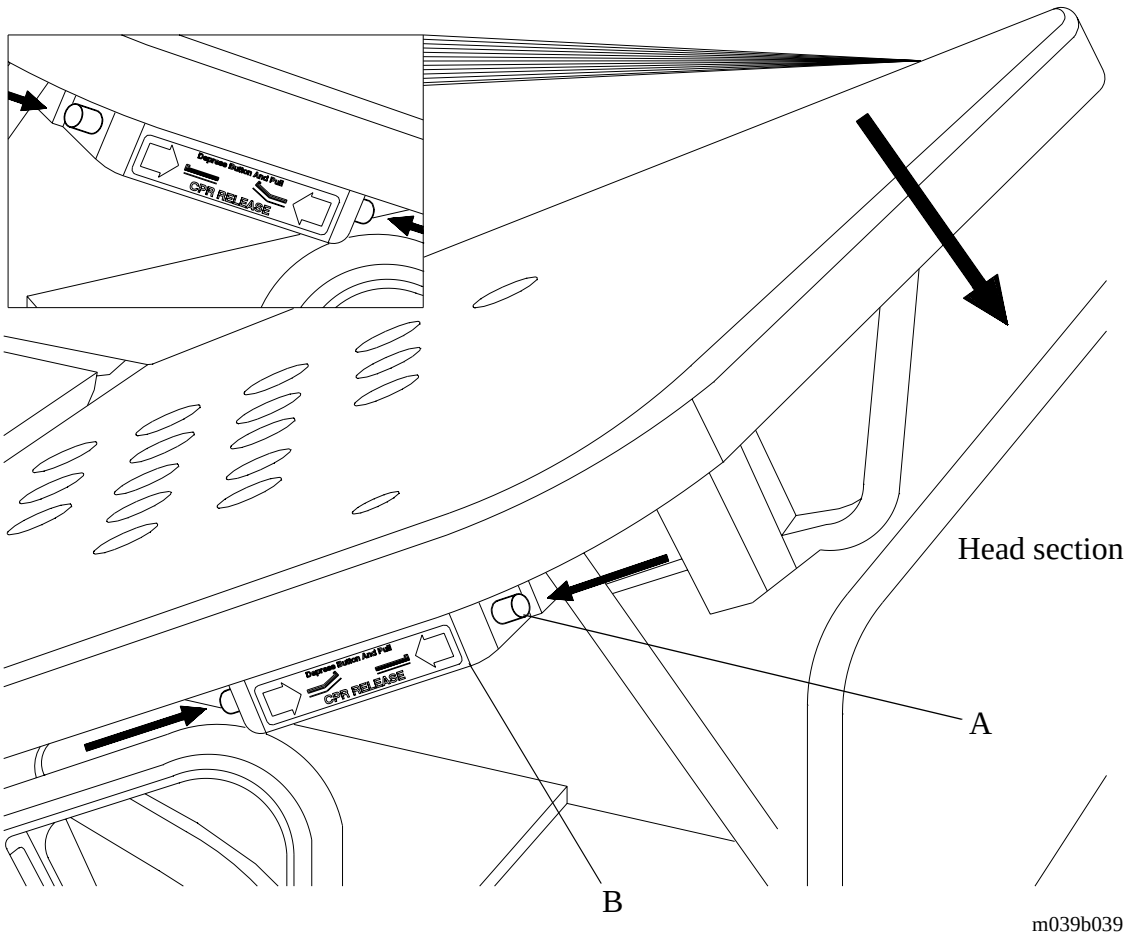
Figure 1-8. Head Function—P8200 Beds Without CPR Release



Head Function—Beds With CPR Release

You can raise or lower the bed using the CPR release at the head end of the bed. Depress the CPR release button (A) and pull out on the handle (B) (see figure 1-9 on page 1-23). Manually raise or lower the head section to the desired position. Release the CPR release handle.

Figure 1-9. Head Function—Beds With CPR Release

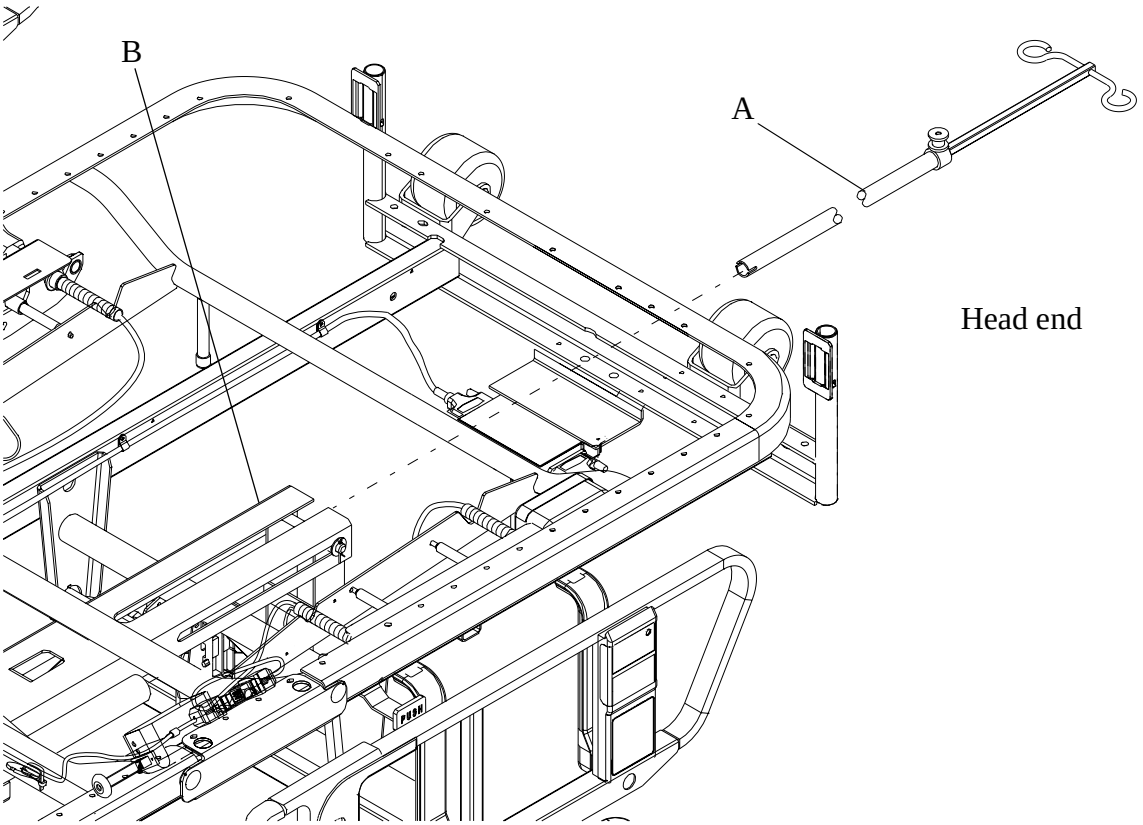


Hilow Function

WARNING:
Unplug the bed from its power source before inserting the IV rod for manual operation. Failure to do so could result in personal injury or equipment damage.

You can raise or lower the bed using the Hill-Rom P2217 IV rod (A) as a crank (see figure 1-10 on page 1-24). Access the hilow screw assembly (B) from the head end of the bed. See “Cranking Procedure for Manual Operation of Bed (When Electric Power is Not Available)” on page 1-26.

Figure 1-10. Hilow Function



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Knee Function

WARNING:
Unplug the bed from its power source before inserting the IV rod for manual operation. Failure to do so could result in personal injury or equipment damage.

You can raise or lower the bed using a Hill-Rom P2217 IV rod (A) as a crank (see figure 1-11 on page 1-25). Access the knee screw assembly (B) from the head end of the bed for P8350 models only. Access the knee screw assembly (B) from the foot end of the bed for P8200 models only (see figure 1-12 on page 1-26). See “Cranking Procedure for Manual Operation of Bed (When Electric Power is Not Available)” on page 1-26.

Figure 1-11. Knee Function—P8350 Beds Only

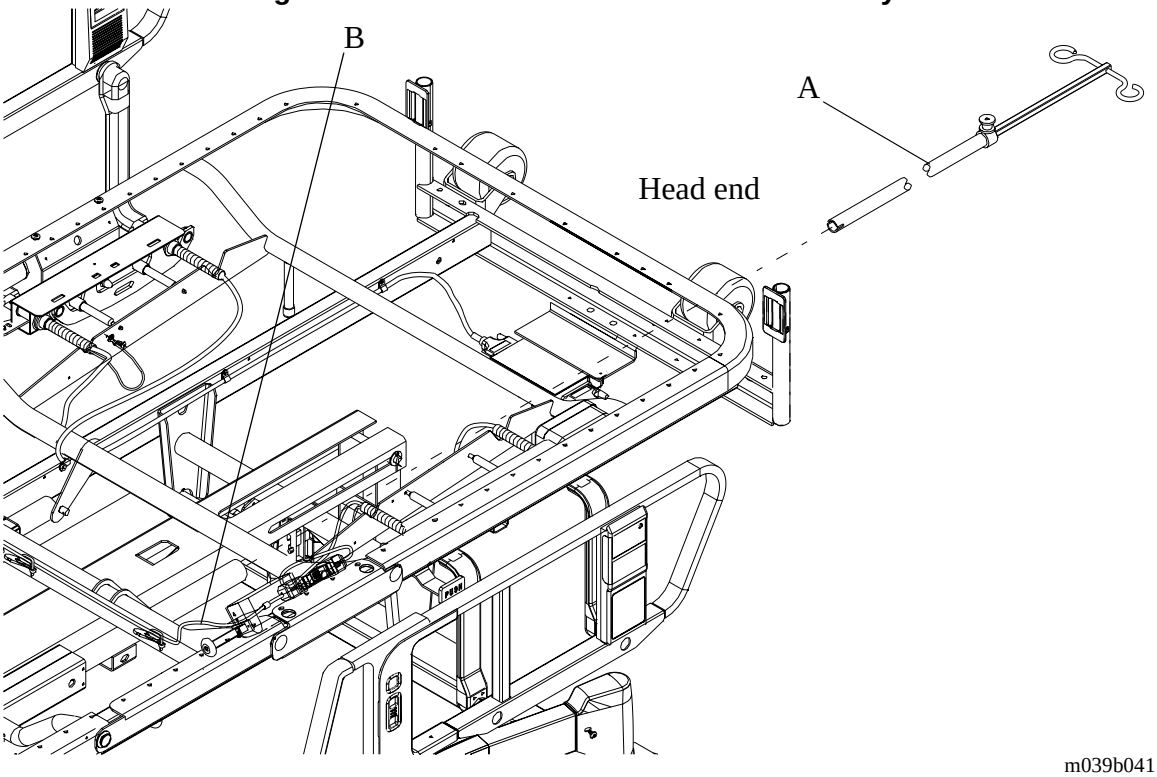

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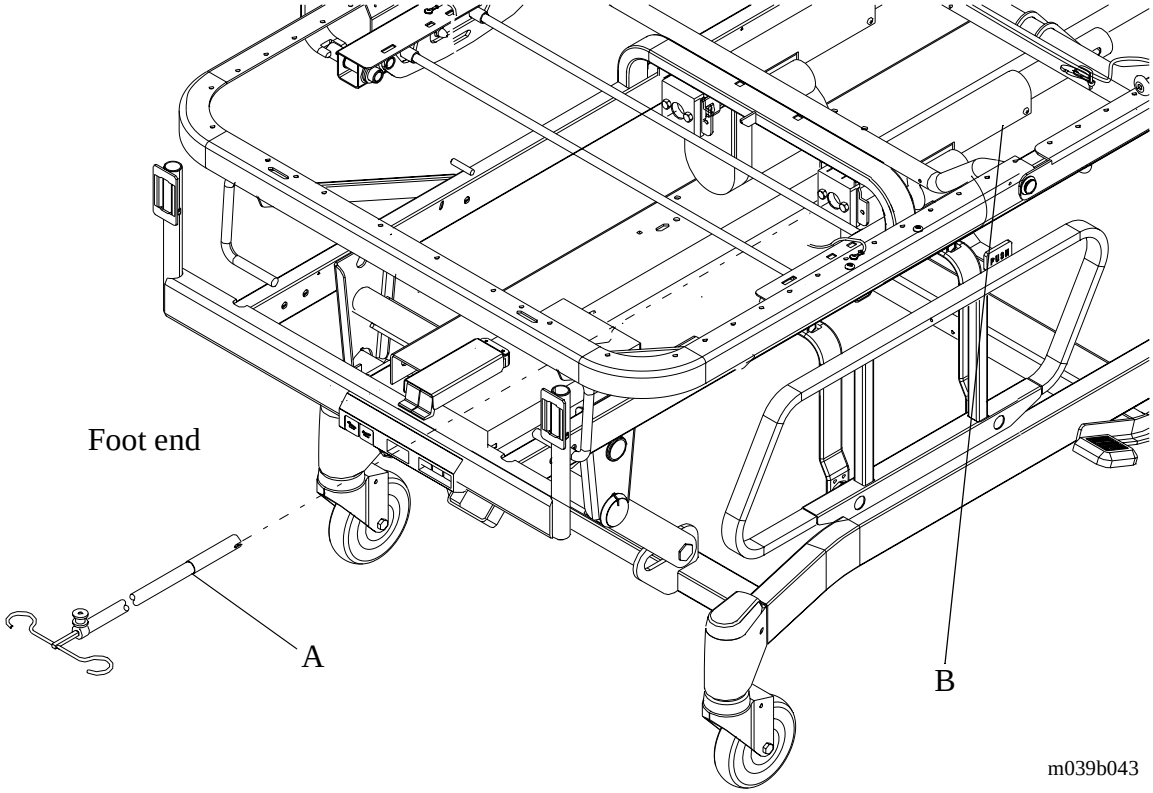
Figure 1-12. Knee Function—P8200 Beds Only



Cranking Procedure for Manual Operation of Bed (When Electric Power is Not Available)

WARNING:
Unplug the bed from its power source before inserting the IV rod for manual operation. Failure to do so could result in personal injury or equipment damage.

1. Unplug the bed from its power source.
2. Extend and insert the Hill-Rom P2217 IV rod into the desired elevating screw until it engages the roll pin in the end of the screw assembly.
3. Turn the IV rod to either raise or lower the function.
4. Remove the IV rod from the screw assembly once the function is at the desired setting.

WARNING:
Remove the IV rod before plugging the bed into an appropriate power source.

Safety Tips

WARNING:
Powered bed mechanisms can cause serious injury. Operate the bed only with persons clear of mechanisms.

WARNING:
Unplug the bed from its power source prior to service or cleaning. Refer to the service manual and in-service manual for additional precautions.

When you work with the bed in the high position, set the brakes and place bed stands under the upper lift arm pivots. This will help prevent injury in case someone accidentally actuates the bed down switch.

If service on the bed requires it to be placed on its side, be sure to store and pad the siderails to prevent damage. Also, remove the brake/steer pedal to prevent damage.

WARNING:
When using the manual crank during power failure, unplug the bed from its power source so that unexpected resumption of power will not rotate the handle.

At any time, it is not prudent and unnecessary for personnel to have their entire body below the sleep surface and within the confines of the bed. Unplug the bed from its power source prior to cleaning or servicing it. If service personnel need to get under the bed, they must block up the hilow portion as an added precaution.

We urge you to incorporate these safety tips into your procedures for the safety of both patients and staff.

WARNING:
Unplug the bed from its power source before checking ohms/resistance measurements. Failure to disconnect line voltage to the bed can damage the VOM.

WARNING:
Refer to your VOM owner's manual for complete and detailed information regarding the operation of your VOM.

WARNING:
Only qualified service personnel should do troubleshooting on the Patient Care bed. Before beginning any troubleshooting on the Patient Care bed, be sure that you have read and understand the information in the troubleshooting section.

WARNING:
Unplug the bed from its power source before inserting the IV rod for manual operation. Failure to do so could result in personal injury or equipment damage.

WARNING:
Be sure to leave enough slack in the cable to avoid undue stress on the cable as the head section is raised and lowered. Failure to do so could result in equipment damage.

WARNING:
Do not put any tension on the cable connected to the control box cover. Failure to do so could result in equipment damage.

WARNING:
Get additional personnel to help you turn the bed over on the side that has the stored siderails. Failure to do so could result in personal injury or equipment damage.

WARNING:
When using the manual crank during power failure, unplug the bed from

its power source that unexpected resumption of power will not rotate the handle.

WARNING:
The motor can continue operation once the thermal is reset, which could cause possible injury to service personnel or damage to the bed.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

SHOCK HAZARD:
Unplug the bed from its power source before removing the air P.C. board. An electrical shock hazard exists.

CAUTION:
Do not use solutions such as turpentine, paint or lacquer thinner, etc. This will deteriorate the caster life and performance.

CAUTION:
Do not use any lubricant containing silicone anywhere on the Patient Care bed. Failure to do so could result in equipment damage.

Bed Position

To reduce the number and severity of falls by patients, always leave the bed in the low position when the patient is unattended.

Siderails

Hill-Rom has traditionally recommended when a patient is left unattended, the siderails should be in a straight up and locked position. However, a facility, based upon its protocol, should makes its own determination as to the appropriate use of the siderail.

It is Hill-Rom's position that siderails are intended as a reminder, not a restraint device.

Brake and Steer

Always keep the casters in the brake position when the bed is occupied. Patients use the bed for support when getting in or out of the bed, and serious injuries can result if the bed moves. After the brakes are set, rock the bed gently to ensure that they are locked. Put the casters in the steer mode when moving the bed. This will make the bed much easier to move.

Fluids

When massive spills occur in the area of the circuit board and motors, immediately:

1. Unplug the bed from its power source.
2. Take care of the patient.
3. Clean the fluid from the bed.
4. Have maintenance check out the bed completely. Fluids can short out controls, making the bed inoperable or cause the bed to operate erratically. Component failure caused by fluids can even cause the bed to operate without warning causing injury.
5. Do not place the bed back into service until the unit is unquestionably dry and tested safe to operate.

Water Mattress

The excessive weight associated with water mattresses puts an undo stress on the motor drives. In most cases, the patient's weight plus the water mattress weight exceeds the recommended bed capacity. Even more important is the fact that water mattresses are subject to rupture, which would allow large amounts of water to come into contact with the electrical components of the bed. We feel the possibility of rupture to be a serious problem for which the hospital would not want to be responsible.

Lockout Switches

Whenever a patient or visitor should be restricted from operating the siderail controls, activate the appropriate lockout switch at the attendant control console located at the foot end of the bed. The lockout switches are for the convenience of the staff and the safety of the patient. Use them when appropriate.

CPR Release (Optional)

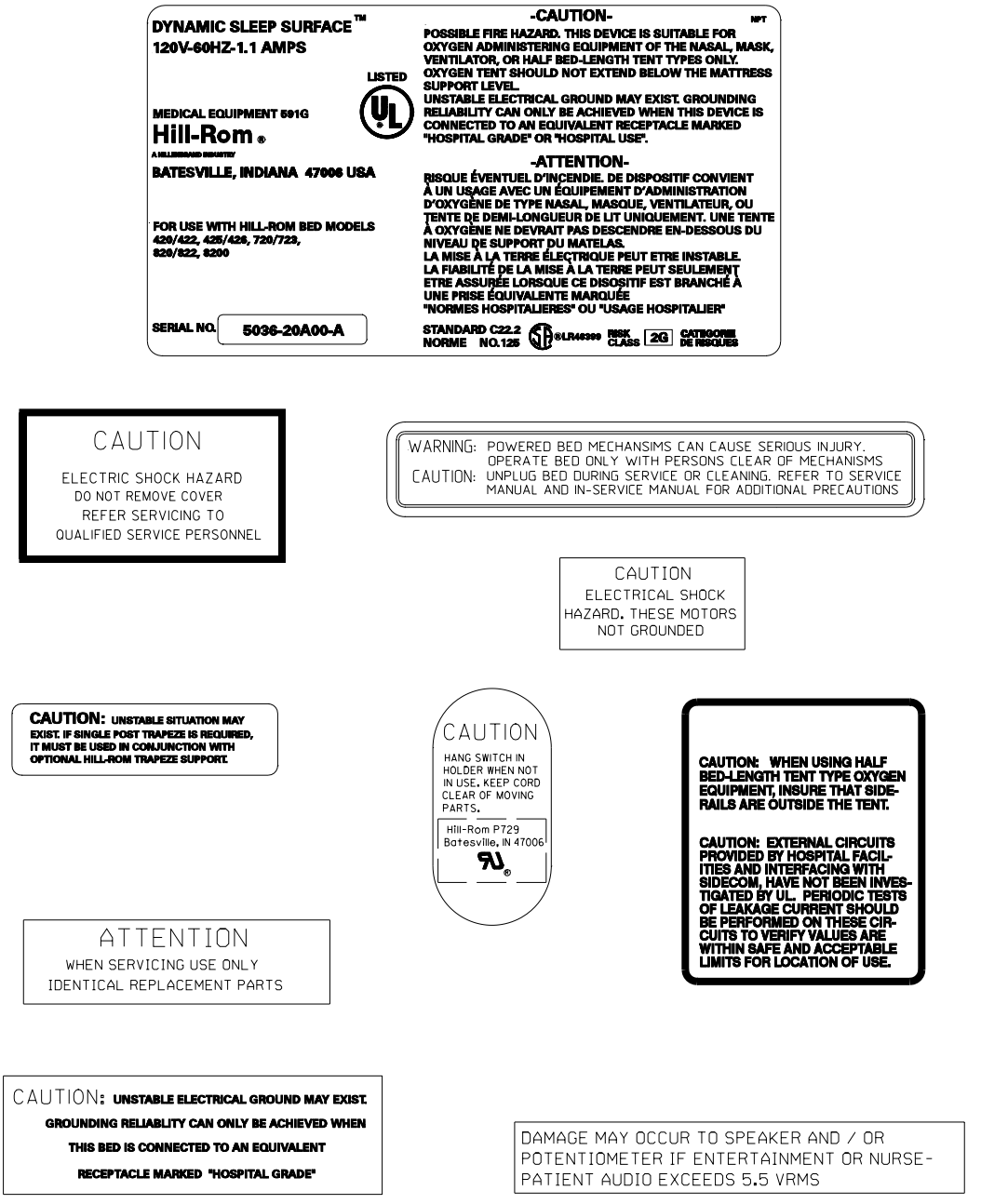
Only healthcare professionals should use the emergency CPR release. The release handle is located under the head section of the bed, near the head end.

To activate the CPR release, press the red button, and pull the handle. Continue to pull out on the handle until the head section is flat. Once this is complete, attend to the patient.

NOTE:
The CPR release is a non-standard feature and is equipped only on special beds.

Warning and Caution Labels

Figure 1-13. Warning and Caution Labels



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NOTES:

Chapter 2
Troubleshooting Procedures

2

Chapter Contents

NOTES:

Getting Started

Begin each procedure in this chapter with step 1. Follow the sequence outlined (each step assumes the previous steps are correct). Each step is the normal operational event of the product and can be confirmed by answering Y (yes) or N (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 order given.

Start with **Initial Actions** to begin gathering information about the problem.

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

Perform **Final Actions** after the Function Checks to verify the repair.

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

WARNING:
Only qualified service personnel should do troubleshooting on the Patient Care bed. Before beginning any troubleshooting on the Patient Care bed, be sure that you have read and understand the information in the troubleshooting section.

Troubleshooting

2

WARNING:
Only qualified service personnel should do troubleshooting on the Patient Care bed. Before beginning any troubleshooting on the Patient Care bed, be sure that you have read and understand the information in the troubleshooting section.

These troubleshooting techniques will help you locate operational problems on the Patient Care bed. This section includes a list of functions and the technical information required to inspect and diagnose problems. Wiring diagrams for all of the boards in the Patient Care bed are located in chapter 3.

Operational Problems

Frequently, apparent operational problems are the result of normal bed operation. Perform a quick inspection for the following conditions before you continue troubleshooting the bed:

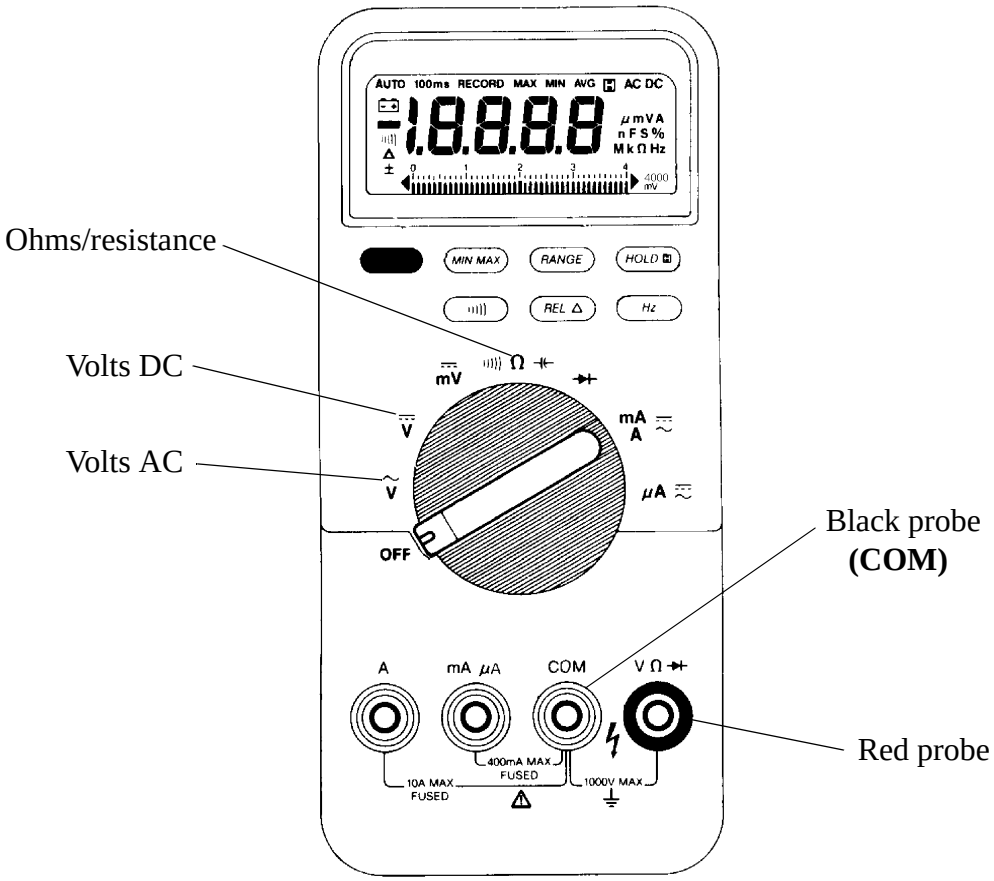
- Is the bed plugged into an appropriate source?
- Are any lockouts that affect the desired function activated in the attendant control console?
- Is the desired function at its low or high limit?
- Does the function work at another place on the bed (e.g., one or both siderails or the attendant control console)? (This can help isolate the problem to a specific area on the bed.)

Test Equipment

You will need a digital or analog multimeter (VOM) with fine tip probes to troubleshoot the Patient Care bed. The following section describes the three basic electrical functions that you will be testing with the VOM.

WARNING:
Refer to your VOM owner's manual for complete and detailed information regarding the operation of your VOM.

Figure 2-1. VOM



Electrical Functions

Figure 2-1 on page 2-5 represents a common digital VOM. The three basic electrical functions that you will test are alternating current (AC), direct current (DC), and ohms/resistance.

Figure 2-1 on page 2-5 displays the correct connection for the fine tip probes. The red probe plugs into the port marked "V Ω." The black probe plugs into the port marked "COM." The troubleshooting repair analysis procedure (RAP) indicates where on the bed to connect the red probe and black probe.

WARNING:
Unplug the bed from its power source before checking ohms/resistance measurements. Failure to disconnect line voltage to the bed can damage the VOM.

Troubleshooting Requirements

Check the measurements in this section before going to the troubleshooting repair analysis procedure (RAP). Use the testport cable (J/P200) provided on the Patient Care bed to begin troubleshooting. Use the "Bed Control Cable Assembly Wiring Diagram" located in chapter 3 for additional information (see figure 3-1 on page 3-3).

NOTE:
The testport cable is only found on beds equipped with "communication" or "upgradeable" siderail configurations. Beds equipped with "non-upgradeable" siderails **do not** have testport cables and cannot be tested in this fashion.

When troubleshooting the Patient Care bed, use the following common grounds:

- At J/P200, use pin 21 (black probe)
- At J/P2, use pin 4 (black probe)

Perform the following tests before going to the troubleshooting repair analysis procedure (RAP). If your voltage measurements do not match the values listed, the problem may be your control board assembly.

- Check VCC

  Set your VOM to measure volts DC. Measure between J/P200 pins 5 (red probe) and 21 (black probe). It should measure +12V DC.

- Check V+

  Set your VOM to measure volts DC. Measure between J/P200 pins 13 (red probe) and 21 (black probe). It should measure +12V DC.

If the voltage measurements match the values listed above, go to the appropriate troubleshooting repair analysis procedure (RAP). Follow the repair analysis procedure (RAP) to locate the operational problem.

Initial Actions

Use Initial Actions to gather information from operators concerning problems with the bed. Note symptoms or other information concerning the problem that the operator identifies. This information helps identify the probable cause.

1. Someone who can explain the problem is available.

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-9.

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

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-9.

3. The problem is result of improper operator action.

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-9.

4. Instruct the operators to refer to the procedures in the *Patient Care Bed Service Manual*. Perform the "Function Checks" on page 2-9 to ensure proper operation of the Patient Care bed.

Function Checks

1. Initial Actions have been performed.

   Yes **No**
   ↓ → Go to “Initial Actions” on page 2-8.

2. Press the head up switch, and activate the head section. The head section raises when the head up switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.1.

3. Press the head down switch, and activate the head section. The head section lowers when the head down switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.2.

4. Press the knee up switch, and activate the knee section. The knee section raises when the knee up switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.3.

5. Press the knee down switch, and activate the knee section. The knee section lowers when the knee down switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.4.

6. Press the hilow up switch, and activate the bed. The bed raises when the hilow up switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.5.

7. Press the hilow down switch, and activate the bed. The bed lowers when the hilow down switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.6.

8. Press the hilow up switch, and activate the bed. The knee section raises when the hilow up switch is activated.

   Yes **No**
   ↓ → Go to RAP 2.7.

9. Press the hilow down switch, and activate the bed. The knee section lowers when the hilow down switch is activated.

Yes **No**
↓ → Go to RAP 2.8.

10. When the bed is in the high position, activate the Trendelenburg control lever. The bed goes into the Trendelenburg position.

    Yes **No**
    ↓ → Go to RAP 2.9.

11. When the bed is in the high position, activate the Reverse Trendelenburg control lever. The bed goes into the Reverse Trendelenburg position.

    Yes **No**
    ↓ → Go to RAP 2.9.

12. Press the firm switch, and activate the bed air surface. The mattress inflates.

    Yes **No**
    ↓ → Go to RAP 2.10.

13. Press the soft switch, and activate the bed air surface. The mattress deflates.

    Yes **No**
    ↓ → Go to RAP 2.10.

14. Press the night light switch to the “on” position. The night light comes on.

    Yes **No**
    ↓ → Go to RAP 2.11.

Final Actions

1. Complete the required preventive maintenance procedures. See “Preventive Maintenance” on page 6-5.
2. Ensure all wires and components are in place and secure.
3. Complete all required administration tasks.

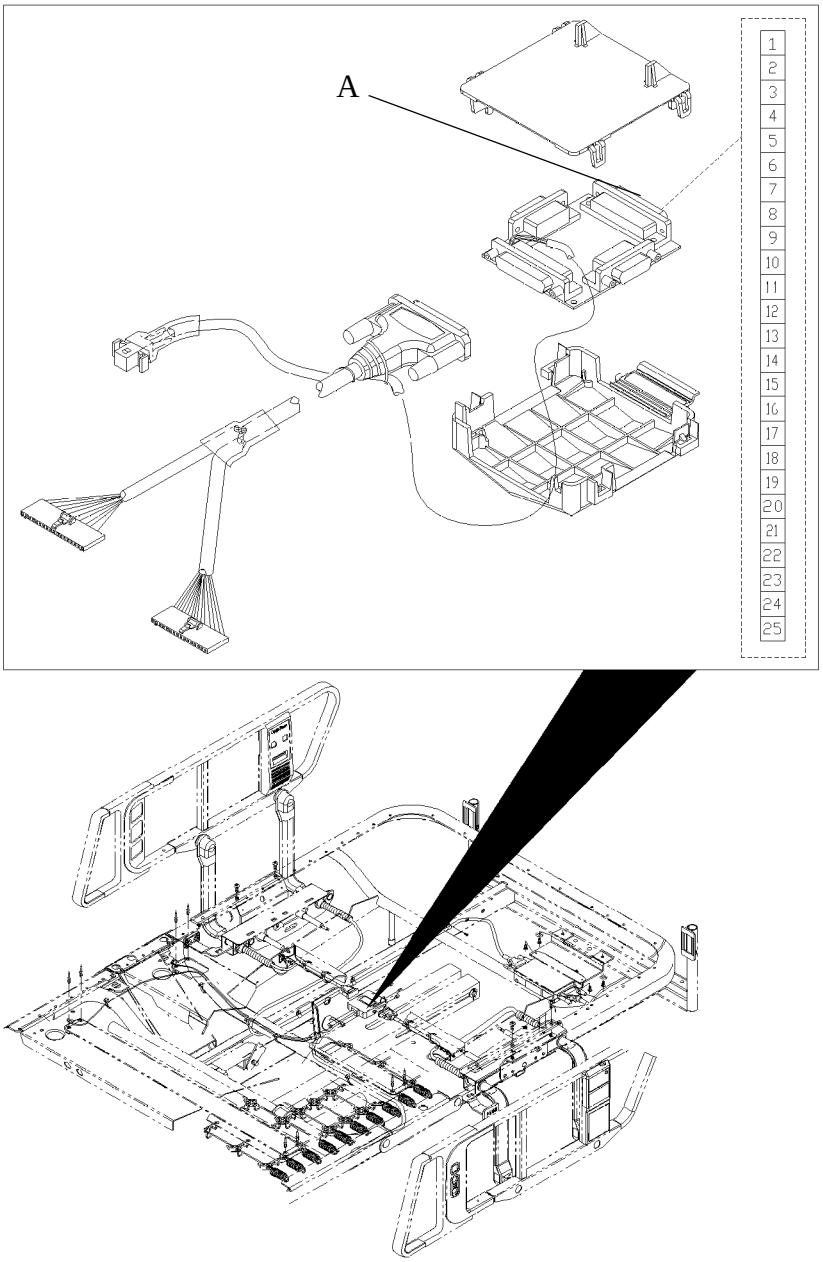
2.1 Head Up Switch Failure

2

The head section will not raise when the head up switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-2 on page 2-12), place your black probe into pin 21 and your red probe into pin 9. Activate the head up switch. The voltage is approximately 12V DC.

Figure 2-2. J/P200 Location



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Yes **No**

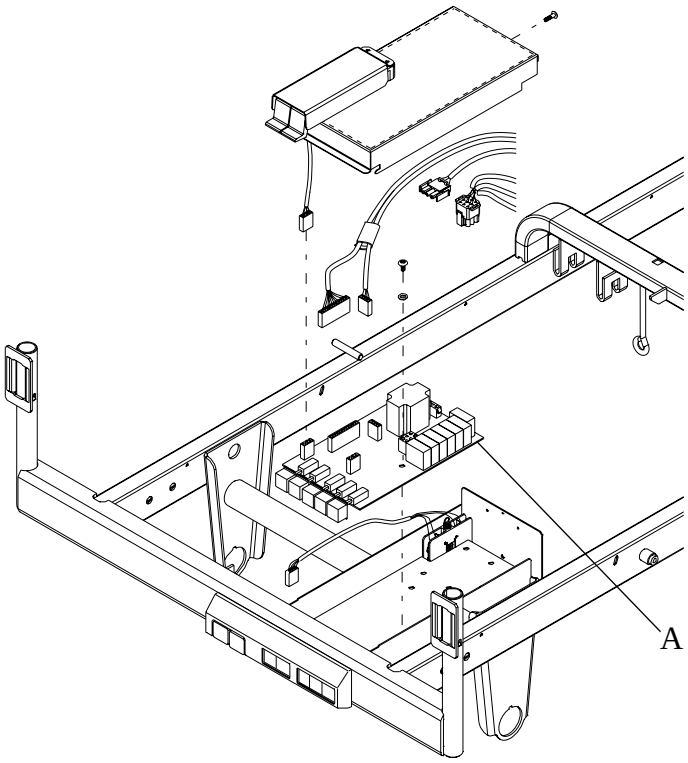
↓ → Replace the switch or the cable to the switch (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and you red probe into pin 3. Activate the head up switch. The voltage is approximately 12V DC.

Yes **No**

↓ → Replace the cable between J/P200 and the control board (A) (see figure 2-3 on page 2-13) (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

Figure 2-3. Control Board Location



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3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 5 and your red probe into pin 3. Activate the head up switch. The voltage is between 115-130V AC.

Yes **No**
↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the head motor or cable to the head motor (refer to procedure 4.7).

   This solves the problem.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

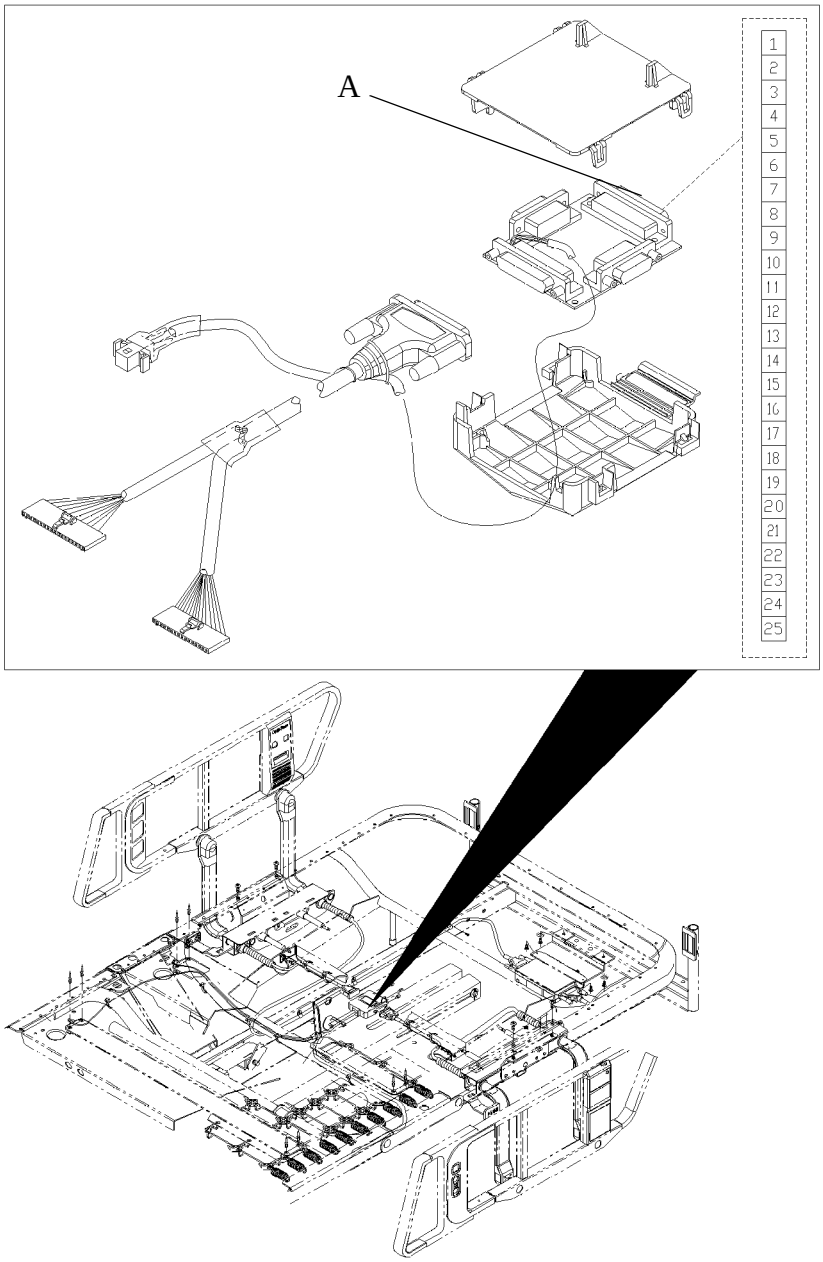
5. Go to "Final Actions" on page 2-11.

2.2 Head Down Switch Failure

The head section will not lower when the head down switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-4 on page 2-15), place your black probe into pin 21 and your red probe into pin 8. Activate the head down switch. The voltage is approximately 12V DC.

Figure 2-4. J/P200 Location



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2

Yes **No**
↓ → Replace the switch or the cable to the switch (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 4. Activate the head down switch. The voltage is approximately 12V DC.

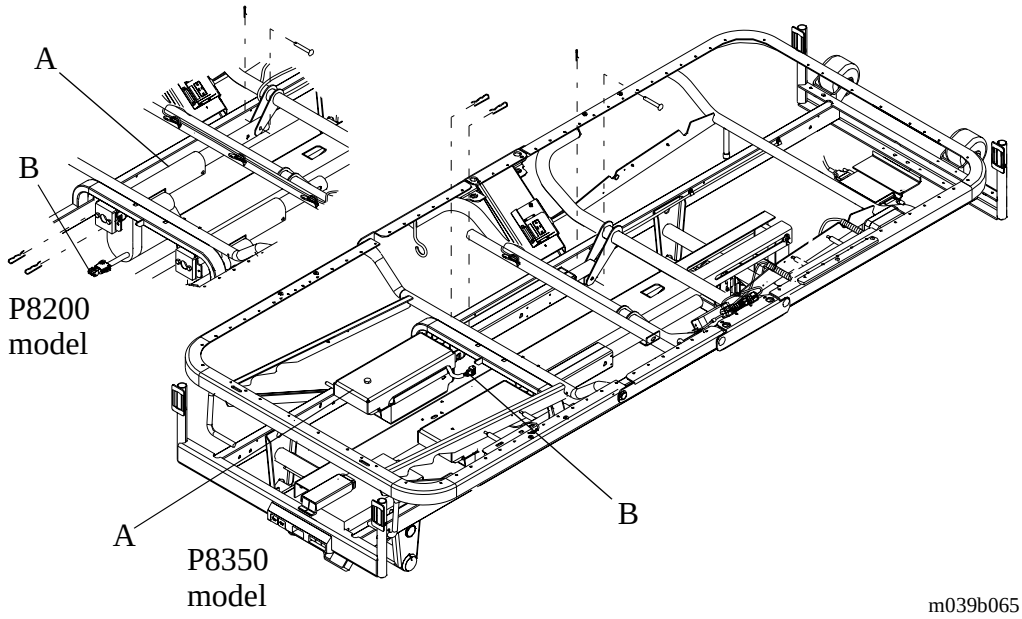
   Yes **No**
   ↓ → Replace the cable between J/P200 and the control board is defective (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 5 and your red probe into pin 6. Activate the head down switch. The voltage is between 115-130V AC.

   Yes **No**
   ↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the head motor (A) or cable (B) to the head motor (see figure 2-5 on page 2-16) (refer to procedure 4.7).

Figure 2-5. Head Motor Location



This solves the problem.

Yes **No**
↓ → Call Hill-Rom Technical Support at (800) 445-3720.

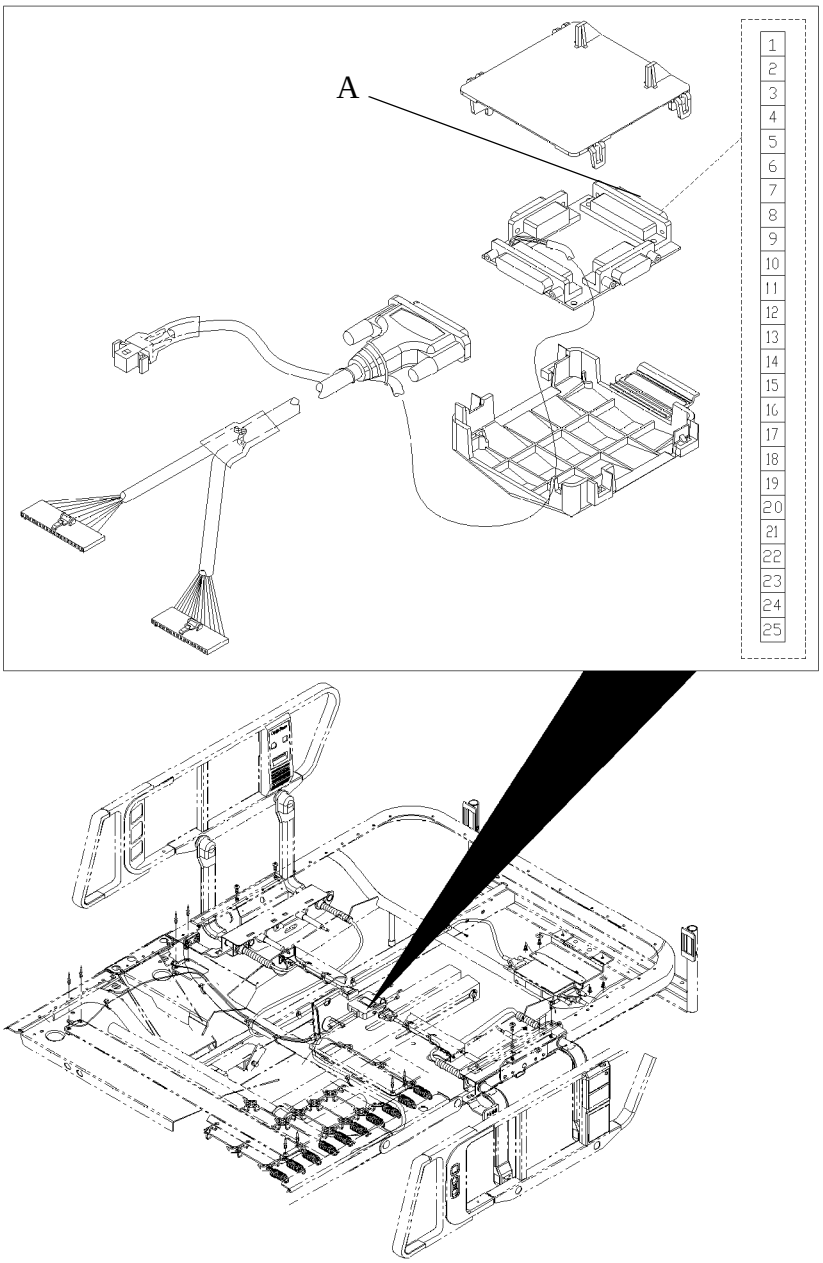
5. Go to “Final Actions” on page 2-11.

2.3 Knee Up Switch Failure

The knee section will not raise when the knee up switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-6 on page 2-18), place your black probe into pin 21 and your red probe into pin 7. Activate the knee up switch. The voltage is approximately 12V DC.

Figure 2-6. J/P200 Location



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Yes **No**
↓ → Replace the switch or the cable to the switch (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 5. Activate the knee up switch. The voltage is approximately 12V DC.

   Yes **No**
   ↓ → Replace the cable between J/P200 and the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 8 and your red probe into pin 9. Activate the knee up switch. The voltage is between 115-130V AC.

   Yes **No**
   ↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the knee motor or cable to the knee motor (refer to procedure 4.7).

   This solves the problem.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

5. Go to "Final Actions" on page 2-11.

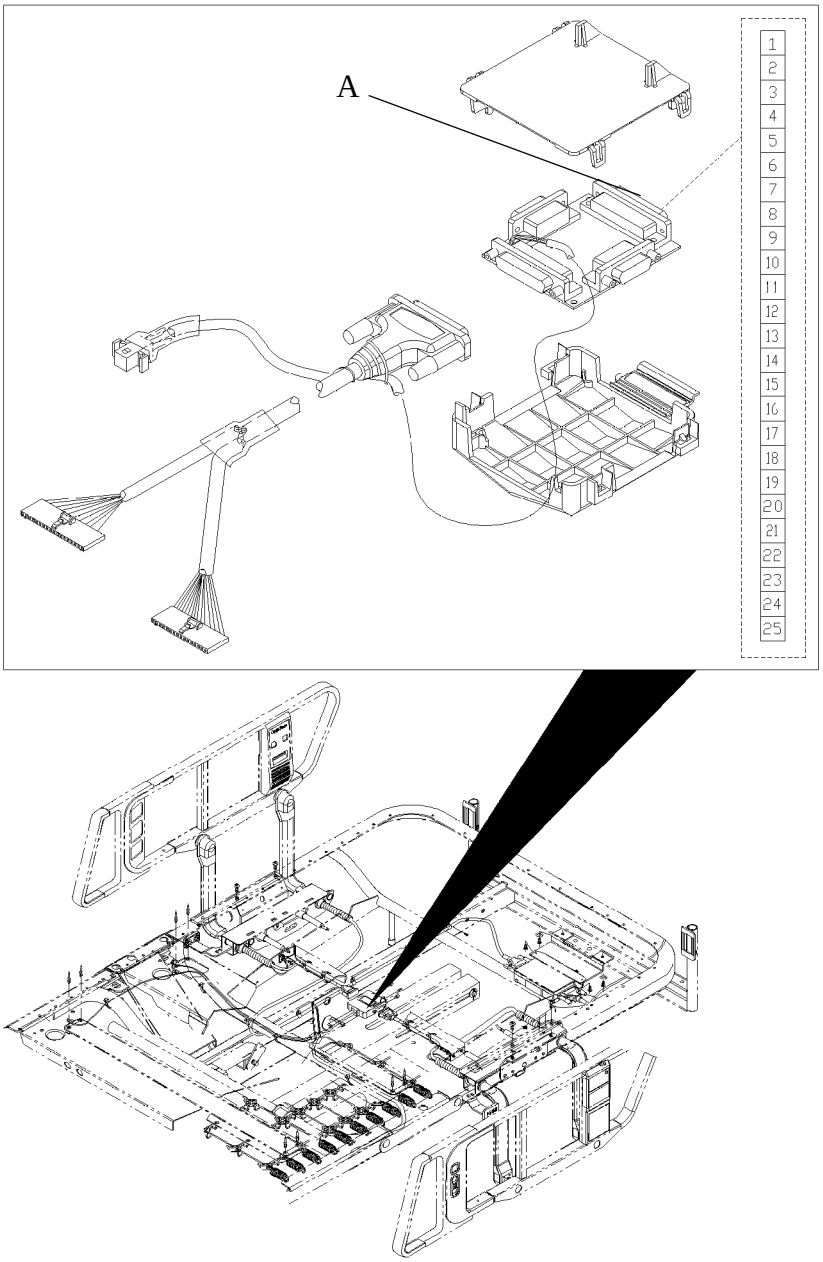
2.4 Knee Down Switch Failure

2

The knee section will not lower when the knee down switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-7 on page 2-20), place your black probe into pin 21 and your red probe into pin 6. Activate the knee down switch. The voltage is approximately 12V DC.

Figure 2-7. J/P200 Location



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Yes **No**

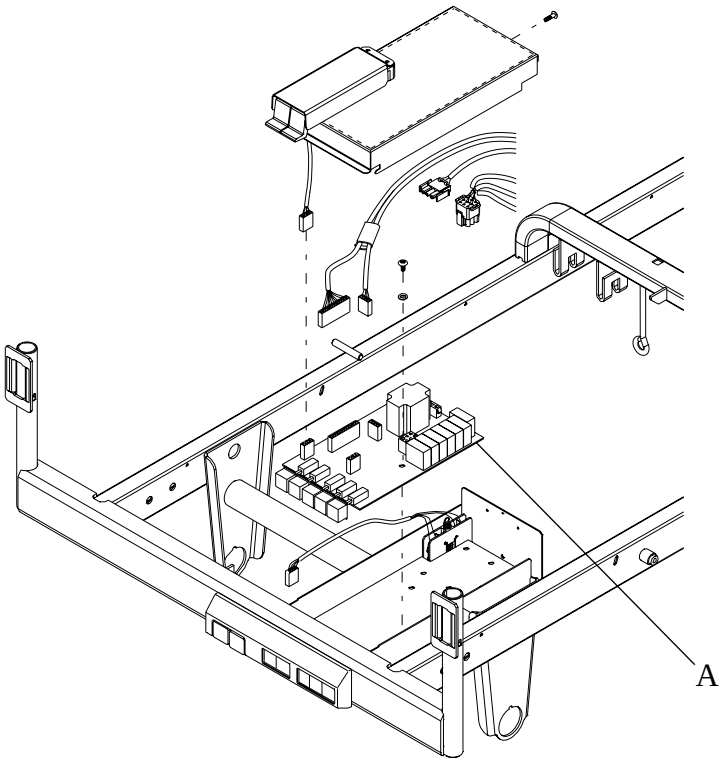
↓ → Replace the switch or the cable to the switch (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 6. Activate the knee down switch. The voltage is approximately 12V DC.

Yes **No**

↓ → Replace the cable between J/P200 and the control board (A) (see figure 2-8 on page 2-21) (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

Figure 2-8. Control Board Location



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3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 8 and your red probe into pin 7. Activate the knee down switch. The voltage is between 115-130V AC.

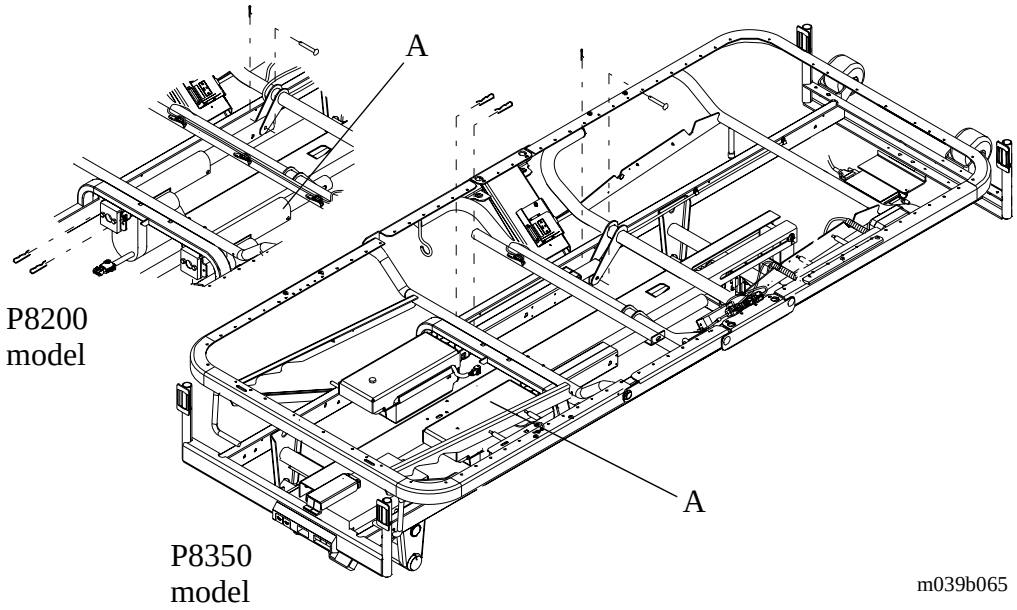
2

Yes **No**

↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the knee motor (A) or cable to the knee (see figure 2-9 on page 2-22) (refer to procedure 4.7).

Figure 2-9. Knee Motor Location



This solves the problem.

Yes **No**

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

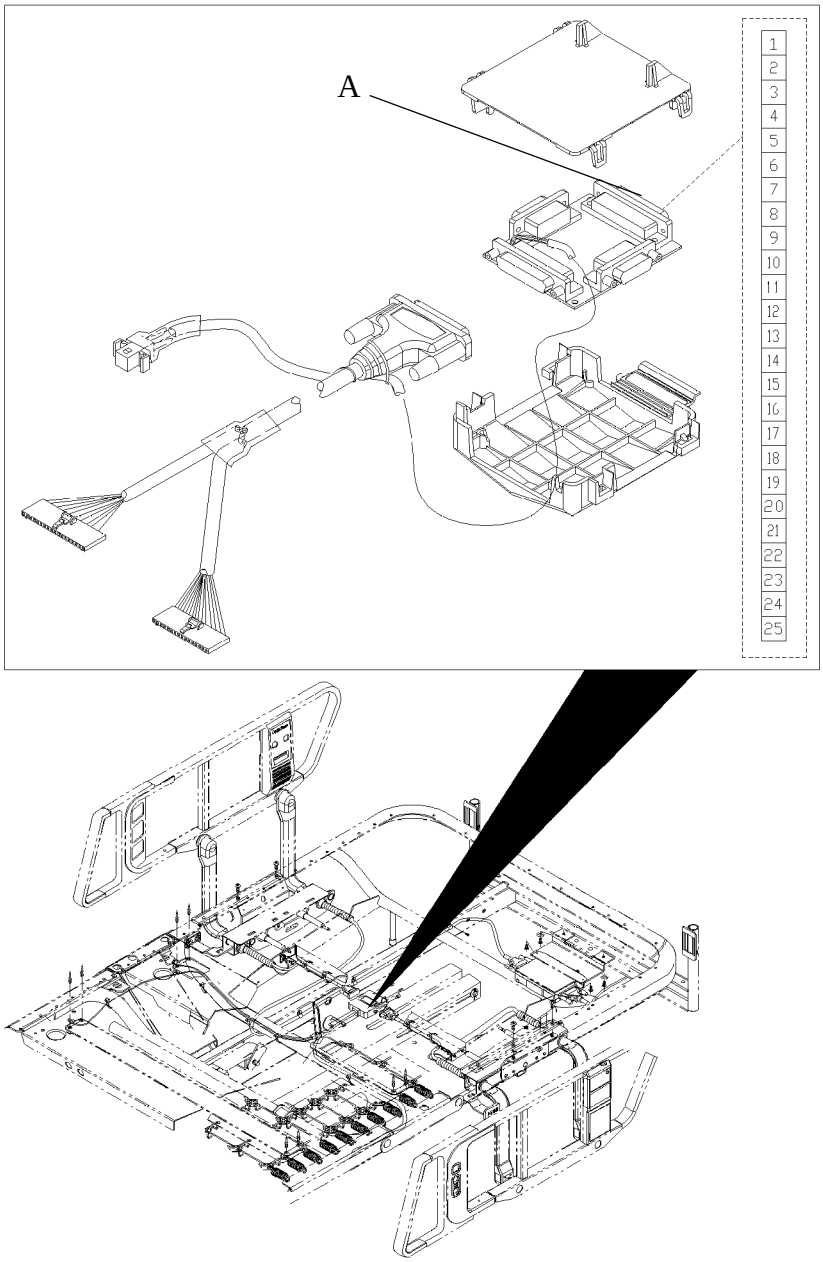
5. Go to "Final Actions" on page 2-11.

2.5 Hilow Up Switch Failure

The bed will not raise when the hilow up switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-10 on page 2-23), place your black probe into pin 21 and your red probe into pin 11. Activate the hilow up switch. The voltage is approximately 12V DC.

Figure 2-10. J/P200 Location



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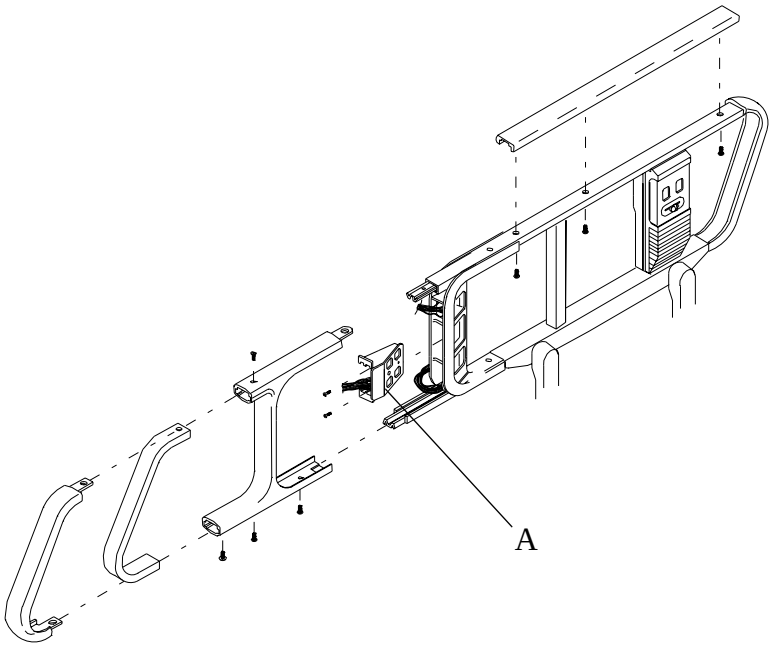
2

Yes **No**
↓ → Replace the switch (A) or the cable to the switch (see figure 2-11 on page 2-24) (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

Figure 2-11. Hilow Switch Location



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2. Set your VOM to measure V DC. Place your black probe into J/P6 pin 9 and your red probe into pin 1. Activate the hilow up switch. The voltage is approximately 12V DC.

   Yes **No**
   ↓ → Replace the cable between J/P200 and the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

3. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P7, place your black probe into pin 1 and your red probe into pin 4. The resistance is approximately 5 ohms.

   Yes **No**
   ↓ → Replace the hilow limit switch (refer to procedure 4.12). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P5, place your black probe into pin 2 and your red probe into pin 1. Activate the hilow up switch. The resistance is approximately 5 ohms.

   Yes **No**
   ↓ → Replace the lockout switch or the cable to the lockout switch (refer to procedure 4.13). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 5.

5. Set your VOM to measure V AC. At J/P2, place your black probe into pin 2 and your red probe into pin 4. Activate the hilow up switch. The voltage is between 115-130V AC.

   Yes **No**
   ↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 6.

6. Manually crank the hilow screw drive. See "Manual Operation of Bed (When Electric Power is Not Available)" on page 1-21. The bed goes down.

   Yes **No**
   ↓ → Replace the hilow screw drive (refer to procedure 4.10). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 7.

7. Replace the hilow motor or the cable to the hilow motor (refer to procedure 4.9).

   This solves the problem.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

8. Go to "Final Actions" on page 2-11.

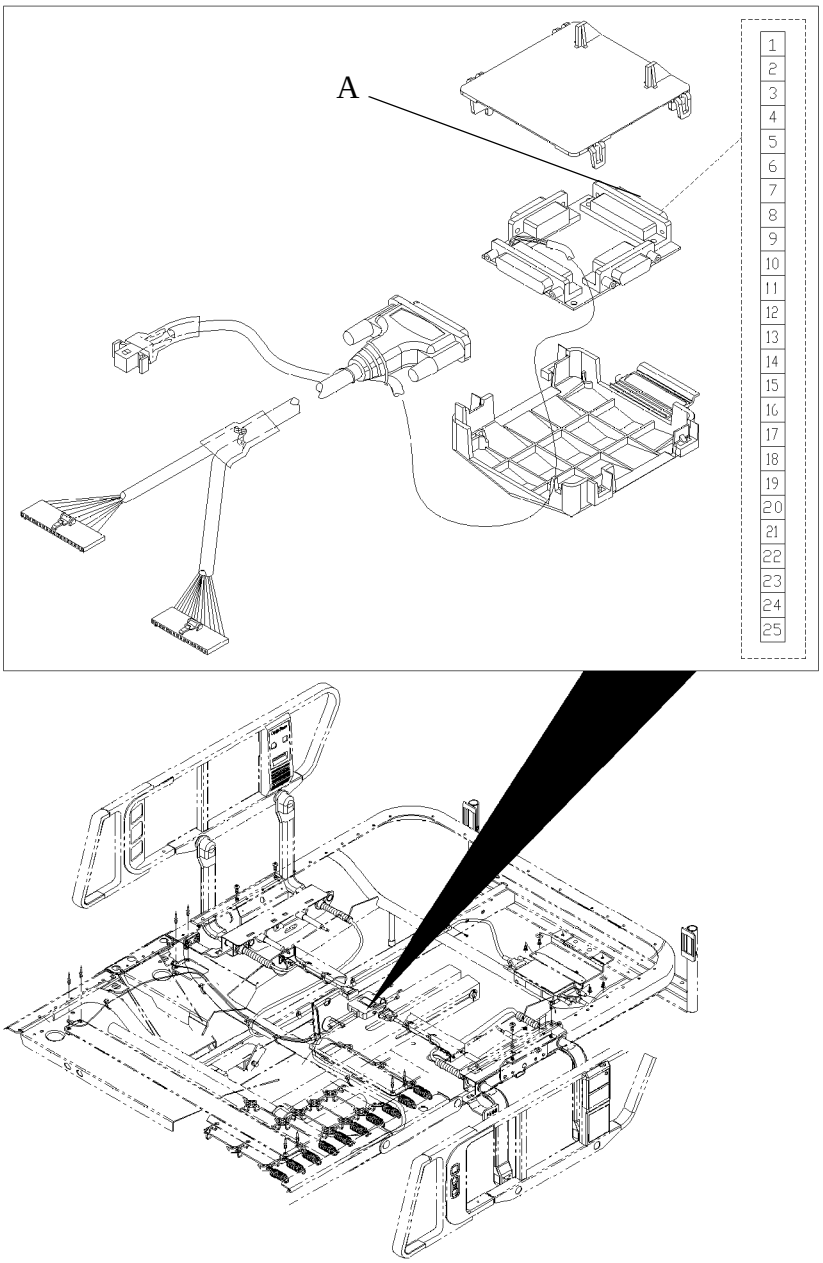
2.6 Hilow Down Switch Failure

2

The bed will not lower when the hilow down switch is activated.

1. Set your VOM to measure V DC. At J/P200 (A) (see figure 2-12 on page 2-26), place your black probe into pin 21 and your red probe into pin 10. Activate the hilow down switch. The voltage is approximately 12V DC.

Figure 2-12. J/P200 Location



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Yes **No**
↓ → Replace the switch or the cable to the switch (refer to procedure 4.19). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 2. Activate the hilow down switch. The voltage is approximately 12V DC.

   Yes **No**
   ↓ → Replace the cable between J/P200 and the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

3. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P7, place your black probe into pin 2 and your red probe into pin 3. Activate the hilow down switch. The resistance is approximately 5 ohms.

   Yes **No**
   ↓ → Replace the limit switch (refer to procedure 4.12). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P5, place your black probe into pin 2 and your red probe into pin 4. Activate the hilow down switch. The resistance is approximately 5 ohms.

   Yes **No**
   ↓ → Replace the lockout switch or the cable to the lockout switch (refer to procedure 4.13). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 5.

5. Set your VOM to measure V AC. At J/P2, place your black probe into pin 2 and your red probe into pin 1. Activate the hilow down switch. The voltage is between 100-130V AC.

   Yes **No**
   ↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 6.

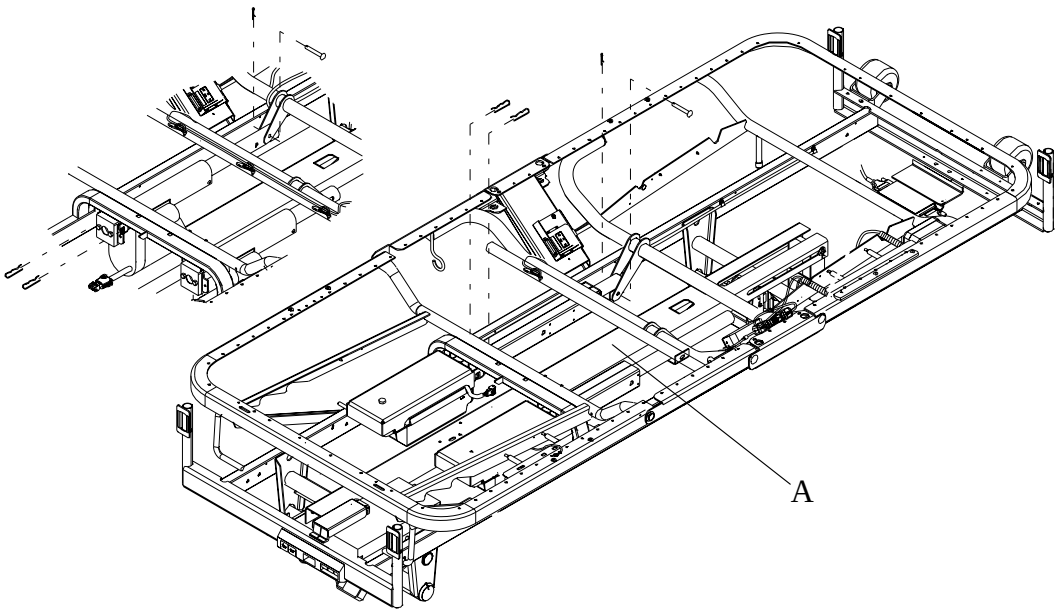
6. Crank the hilow screw drive down. See "Manual Operation of Bed (When Electric Power is Not Available)" on page 1-21. The bed goes down.

2

Yes **No**
↓ → Replace the hilow screw drive (refer to procedure 4.10). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 6.

7. Replace the hilow motor (A) or the cable to the hilow motor (see figure 2-13 on page 2-28) (refer to procedure 4.9).

Figure 2-13. Hilow Motor Location



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This solves the problem.

Yes **No**
↓ → Call Hill-Rom Technical Support at (800) 445-3720.

8. Go to "Final Actions" on page 2-11.

2.7 Knee Section Fails To Raise (Beds With Automatic Contour Only)

The knee section will not raise when the head up switch is activated.

1. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 5. Activate the head up switch. The voltage is approximately 12V DC.

   Yes **No**
   ↓ → Replace the testport or the cable between the testport and the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P3, place your black probe into pin 1 and your red probe into pin 4. The resistance is approximately 5 ohms.

   Yes **No**
   ↓ → Replace the automatic contour up limit switch. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

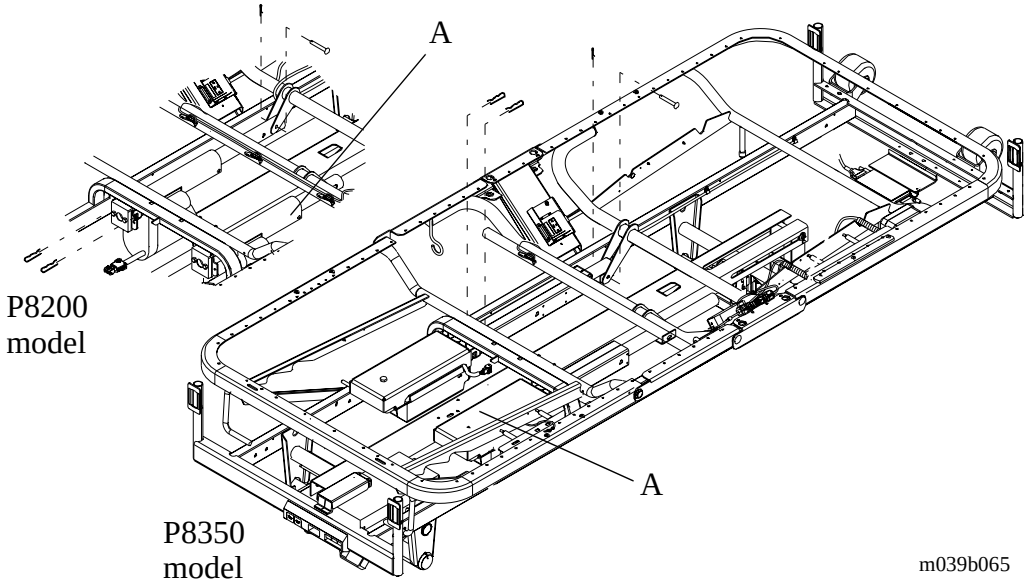
3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 8 and your red probe into pin 9. Activate the head up switch. The voltage is between 115-130V AC.

   Yes **No**
   ↓ → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the knee motor (A) or cable to the knee motor (see figure 2-14 on page 2-30) (refer to procedure 4.7).

2

Figure 2-14. Knee Motor Location



This solves the problem.

Yes **No**
↓ → Call Hill-Rom Technical Support at (800) 445-3720.

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

2.8 Knee Section Fails To Lower (Beds With Automatic Contour Only)

The knee section will not lower when the head down switch is activated.

1. Set your VOM to measure V DC. At J/P6, place your black probe into pin 9 and your red probe into pin 6. Activate the head down switch. The voltage is approximately 12V DC.

   Yes ↓ **No** → Replace the testport or the cable between the testport and the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Set your VOM to measure ohms/resistance. Unplug the bed from its power source. At J/P3, place your black probe into pin 2 and your red probe into pin 3. The resistance is approximately 5 ohms.

   Yes ↓ **No** → Replace the automatic contour down limit switch. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 3.

3. Set your VOM to measure V AC. At J/P2, place your black probe into pin 7 and your red probe into pin 8. Activate the head down switch. The voltage is between 115-130V AC.

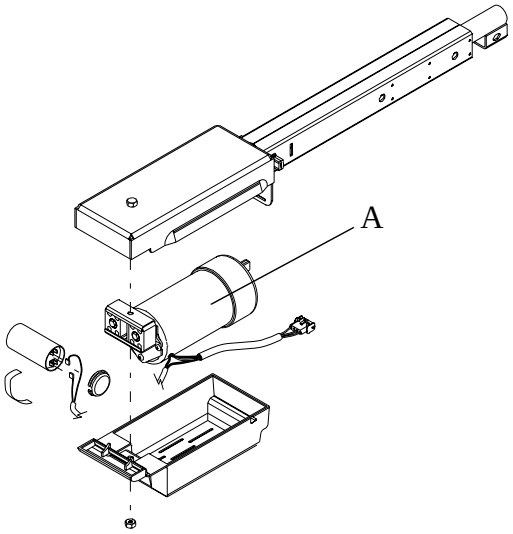
   Yes ↓ **No** → Replace the control board (refer to procedure 4.1). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Replace the knee motor (A) or cable to the knee motor (see figure 2-15 on page 2-32) (refer to procedure 4.7).

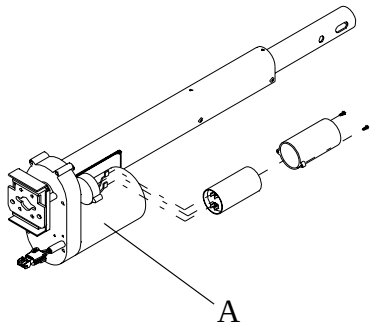
2

Figure 2-15. Knee Motor

P8350 model



P8200 model



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This solves the problem.

Yes **No**
↓ → Call Hill-Rom Technical Support at (800) 445-3720.

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

2.9 Trendelenburg Or Reverse Trendelenburg Failure

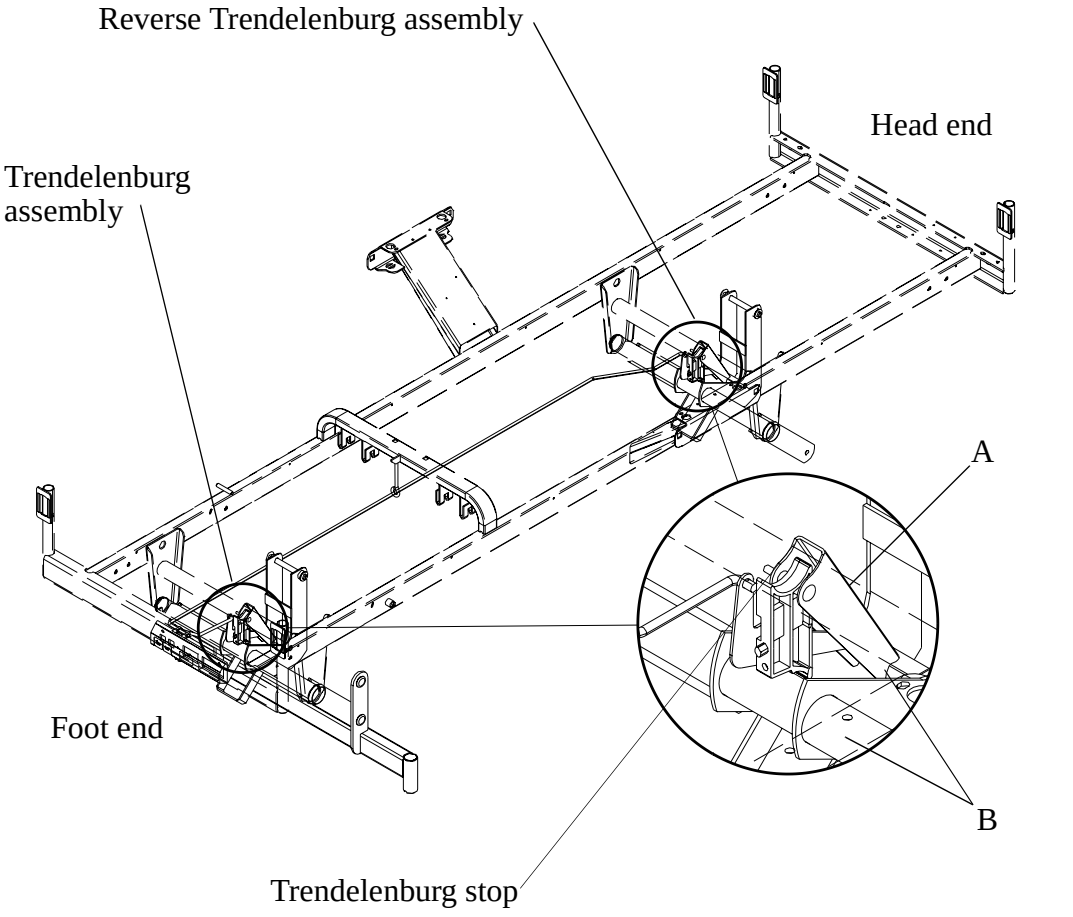
The bed will not go into Trendelenburg or Reverse Trendelenburg when activated.

1. The bed lowers completely without going into Trendelenburg or Reverse Trendelenburg when activated.

   Yes **No**
   ↓ → Ensure the mechanical linkage is engaging properly (refer to procedure 4.15). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Activate either the Trendelenburg or Reverse Trendelenburg knob. The plated bracket (A) is wedged in between the two torque tubes (B) (see figure 2-16 on page 2-33).

Figure 2-16. Trendelenburg and Reverse Trendelenburg Assembly



Yes **No**
↓ → Adjust or replace the mechanical linkage (refer to procedure 4.15). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

3. Activate the Trendelenburg or Reverse Trendelenburg function. The bed lowers 3" or 4" and stops.

   Yes **No**
   ↓ → Go to step 4.

   If both Trendelenburg and Reverse Trendelenburg are activated at the same time, the bed will lower only 3" or 4". The hilow motor continues to run until it reaches its low limit or when you release the down button.

4. Raise the bed using the hilow function to its high limit. Activate either the Trendelenburg or Reverse Trendelenburg switches, but do not activate both of them. The bed lowers into the Trendelenburg or Reverse Trendelenburg positions.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

5. Go to "Final Actions" on page 2-11.

2.10 The Bed Air Surface Failure

The bed air surface does not operate.

1. The excessive airloss LED is on at the control console.

   Yes **No**
   ↓ → Go to step 3.

2. Turn the air power system switch off and back on. Test the air system. If this solves the problem, go to “Final Actions” on page 2-11. Otherwise, continue to step 3.

NOTE:
Testing the air system will take a minimum of 7-10 minutes before the system activates the excessive airloss LED. Make sure you wait the allotted time limit, otherwise you might overlook the problem.

3. The air system power switch is on.

   Yes **No**
   ↓ → Turn the air system power switch on, and test the air system. If this solves the problem, go to “Final Actions” on page 2-11. Otherwise, continue to step 4.

4. Press the firm switch to inflate the air mattress. The mattress inflates.

   Yes **No**
   ↓ → Go to step 6.

5. Go to step 29.

6. Press the soft switch to deflate the air mattress. The mattress deflates.

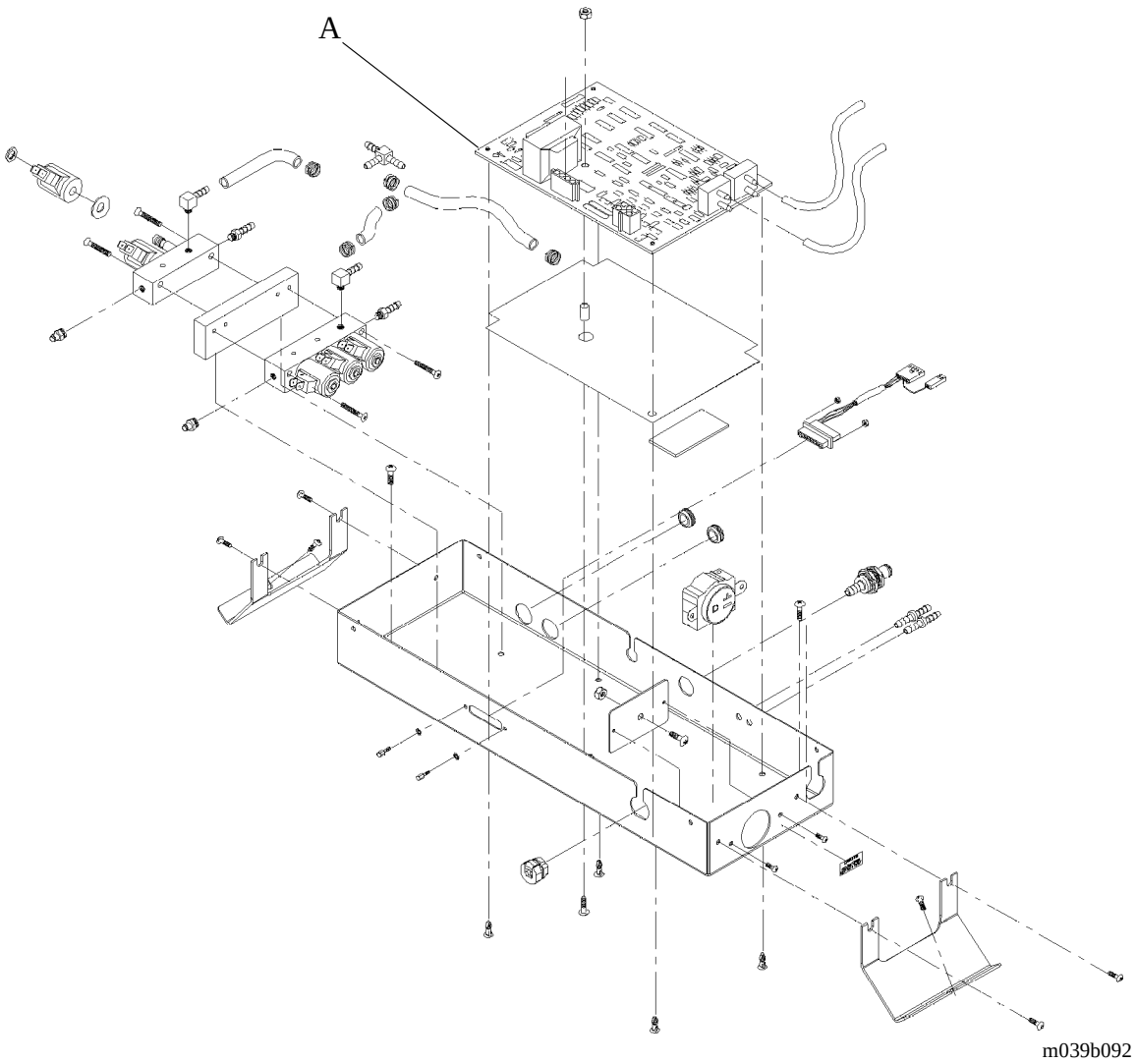
   Yes **No**
   ↓ → Go to step 8.

7. Go to step 9.

8. Check the air system P.C. board (A) connectors, and test the air system (see figure 2-17 on page 2-36). The mattress deflates.

2

Figure 2-17. Air System P.C. Board Location



Yes **No**
↓ → Replace the air P.C. board (refer to procedure 4.5). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

9. Test the firm switch. The mattress inflates.

Yes **No**
↓ → Go to step 11.

10. Press the soft switch to deflate the air mattress.

11. The air compressor is running.

Yes **No**
↓ → Go to step 25.

12. The solenoid clicks.

    Yes **No**
    ↓ → Go to step 17.

13. Check the pop-off valve on the manifold. Check for proper hose connections, pinched air hoses, or air leaks. Problems were found.

    Yes **No**
    ↓ → Replace the inflate manifold (refer to procedure 4.6). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

14. Take the appropriate actions to solve the problem.

15. This solves the problem.

    Yes **No**
    ↓ → Go to step 17.

16. Go to "Final Actions" on page 2-11.

17. Set your VOM to measure VAC. At J/P29, place your black probe into pin 1 and your red probe into pin 5. AC voltage is present.

    Yes **No**
    ↓ → Go to step 21.

18. Replace the solenoid (refer to procedure 4.6).

19. This solves the problem.

    Yes **No**
    ↓ → Go to step 21.

20. Go to "Final Actions" on page 2-11.

21. Check the continuity of the solenoid. The solenoid is shorted.

    Yes **No**
    ↓ → Replace both the solenoid and P.C. board (refer to procedure 4.6). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

22. Replace the air system P.C. board (refer to procedure 4.5).

2

23. This solves the problem.

    Yes **No**
    ↓ → Go to step 25.

24. Go to "Final Actions" on page 2-11.

25. Set your VOM to measure VAC. At J/P29, place your black probe into pin 1 and your red probe into pin 4. AC voltage is present.

    Yes **No**
    ↓ → Replace the air system P.C. board (refer to procedure 4.5). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

26. Replace both the solenoid and the P.C. board (refer to procedure 4.6).

27. This solves the problem.

    Yes **No**
    ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

28. Go to "Final Actions" on page 2-11.

29. Press the comfort switch to soften the mattress. The mattress deflates.

    Yes **No**
    ↓ → Go to step 35.

30. Change the mode of the mattress to prevention. The mattress inflates.

    Yes **No**
    ↓ → Go to step 33.

31. Press firmly on the mattress and release. The mattress inflates.

    Yes **No**
    ↓ → Replace the sleep surface control board (refer to procedure 4.5). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

32. The top bladder system has no problem.

33. The automatic LED lights.

    Yes **No**
    ↓ → Check the automatic switch or the wiring harness.

34. Replace the sleep surface control board (refer to procedure 4.5). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 35.

35. Press a different switch to soften the mattress. The mattress deflates.

    Yes **No**
    ↓ → Go to step 39.

36. Replace the firm or soft switch (refer to procedure 4.3).

37. This solves the problem.

    Yes **No**
    ↓ → Go to step 39.

38. Go to "Final Actions" on page 2-11.

39. Check for continuity of the solenoids. The solenoid is shorted.

    Yes **No**
    ↓ → Go to step 43.

40. Replace the solenoid (refer to procedure 4.6).

41. This solves the problem.

    Yes **No**
    ↓ → Go to step 43.

42. Go to "Final Actions" on page 2-11.

43. Set your VOM to measure VAC. At J/P29, place your black probe into pin 1 and your red probe into pin 6. AC voltage is present.

    Yes **No**
    ↓ → Replace the sleep surface control board (refer to procedure 4.5). If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 44.

44. Replace the solenoid (refer to procedure 4.6).

    This solves the problem.

    Yes **No**
    ↓ → Call Hill-Rom Technical Support at (800) 445-3720.

45. Go to "Final Actions" on page 2-11.

2.11 The Night Light Failure

The night light does not work.

1. The night light switch is on.

   Yes **No**
   ↓ → Turn the switch on and test. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 2.

2. Check the night light sensor adjustment. The night light comes on.

   Yes **No**
   ↓ → Go to step 4.

3. Adjust the night light sensor to the desired setting. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 4.

4. Place your hand close to the photocell. A voltage fluctuation occurs.

   Yes **No**
   ↓ → Replace the photocell. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 5.

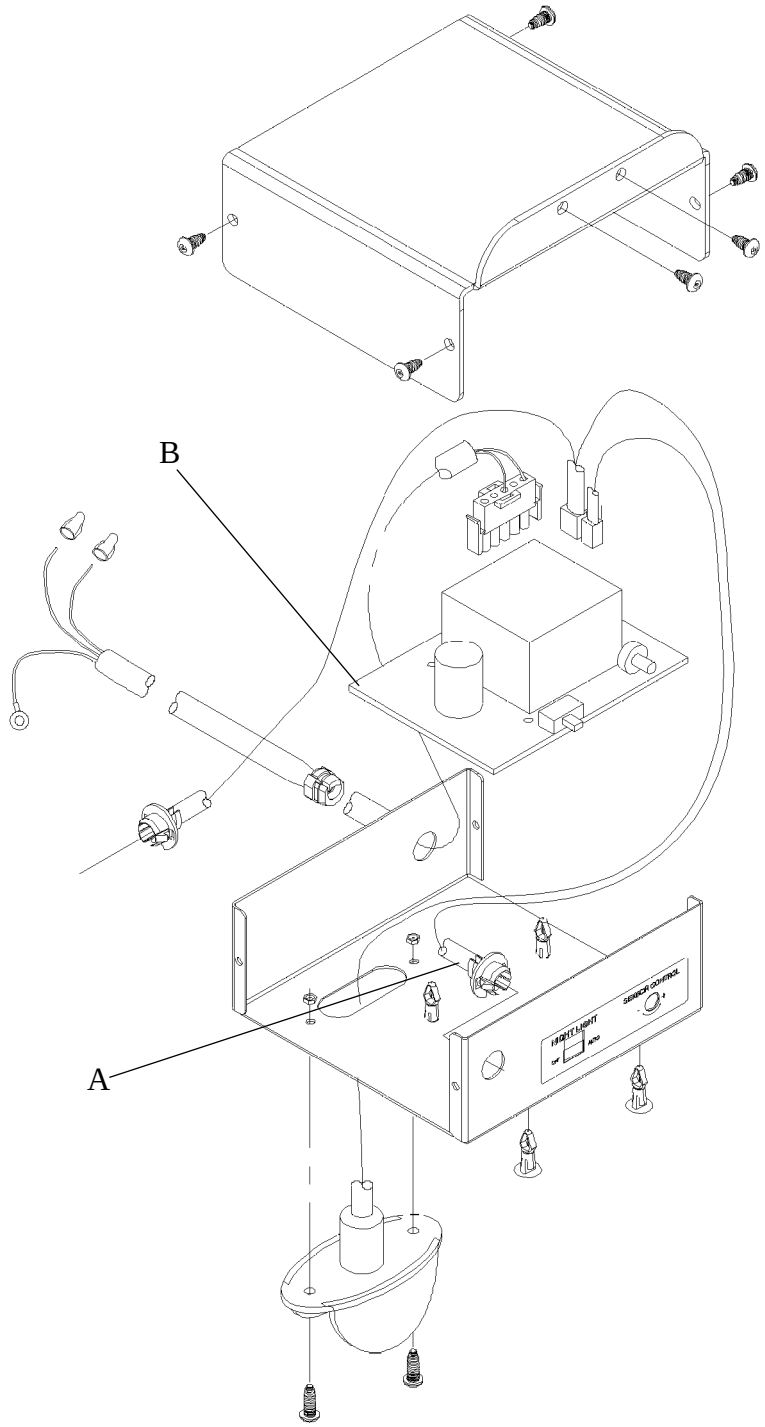
5. Set your VOM to measure V AC. At J/P12, place your black probe into pin 3 and your red probe into pin 1. The voltage is between 100-130V AC.

   Yes **No**
   ↓ → Check to see if you have power at the outlet. If not, replace the cable to the main power cord. If this solves the problem, go to "Final Actions" on page 2-11. Otherwise, continue to step 6.

6. Disconnect J14 (sensor cable) (A) from the night light board (B) (see figure 2-18 on page 2-41).

2

Figure 2-18. Sensor Cable Location



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7. The night light is on.

Yes **No**
↓ → Go to step 11.

8. Replace the night light sensor or sensor cable.

9. This solves the problem.

   Yes **No**
   ↓ → Go to step 11.

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

11. Change the night light bulb.

12. The night works.

    Yes **No**
    ↓ → Replace the night light board. If this solves the problem, go to “Final Actions” on page 2-11. Otherwise, call Hill-Rom Technical Support at (800) 445-3720.

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

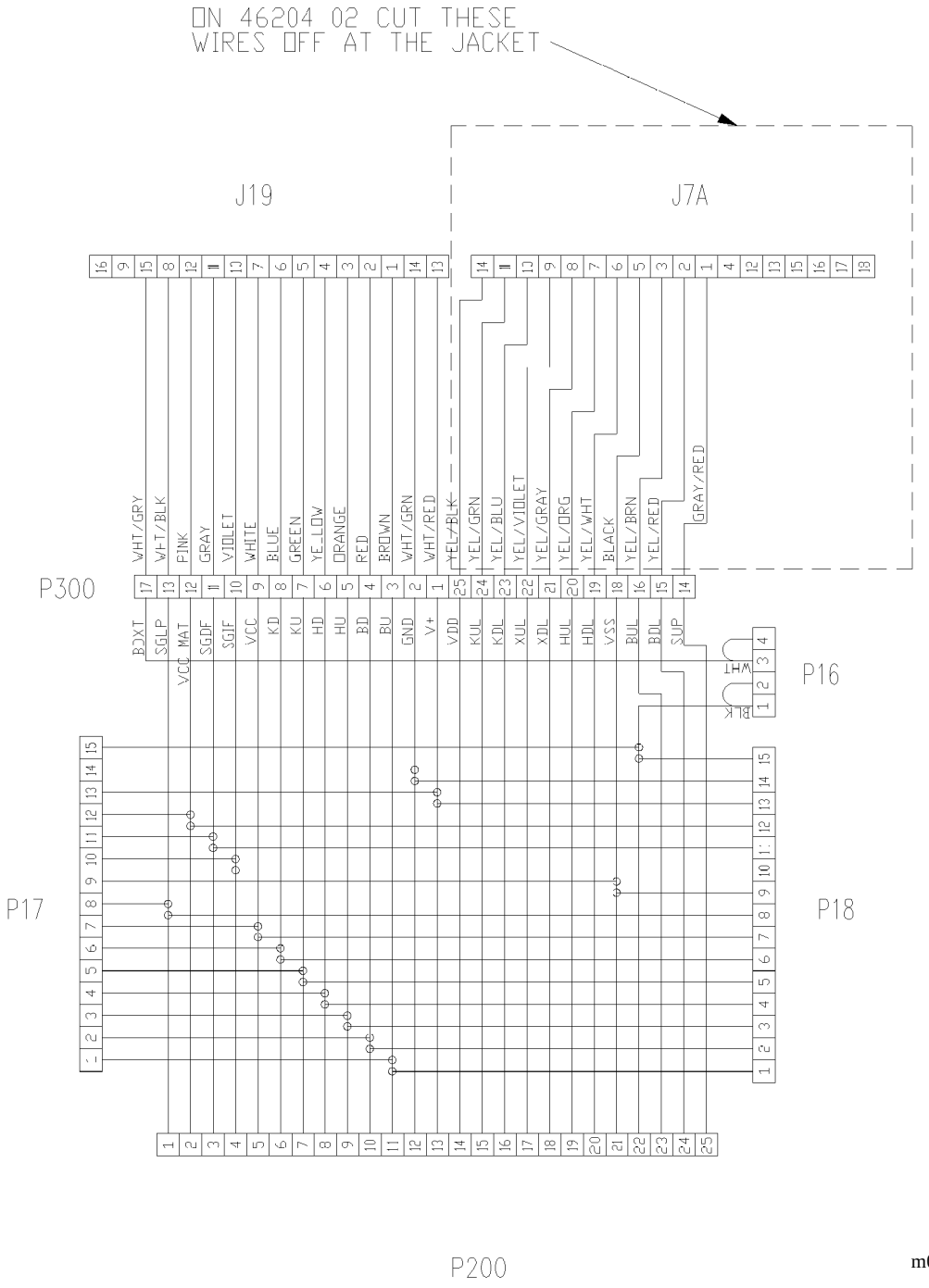
Chapter 3
Theory of Operation

Chapter Contents

3

Bed Control Cable Assembly Wiring Diagram—P/N 46204-02 (Beds Equipped With Communication Siderails)

Figure 3-1. Bed Control Cable Assembly Wiring Diagram—P/N 46204-02 (Beds Equipped With Communication Siderails)



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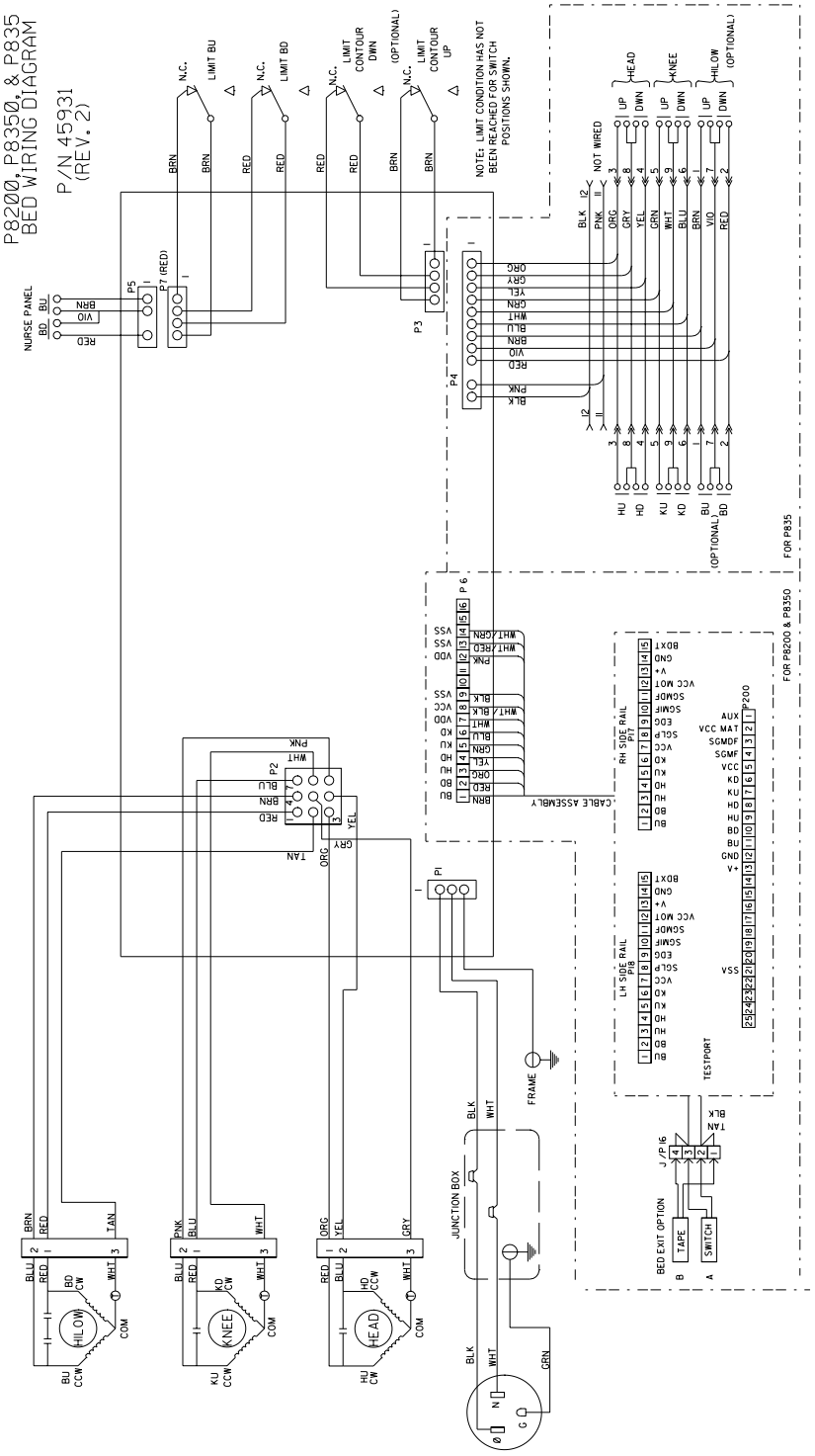
Bed Wiring Diagram—P/N 45931

Figure 3-2. Bed Wiring Diagram—P/N 45931



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P.C. Board Wiring Diagram—Integrated Air Support System Board P/N 45904 (Beds Before 11/30/95)

Figure 3-3. P.C. Board Wiring Diagram—Integrated Air Support System Board P/N 45904 (Beds Before 11/30/95)

Refer to fold out FO 3-1 at rear of this manual.

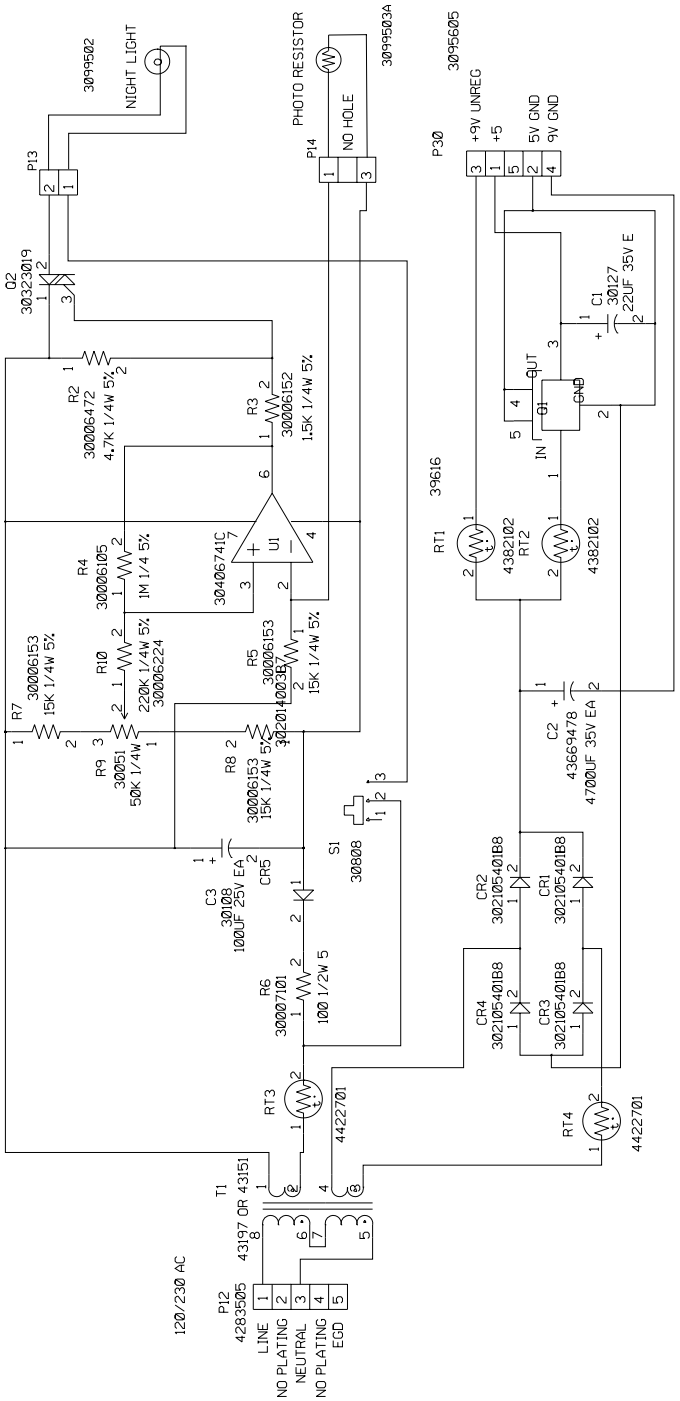
P.C. Board Wiring Diagram—Integrated Air Support System Board P/N 46752 (Beds After 11/30/95)

Figure 3-4. P.C. Board Wiring Diagram—Integrated Air Support System Board P/N 46752 (Beds After 11/30/95)

Refer to fold out FO 3-2 at rear of this manual.

P.C. Board Wiring Diagram—Night Light Board P/N 43200-01

Figure 3-5. P.C. Board Wiring Diagram—Night Light Board P/N 43200-01



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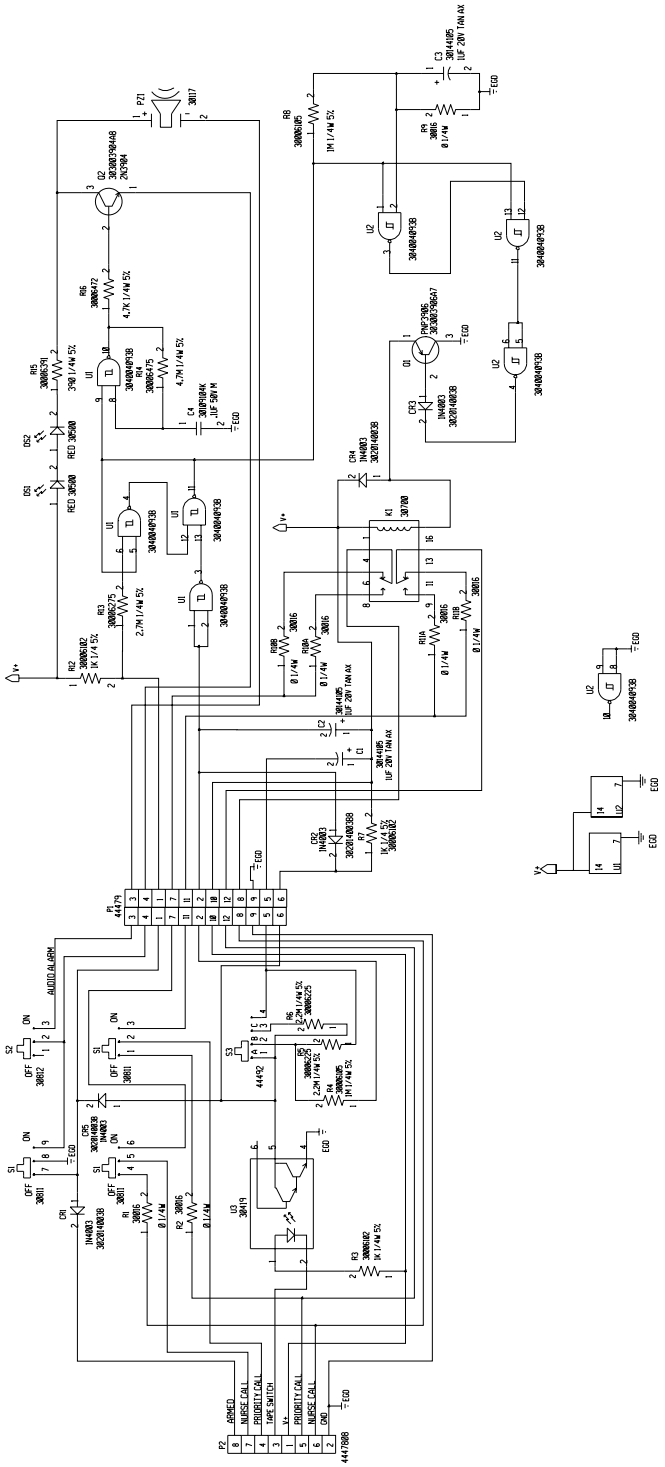
P.C. Board Wiring Diagram—Bed Exit Board P/N 44482-01

Figure 3-6. P.C. Board Wiring Diagram—Bed Exit Board P/N 44482-01



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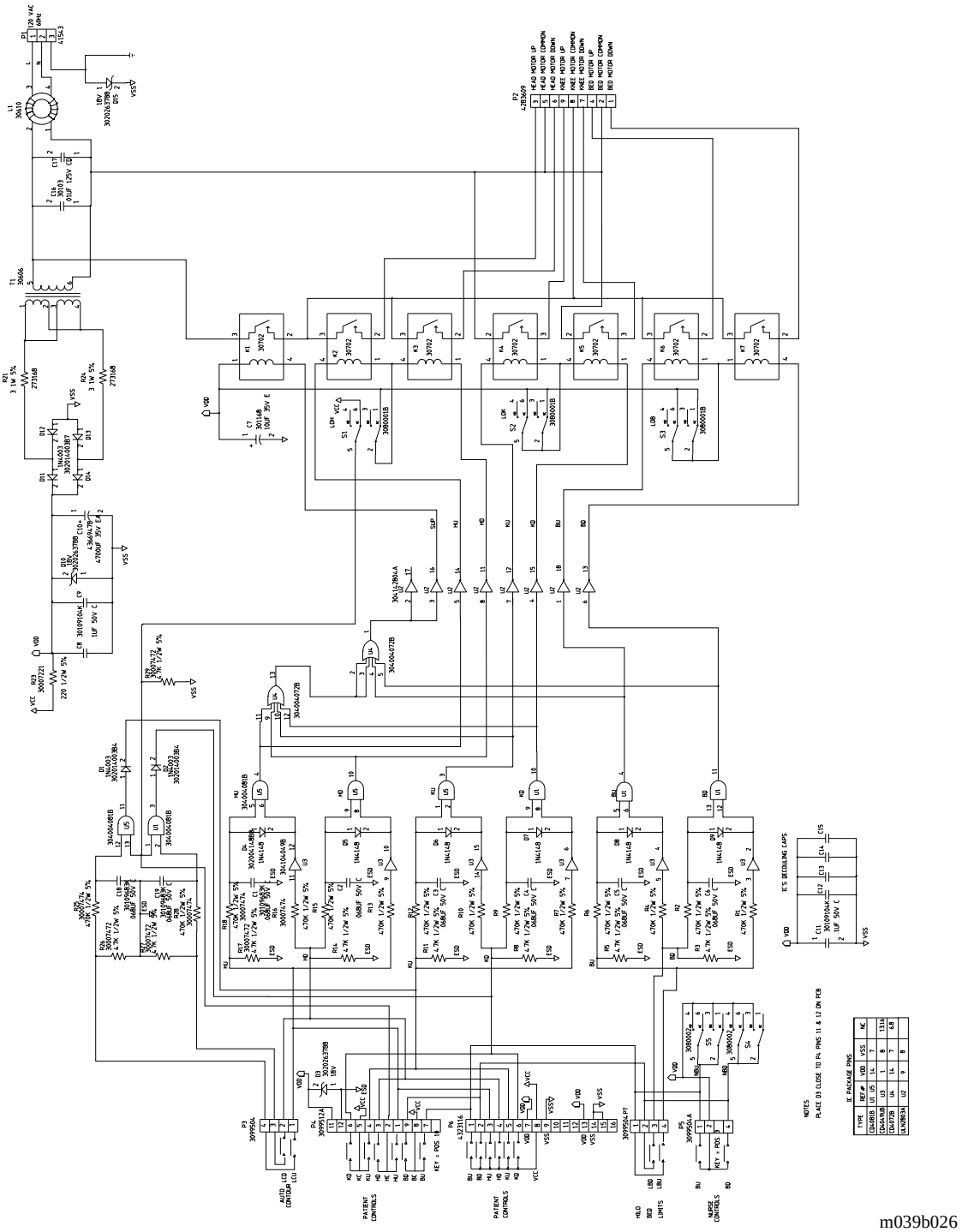
P.C. Board Wiring Diagram—Board P/N 45695-01

Figure 3-7. P.C. Board Wiring Diagram—Board P/N 45695-01



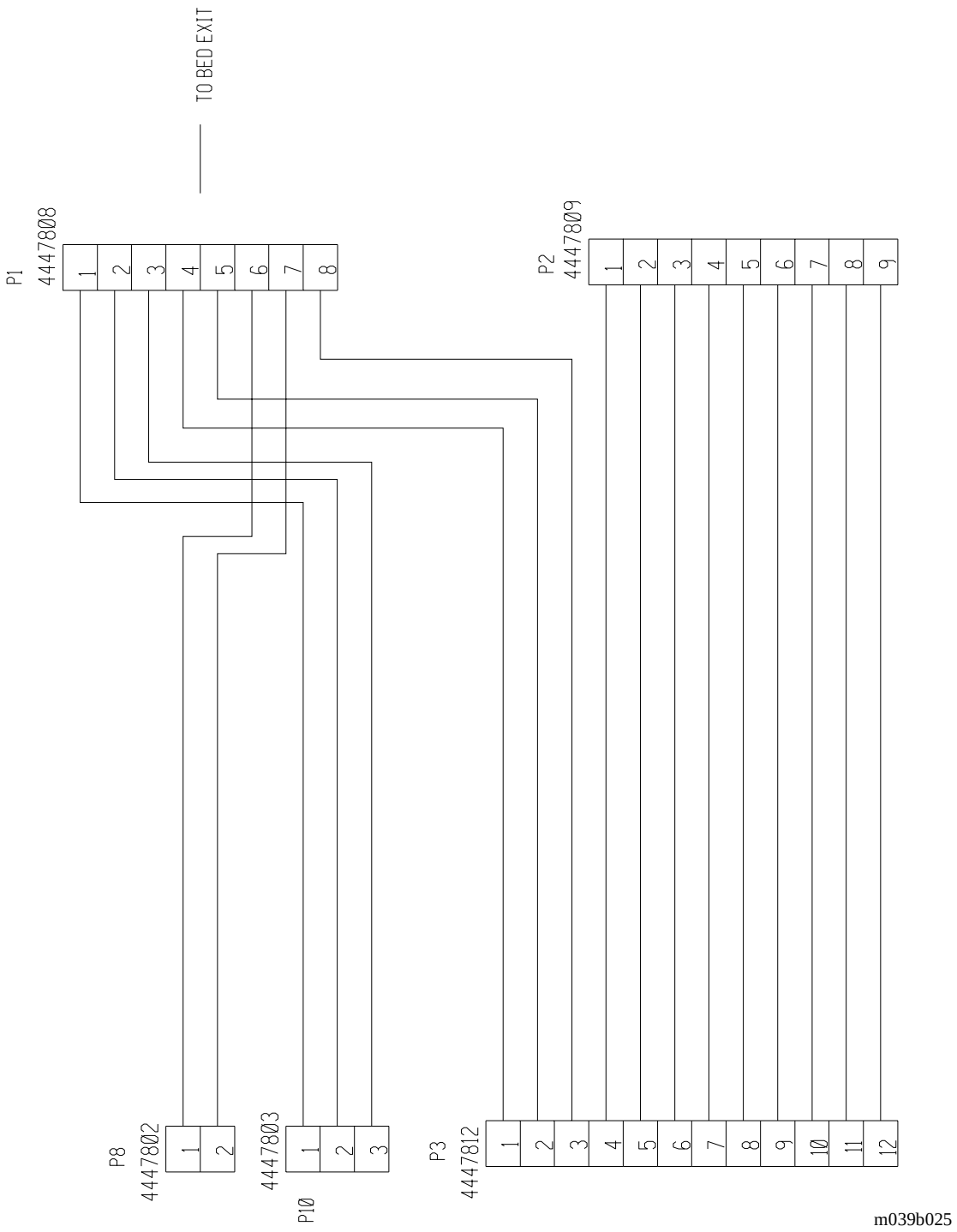
P.C. Board Wiring Diagram—Control Board P/N 45695-02

Figure 3-8. P.C. Board Wiring Diagram—Control Board P/N 45695-02

Refer to fold out FO 3-3 at rear of this manual.

P.C. Board Wiring Diagram—Siderail Interface Board P/N 44578

Figure 3-9. P.C. Board Wiring Diagram—Siderail Interface Board P/N 44578



Electrical Theory of Operation

The electrical power system is mechanically insulated from the metal parts of the bed. No additional electrical components, such as isolation transformers, are required to make this bed meet applicable electrical codes. The insulation materials are of the type that will not deteriorate to an unsafe level over an 18 year period with normal use.

Each bed is factory tested for complete operation with and without load. Each bed is tested for insulation integrity and micro leakage currents. Before shipment, each bed must indicate less that 90 micro amperage leakage current ungrounded on 115 volt model beds.

The supply cord is #18 AWG low leakage three conductor type STO. It extends six feet from the head end of the bed. The supply cord is UL listed and the attachment plug cap is UL listed hospital grade.

All electrical components of this bed have been UL approved for this application.

The bed has an optional night light that automatically activates as the ambient light decreases. The light illuminates an area under the bed at both sides.

Motors

There are three individual motors to power the separate functions of the bed. These motors have the following specifications:

Hilow

- 3.8 amps maximum
- Permanently lubricated
- Totally enclosed
- Single phase
- Overload protected with reset thermal
- 115 volts AC, 60 hertz

Head

- 1.8 amps maximum
- Permanently lubricated
- Totally enclosed
- Single phase
- Overload protected with reset thermal
- 115 volts AC, 60 hertz

Knee

- 1.8 amps maximum
- Permanently lubricated
- Totally enclosed
- Single phase
- Overload protected with reset thermal
- 115 volts AC, 60 hertz

On models without CPR only, the hilow, head, and knee motors have manual crank capability to allow operation in the event of power failure. On models with the optional CPR only, the head has a release mechanism to permit flattening of this section of the sleeping surface.

All of these motors are a plug-in design to make them easily and rapidly removable from the bed in the event of motor problems. These motors are designed and made especially for the individual functions they are to perform. Standard shelf motors not designed with the proper horsepower, gear ratio, etc., are not acceptable.

Thermal Resets

Thermals are an integrated part of the motors, protecting them in the event that an overload condition occurs. They stop the motor automatically if it heats up to a certain temperature. Motors will not run again until the thermal resets. Some hilow motors must be manually reset.

NOTE:
Ensure the motor has had time to cool before manually resetting the thermal.

WARNING:
The motor can continue operation once the thermal is reset, which could cause possible injury to service personnel or damage to the bed.

Motor Capacitors

Motor capacitors often become weak before they fail. A quick check to find out if they are weak is:

- Run the motor up. Depress and then release the down button. Check to see if the motor drifts after the button is released.
- Operate the motor in either direction. While the motor is running, reverse the direction quickly. Check to see if there is an unusually long delay before the motor reverses.
- Operate the motor in either direction. While the motor is running, reverse the direction quickly. Check to see if the motor continues to operate in the same direction.

If any of these conditions occur, replace the capacitor.

Integrated Air Support System

The integrated air support system is an optional feature. The integrated air support system includes the air compressor, P.C. board, pendant control, mattress, and functional lockouts.

The integrated air support system compressor is a self-contained unit with the following specifications:

- 1.0 amps maximum
- Permanently lubricated
- Totally enclosed
- Single phase
- 115 volts AC, 60 hertz

Patient Controls

Patient operation of the various functions of this bed are accomplished by means of low voltage finger touch switches located in a convenient fixed position at both sides of the bed. These patient controls are affixed with the movable head section to give easy access as well as visual contact with the head and knee operating button, irrespective of the position of the head section elevation. These low voltage patient controls are electronically interlocked to prevent electrical damage to the motor caused by contradictory direction signaling to the motor. The hilow low voltage electrical controls are located within easy reach of the patient and in a position for visual contact and operation by nursing personnel, doctors, etc., attending to the patient.

Lockouts are provided to inhibit patient operation of the head, knee, and hilow features. The lockouts are located on the attendant control console at the foot end of the bed. Activation of either the head or knee lockout precludes knee section movement for contour when the head operating switch is actuated.

Head

Head section operating controls are visually identifiable to the patient by graphic symbols. The switches are separate momentary type low voltage switches identified for elevation and down travel of the head section.

Knee

The knee lift patient controls are readily visible to the patient and likewise identified by symbols. They contain a separate momentary type switch for the up and down positioning of the knees. The patient can raise the knee section to a full 45° angle or return it to a full flat position. The flat feature is an overriding function that can be acquired even though the bed has been positioned in automatic contour.

As prescribed by the attending physician, this bed has the capabilities of locking out the knee lift. This lockout is located at the foot end of the bed. It prevents control of the knee from the bed patient operating control located at the side of the bed.

Hilow

The hilow controls are pictorially labeled to indicate their function and are in immediate visual contact with the patient attendant. They contain a momentary type up or down switch.

Mattress

The hand held pendant adjusts the firmness of the optional DynamicAire Sleep Surface. They are visible to the patient and graphically marked. Two momentary switches allow the patient to adjust the DynamicAire Sleep Surface firmer or softer. This feature is disabled when the automatic mode is selected, or the patient controls are turned off in the attendant control console.

Control Board Theory of Operation

The control board theory of operation is a description of the master control board assembly, which drives limit switches, siderails, and the attendant control console.

The mattress control board theory of operation is a description of circuit controls for the pressure in both the upper and lower bladders of the DynamicAire Sleep Surface.

This information will help you understand the control boards, and act as an aid in troubleshooting problems encountered with electrical functions.

A copy of the theory of operation for the Patient Care bed is available upon request to the Hill-Rom Technical Services Department. Please specify the circuit board part number when ordering.

NOTES:

Chapter 4
Removal, Replacement, and Adjustment Procedures

Chapter Contents

4

NOTES:

4.1 Control Board Assembly

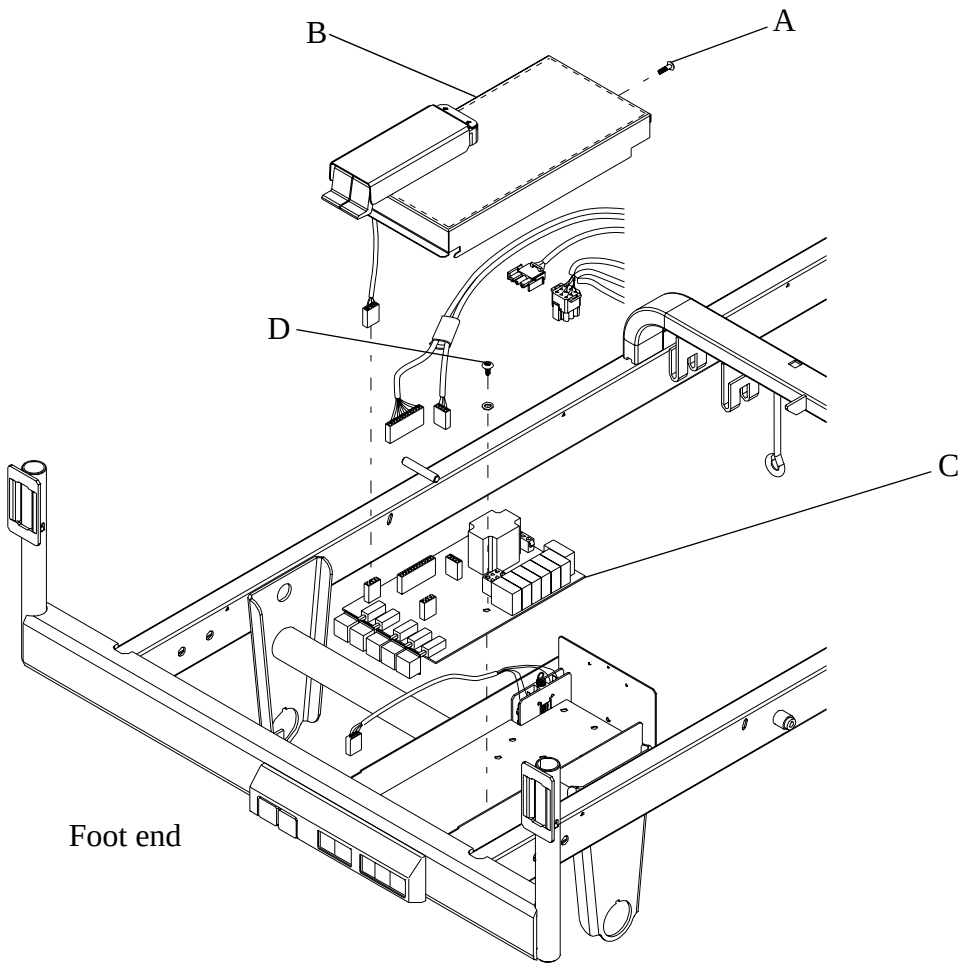
Tools required: Phillips head screwdriver

Removal

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Unplug the bed from its power source.
2. Remove the screw (A) from the control box cover (B) (see figure 4-1 on page 4-5).

Figure 4-1. Control Board Replacement



3. Carefully pull the control box cover up and toward the head end of the bed.

CAUTION:
Do not put any tension on the cable connected to the control box cover.

4. Unplug the cable that runs from the control box cover to the printed circuit board. Lay the cover to the side.

5. Remove the connectors from the control board.

6. Remove the one screw (D), and pull the printed circuit board (C) up and toward the head end of the bed.

Replacement

1. Replace the control board by reversing the removal procedures.

2. Ensure all functions work properly.

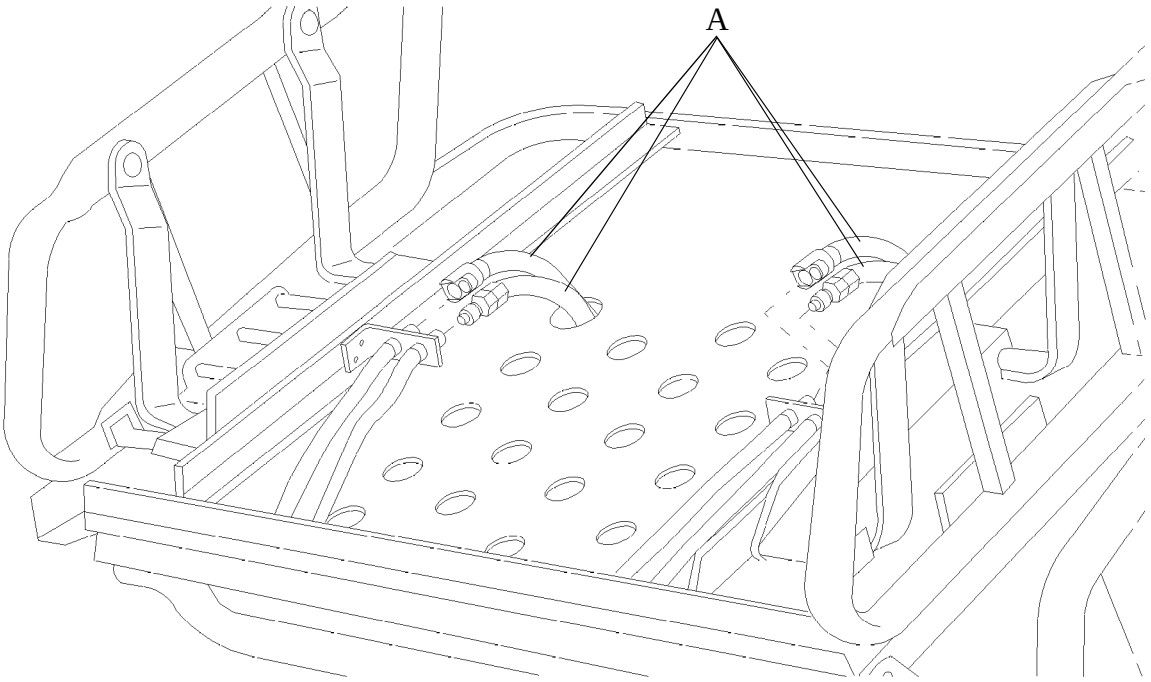
4.2 DynamicAire Sleep Surface Mattress Assembly

Tools required: None

Removal

1. Raise the knee section to the up limit.
2. Fold the knee section back toward the head section of the bed.
3. Unsnap the buckle at the foot end of the mattress connecting the mattress to the sleep surface.
4. Disconnect the four air hoses (A) going to the air mattress (see figure 4-2 on page 4-7).

Figure 4-2. DynamicAire Sleep Surface Mattress Replacement



Replacement

1. Reverse the removal procerdure for replacement of the DynamicAire Sleep Surface Mattress.
2. Ensure the DynamicAire Sleep Surface Mattress inflates and deflates properly.

4.3 Pendant Control Assembly

Tools required: Small wire cutters or knife

Removal

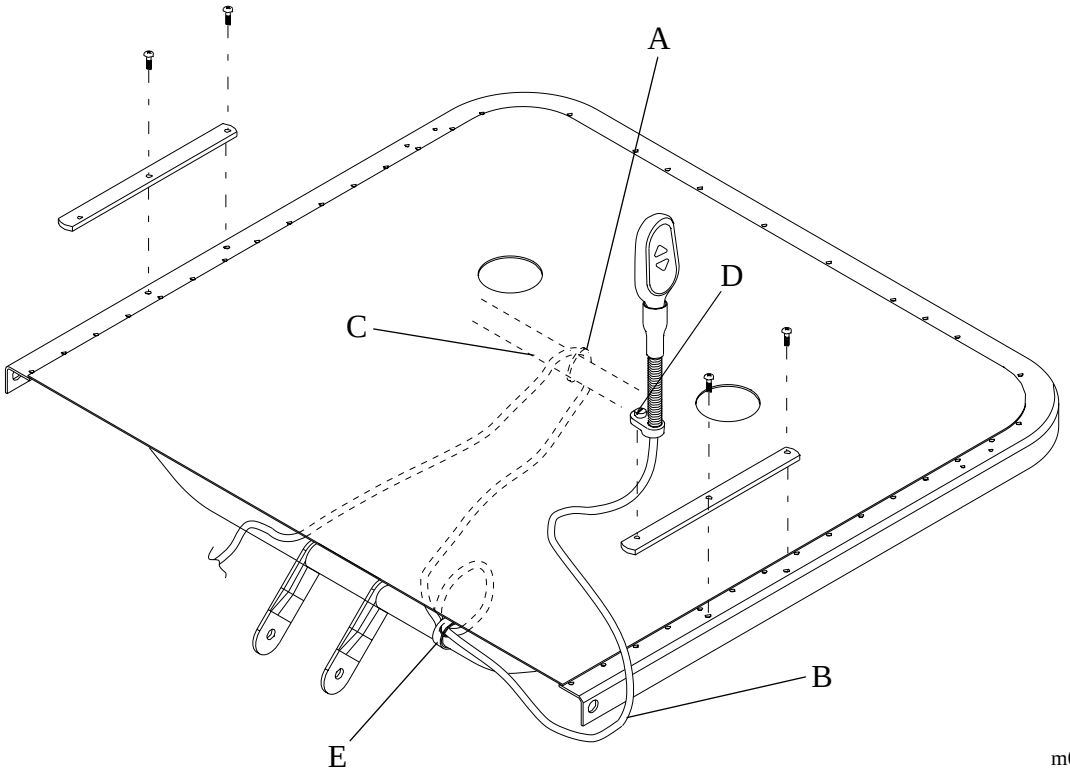
1. Raise the bed to the high position using the hilow function.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Use the wire cutters or knife to remove the wire tie (A) securing the pendant cable (B) to the crosstube (C) (see figure 4-3 on page 4-8).

Figure 4-3. Pendant Control Replacement



4. Remove the Velcro strap (E) securing the cable to the remaining crosstube.

5. Disconnect the pendant control cable from the manifold control box.

6. Loosen the thumbscrew (D) from the mounting receptacle.

Replacement

1. Reverse the removal procedure to replace the pendant control assembly.

WARNING:
Be sure to leave enough slack in the cable to avoid undue stress on the cable as the head section is raised and lowered. Failure to do so could result in equipment damage.

2. Ensure all pendant control functions work properly.

4.4 Air Compressor Assembly

Tools required: Phillips head screwdriver
7/16" wrench

Removal

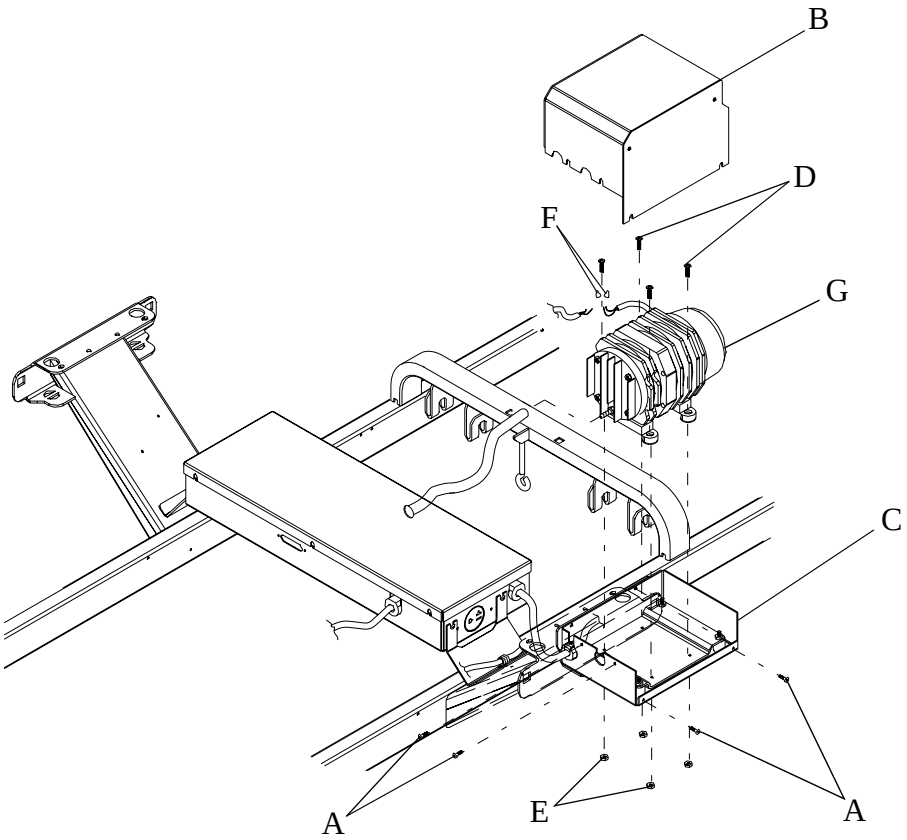
1. Raise the bed to the high position using the hilow function.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Remove the four screws (A) securing the cover (B) of the air compressor box (C) (see figure 4-4 on page 4-10).

Figure 4-4. Air Compressor Replacement



4. Remove the two wire nuts (F) connecting the air compressor (G) to the air compressor connector cable assembly.

5. Remove the four screws (D) and the four nuts (E) fastening the air compressor (G) to the compressor box (C).

6. Remove the air compressor.

Replacement

1. Reverse the removal procedure to replace the air compressor assembly.

2. Ensure all of the air compressor functions work properly.

4.5 Air P.C. Board Assembly

Tools required: T25 torx head screwdriver
Phillips head screwdriver

Removal

1. Follow steps 1 through 4 of the section “DynamicAire Sleep Surface Mattress Assembly” on page 4-7.

2. Unplug the manifold control box power cord.

SHOCK HAZARD:
Unplug the bed from its power source before removing the air P.C. board. An electrical shock hazard exists.

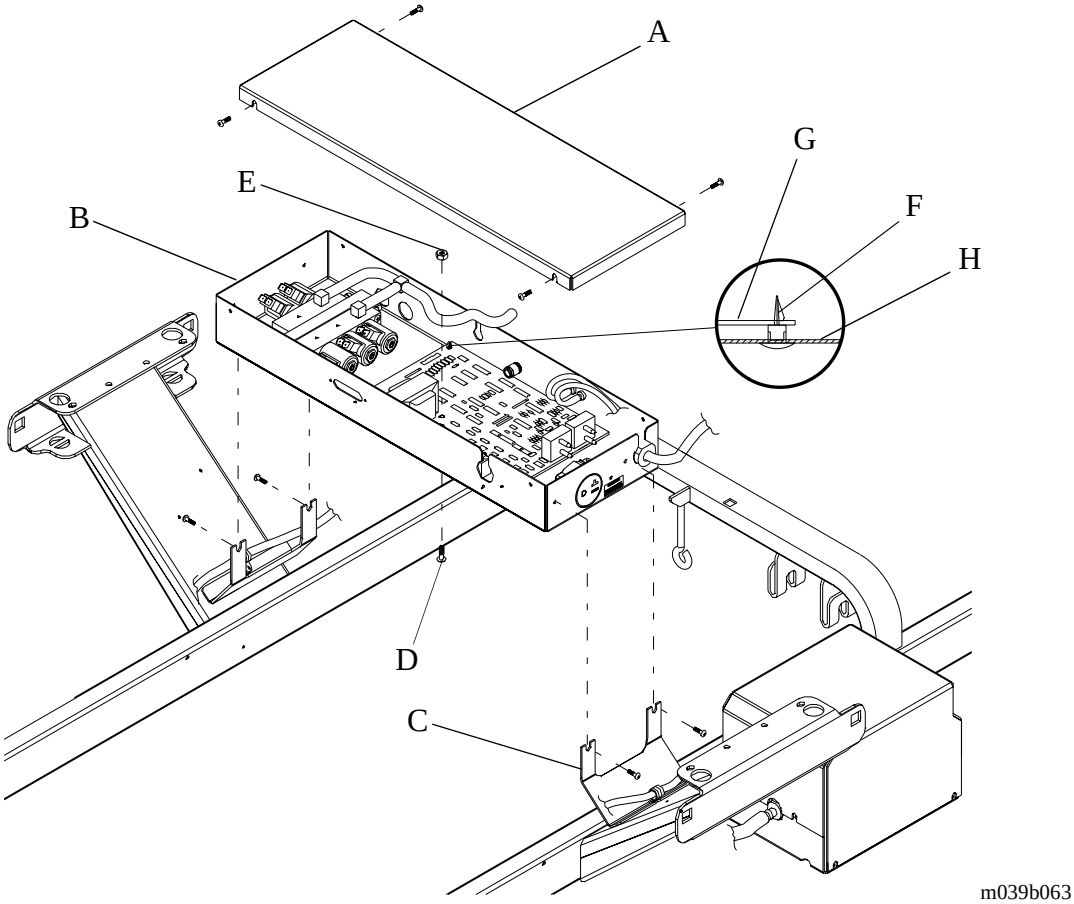
NOTE:
On P8350 models, the manifold control box power cord is also the bed power cord.

3. Remove the seat section hard pan only if your bed is equipped with a hard pan sleep surface.

NOTE:
If your bed is equipped with the spring sleep surface, go to step 4.

4. Remove the manifold control box lid (A) (see figure 4-5 on page 4-13).

Figure 4-5. Air P.C. Board Replacement



5. Detach the manifold control box (B) from either the bed frame or the mounting brackets (C).

6. Detach all of the connectors and air hoses from the P.C. board.

7. Remove the one screw (D) and nut (E) near the center of the P.C. board.

8. Compress the four standoffs (F), and lift the P.C. board (G) from the manifold control box (H).

Replacement

1. Reverse the removal procedure for replacement of the air P.C. board.

2. Ensure all DynamicAire Sleep Surface functions work properly.

4.6 Solenoid Assembly

Tools required: Phillips head screwdriver
9/16" wrench
5/8" wrench
Torque wrench

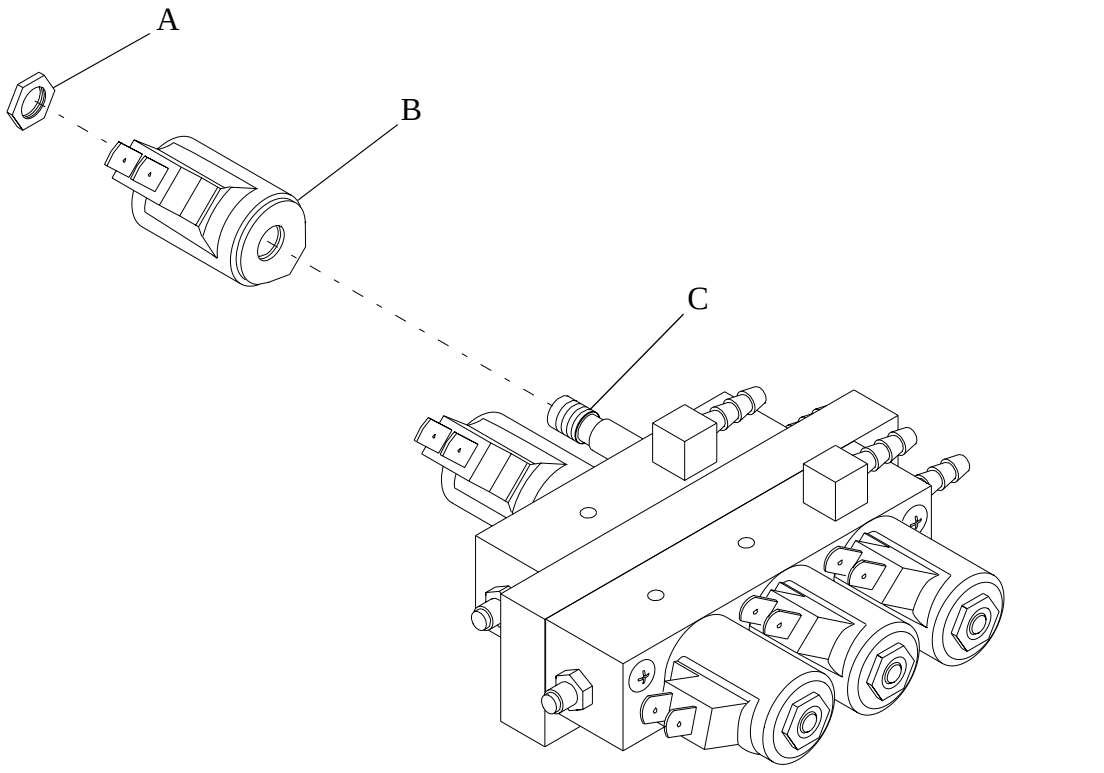
Removal

1. Follow steps 1 through 6 of the section “Air P.C. Board Assembly” on page 4-12.

2. Disconnect the wiring going to the defective solenoid.

3. Remove the nut (A) on the end of the defective solenoid (B) (see figure 4-6 on page 4-14).

Figure 4-6. Solenoid Replacement



4. Remove the solenoid from the manifold valve shaft (C).

Replacement

1. Assemble the replacement solenoid, and tighten the nut (A) to 15 to 25 in-lb (1.7 to 2.8 N·m) torque.

NOTE:
Do not over tighten the nut (A). This will cause the manifold valve to operate improperly.

2. Follow steps 1 and 2 of the removal procedure in reverse order to replace the solenoid assembly.

3. Ensure all DynamicAire Sleep Surface functions work properly.

4.7 Head or Knee Motor Assembly

Tools required: Needle nose pliers
1/2" socket and ratchet

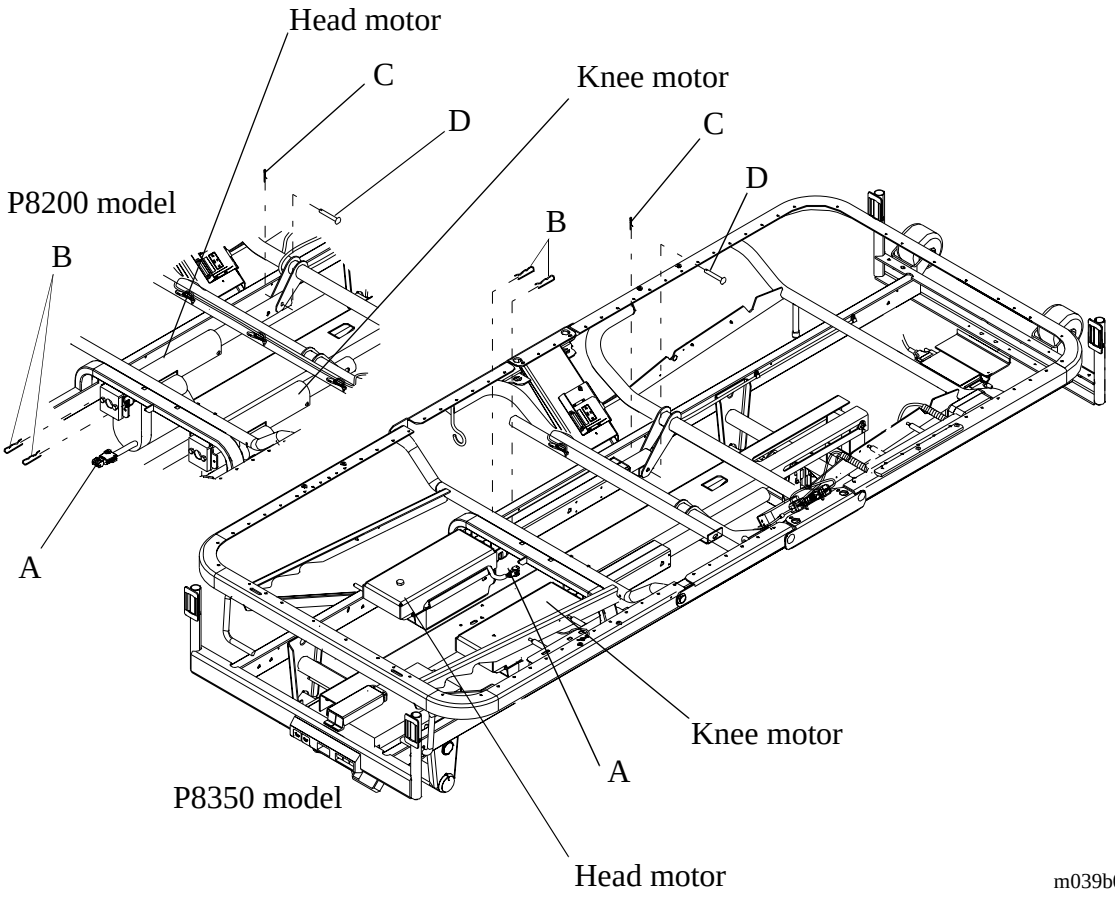
Removal

1. Raise the bed to the high position using the hilow function.
2. Lower the head and knee sections to the flat position.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

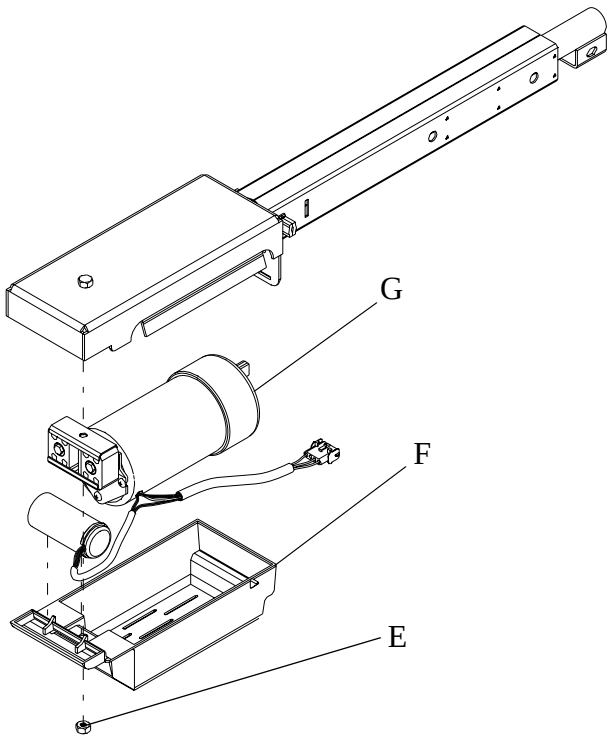
3. Unplug the bed from its power source.
4. Unplug the connector (A) going to the motor (see figure 4-7 on page 4-16).

Figure 4-7. Head or Knee Motor Replacement



5. Remove the two hair pins (B) from the end of the motor.
6. Remove the cotter pin (C) from the end of the drive.
7. Remove the clevis pin (D).
8. For P8200 models, go to the replacement procedure, step 1. For P8350 models, go the step 9.
9. Use the 1/2" socket to remove the nut (E) holding the motor cover (F) to the motor (G) (see figure 4-8 on page 4-17).

Figure 4-8. Motor Cover Assembly



10. Pull the cover away from the bolt, and slide the cover so the tabs will release from the housing.

Replacement

1. Reverse the removal procedure for replacement of the head or knee motor.
2. Ensure the head or knee motor functions properly.

4.8 Head or Knee Motor Capacitor Assembly

Tools required: 1/2" socket and ratchet
Phillips head screwdriver
Electrical tape

Removal

1. Raise the bed to the high position using the hilow function.

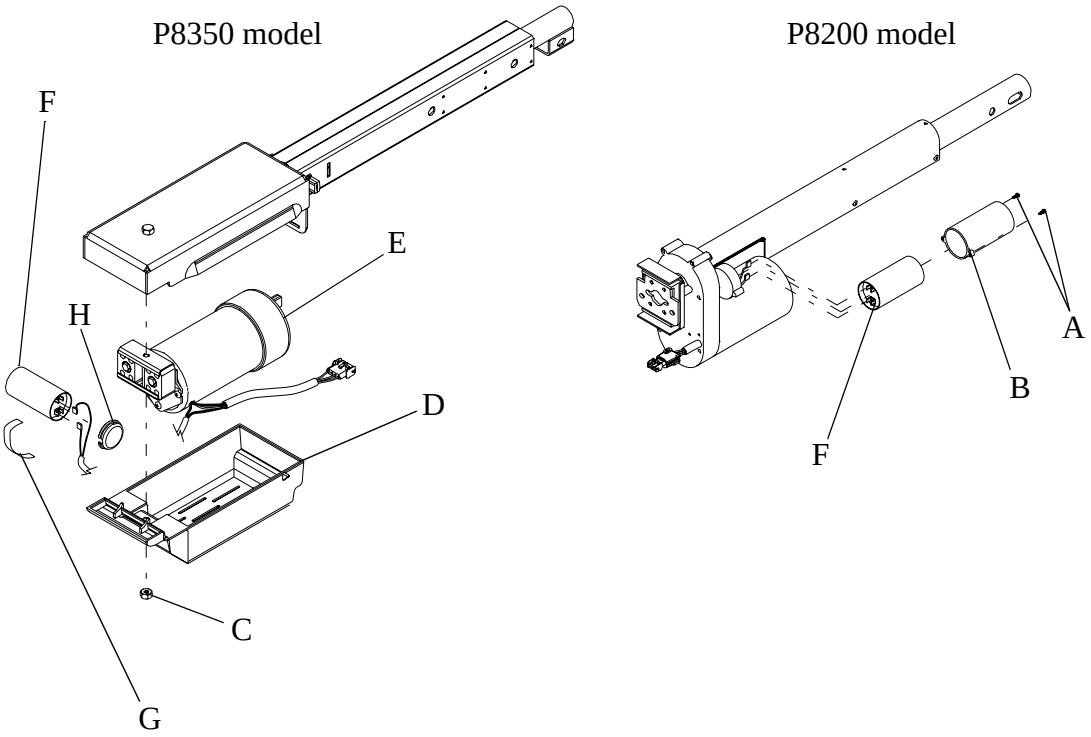
SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. For P8200 models, go to step 4. For P8350 models, go to step 5.

4. For P8200 models, remove the two screws (A) holding the cover (B) to the drive (see figure 4-9 on page 4-18). Go to step 9.

Figure 4-9. Head or Knee Motor Capacitor Replacement



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NOTE:
Only the head motors are shown.

5. For P8350 models, use the 1/2" socket to remove the nut (C) holding the motor cover (D) to the drive unit (E).
6. Pull the cover away from the bolt, and slide the cover so the tabs will release from the housing.
7. Pull the capacitor (F) down as far as possible, and remove all of the electrical tape (G) around the capacitor.
8. Remove the old capacitor cap (H).
9. Remove one of the wires from the old capacitor. Place it on the replacement capacitor (F). Repeat this step for the remaining wire.
10. Place the cap back on the new capacitor for P8350 models only. Place the cover back on with the two screws for P8200 models only.
11. For P8350 models only, wrap the capacitor with the electrical tape.

Replacement

1. Reverse the removal procedure to replace the head or knee motor capacitor.
2. Ensure the head or knee motor functions properly.

4.9 Hilow Motor Assembly

Tools required: Phillips head screwdriver
7/16" socket and ratchet
1/2" wrench or socket

Removal

1. Lower the bed to the low position using the hilow function.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. On one side of the bed, lower the siderails to the stored position.

4. Tie the stored siderails in place.

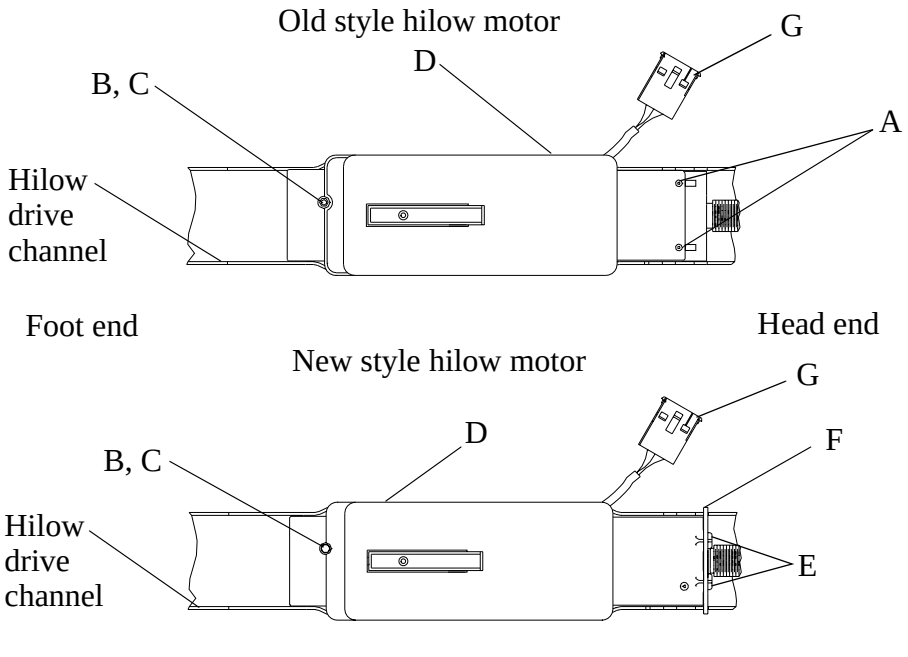
WARNING:
Get additional personnel to help you turn the bed over on the side that has the stored siderails. Failure to do so could result in personal injury or equipment damage.

5. Turn the bed over on the side with the stored siderails.

6. There are two styles of motor covers that you may have if you are servicing P8350 model beds (see figure 4-10 on page 4-21).

NOTE:
P8200 models will only have the “Old style” motor covers.

Figure 4-10. Old and New Style Motor Cover Assembly



7. For the old style motor cover, go to step 8. For the new style motor cover, go to step 9.

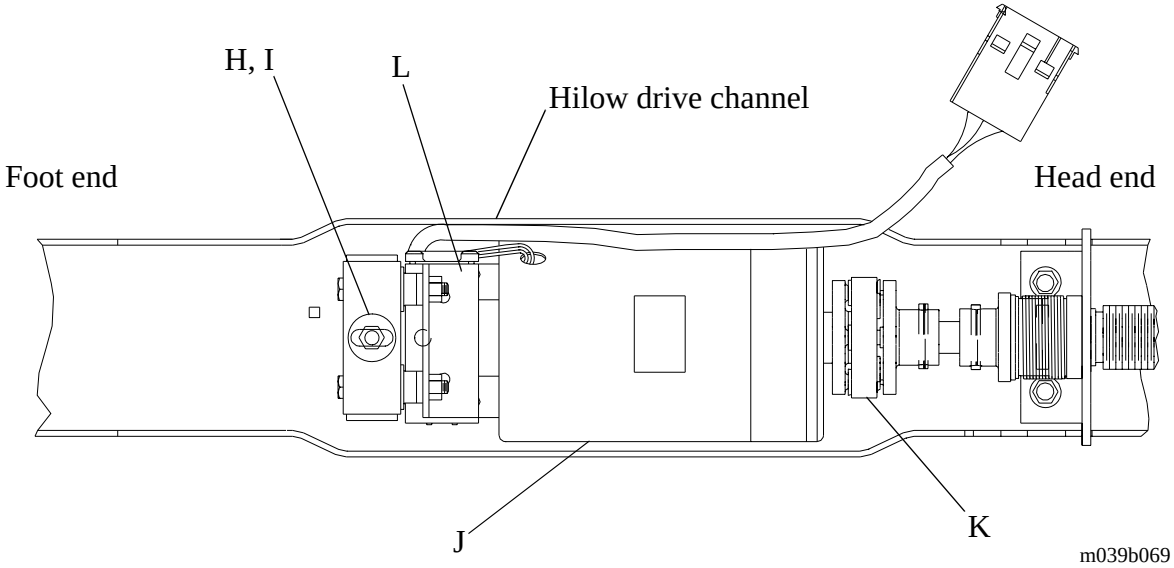
8. Remove the two cable ties (A), bolt (B), and nut (C) from the motor cover (D) (old style). Go to step 10..

9. Remove the bolt (B) and nut (C) from the motor cover (D), and pull the motor cover away so that the tabs (E) become unattached from the brake bracket (F) (new style).

10. Disconnect the hilow motor power connector (G).

11. Use the 1/2" wrench and socket to remove the nut (H) and bolt (I) (see figure 4-11 on page 4-22).

Figure 4-11. Hilow Motor Assembly



12. Slide the hilow motor assembly (J) toward the foot end of the bed until the motor disengages the motor coupling (K).

13. Pull the capacitors (L) down from the rubber grommet mount.

Replacement

1. Reverse the removal procedure to replace the hilow motor assembly.

2. Ensure the hilow motor functions properly.

4.10 Hilow Screw Drive Assembly

Tools required: Needle nose pliers
7/16" socket and ratchet
1/2" wrench or socket

Removal

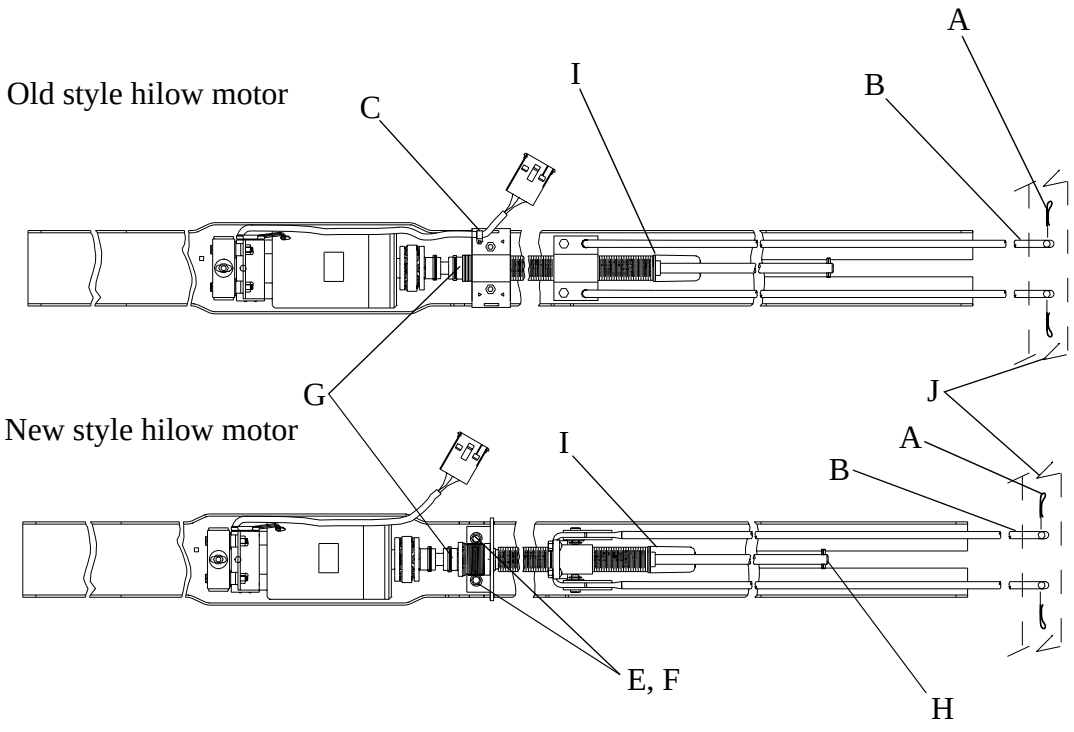
1. Follow steps 1 through 8 of the section “Hilow Motor Assembly” on page 4-20.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Use the needle nose pliers to remove the two cotter pins (A) from the hilow tie rods (B) at the head end of the intermediate frame of the bed (J) (see figure 4-12 on page 4-23).

Figure 4-12. Hilow Screw Drive Assembly Replacement



4. Push the hilow tie rods out of the holes at the head end of the bed.

5. Remove the cable clamp screw (D) for old style hilow drives only.

6. Remove the two bolts (E) and nuts (F).

7. Slide the hilow drive screw assembly (G) towards the foot end of the bed, and lift it out.

NOTE:
You may have to angle the hilow drive screw assembly at the head end in order to get the small roll pin (H) to go through the holes in the mounting bracket (I).

Replacement

1. Reverse the removal procedure to replace the hilow motor screw drive assembly.

2. Ensure the hilow motor and hilow drive screw function properly.

4.11 Hilow Motor Capacitor Assembly

Tools required: 7/16" socket and ratchet
Electrical tape

Removal

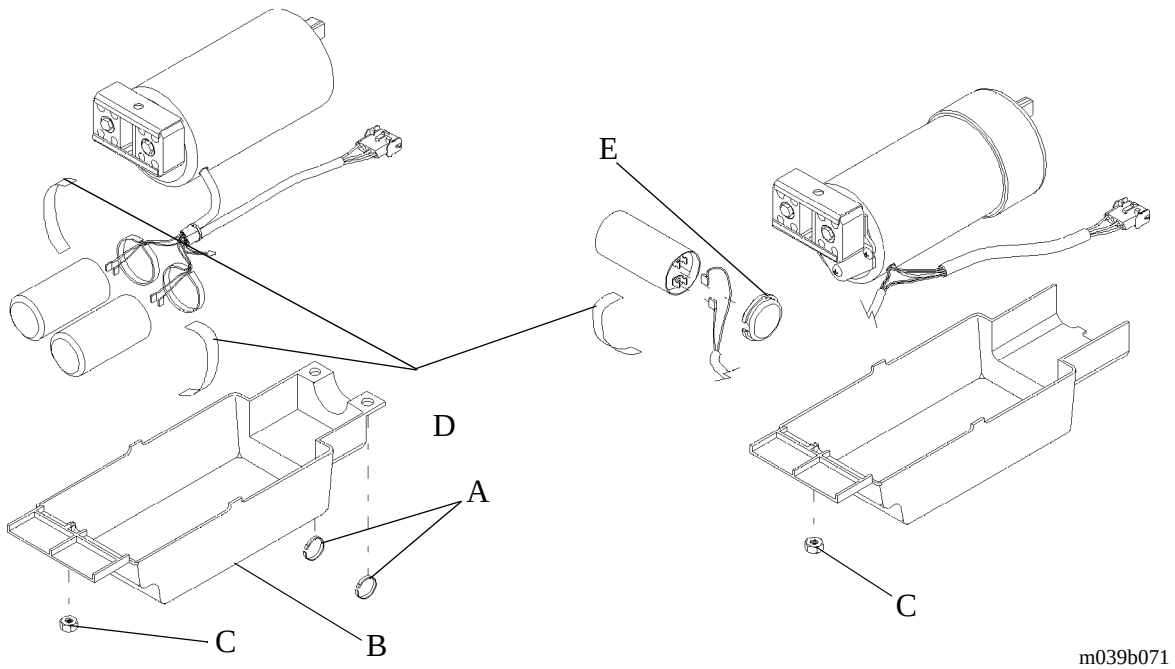
1. Raise the bed to the high position using the hilow function.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. For old style hilow motors only, remove the two cable ties (A) from the motor cover (B) (see figure 4-13 on page 4-25).

Figure 4-13. Hilow Motor Capacitor Replacement



4. Use the 7/16" socket to remove the nut (C).

5. Pull the capacitor(s) down as far as possible, and remove all of the electrical tape (D) around the capacitor(s).

6. Remove the old capacitor caps (E).
7. Remove one wire from the old capacitor, and place it on the new capacitor. Repeat this step for the remaining wires.
8. Place the cap back on the new capacitor.
9. Wrap the capacitor with the electrical tape.

Replacement

1. Reverse the removal procedure to replace the hilow motor capacitor assembly.
2. Ensure the hilow motor functions work properly.

4.12 Hilow Limit Switch Assembly

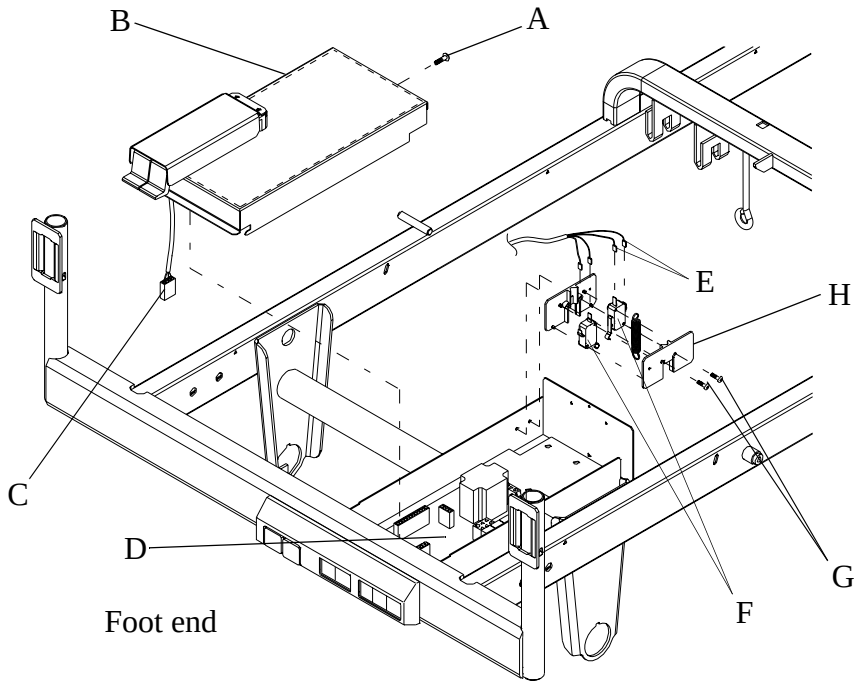
Tools required: Phillips head screwdriver

Removal

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Unplug the bed from its power source.
2. Remove the screw (A) from the control box cover (B) (see figure 4-14 on page 4-27).

Figure 4-14. Hilow Limit Switch Replacement



3. Carefully pull the control box cover up and toward the head end of the bed.

WARNING:
Do not put any tension on the cable connected to the control box cover. Failure to do so could result in equipment damage.

4. Unplug the connector (C) that runs from the control box cover (B) to the printed circuit board (D).
5. Lay the cover to the side.
6. Disconnect the terminals (E) from the defective switch (F) one at a time, and place them on the appropriate contacts of the new switch. Do this until all of the terminals are switched.
7. Remove the two screws (G) and the plastic switch holder (H).
8. Remove and discard the defective switch.
9. Slide the new switch onto the mounting posts.

Replacement

1. Reverse the removal procedure to replace the hilow limit switch assembly.
2. Ensure the hilow motor functions properly.

4.13 Hilow Control Switch Assembly—Control Box Cover

Tools required: Phillips head screwdriver

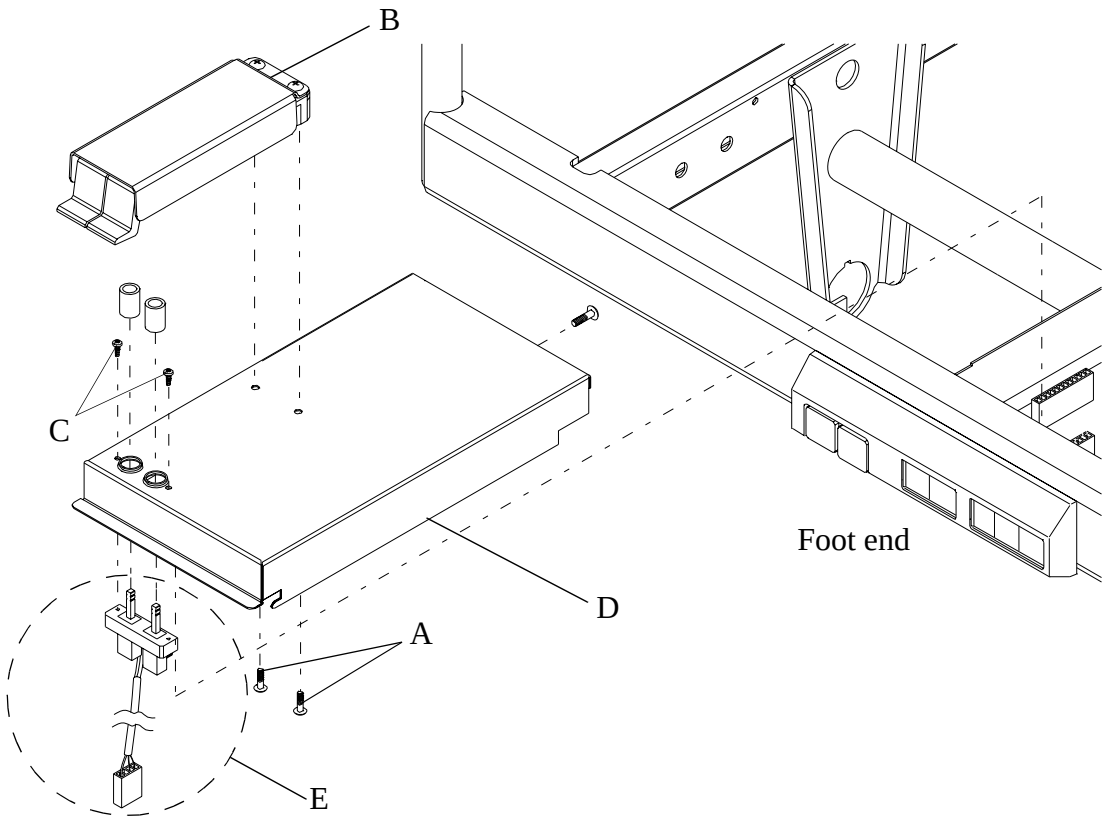
1. Follow steps 1 through 4 of the section “Hilow Limit Switch Assembly” on page 4-27.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Remove the two screws (A) that hold the switch paddle assembly (B) in place (see figure 4-15 on page 4-29).

Figure 4-15. Hilow Control Switch Replacement—Control Box Cover



4. Remove the two screws (C) that hold the switch assembly (E) to the control box cover (D).

5. Remove the defective switch assembly (E) from the control box cover (D).

NOTE:
Replace the entire switch assembly even if only one switch is defective.

Replacement

1. Reverse the removal procedure to install the replacement hilow control switch assembly—control box cover.

2. Ensure the hilow control switch functions properly.

4.14 Hilow Thrust Bearing Assembly—Old Style

Tools required: 7/16" socket and ratchet
1/2" wrench or socket
(2) 2 x 4 x 30" lumber
1/4" punch
Hammer

Removal

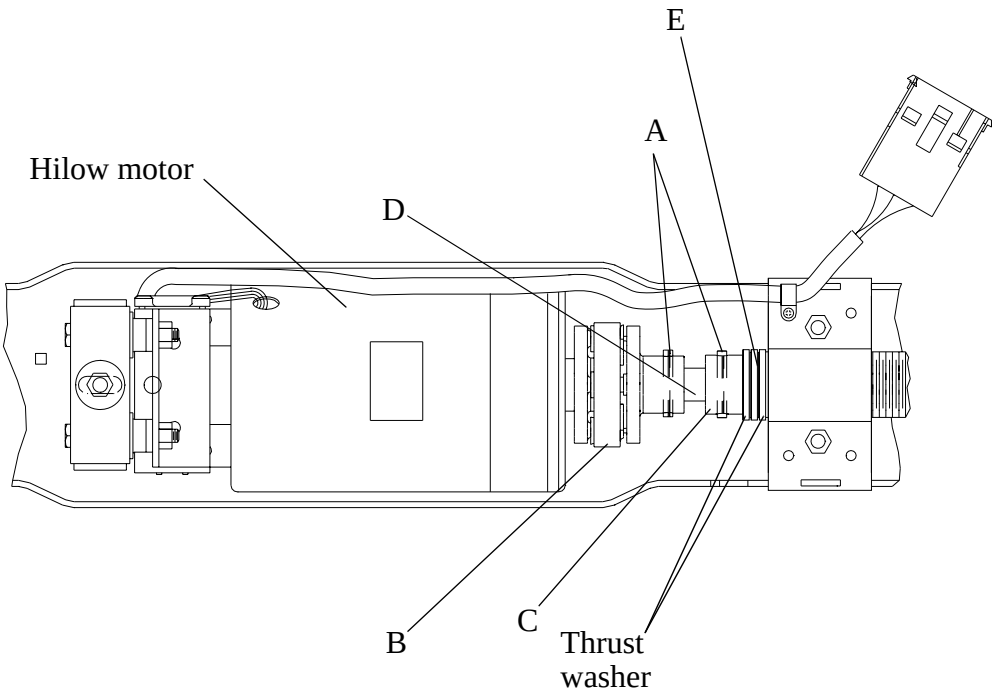
1. Follow steps 1 through 8 of the section “Hilow Motor Assembly” on page 4-20.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Use the 1/4" punch and hammer to remove the two roll pins (A) (see figure 4-16 on page 4-31).

Figure 4-16. Hilow Thrust Bearing Replacement—Old Style



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4. Slide the motor coupling (B) and collar (C) off the shaft (D).

5. Remove the thrust bearing (E).

Replacement

1. Reverse the removal procedure to replace the hilow thrust bearing assembly—old style.

2. Ensure the hilow motor functions properly.

4.15 Trendelenburg or Reverse Trendelenburg Assembly

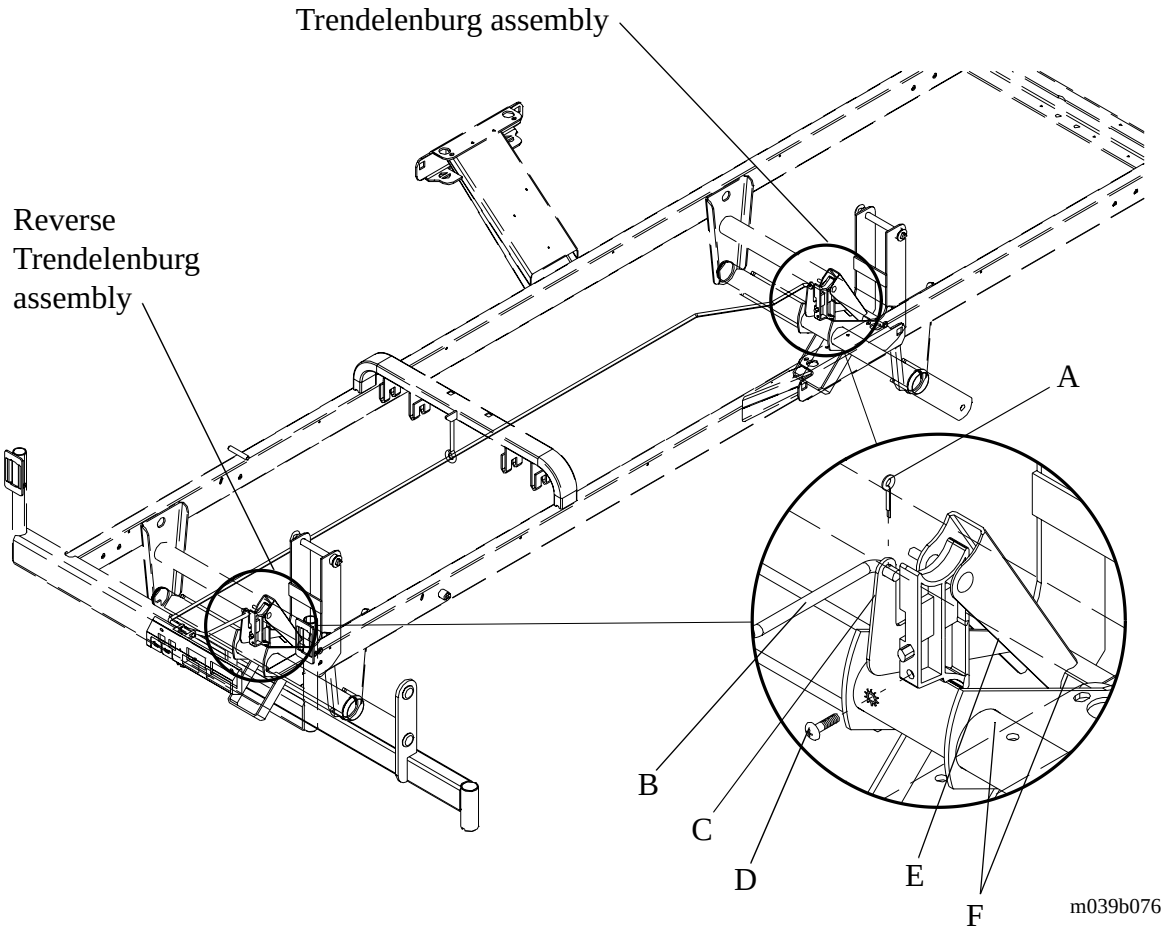
Tools required: Needle nose pliers
Phillips head screwdriver

Removal

1. Raise the bed to the high position using the hilow function.

2. Remove the small cotter pin (A) from the assembly you are removing, and slide the rod (B) out of the lever (C) (see figure 4-17 on page 4-33).

Figure 4-17. Trendelenburg or Reverse Trendelenburg Assembly Removal



NOTE:
The Trendelenburg assembly is located at the foot end of the bed. The Reverse Trendelenburg assembly is located at the head end of the bed.

3. Remove the screw (D).

NOTE:
When screw (D) is removed, a square nut will fall out of the assembly.

4. Remove the opposite assembly (Trendelenburg or Reverse Trendelenburg) from the bed.

5. Replace or repair the Trendelenburg or Reverse Trendelenburg assembly as required.

Reassembly

1. Reverse the removal procedure to assemble the Trendelenburg or Reverse Trendelenburg assembly.

NOTE:
Look at the opposite assembly (Trendelenburg or Reverse Trendelenburg) if you have difficulty remembering how the assembly is fastened to the bed.

2. Ensure the mechanical linkage is engaging properly.

3. Ensure the plated bracket (E) is wedged in between the two torque tubes (F) when either the Trendelenburg or Reverse Trendelenburg knob is activated.

4.16 Brake Cam Assembly (Beds Equipped With Central Brake and Steer)

Tools required: Phillips head screwdriver
T25 torx head screwdriver
Punch
Hammer

Removal

1. Remove the plastic covers from the left foot end caster and the right head end caster.

2. Turn the setscrews counterclockwise to relieve the cable tension.

3. Lower the head to the low position using the hilow function. If no power is available, see the section “Manual Operation of Bed (When Electric Power is Not Available)” on page 1-21.

SHOCK HAZARD:
Unplug the bed from its power source before proceeding. An electrical shock hazard exists.

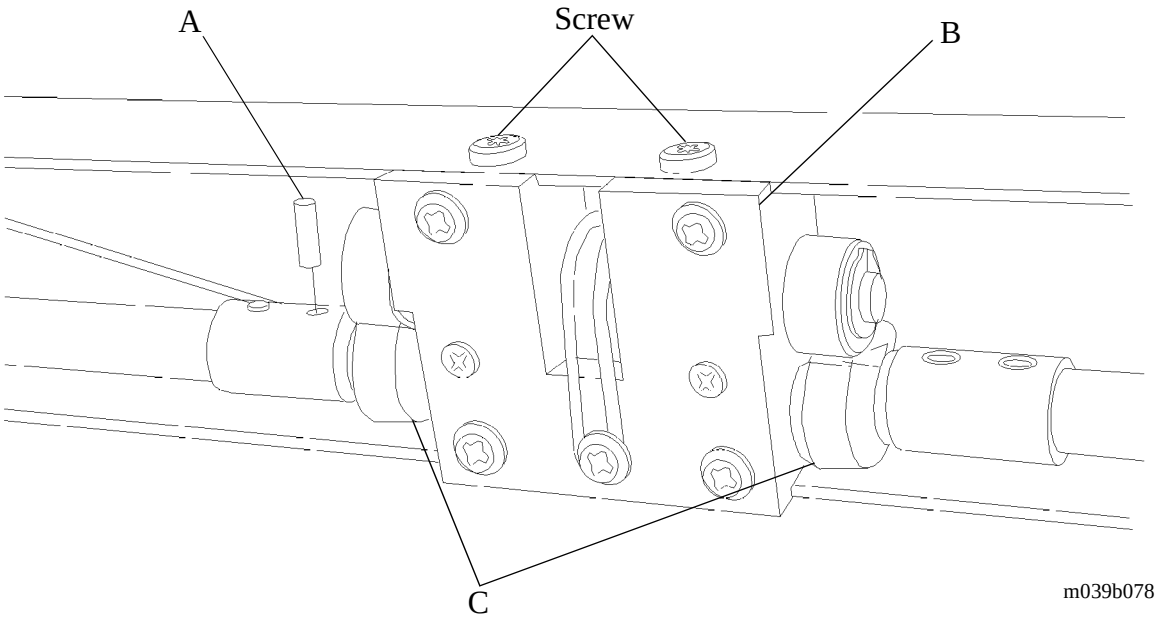
4. Unplug the bed from its power source.

5. Store, pad, and tie the siderails on one side of the bed. Lay the bed on its side.

WARNING:
Get additional personnel to help you turn the bed over on the side that has the stored siderails. Failure to do so could result in personal injury or equipment damage.

6. Remove the roll pin (A) located just under the brake block mechanism (B) (see figure 4-18 on page 4-36).

Figure 4-18. Brake Cam Assembly Replacement



NOTE:
Note the orientation of the cams before removal. This will aid you during the assembly procedure.

7. Pull the upper brake/steer pedal through the brake block mechanism (B), and the cams (C) will fall out.

8. Install the replacement brake cams.

Replacement

1. Reverse the removal procedure to replace the brake cam assembly.

2. Follow steps 2 through 7 of the section “Caster Adjustment” on page 4-51.

3. Ensure that the brakes and casters are functioning properly.

4.17 Brake Block Mechanism (Beds Equipped With Central Brake and Steer)

Tools required: Phillips head screwdriver
T25 torx head screwdriver

Removal

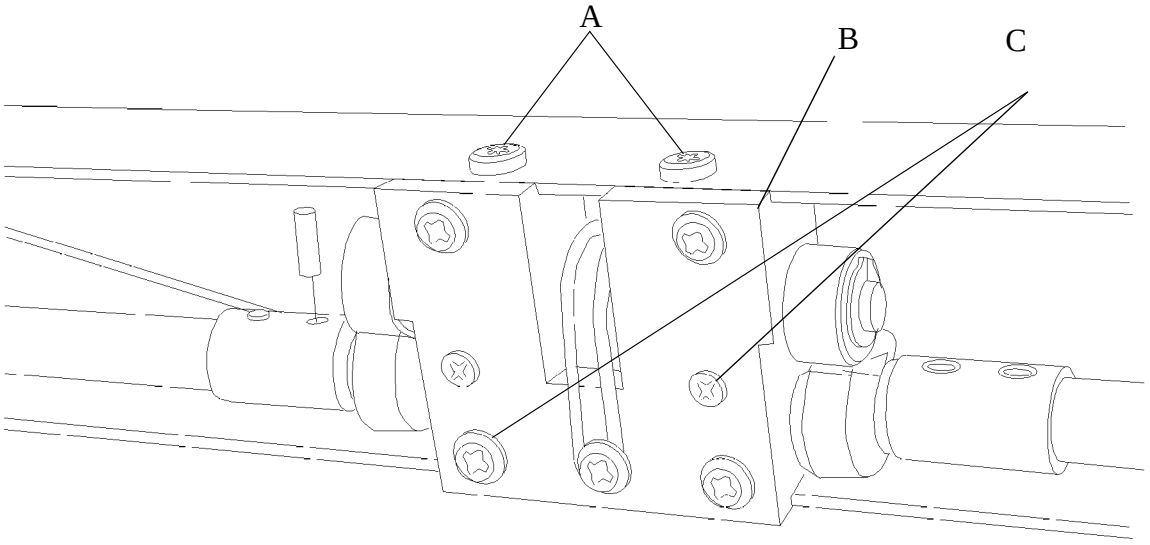
1. Follow steps 1 through 6 of the section “Brake Cam Assembly (Beds Equipped With Central Brake and Steer)” on page 4-35.

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Unplug the bed from its power source.

3. Remove the four screws (A) that hold the brake block mechanism (B) into the channel (see figure 4-19 on page 4-37).

Figure 4-19. Brake Block Mechanism Replacement



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4. Remove the brake block mechanism from the base assembly.

5. Remove the seven screws (C) that go into the bottom of the brake block mechanism (B).

NOTE:
Note the orientation of the brake block mechanism and its components before removal. This will aid during the reassembly procedure.

6. Disassemble the screws, adapter plate, and the bearings from the brake block mechanism assembly.

7. Replace or repair the brake block mechanism.

Replacement

1. Reverse the removal procedure to replace the brake block mechanism assembly.

2. Follow steps 2 through 7 of the section “Caster Adjustment” on page 4-51.

3. Ensure that the brakes and casters are functioning properly.

4.18 SideCom Communication System Entertainment Control Assembly

Tools required: Phillips head screwdriver
Standard screwdriver
1/4" nut driver

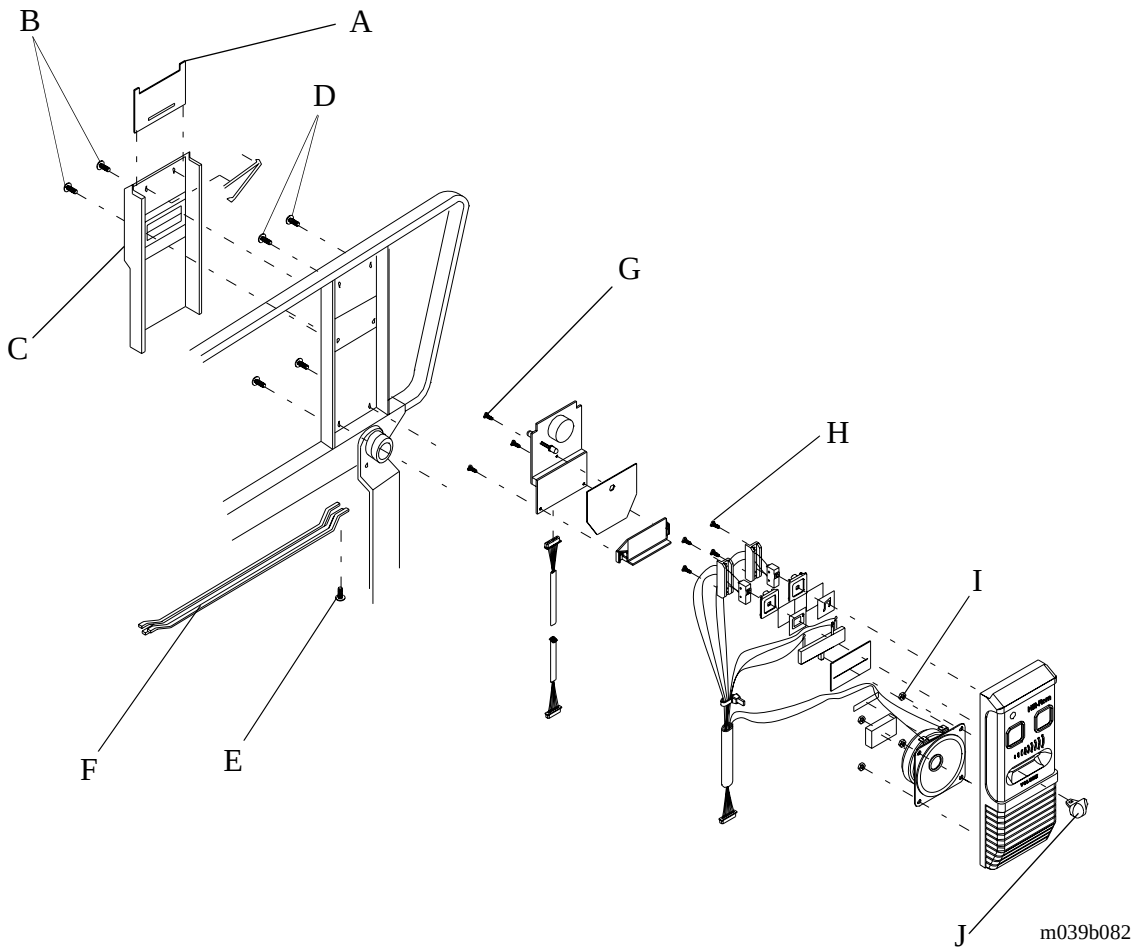
Removal

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Unplug the bed from its power source.

2. Lift the small sliding door (A) and remove the two screws (B) and the back cover (C) (see figure 4-20 on page 4-40).

Figure 4-20. SideCom Communication System Entertainment Control Replacement



3. Remove the four screws (D).
4. Remove the screw (E) and the bottom cover (F).
5. Unplug the connector, and lift the entertainment module out of the siderail.
6. To gain access to the TV, radio, and volume control switches, remove the three screws (G) holding the bed exit circuit board in place (on entertainment modules with bed exit only).
7. Note the orientation of all components before removing the two screws (H) holding the defective switch.
8. Replace the switches, speakers, and volume controls by detaching the connectors and replacing them with the replacement controls.

9. Replace the volume control by pulling it out from the backside of the module. Keep the slide button (J) from the front side of the module to use with the replacement volume control.

10. To replace the speaker, remove the four nuts (I) holding it in place.

Replacement

1. Reverse the removal procedure to replace the SideCom Communication System entertainment control assembly.

2. Ensure that all components of the SideCom Communication System entertainment control function properly.

4.19 Siderail Nurse Call, Lighting, or Bed Control Switch Assembly

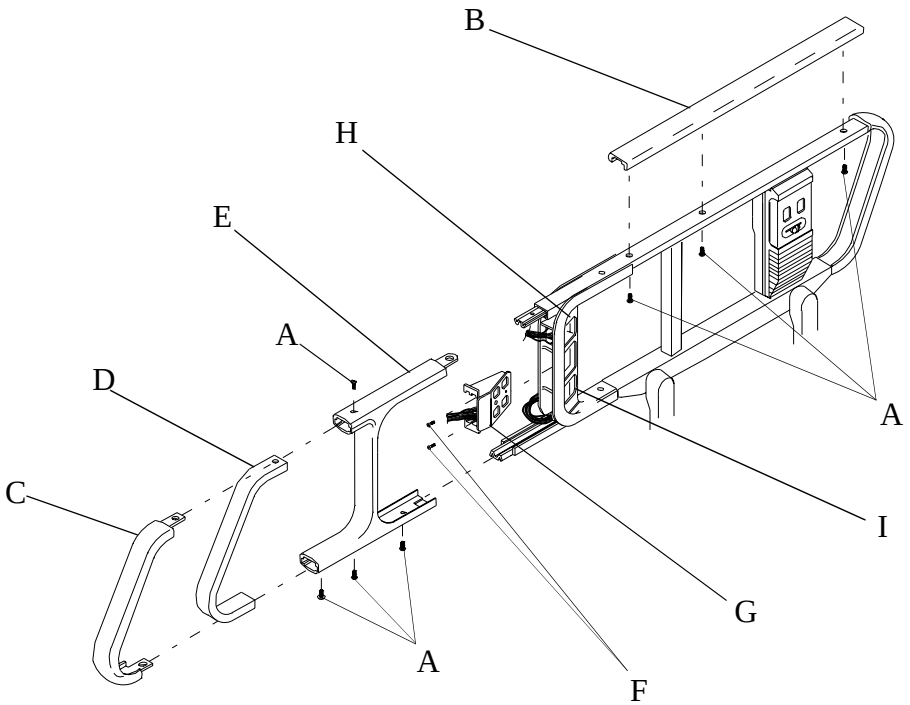
Tools required: Phillips head screwdriver
Soldering iron
60/40 lead tin rosin core solder

Removal

SHOCK HAZARD:
Unplug the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Unplug the bed from its power source.
2. Put the siderail into the full up position.
3. Remove the seven screws (A) (see figure 4-21 on page 4-42).

Figure 4-21. Siderail Nurse Call, Lighting, or Bed Control Switch Replacement



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4. Remove the top cane cover (B), end cover (C), extension tube (D), and control housing cover (E).

5. Remove the two screws (F), and slide the switch housing (G) out of the siderail. Find the defective switch, and place the defective switch and the new switch side by side to make sure they are the same.

6. If your replacement switch does not have wire leads soldered onto it, melt the solder. Remove the wire leads one at a time from the defective switch. Transfer the wires to the corresponding solder pads of the new switch, and solder in place.

7. If your replacement switch does have wire leads already soldered onto it, cut the wires attached to the defective switch close to the switch. Strip the leads approximately 3/16" (4.762 mm). Push the ends into the splice terminal of the corresponding color wire on the new switch, and crimp the terminal.

Replacement

1. Replace the siderail nurse call (H), lighting (I), or bed control switch assembly (G) by reversing the procedures used for removal.

2. Ensure all siderail functions work properly.

4.20 Siderail LED Indicator

See section “Siderail Nurse Call, Lighting, or Bed Control Switch Assembly” on page 4-42 for gaining access to and replacement of the LED indicator.

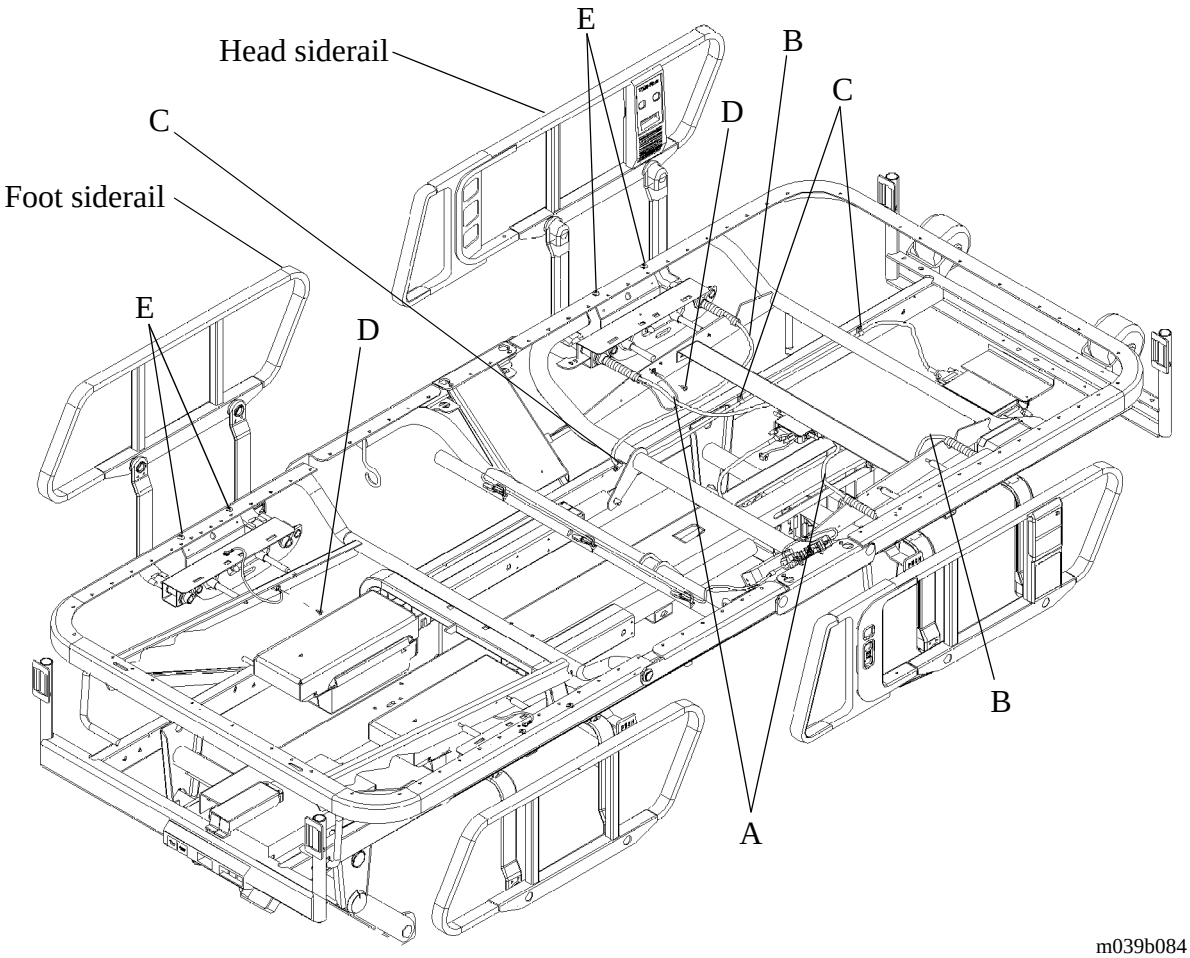
4.21 Siderail—P8350 Models Only

Tools required: T25 torx head screwdriver
Wire cutters

Removal

1. Raise the head or foot section of the bed for the siderail being removed.
2. If a foot end siderail is being removed, go to step 4. Otherwise, go to step 3.
3. Unplug the head end siderail control cable (A) and communication cable (B), if present, from the bed (see figure 4-22 on page 4-45). Remove the two cable ties (C) securing the cable to the bed.

Figure 4-22. Siderail Replacement



4. Remove the screw (D) securing the ground strap to the frame of the bed.

5. Remove the two screws (E) that secure the siderail to the head or foot section.

Replacement

1. Reverse the removal procedure to replace the siderail assembly.
2. Ensure the siderail functions properly.

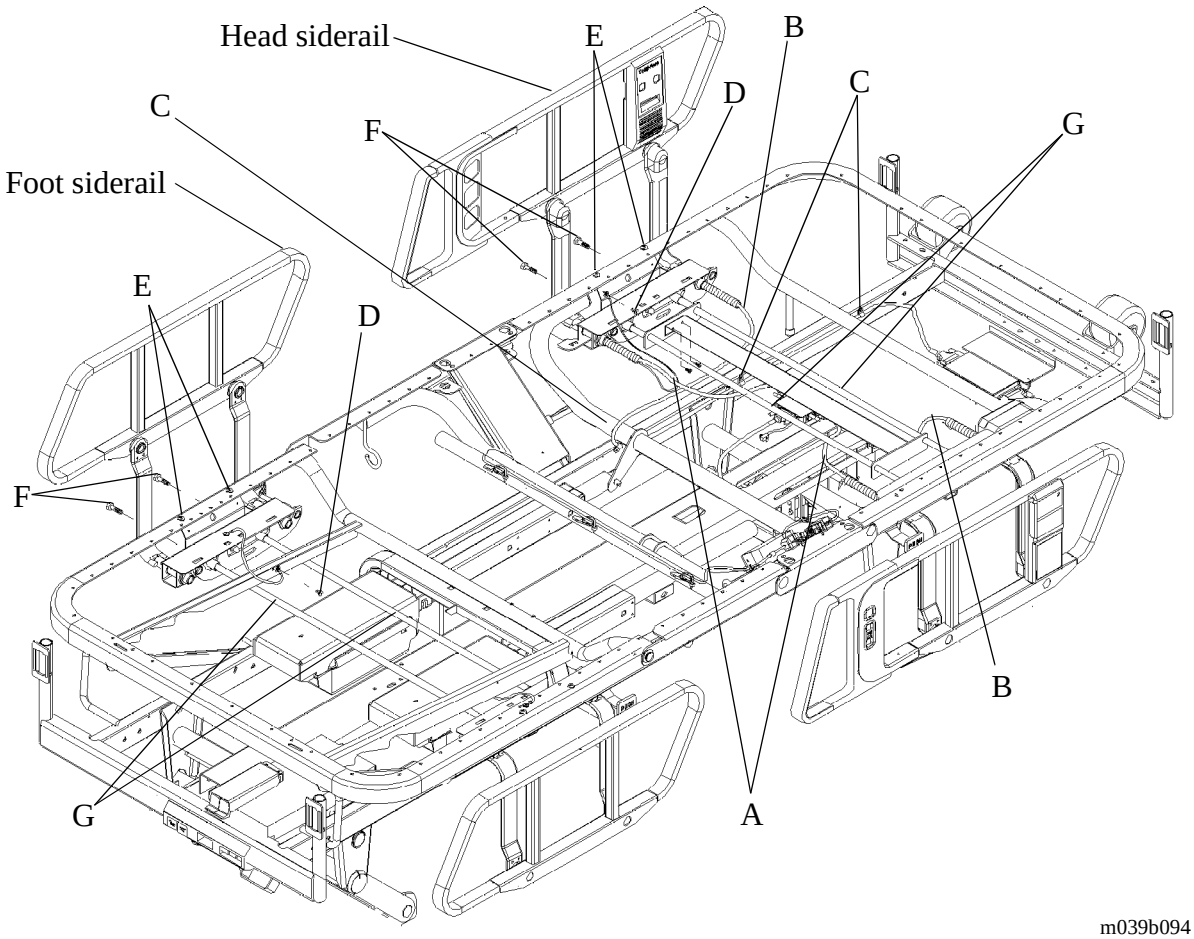
4.22 Siderail—P8200 Models Only

Tools required: T25 torx head screwdriver
1/2" socket and ratchet
Wire cutters

Removal

1. Raise the head or foot section of the bed for the siderail being removed.
2. If a foot end siderail is being removed, go to step 4. Otherwise, go to step 3.
3. Unplug the head end siderail control cable (A) and communication cable (B), if present, from the bed (see figure 4-23 on page 4-47). Remove the two cable ties (C) securing the cable to the bed.

Figure 4-23. Siderail Replacement



4. Remove the screw (D) securing the ground strap to the frame of the bed.

5. Use the 1/2" socket and ratchet to remove the two bolts (F) securing the siderail to the slide rods (G).

6. Remove the two screws (E) that secure the siderail bracket to the head or foot section.

Replacement

1. Reverse the removal procedure to replace the siderail assembly.

2. Ensure the siderail functions properly.

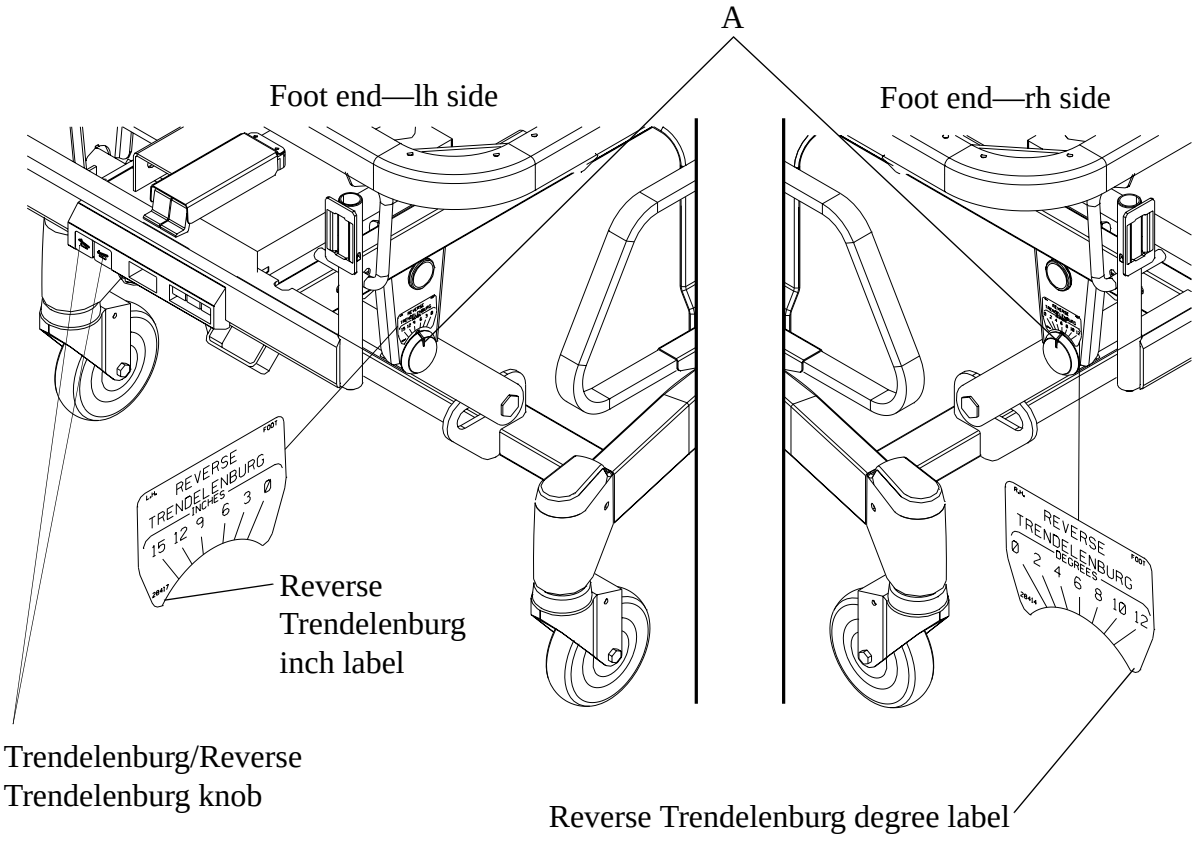
4.23 Trendelenburg and Reverse Trendelenburg Indicator Adjustment

Tools required: Large channel locks

It may be necessary from time to time to adjust the indicator knobs for Trendelenburg and Reverse Trendelenburg to ensure proper readings for inches and degrees. Follow these steps to adjust the indicators

1. Raise the bed to the high position using the hilow function.
2. Activate both the Trendelenburg and Reverse Trendelenburg knobs at the foot end of the bed.
3. Lower the bed to the low position using the hilow function.
4. Use the large channel locks, and turn the four indicator knobs (A) until their arrows point to (0) on the corresponding labels (see figure 4-24 on page 4-49).

Figure 4-24. Trendelenburg and Reverse Trendelenburg Indicator Adjustment



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NOTE:
The foot end of bed Reverse Trendelenburg indicators are shown above.

5. Raise the bed to the high position using the hilow function. The indicators are now set.

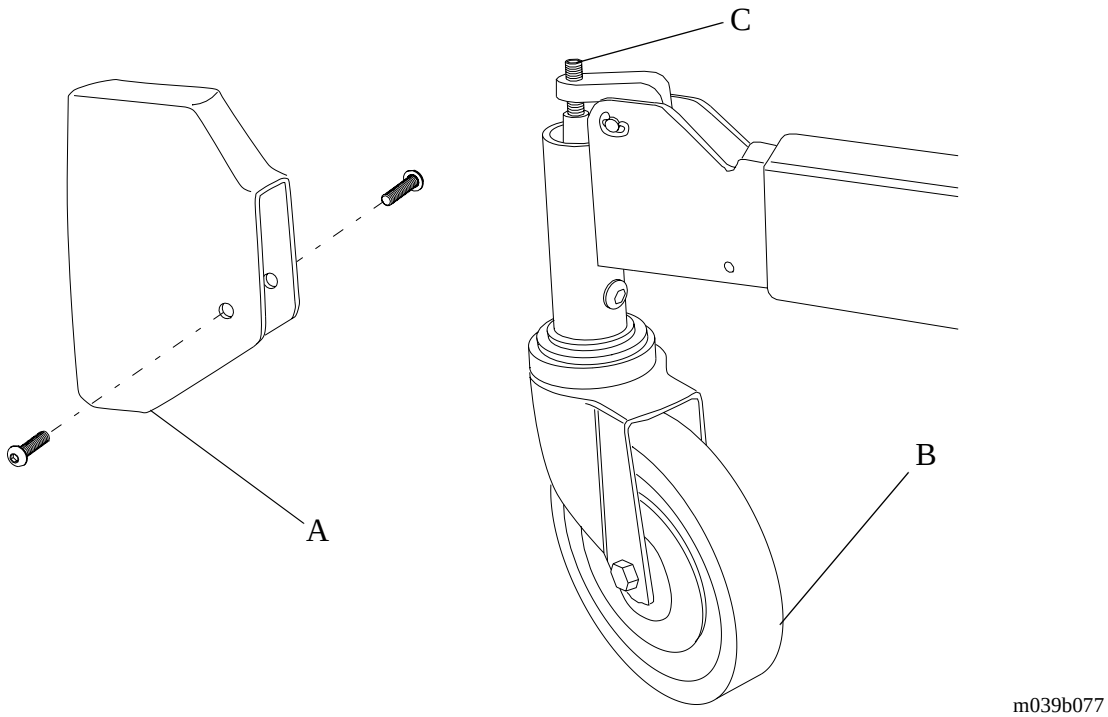
4.24 Caster Adjustment

Tools required: T25 torx head screwdriver
5/32" allen wrench

There are two casters involved in the adjustment of the locking base system. The foot end caster on the left side of the bed is a brake/steer caster and controls half of the brake feature. The head end caster on the right side of the bed controls the other half of the brake feature. The remaining two casters are basic swivel casters. Both the brake/steer and brake casters must be adjusted. The proper steps of adjustment are as follows:

1. Remove the plastic leg covers (A) over both the brake/steer and the brake casters (B) (see figure 4-25 on page 4-51).

Figure 4-25. Caster Adjustment



2. Place the brake/steer pedal in the steer (level) position.

3. Locate the setscrews (C) above the casters.

4. Turn the setscrew clockwise for the brake/steer caster until it swivels freely. Turn the setscrew 1/2 turn clockwise.

5. Place the brake/steer pedal in the brake position.

6. Turn the setscrew counterclockwise for the head brake caster until light brake occurs. Turn the setscrew two additional turns counterclockwise.

7. Check both casters for proper operation in all positions.

8. Reverse the removal procedure to assemble the plastic leg covers.

If the brakes seem to slip after adjustment, there may be floor wax buildup on the tire tread. Periodically clean the tread with the same cleaning solution used to clean the bed.

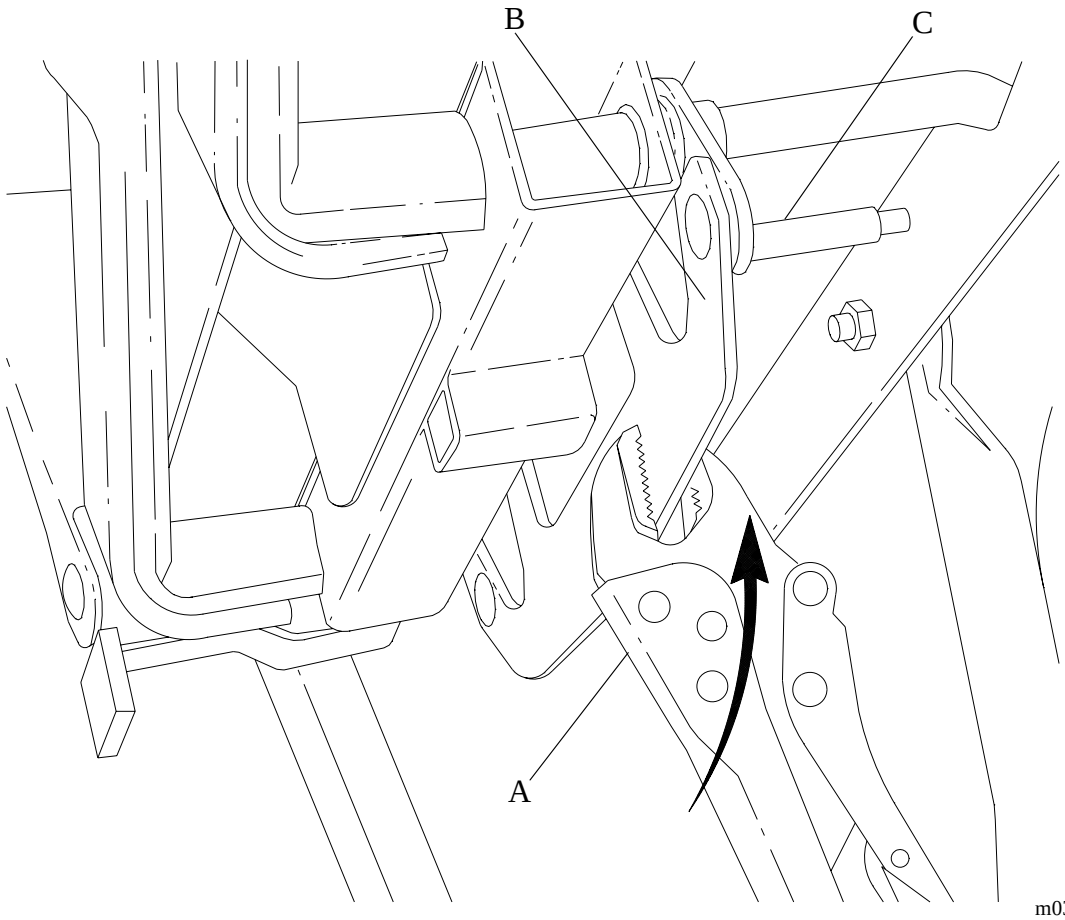
CAUTION:
Do not use solutions such as turpentine, paint or lacquer thinner, etc. This will deteriorate the caster life and performance.

4.25 Siderails—Hard To Rotate Up Or Down

Tools required: Vise grip or crescent wrench

1. Raise the head section or foot section to the extreme “up” position.
2. Using a crescent wrench or vise grip (A), straighten the strap (B), if it is bent (see figure 4-26 on page 4-53).

Figure 4-26. Siderail Adjustment



3. Make sure the slide rods (C) (black in color) are parallel.
4. Clean and lubricate.

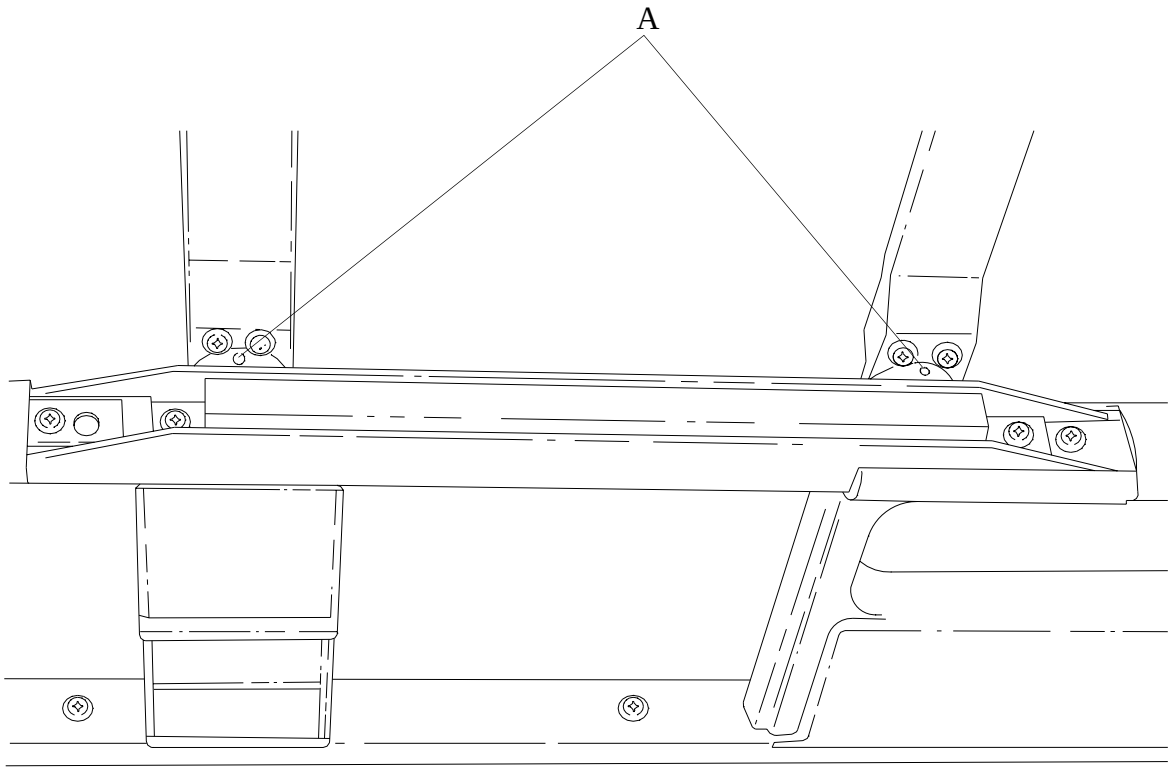
4.26 Siderails—Frozen

Tools required: None

1. Raise the siderail to the up position, or remove the siderail from the bed completely.

2. Apply grease to the grease ports (A) (see figure 4-27 on page 4-54).

Figure 4-27. Siderail Lubrication



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4.27 Head or Knee Drive Units—Bent or Broken

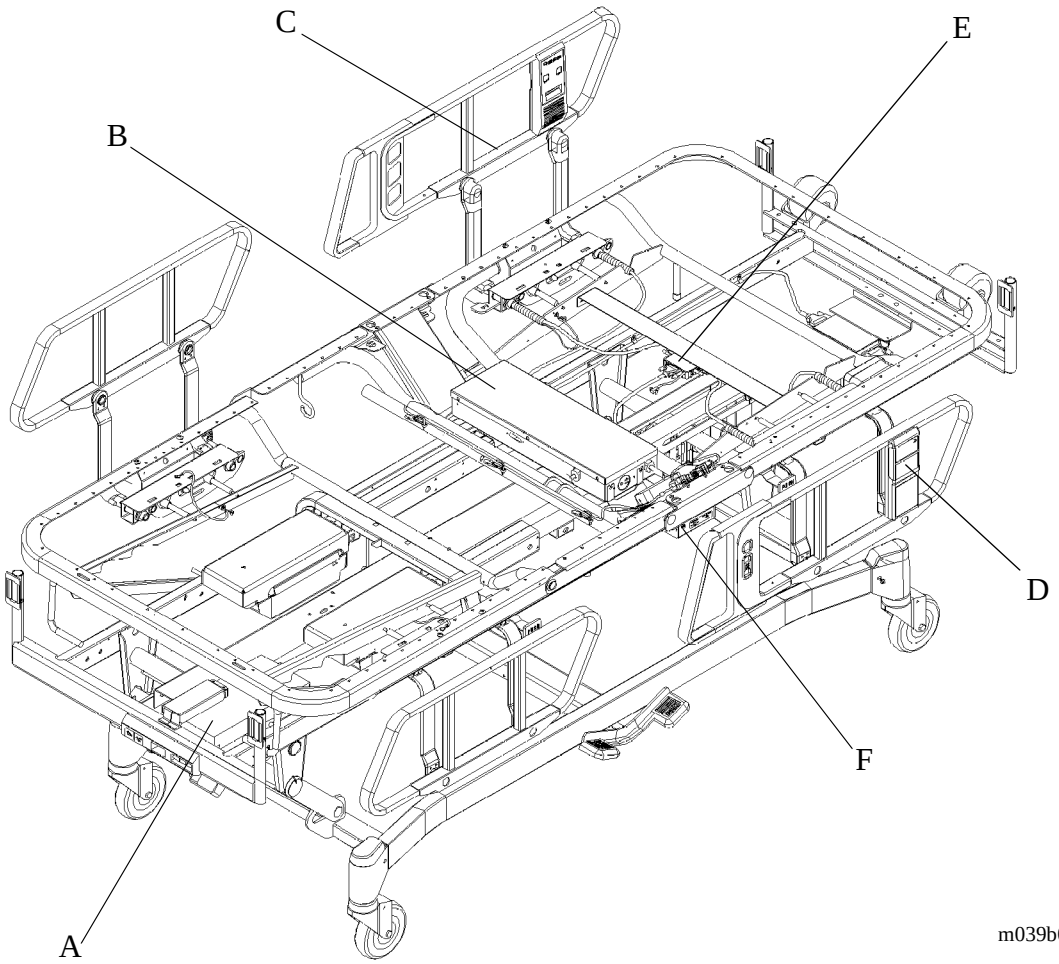
If the head or knee drive units become bent or broken, follow the procedures in the section “Head or Knee Motor Assembly” on page 4-16.

4.28 Circuit Board Locations

Table 4-1. Circuit Board Locations

Symbol	Circuit Board	Circuit Board Location
A	Control board	Located at the left foot end of the bed
B	Integrated air support system board	Located under the seat section of the bed
C	Siderail interface board	Located in the bottom channel of the siderails
D	Bed exit board	Located on the outside of the left hand siderail communication housing
E	Bed control cable board	Located under the head section of the bed
F	Night light board	Located under the intermediate frame on the left head end side of the bed

Figure 4-28. Circuit Board Location



Chapter 5
Parts List

Chapter Contents

Warranty

HILL-ROM® COMPANY, INC.
LIMITED WARRANTY

Hill-Rom Company, 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.

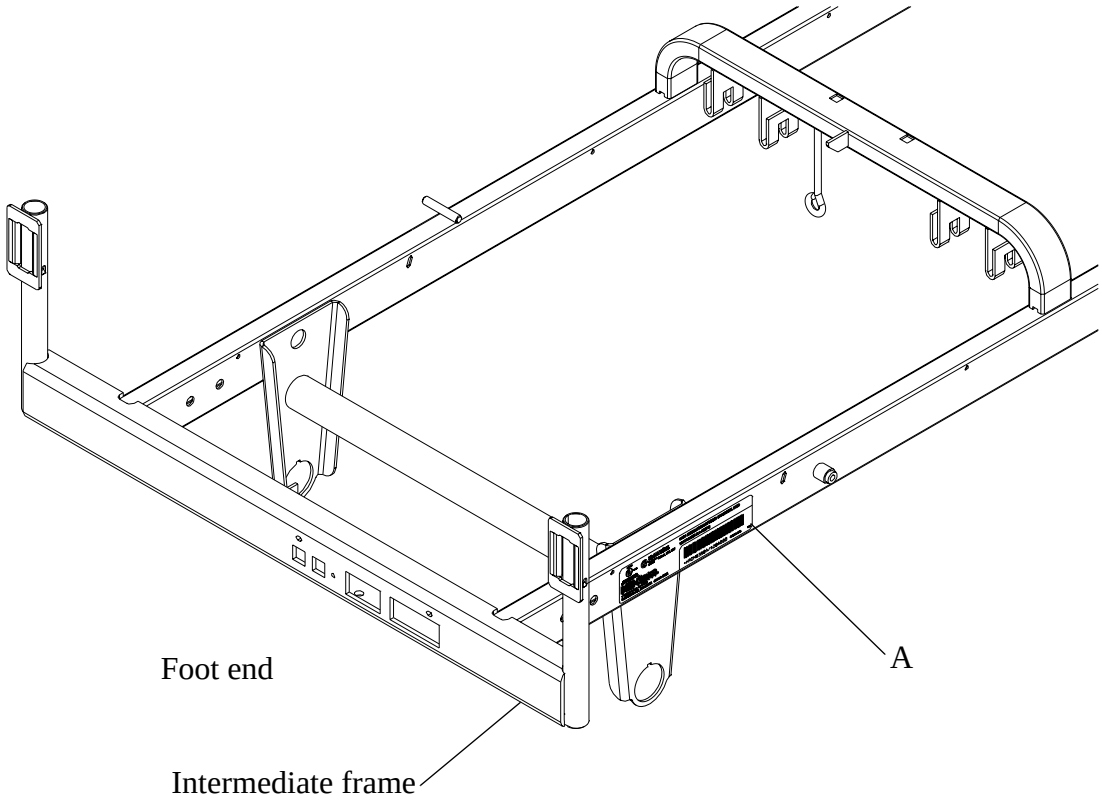
Revised April 17, 1997

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. Location of Identification Label



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.

To order parts, a $40.00 minimum will prevent a charge for processing your order.

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
1069 STATE ROUTE 46 E
BATESVILLE IN 47006-9167

Address all return goods to:

ATTN SERVICE STORES
DISTRIBUTION CENTER DOOR D23
HILL-ROM COMPANY
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.

Call your Technical Customer Support Specialist at the Hill-Rom Technical Support Department—phone (800) 445-3720. To help expedite the processing of your parts order, please have your six-digit customer account number, purchase order number, product number, and serial number available for the Technical Customer Support Specialist when you call.

Exchange Policy

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

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 Hill-Rom's internal use). 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/product 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. If you fail to return the equipment within 30 days, Hill-Rom will invoice your facility for **the difference between the exchange price and the new price of the part**.

Recommended Spare Parts List

See table 5-1 on page 5-8 for a recommended spare parts for the Patient Care bed. The quantities are adequate for servicing 25 or more beds.

Table 5-1. Recommended Spare Parts List

Part Number	Quantity	Description
24709 (8283)§	10	Trendelenburg knob
24710 (8283)§	10	Reverse Trendelenburg knob
45695 01 (8283)	1	P.C. board assembly (beds not equipped with hilow in the footboard)
45695 02 (8283)	1	P.C. board assembly (beds equipped with hilow in the footboard)
36250 (8283)	2	Coupling assembly
SA1371 (8283)	2	Trendelenburg assembly

Table 5-2. Recommended Spare Parts for Beds With an Integrated Air Support System

Part Number	Quantity	Description
45904 (8283)	2	PC board assembly (beds before 11/30/95)
46752 (8283)	2	PC board assembly (beds after 11/30/95)
SA1590 (8283)	2	Ticking with magnets—P938
38187 (8283)	2	Quick coupling—0.125 male
38189 (8283)	2	Quick coupling—0.250 male
39024 (8283)	2	Quick coupling—0.250 female
39027 (8283)	2	Quick coupling—0.125 female

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Table 5-3. Additional Spare Parts List

Part Number	Quantity	Description
32999 (8283)* or 40408 (8283)*	1	Hilow motor Hilow motor—new style (P8350 models only)
38827 (8283)	1	Touch-up paint, light neutral (off-white or light neutral colored beds only)
18942 (8283)	1	Aerosol taupe paint (brown or taupe colored beds only)
6053501 (8283)	1	Head drive assembly (8200)
6053502 (8283)	1	Knee drive assembly (8200)
32607 (8283)	1	Head drive assembly (P8350 models only)
32608 (8283)	1	Knee drive assembly (P8350 models only)

Table 5-4. Recommended Spare Parts for Beds With a Night Light

Part Number	Quantity	Description
4578201 (8283)	1	Nightlight assembly

NOTE:
*Determine which style or assembly that you have **before** ordering these parts. See the parts list in chapter 5 for additional information.

Table 5-5. Additional Spare Parts for Bed Siderails With Bed Functions, Nurse Call, and Entertainment

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
44637-04 (8283)§	1	Nurse call assembly—rh
44637-03 (8283)§	1	Nurse call assembly—lh
28328 (8283)§	1	Lighting insert blank
44632-04 (8283)§	1	Communication housing assembly—rh

Table 5-6. Additional Spare Parts for Bed Siderails With Bed Functions, Nurse Call, Entertainment, and Lighting

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
44637-04 (8283)§	1	Nurse call assembly—rh
44637-03 (8283)§	1	Nurse call assembly—lh
44632-04 (8283)§	1	Communication housing assembly—rh

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Table 5-7. Additional Spare Parts for Bed Siderails With Bed Functions, Nurse Call, Entertainment, and Bed Exit

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
44637-04 (8283)§	1	Nurse call assembly—rh
44637-03 (8283)§	1	Nurse call assembly—lh
28328 (8283)§	1	Lighting insert blank
44632-04 (8283)§	1	Communication housing assembly—rh
44632-05 (8283)§	1	Communication housing assembly—lh

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Table 5-8. Additional Spare Parts for Bed Siderails With Bed Functions, Nurse Call, Entertainment, Bed Exit, and Lighting

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
44637-02-48 (8283)	1	Nurse call/lighting assembly—rh
44637-01 (8283)§	1	Nurse call/lighting assembly—lh
44632-04 (8283)§	1	Communication housing assembly—rh
44632-05 (8283)§	1	Communication housing assembly—lh

Table 5-9. Additional Spare Parts for Bed Siderails With Bed Functions, Nurse Call, and Bed Exit

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
44637-04 (8283)§	1	Nurse call assembly—rh
44637-03 (8283)§	1	Nurse call assembly—lh
28328 (8283)§	1	Lighting insert blank
34454 (8283)§	1	Communication housing blank (rh)
44632-07 (8283)§	1	Communication housing assembly—lh

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Table 5-10. Additional Spare Parts for Bed Siderails With Bed Functions Only

Part Number	Quantity	Description
44639-02 (8283)	1	Bed function switch assembly—rh
44639-01 (8283)	1	Bed function switch assembly—lh
31273 (8283)§	1	Nurse call insert blank
31274 (8283)§	1	Nurse call insert blank
28328 (8283)§	1	Lighting insert blank
34454 (8283)§	1	Communication housing blank

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Base Module

Figure 5-2. Base Module

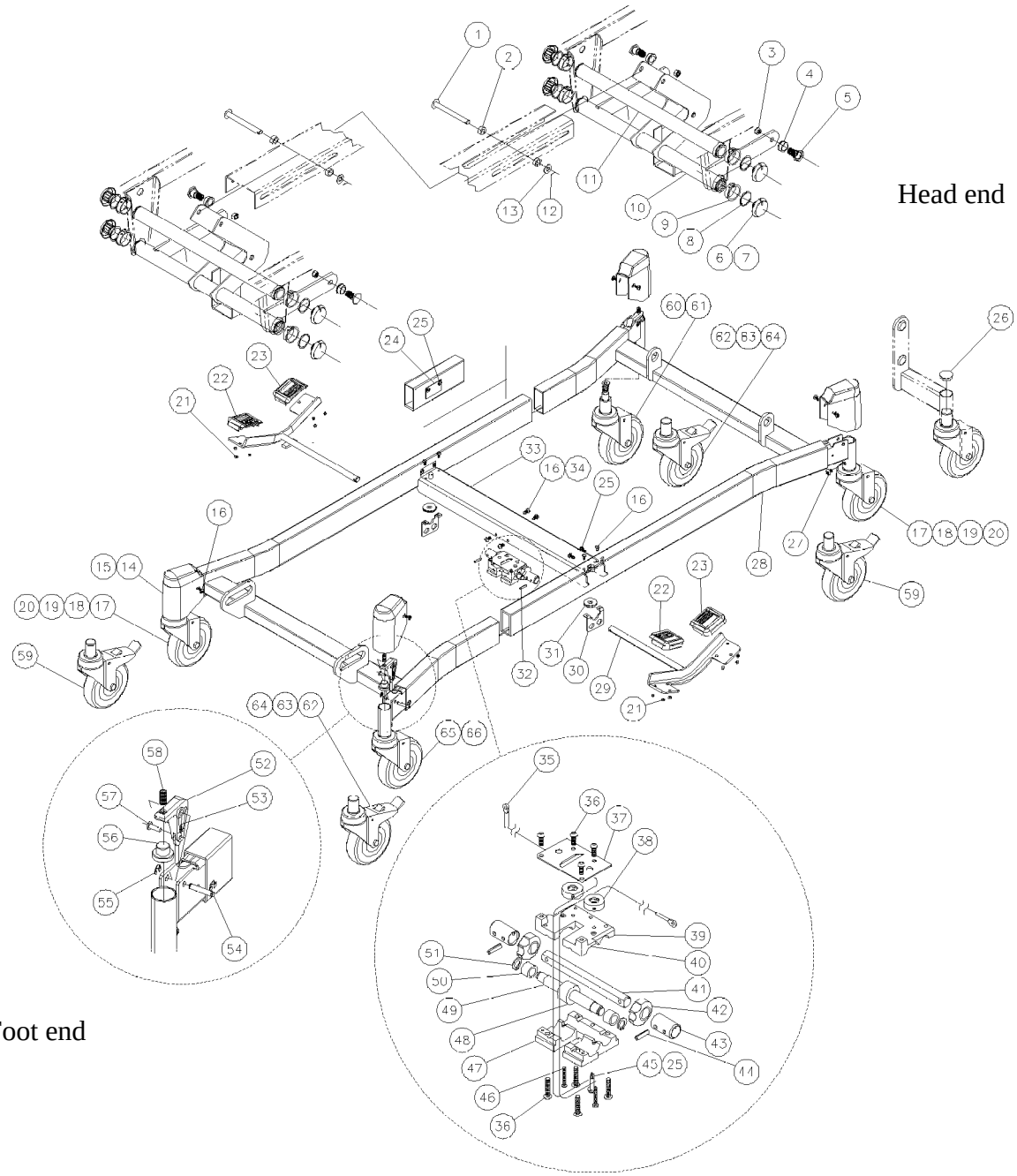


Table 5-11. Base Module

Item Number	Part Number	Quantity	Description
1	24496 (8283)	2	Clevis pin
2	24497 (8283)	4	Spacer
3	2332 (8283)	4	Stopnut
4	34349 (8283)	4	Bushing
5	19274 (8283)	4	Bolt
6	33355 (8283)§	8	Pointer
7	24785 (8283)	8	Pointer cap
8	24449 (8485)	8	Retaining ring
9	24452 (8283)	8	Bushing
10	32621 (8283)	2	Lower lift arm assembly
11	33562 (8283)	2	Torque tube
12	11093 (8283)	2	Cotter pin
13	10902 (8283)	2	Washer
14	31113 (8283)§*	4	Leg cover
15	44100 (8283)§**	4	Leg cover
16	43878 (8283)	8	Torx button head screw
17	4384 (8283)	2	5" caster without brake (M44300-06)
18	79X035 (8283)	2	3" Tente caster without brake (M44300-07)
19	45084-40 (8283)	2	Caster swivel (4") (M44300-09/15)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

* Used only on old style P8350 vintage beds.

** Used only on P8200 beds equipped with central brake and steer, and new style P8350 beds.

Item Number	Part Number	Quantity	Description
20	43841 (8283)	2	Caster—swivel (M44300-10/14)
21	17291 (8283)	12	Pushnut
22	32575 (8283)	2	Steer pedal (gray)
23	35642 (8283)	2	Brake pedal (red)
24	32976 (8283)	2	Cover
25	43879 (8283)	4	Torx button head screw
26	24771 (8283)	4	Leg plug
27	32572 (8283)	4	Screw
28	44299 (8283)§	1	Base weldment
29	32583 (8283)§	2	Pedal assembly
30	18944 (8283)	2	Pedal bracket
31	18864 (8283)	2	Sheave
32	9685 (8283)	4	Roll pin
33	32640 (8283)	1	Mechanism support assembly
34	43389 (8283)	4	Hilow torx screw
35	32585 (8283)	1	Cable assembly
36	42142 (8283)	4	Pan head screw
37	34516 (8283)	1	Stiffener plate
38	18887 (8283)	2	Bearing
39	SA1157 (8283)	1	Block top, adapter, screw
40	SA3351 (8283)	As required	Lithium grease
41	33360 (8283)	1	Cam shaft
42	43805 (8283)	2	Brake/steer cam
43	18859 (8283)	2	Coupling
44	9685 (8283)	3	Roll pin
45	43879 (8283)	5	Torx button head screw

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
46	42141 (8283)	2	Hilow screw
47	42247 (8485)	1	Mechanism block—bottom
48	18863 (8283)	1	Roller
49	43854 (8283)	1	Follower shaft
50	43844 (8283)	2	Bearing
51	12220 (8283)	2	Tru-arc ring
52	34715 (8283)	2	Rocker arm assembly
53	11094 (8283)	2	Cotter pin
54	18862 (8283)	2	Pin
55	18890 (8283)	4	Tru-arc ring
56	44116 (8283)	2	Spacer
57	757 (8283)	2	Connector pin
58	32425 (8283)	2	Setscrew
59	SA1220 (8283)	2	Steer lock caster, screw (M44300-08)
60	45084-44 (8283)	1	Caster, brake/steer (4") (M44300-09/15)
61	43842 (8283)	1	Brake caster (M44300-10/14)
62	27449 (8283)	2	Treadlock caster—5"—black (M44300-06)
63	79X034 (8283)	1	3" tente caster with brake (M44300-07)
64	SA1219 (8283)	2	Total lock caster, screw (M44300-08)
65	45084-46 (8283)	1	Caster, brake (4") (M44300-09/15)
66	43843 (8283)	1	Brake/steer caster (M44300-10/14/)

Lever Lift Arm Assembly (For P8200 Model Beds Without Central Brake and Steer Only)

Figure 5-3. Lever Lift Arm Assembly (For Beds Without Central Brake and Steer)

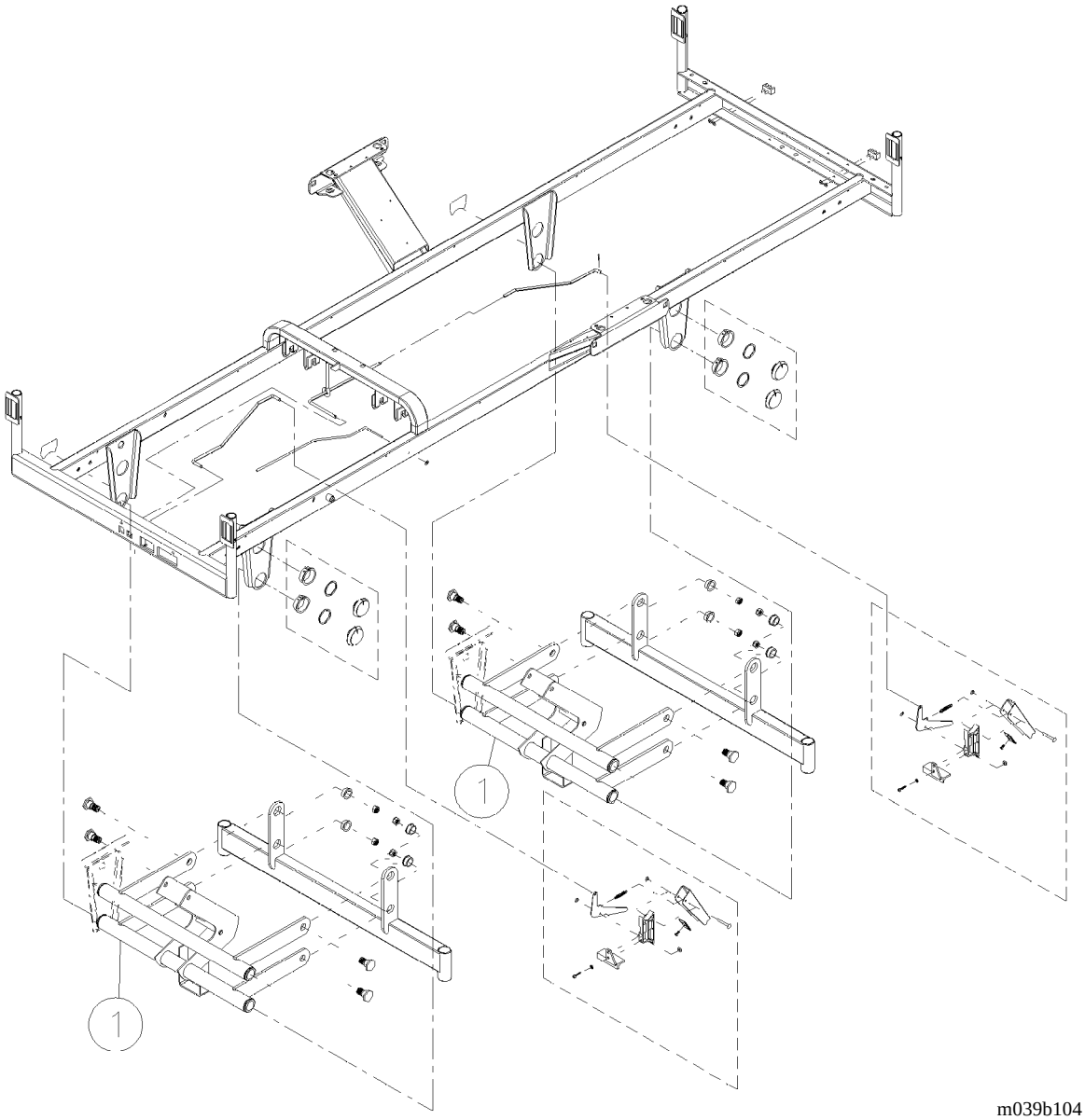


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Table 5-12. Lever Lift Arm Assembly (For Beds Without Central Brake and Steer)

Item Number	Part Number	Quantity	Description
1	27709 (8283)	2	Lever lift arm assembly

Frame Module

Figure 5-4. Frame Module

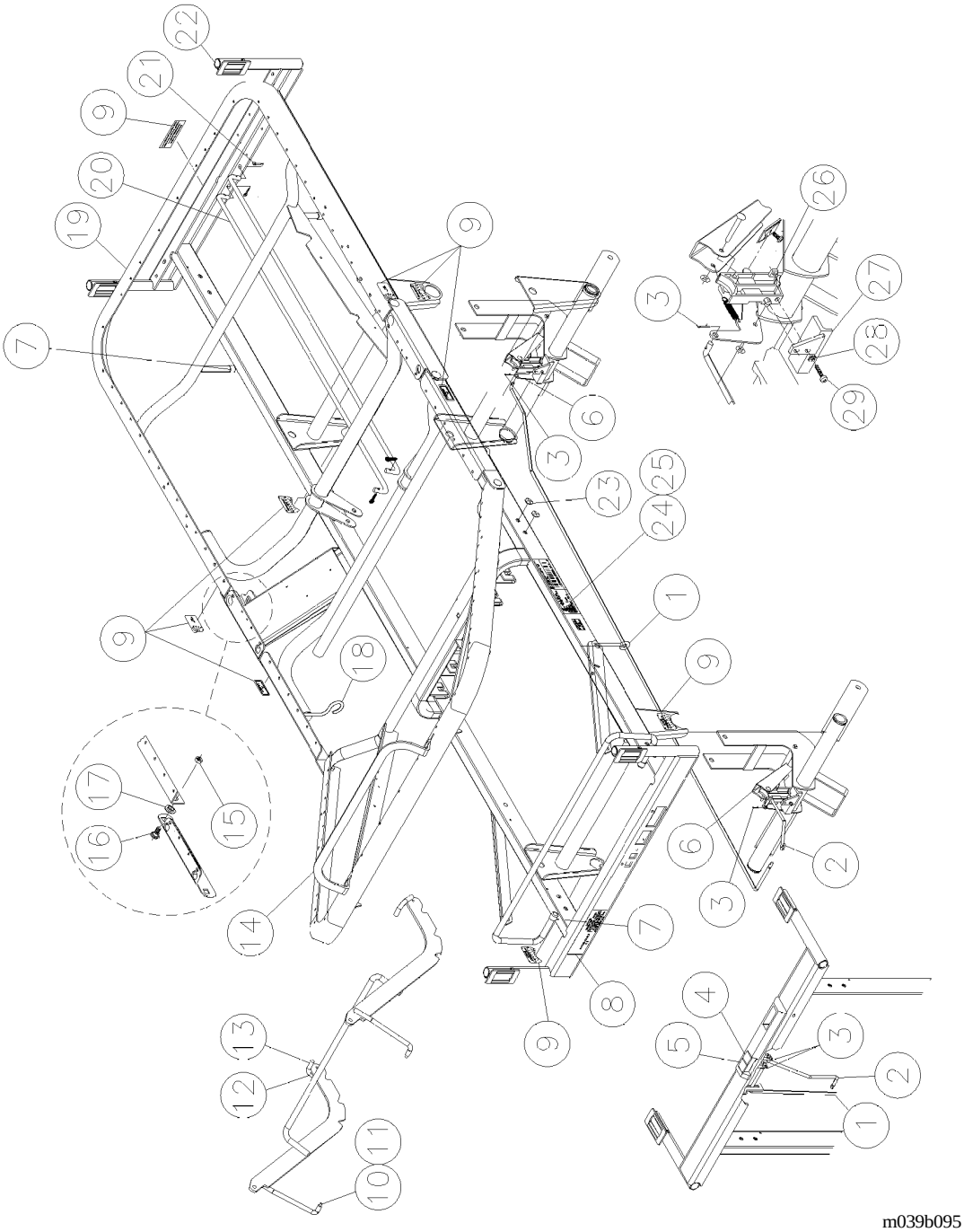

Table 5-13. Frame Module

Item Number	Part Number	Quantity	Description
1	27802 (8283)	1	Reverse Trendelenburg rod
2	27803 (8283)	1	Trendelenburg rod
3	4179 (8283)	4	Hair pin cotter key
4	24709 (8283)§	1	Trendelenburg knob
5	24710 (8283)§	1	Reverse Trendelenburg knob
6	29947 (8283)	2	Trendelenburg assembly
7	34838 (8283)	4	Vinyl cap
8	45871 (8283)	1	Non-retracting model label
9	4572801 (8283)	1	Label group inter graphics
10	17291 (8283)	2	Pushnut
11	26678 (8283)	2	Roller
12	19124 (8283)	2	Large cable tie
13	39723 (8283)	2	Sleeve—Trendelenburg handle
14	31185 (8283)	1	Mattress stop
15	43926 (8283)	6	Hex flange locknut
16	10016 (8283)	6	Shoulder bolt
17	4630 (8283)	6	Oilite bushing
18	33609 (8283)	2	Drainage bag hooks
19	34487 (8283)	1	Head section assembly
20	24500 (8283)	2	Hilow tie rod
21	17405 (8283)	4	Cotter pin
22	32931 (8283)	1	Head end assembly
23	33358 (8283)	4	Plug button
24	4590501 (8283)	1	Label UL/CSA 8200
25	4590502 (8283)	1	Label UL/CSA 8350

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
26	77 (8283)	2	Nut
27	SA1372 (8283)	2	Trendelenburg mount and Trendelenburg retainer
28	23208 (8283)	2	Lockwasher
29	451 (8283)	2	Screw

NOTES:

Control Box Module

Figure 5-5. Control Box Module

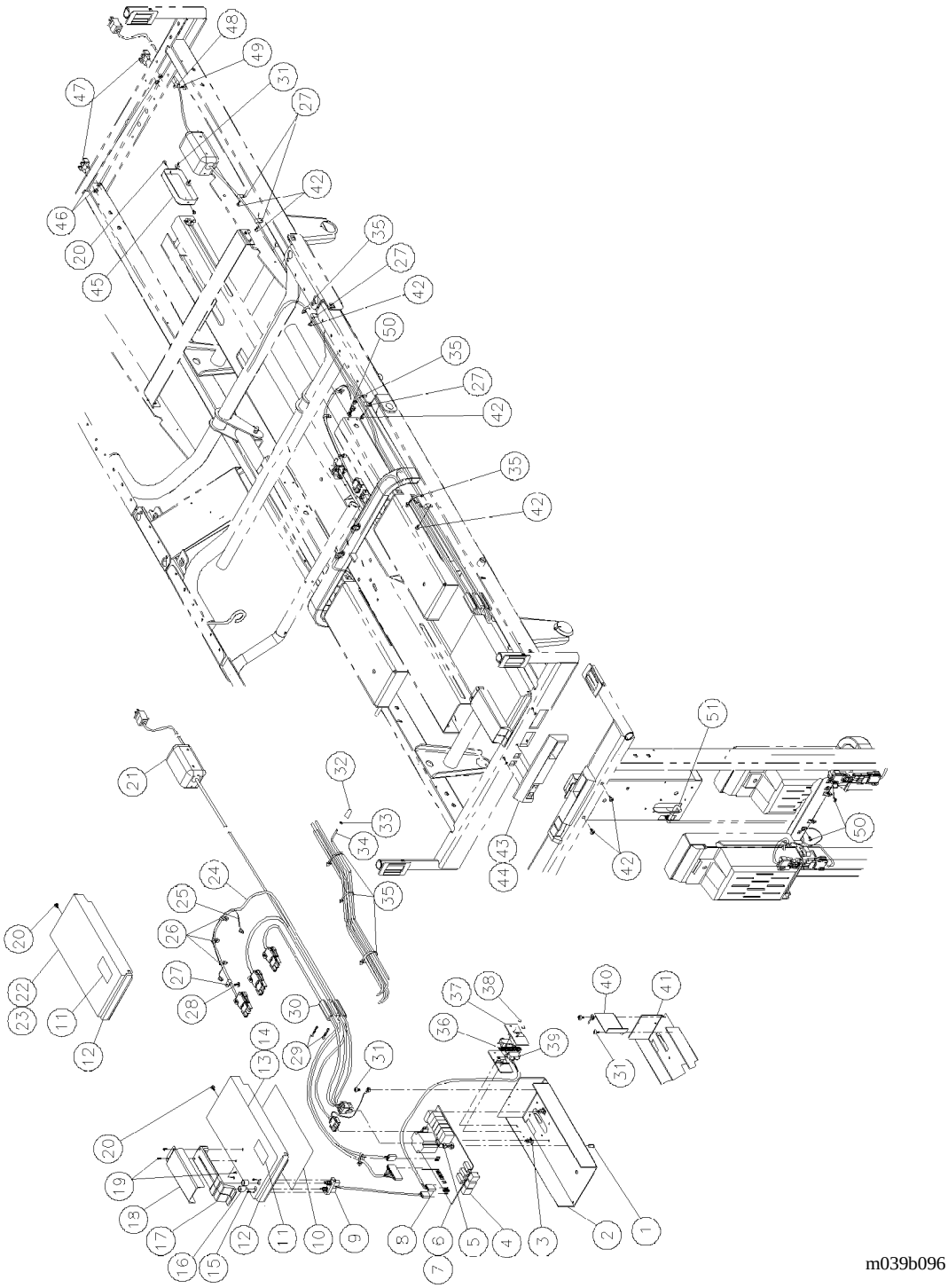

Table 5-14. Control Box Module

Item Number	Part Number	Quantity	Description
1	33067-02 (8283)	1	Threaded spacer
2	33019 (8283)	1	Control box (8350 only)
3	35663 (8283)	2	Standoff
4	33006 (8283)§	5	Button
5	20364 (8283)	1	Screw
6	45695-01 (8283)	1	8200/8350 PC board assembly (beds without hilow in the footboard)
7	45695-02 (8283)	1	PC board assembly (beds with hilow in the footboard)
8	32971 (8283)	1	Hilow cable assembly
9	32981 (8283)	1	Nurse hilow switch assembly
10	45931 (8283)	1	Wiring diagram (non-retracting)
11	22247 (8283)	1	Caution label
12	35186 (8283)	1	Sound dampening tape
13	45714-02 (8283)§	1	Control box cover (8200 with hilow in the footboard)
14	32921 (8283)	1	Control box cover (8350 with hilow in the footboard)
15	31027 (8283)	2	Screw, pan head
16	35085 (8283)	2	Switch seal
17	SA1181 (8283)	1	Double control level, screw
18	36888 (8283)	1	Paddle switch guard
19	4403 (8283)	4	Screw
20	22605 (8283)	3	Screw
21	32991 (8283)	1	Power cord assembly
22	45714-01 (8283)§	1	Control box cover (8200 without hilow in the footboard)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
23	32921-01 (8283)§	1	Control box cover (8350 without hilow in the footboard)
24	36245 (8283)	1	Motor harness
25	34986 (8283)	1	Ground strap
26	14450 (8283)	3	Small cable tie
27	20312 (8283)	6	Cable clamp
28	42143 (8283)	1	Screw
29	33058 (8283)	2	Torx button head screw
30	34422 (8283)	1	Cable retainer
31	43878 (8283)	3	Screw
32	35381 (8283)	1	Screw tip cover
33	17291 (8283)	1	Pushnut
34	27281 (8283)	1	Wire support
35	19124 (8283)	5	Large cable tie
36	24817 (8283)	1	Spring
37	24557 (8283)	2	Switch bracket
38	15380 (8283)	2	Screw
39	33060 (8283)	2	Switch
40	45719 (8283)§	1	Control box side (8200 only)
41	45720 (8283)§	1	Control box (8200 only)
42	44489 (8283)	7	Six lobe pan head screw
43	92V004 (8283)	1	Nurse control housing (beds without hilow in the footboard)
44	32637 (8283)§	1	Nurse control housing (beds with hilow in the footboard)
45	22319 (8283)	1	Box cover

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
46	29788 (8283)	4	Twist nut
47	21341 (8283)	2	Cord holder
48	25200 (8283)	1	Speed clamp
49	18252 (8283)	4	Screw
50	4759 (8283)	1	Screw
51	34323 (8283)	1	Vinyl sleeve

Night Light Assembly—P/N 4578201

Figure 5-6. Night Light Assembly—P/N 4578201

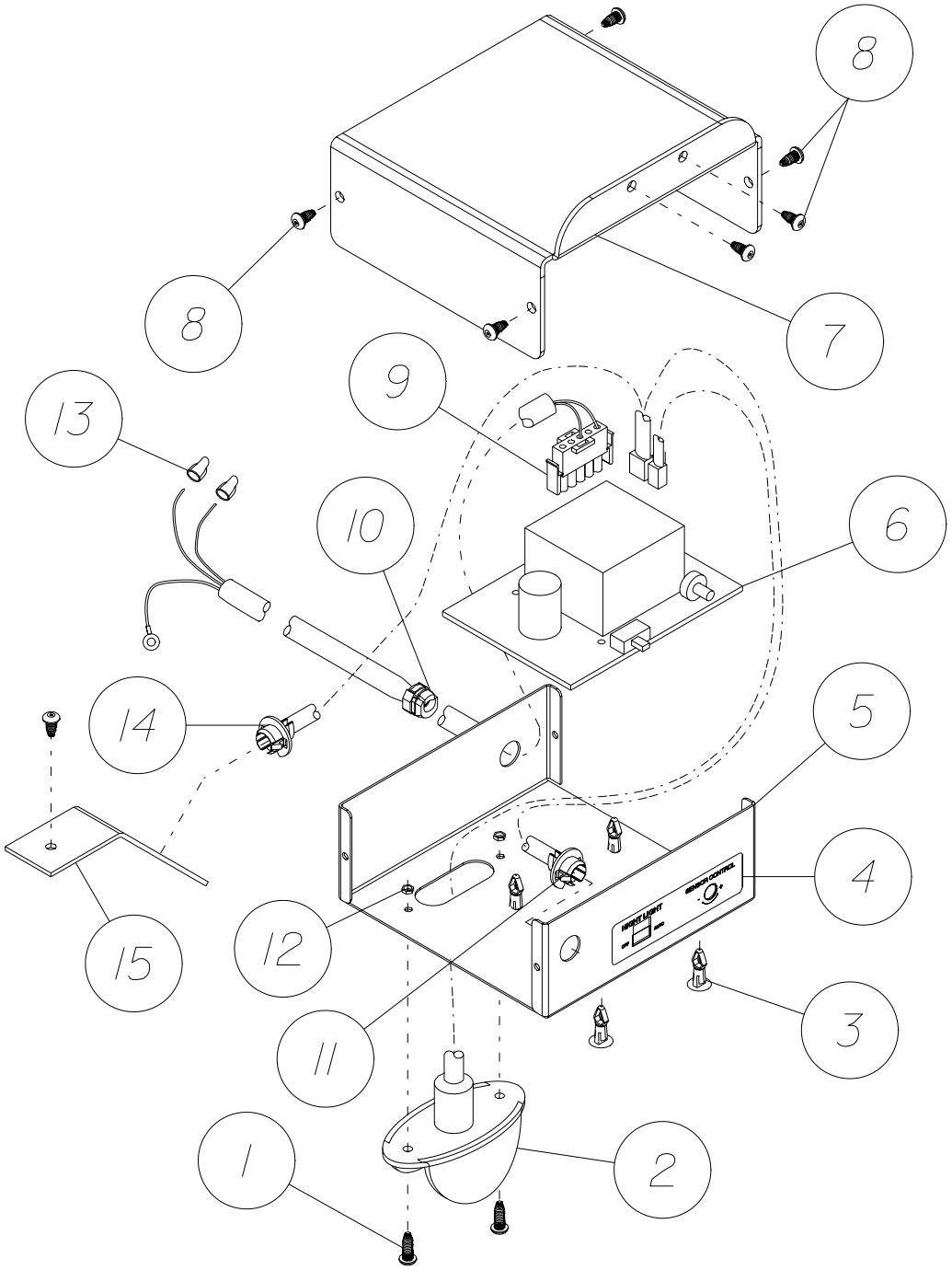

Table 5-15. Night Light Assembly—P/N 4578201

Item Number	Part Number	Quantity	Description
1	43879 (8283)	2	Torx button head screw
2	43166 (8283)	1	Night light assembly
3	39763-02 (8283)	4	Standoff
4	43412 (8283)	1	Night light label
5	45779-48 (8283)	1	Night light bottom cover
6	43200-01 (8283)	1	Night light with scale
7	45780-48 (8283)	1	Night light top cover
8	43878 (8283)	6	Torx button head screw
9	45925-01 (8283)	1	Night light jumper cable
10	22988 (8283)	1	Strain relief
11	43671 (8283)	1	Night light sensor and cable assembly (sensor located in nightlight box)
12	28837 (8283)	2	Hex nut
13	32741 (8283)	2	Wire joint
14	43671-01 (8283)	1	Night light sensor and cable assembly
15	46244 (8283)§	1	Night light sensor bracket

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Hard Pan—P/N 4921301

Figure 5-7. Hard Pan—P/N 4921301

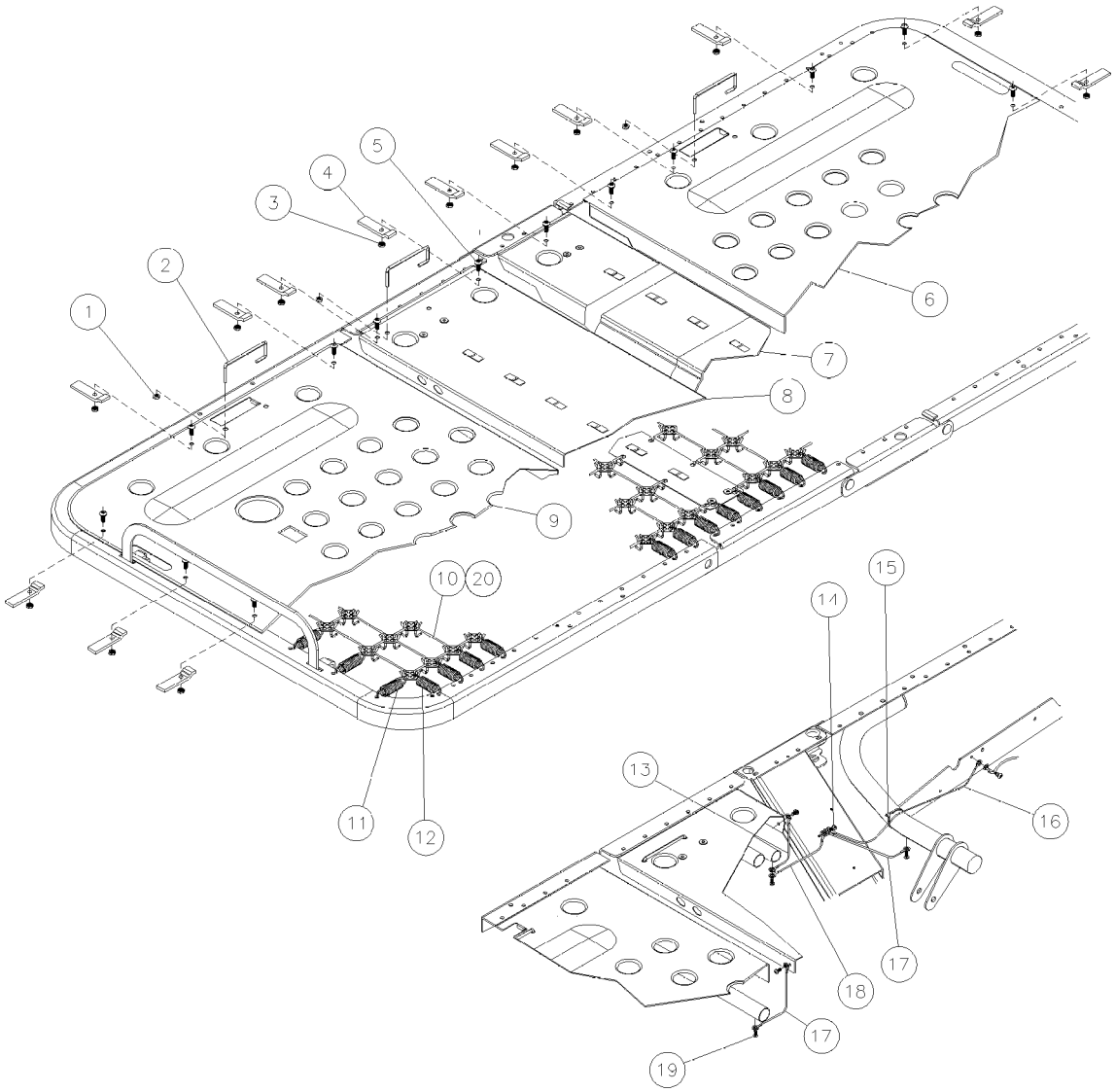

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Table 5-16. Hard Pan—P/N 4921301

Item Number	Part Number	Quantity	Description
1	755 (8283)	6	Locknut
2	20544 (8283)	6	Restraint bracket
3	20802 (8283)	25	Keps nut
4	20223 (8283)	25	Lock
5	43880 (8283)	25	Torx pan head screw
6	382210148 or 38221-33 (8283)	1	Head panel
7	45884 (8283)§	1	Seat pan
8	382230148 or 38223-33 (8283)	1	Knee pan
9	382220248 or 38222-33 (8283)	1	Foot panel
10	12084 (8283)	1	Fabric
11	34531 (8283)	21	Helical spring
12	34532 (8283)	71	Helical spring
13	4565815 (8283)*	1	Ground strap assembly
14	18252 (8283)	1	Screw
15	19124 (8283)	1	Large cable tie (8350)
16	4565818 (8283)*	1	Ground strap assembly (8350)
17	4565806 (8283)*	1	Ground strap assembly
18	4565810 (8283)*	1	Ground strap assembly
19	43878 (8283)	5	Torx button head screw

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

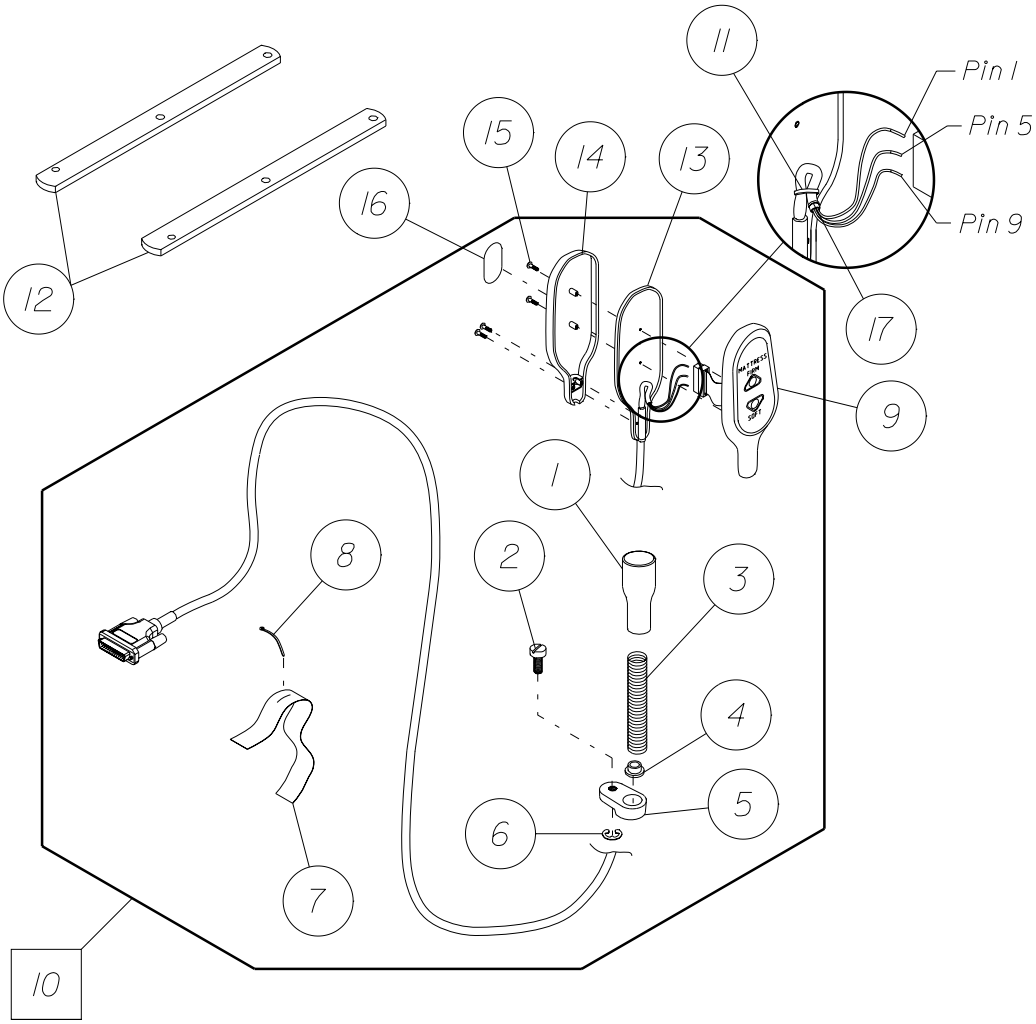
* There may be vintage beds that these ground strap assemblies are not used on.

Item Number	Part Number	Quantity	Description
20	12084-01-pl (8283)	1	Fabric assembly with bed exit

NOTES:

Pendant Control Assembly—P729

Figure 5-8. Pendant Control Assembly—P729



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Pin Number	Function	Wire Color
1	Soft	Black
5	Common	White
9	Firm	Red

Table 5-17. Pendant Control Assembly—P729

Item Number	Part Number	Quantity	Description
1	SA4519 (8283)	1	Pendant holder top
2	SA7087 (8283)	1	Thumbscrew
3	SA4516 (8283)	1	Pendant sleeve
4	SA7089 (8283)	1	Rubber grommet
5	SA7088 (8283)	1	Pendant holder
6	SA7091(8283)	1	C-ring
7	43615 (8283)	1	Velcro strap
8	19124 (8283)	1	Large cable tie
9	SA7346 (8283)	1	Pendant control front
10	P729 (8283)	1	Pendant control assembly
11	SA7347 (8283)	1	Cable tie
12	44566 (8485)§	2	Pendant mount
13	SA7337 (8283)	1	Compression boot
14	SA7338 (8283)	1	Pendant control—back
15	SA7339 (8283)	4	Screw
16	SA7340 (8283)	1	Label
17	SA7341 (8283)	1	Cable tie

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Mattress—P938C

Figure 5-9. Mattress—P938C

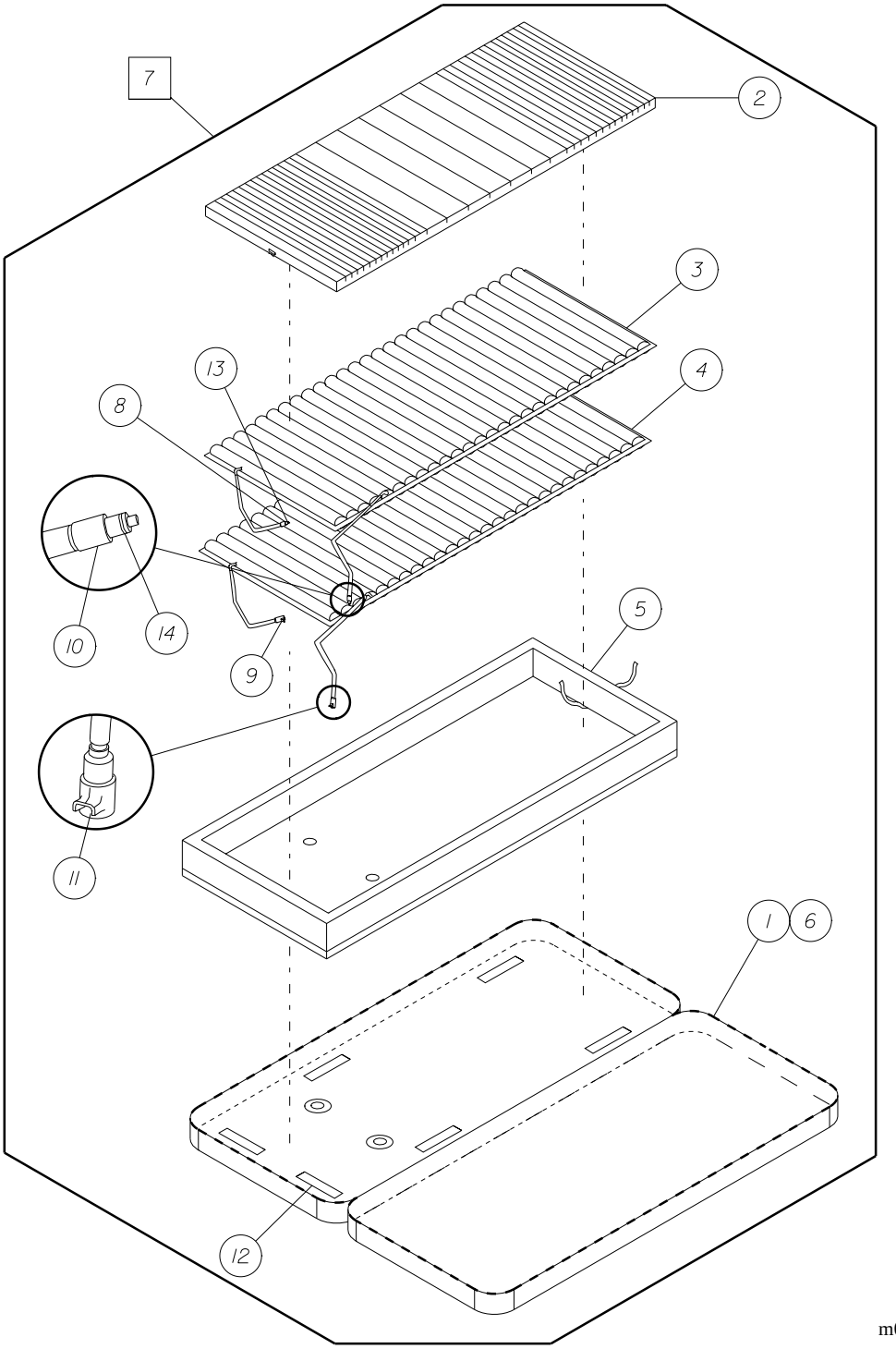

Table 5-18. Mattress—P938C

Item Number	Part Number	Quantity	Description
1	SA1590 (8283)	1	Ticking with magnets
2	SA7092 (8283)	1	Top foam
3	SA7093 (8283)	1	Top bladder
4	SA7094 (8283)	1	Bottom bladder
5	SA7095 (8283)	1	Bottom foam
6	SA7096 (8283)	1	Ticking
7	938C (8283)	1	Mattress
8	SA4461 (8283)	1	Male coupling (small-male)
9	SA4462 (8283)	1	Female coupling (small)
10	SA4463 (8283)	1	Male coupling (large)
11	SA4464 (8283)	1	Female coupling (large)
12	SA4589 (8283)	6	Magnet
13	SA4584 (8283)	2	Large O-ring
14	SA4583 (8283)	2	Small O-ring

Manifold Box Assembly (Old Style)—P/N 44619-01/02

Figure 5-10. Manifold Box Assembly (Old Style)—P/N 44619-01/02

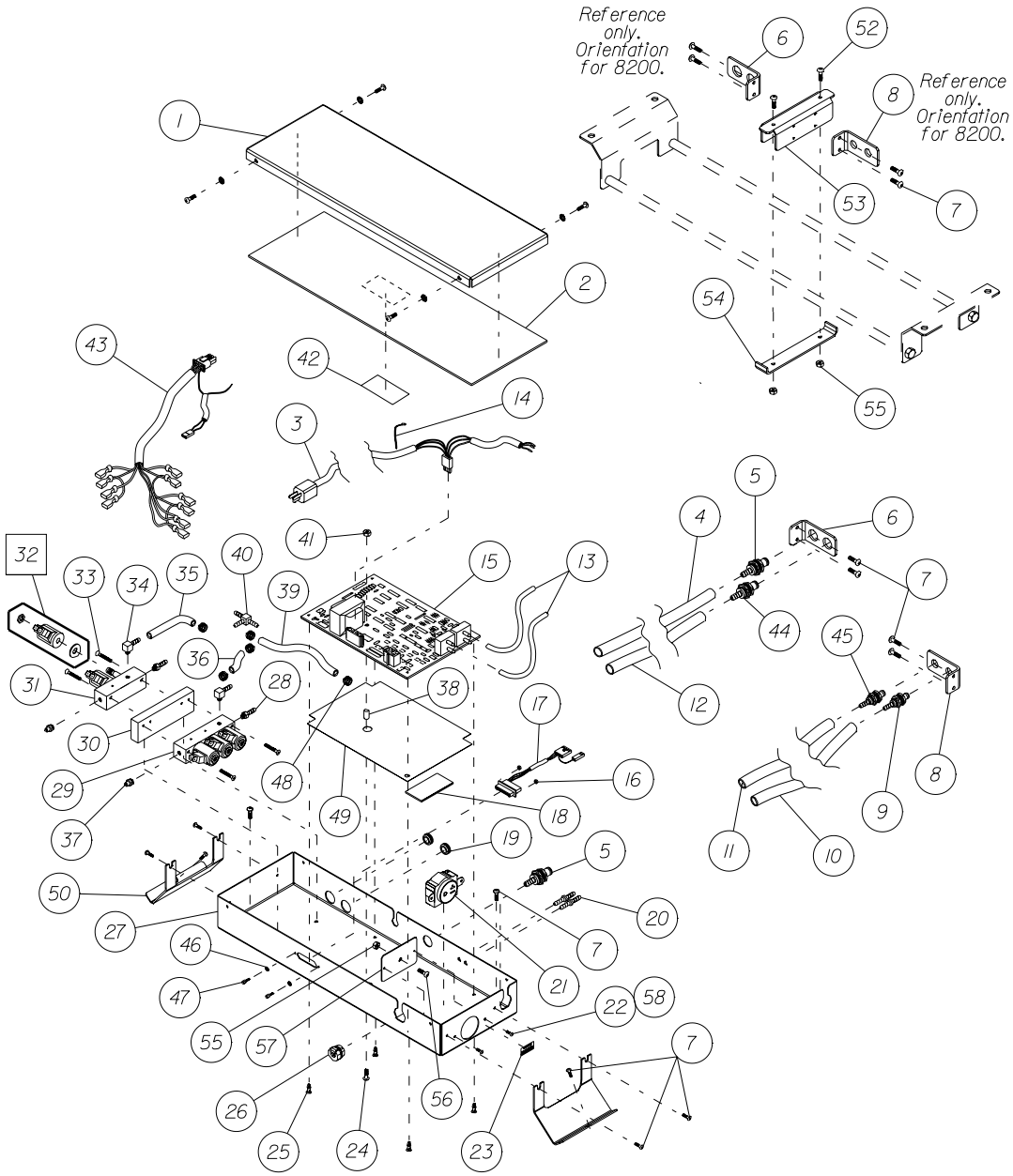

Table 5-19. Manifold Box Assembly (Old Style)—P/N 44619-01/02

Item Number	Part Number	Quantity	Description
1	44549 (8283)§	1	Manifold cover
2	44616 (8283)	1	Cover insulator
3	44610-01 (8283)	1	Power cable assembly (8350)
4	38197-03 (8283)	1	Fill tube—red
5	38189 (8283)	2	Quick coupling—.250 (large) male
6	44568 (8283)	1	.250 coupling bracket
7	18921 (8283)	12	Screw
8	44567 (8283)	1	.125 coupling bracket
9	38187 (8283)	1	Quick coupling—.125 (small) male
10	42734-05 (8283)	1	Sense hose—red
11	42734-06 (8283)	1	Sense hose—blue
12	38197-04 (8283)	1	Fill tube—blue
13	44527 (8283)	2	Flex hose
14	19124 (8283)	1	Large cable tie
15	45904 (8283)	1	P.C. board assembly
16	28965 (8283)	2	Nut
17	44622 (8283)	1	Pendant cable assembly
18	44693 (8283)	1	Mylar insulator (8350)
19	42743-03 (8283)	2	Grommet
20	42741 (8283)	2	Hose splice
21	44725 (8283)	1	Outlet single 15 amp (8350)
22	4577 (8283)	2	Screw (8350)
23	44618 (8283)	1	Caution label (8350)
24	18920 (8283)	1	Screw
25	39763-01 (8283)	4	Standoff
26	16145 (8283)	1	Strain relief

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
27	44548 (8283)§	1	Manifold box
28	38288 (8283)	2	Straight fitting
29	44612 (8283)	1	Valve manifold—upper
30	44550 (8283)	1	Manifold bracket
31	44613 (8283)	1	Valve manifold—lower
32	SA4475 (8283)	5	Solenoid
33	28619 (8283)	4	Screw
34	38287 (8283)	2	Elbow—90 degrees
35	42731-06 (8283)	1	Solenoid hose—lower inlet
36	42731-05 (8283)	1	Solenoid hose—upper inlet
37	38289 (8283)	2	Relief valve
38	44724 (8283)	1	Standoff spacer
39	42731-04 (8283)	1	Solenoid hose—compression inlet
40	39507 (8283)	1	Connector tee
41	28837 (8283)	1	Hex nut
42	22247 (8283)	1	Caution label
43	44611 (8283)	1	Manifold wire assembly
44	39024 (8283)	21	Quick coupling—.250 (large) female
45	39027 (8283)	1	Quick coupling—.125 (small) female
46	28970 (8283)	2	Lockwasher
47	42006 (8283)	2	Screw lock
48	38296 (8283)	5	Hose clamp
49	44101 (8283)	1	Insulator—air control box
50	44547 (8283)	2	Manifold bracket
51	44610-02 (8283)	1	Power cable assembly (8200)
52	21230 (8283)	2	Screw (8200)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
53	44546 (8283)	1	Connector clamp (8200)
54	44545 (8283)	1	Connector clamp (8200)
55	15250 (8283)	3	Locknut (8200)
56	17017 (8283)	1	Screw (8200)
57	44692 (8283)§	1	Plate (8200)
58	12595 (8283)	2	Screw (8200)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Control Box Assembly (Old Style)—P/N 44680-01 and Air Compressor Assembly (Old Style)—P/N 44620

Figure 5-11. Control Box Assembly (Old Style)—P/N 44680-01 and Air Compressor Assembly (Old Style)—P/N 44620

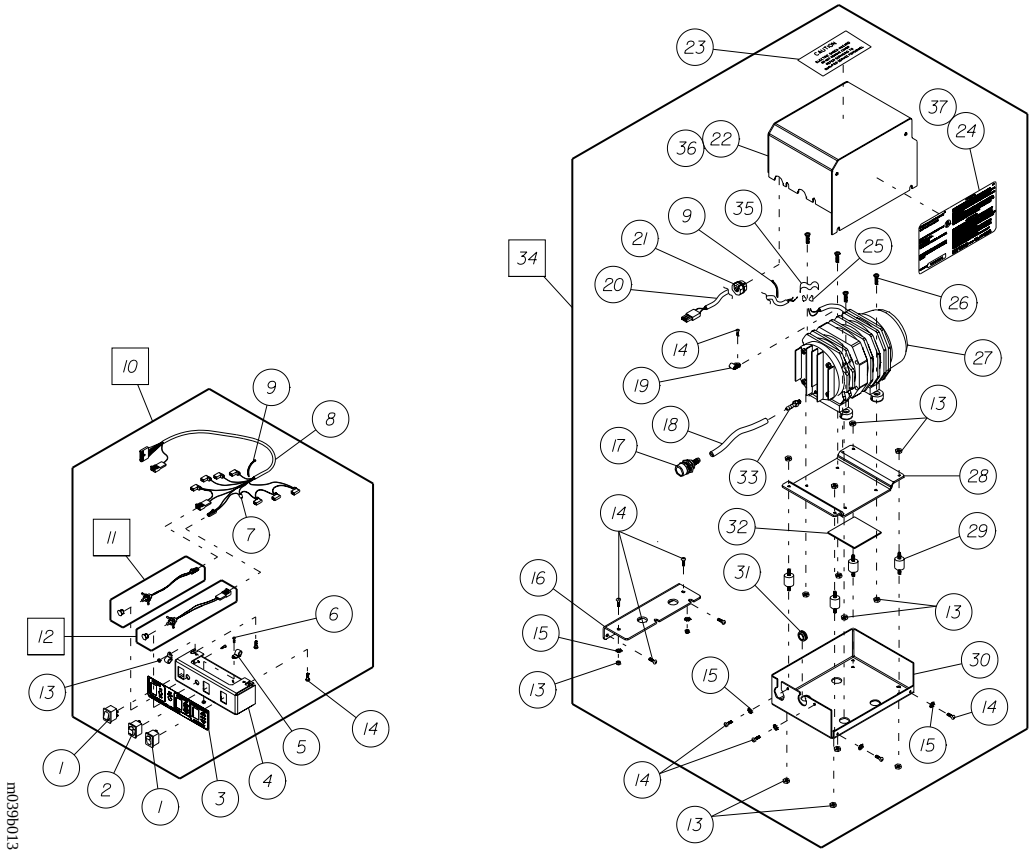

Table 5-20. Control Box Assembly (Old Style)—P/N 44680-01 and Air Compressor Assembly (Old Style)—P/N 44620

Item Number	Part Number	Quantity	Description
1	41437-02 (8283)	2	Rocker switch
2	42742-01 (8283)	1	Rocker switch—momentary
3	44630 (8283)	1	Air mattress label
4	44542-48 (8283)	1	Control box
5	17292 (8283)	2	Cable clamp
6	17017 (8283)	2	Screw
7	15408 (8283)	1	Wire nut
8	44624-01 (8283)	1	Air system control cable
9	14450 (8283)	2	Small cable tie
10	44680-01 (8283)	1	Control box assembly
11	44694 (8283)	1	Complete LED assembly—red
12	42782 (8283)	1	Complete LED assembly (yellow)
13	15250 (8283)	12	Locknut
14	18921 (8283)	11	Screw
15	23208 (8283)	6	Lockwasher
16	44543 (8283)	1	Compressor box bracket
17	39024 (8283)	1	Quick coupling—.250 (large) female
18	44621 (8283)	1	Compressor hose
19	25200 (8283)	1	Speed clamp
20	44623 (8283)	1	Compressor cable assembly
21	35773 (8283)	1	Strain relief
22	44540 (8283)§	1	Compressor cover assembly
23	22247 (8283)	1	Caution label
24	44701 (8283)	1	UL/CSA label (8200)
25	32741 (8283)	2	Wire joint

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
26	90027-08 (8283)	4	Screw
27	38256 (8283)	1	Air compressor
28	44541 (8283)	1	Compressor plate
29	44617 (8283)	4	Isolation mount
30	44539 (8283)§	1	Compressor box
31	42743-03 (8283)	1	Grommet
32	44661 (8283)	1	Foam barrier—back
33	44625 (8283)	1	Fitting
34	44620 (8283)	1	Air compressor assembly
35	15942 (8283)	As required	Electrical tape
36	44660 (8283)	8	Foam barrier—top
37	44701 (8283)	1	UL/CSA label (8350)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

NOTES:

Manifold Box Assembly (New Style)—P/N 44619-03

Figure 5-12. Manifold Box Assembly (New Style)—P/N 44619-03

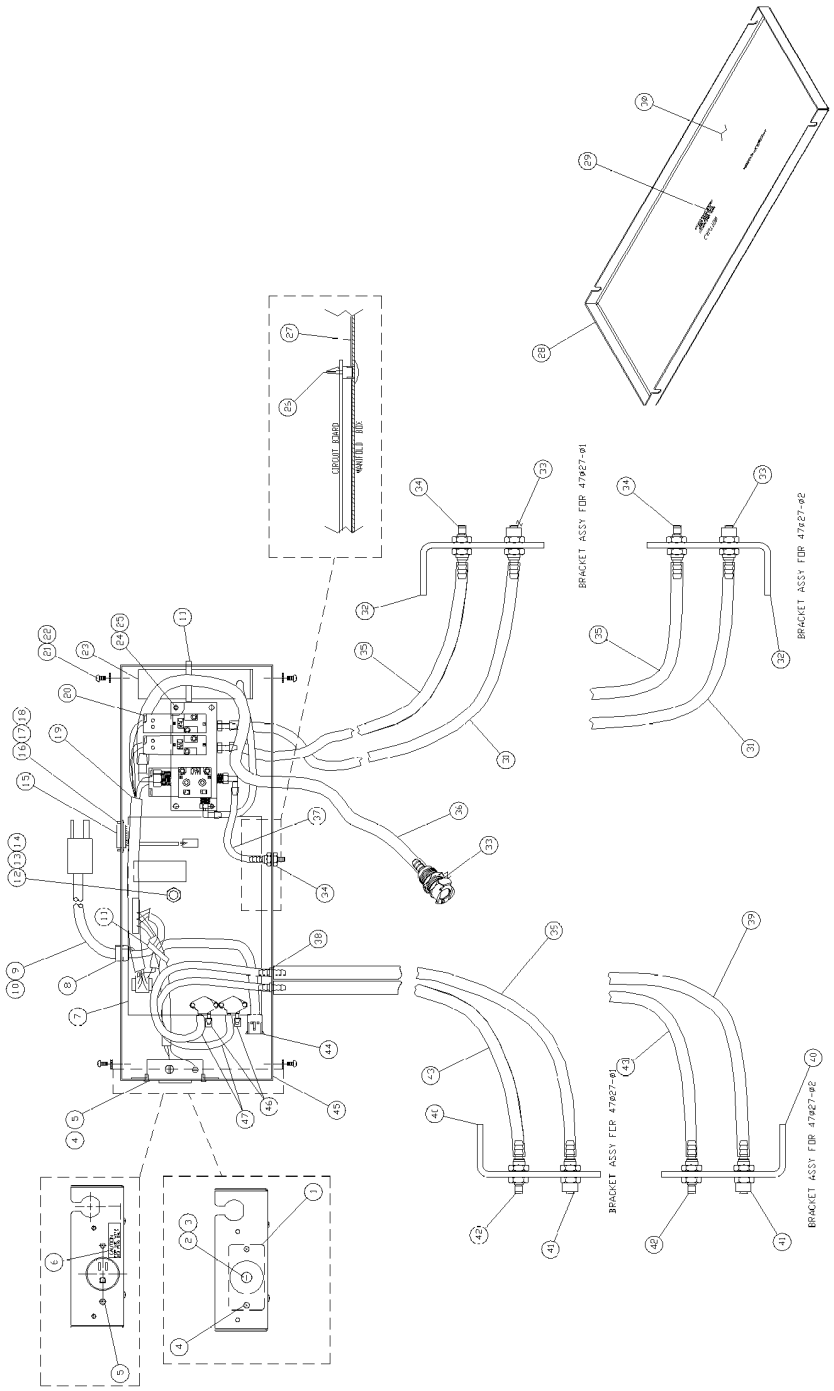

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Table 5-21. Manifold Box Assembly (New Style)—P/N 44619-03

Item Number	Part Number	Quantity	Description
1	44692 (8283)§	1	Plate (8200)
2	17017 (8283)	2	Screw
3	15250 (8283)	12	Locknut
4	19434 (8283)	2	Screw
5	4577 (8283)	2	Screw (8350)
6	44567 (8283)	1	.125 coupling bracket
7	46752 (8283)	1	PC board assembly (beds after 11/30/95)
8	16145 (8283)	1	Strain relief
9	44610-01 (8283)	1	Power cable assembly (8350)
10	44610-02 (8283)	1	Power cable assembly (8200)
11	19124 (8283)	12	Large cable tie
12	38187 (8283)	2	Quick coupling—0.125 male
13	28837 (8283)	2	Hex nut
14	44724 (8283)	1	Standoff spacer
15	44622 (8283)	1	Pendant cable assembly
16	42006 (8283)	2	Screw lock
17	28965 (8283)	2	Nut
18	28970 (8283)	2	Lockwasher
19	47066 (8283)	1	Intremediate compressor cable—9" (228.6 mm)
20	46238 (8283)	1	Manifold valve
21	18921 (8283)	4	Screw
22	16147 (8283)	4	Lockwasher
23	47103 (8283)	1	Muffler
24	47604 (8283)	2	Screw, nylon

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
25	40497 (8283)	2	Keps nut
26	39763-01 (8283)	4	Standoff
27	48580 (8283)	1	Insulator
28	44549 (8283)§	1	Manifold cover
29	22247 (8283)	1	Caution label
30	47016 (8283)	1	Wiring diagram
31	38197-04 (8283)	1	Fill tube—blue
32	44568 (8283)	1	.250 coupling bracket
33	39024 (8283)	2	Quick coupling—0.250 female
34	38189 (8283)	2	Quick coupling—0.250 male
35	38197-03 (8283)	1	Fill tube—red
36	46980-33 (8283)	1	Vacuum hose
37	42731-04 (8283)	1	Solenoid hose—compression inlet
38	42741 (8283)	2	Hose splice
39	42734-05 (8283)	1	Sense hose—red
40	44567 (8283)	1	.125 coupling bracket
41	39027 (8283)	2	Quick coupling—0.125 female
42	48355 (8283)	1	Manifold circuit box
43	42734-06 (8283)	1	Sense hose—blue
44	46873 (8283)	1	Cable
45	18920 (8283)	1	Screw
46	48702 (8283)	2	Sensor cover tube
47	44527 (8283)	2	Flex hose

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

NOTES:

Control Box Assembly (New Style)—P/N 44680-02

Figure 5-13. Control Box Assembly (New Style)—P/N 44680-02

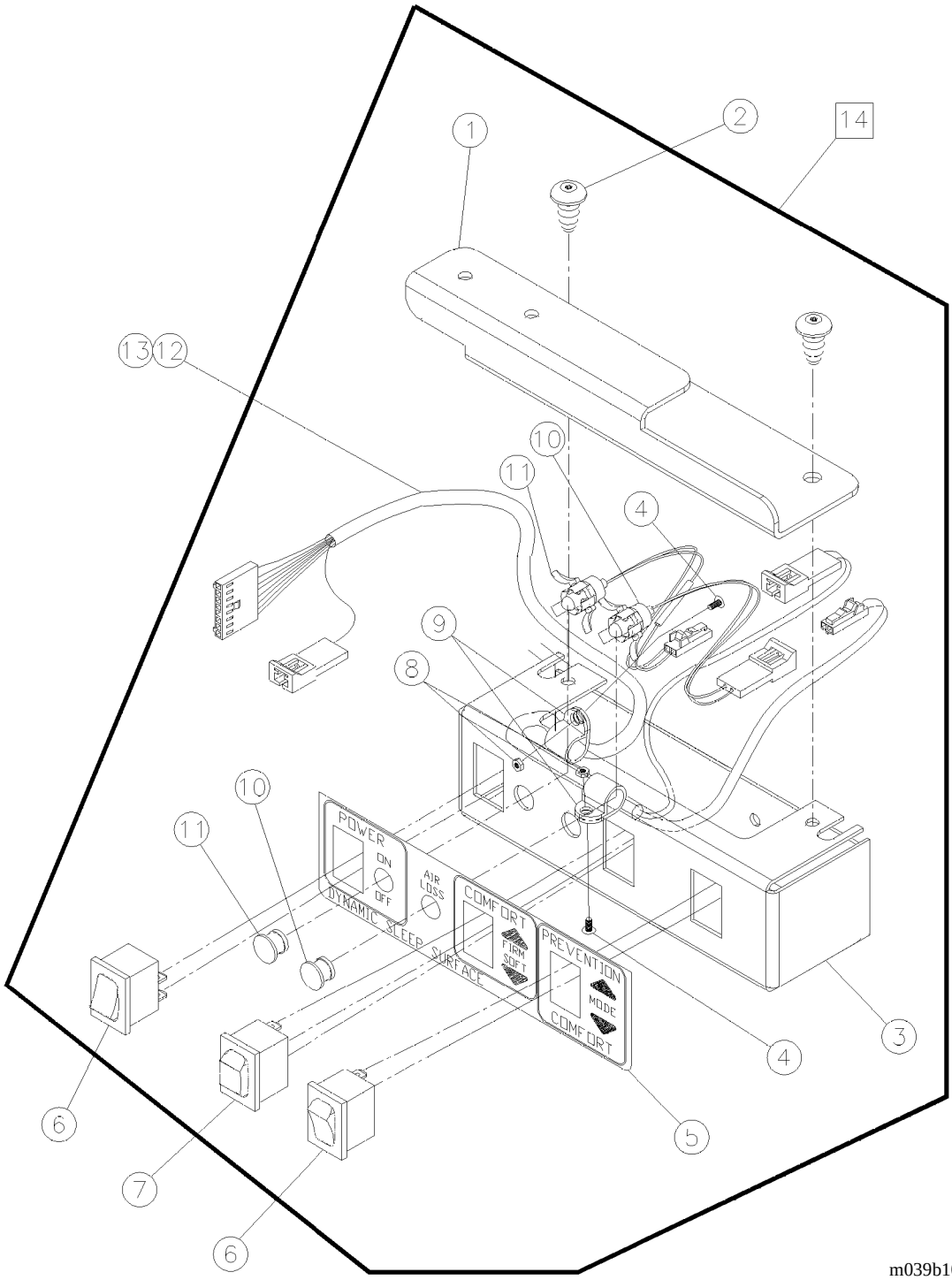

Table 5-22. Control Box Assembly (New Style)—P/N 44680-02

Item Number	Part Number	Quantity	Description
1	44691 (8283)	1	Control box bracket
2	43878 (8283)	2	Screw
3	44542-48 (8283)	1	Control box
4	17017 (8283)	2	Screw
5	44630 (8283)	1	Air mattress label
6	41437-02 (8283)	2	Rocker switch
7	42742-01 (8283)	1	Rocker switch—momentary
8	15250 (8283)	12	Locknut
9	17292 (8283)	2	Cable clamp
10	42782 (8283)	1	Complete LED assembly (yellow)
11	44694 (8283)	1	Complete LED assembly—red
12	44624-01 (8283)	1	Air system control cable
13	44624-02 (8283)	1	Air system control cable assembly
14	44680-02 (8283)	1	Control box assembly

Air Compressor Assembly (New Style)—P/N 44620-01

Figure 5-14. Air Compressor Assembly (New Style)—P/N 44620-01

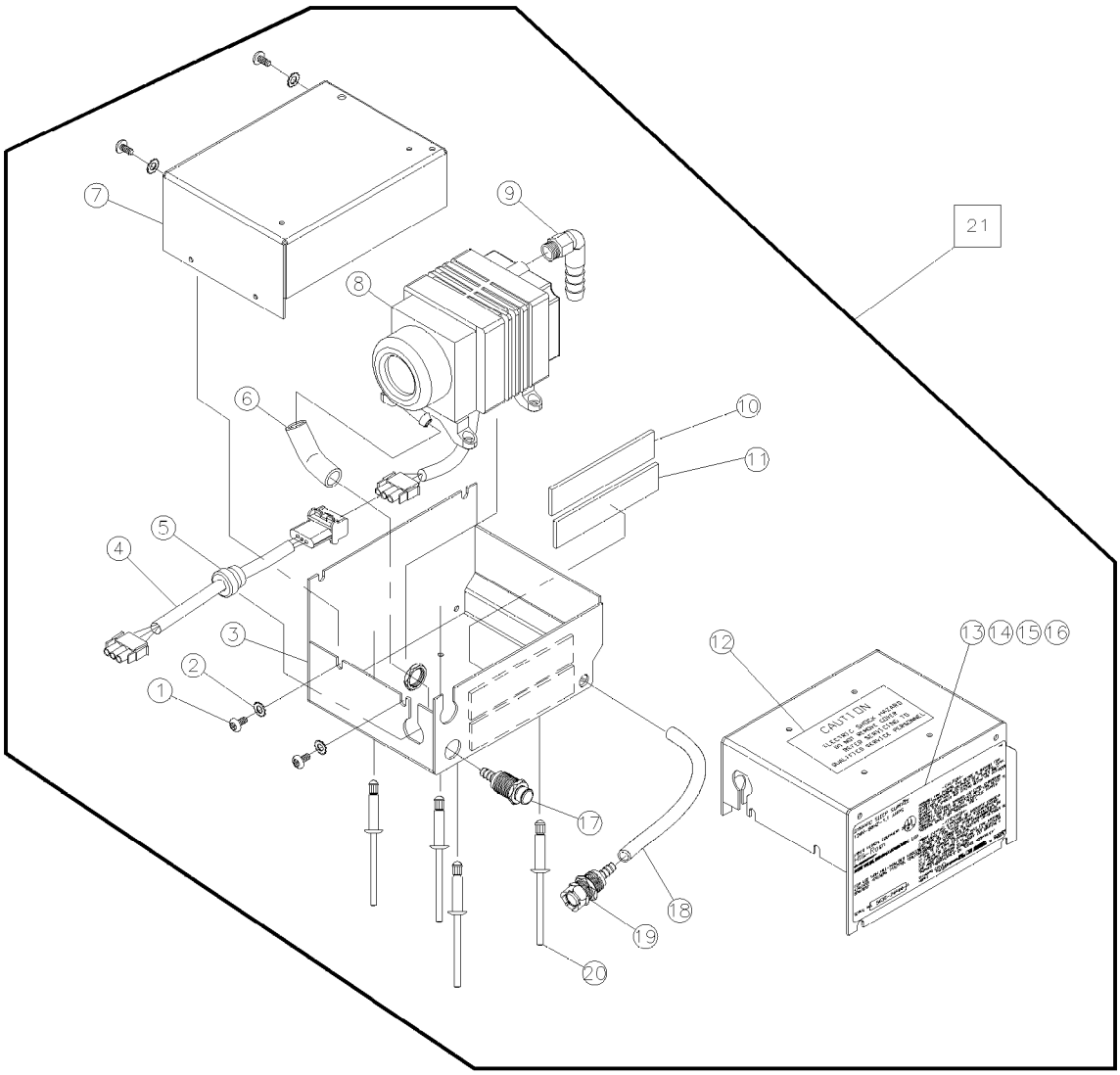

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Table 5-23. Air Compressor Assembly (New Style)—P/N 44620-01

Item Number	Part Number	Quantity	Description
1	18921 (8283)	4	Screw
2	16147 (8283)	4	Lockwasher
3	48354 (8283)	1	Air compressor box assembly
4	48575 (8283)	1	Air compressor cable assembly
5	35773 (8283)	1	Strain relief
6	47606-2	1	Vacuum tube
7	38352 (8283)	1	Compressor base
8	46918 (8283)	1	Air compressor
9	47124 (8283)	1	Elbow fitting
10	44660-02 (8283)	1	Foam barrier
11	44660-01 (8283)	1	Foam barrier
12	22247 (8283)	1	Caution label
13	44651 (8283)	1	UL/CSA label
14	44652 (8283)	1	UL/CSA label
15	44701 (8283)	1	UL/CSA label
16	44709 (8283)	1	UL/CSA label
17	48661 (8283)	1	Quick coupling
18	46980-21 (8283)	1	Compressor hose
19	39204 (8283)	1	Quick coupling
20	47020 (8283)	4	Rivet
21	44620-01 (8283)	1	Air compressor assembly

Head and Foot Panel Assemblies—P4039HD/P4041FB

Figure 5-15. Head and Foot Panel Assemblies—P4039HD/P4041FB

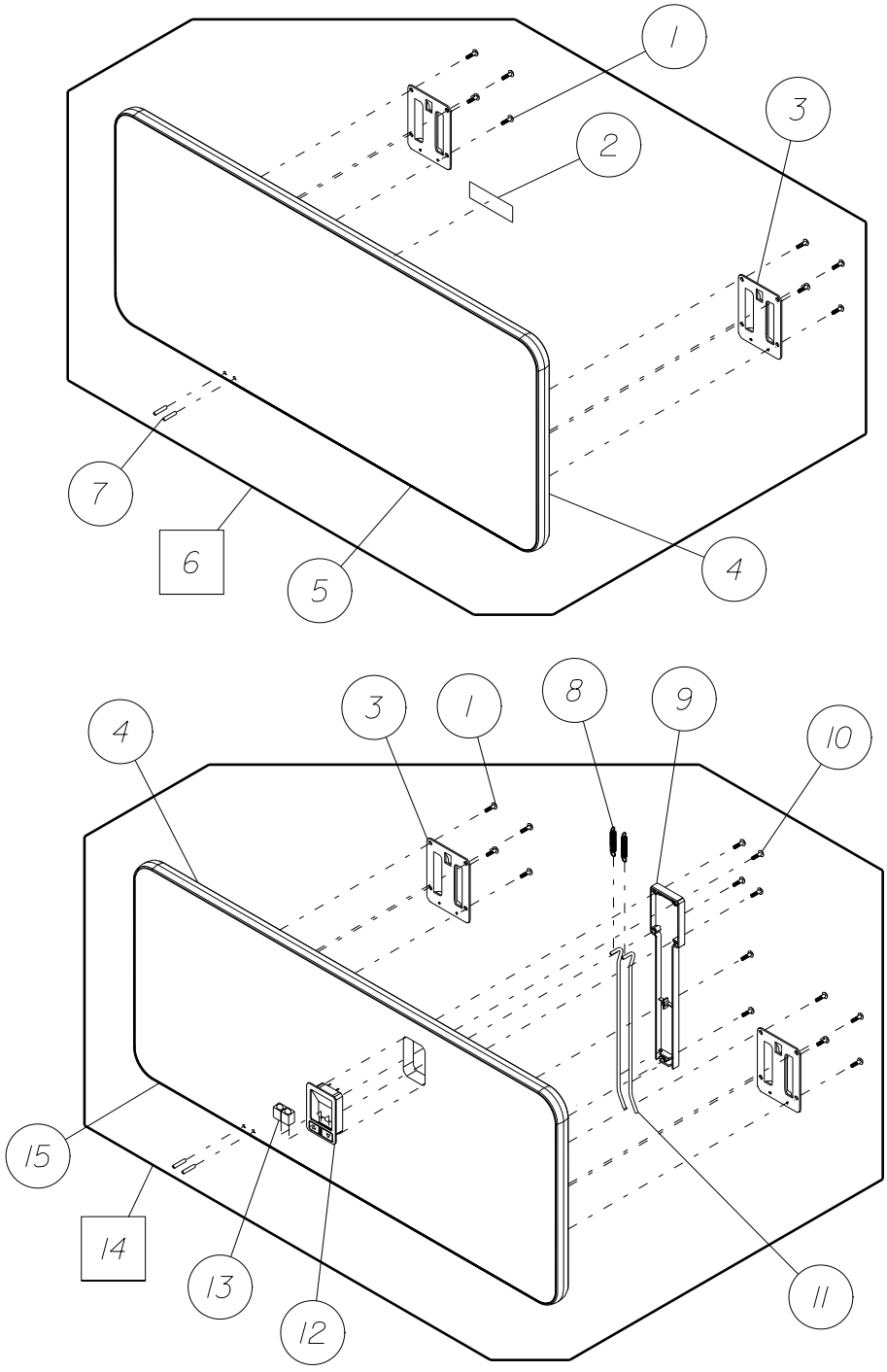

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Table 5-24. Head and Foot Panel Assemblies—P4039HD/P4041FB

Item Number	Part Number	Quantity	Description
1	31773 (8283)	8	Screw
2	34813 (8283)	1	Label
3	39153 (8283)§	2	Panel bracket—4 hole
4	43149 (8283)	2	Trim
5	91V341 (8283)*	1	Head panel
6	4039HD (8283)††	1 or 2	Head panel assembly (also used as foot panel when hilow controls are located only in nurse control panel)
7	31907 (8283)	2	Headless pin
8	25320 (8283)	2	Spring
9	25991 (8283)	1	Hilow rod cover
10	25992 (8283)	6	Screw
11	25885 (8283)	2	Rod
12	25990 (8283)	1	Hilow button housing
13	25909 (8283)	2	Button
14	4041FB (8283)††	1	Foot panel assembly
15	112418 (8283)*	1	Foot panel

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

†† Specify wood and laminate finish.

* Specify high pressure laminate color.

Footrail Module—P/N 45873-01

Figure 5-16. Footrail Module—P/N 45873-01

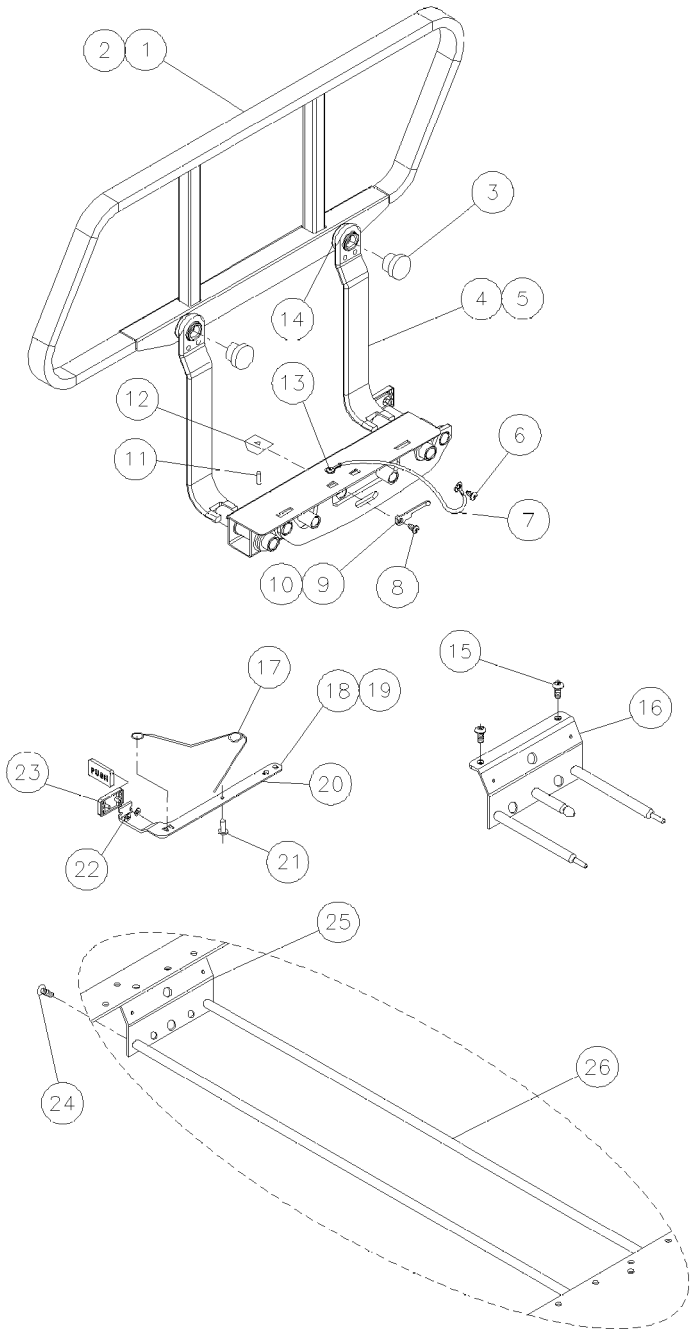

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Table 5-25. Footrail Module—P/N 45873-01

Item Number	Part Number	Quantity	Description
1	41391 (8283)§	1	Foot siderail assembly—rh
2	41392 (8283)§	1	Foot siderail assembly—lh
3	29457 (8283)§	4	Hole plug
4	41389 (8283)§	1	Foot siderail frame assembly—lh
5	41390 (8283)§	1	Foot siderail frame assembly—rh
6	4759 (8283)	2	Screw
7	4565806 (8283)	2	Ground strap assembly
8	35072 (8283)	2	Shoulder screw
9	39713 (8283)	1	Key latch (lh)
10	39714 (8283)	1	Key latch (rh)
11	44328 (8283)	2	Spiral pin
12	26078 (8283)	2	Latch block
13	90037-02 (8283)	2	Screw
14	SA3351 (8283)	As required	Lithium grease
15	43880 (8283)	4	Torx pan head screw
16	23485 (8283)	2	Slide bracket assembly (8350)
17	35261 (8283)	2	Spring
18	39414 (8283)	1	Release arm assembly—rh
19	39415 (8283)	1	Release arm assembly—lh
20	39412 (8283)	2	Release arm
21	37387 (8283)	2	Shoulder screw
22	17291 (8283)	4	Pushnut
23	19562 (8283)	2	Latch cover
24	90016-02 (8283)	4	Cap screw (8200)
25	26140 (8283)	2	Slide bracket assembly (8200)
26	33321 (8283)	2	Foot slide rod (8200)

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Headrail Module

Figure 5-17. Headrail Module

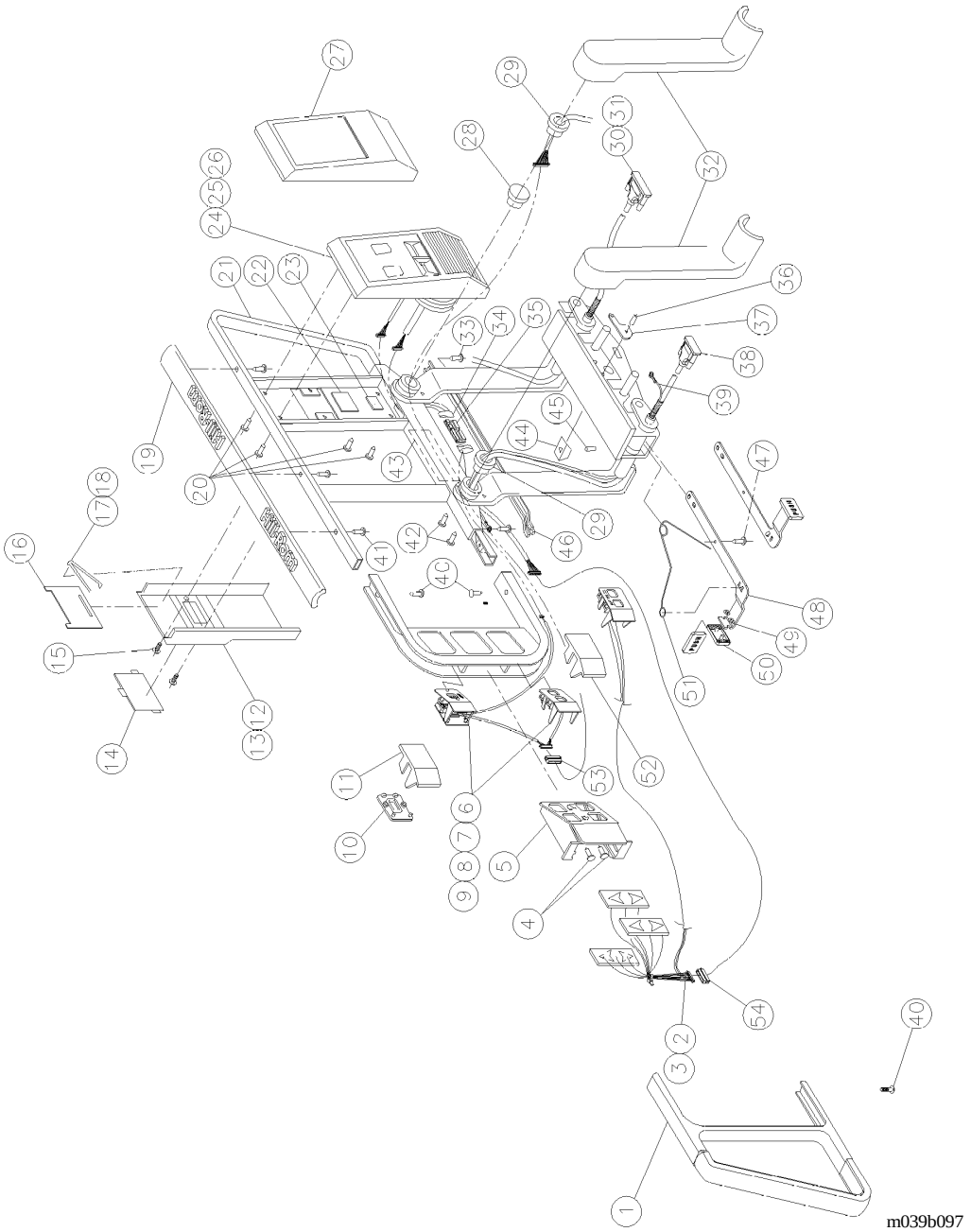

Table 5-26. Headrail Module

Item Number	Part Number	Quantity	Description
1	40747 (8283)§	1	Siderail extension assembly
2	44639-01 (8283)	1	Bed function switch assembly—lh
3	44639-02 (8283)	1	Bed function switch assembly—rh
4	18516 (8283)	2	Screw, round head
5	31664 (8283)§ 31663 (8283)§	1 1	Head and knee insert—lh Head and knee insert—rh
6	44637-03 (8283)§	1	Nurse call assembly—lh
7	44637-04 (8283)§	1	Nurse call assembly—rh
8	44637-01 (8283)§	1	Nurse call/lighting assembly—lh
9	44637-02-48 (8283)	1	Nurse call/lighting assembly—rh
10	31273 (8283)	1	Nurse call insert blank
11	31274 (8283)	1	Nurse call insert blank
12	44606-01 (8283)§	1	Right-hand communication housing back
13	44465-01 (8283)§	1	Left-hand communication housing back
14	34408 (8283)§§	1	Cover plate
15	34457 (8283)	2	Screw

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

§§ Specify dash number if product color is:

-48 Light neutral (off-white)

-55 Black (for taupe or brown products)

Item Number	Part Number	Quantity	Description
16	38513 (8283)§§	1	Sliding door
17	34409 (8283)	1	Spring
18	25329 (8283)	As required	Adhesive
19	32612 (8283)§	1	Top cane
20	34684 (8283)	4	Screw
21	41372 (8283)§ 41371 (8283)§	1 1	Siderail frame assembly—rh Siderail frame assembly—lh
22	40721 (8283)	1	Sound dampening spacer
23	28579 (8283)	0.0833 LFT	Tape
24	44632-04 (8283)§	1	Communication housing assembly—rh
25	44632-05 (8283)§	1	Communication housing assembly—lh
26	44632-07 (8283)§	1	Communication housing assembly—lh
27	34454 (8283)§	1	Communication housing blank
28	29457 (8283)§	1	Hole plug
29	28717 (8283)	1	Bushing
30	4455503 (8283)	1	Siderail communication cable assembly (lh)
31	4455504 (8283)	1	Siderail communication cable assembly (rh)

5

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

§§ Specify dash number if product color is:

-48 Light neutral (off-white)

-55 Black (for taupe or brown products)

Item Number	Part Number	Quantity	Description
32	19833 (8283)§	1	Wire cover
33	90166-01 (8283)	2	Screw
34	90002-06 (8283)	1	Tubing blank
35	44578 (8283)	1	Interface board
36	35072 (8283)	1	Shoulder screw
37	39713 (8283) 39714 (8283)	1 1	Key latch (lh) Key latch (rh)
38	4455403 (8283) 4455404 (8283)	1 1	Bed function cable assembly (lh) Bed function cable assembly (rh)
39	28867 (8283)	1	Ground strap assembly
40	18921 (8283)	3	Screw
41	90188-08 (8283)	3	Hilow thread forming screw
42	90166-01 (8283)	2	Screw
43	41696-01 (8283)	1	Warning/caution label
44	26078 (8283)	1	Latch block
45	44328 (8283)	1	Spiral pin
46	28816 (8283)	1	Bottom cover
47	37387 (8283)	1	Shoulder screw
48	39412 (8283)	1	Release arm
49	17291 (8283)	2	Pushnut
50	19562 (8283)	1	Latch cover
51	35261 (8283)	1	Spring
52	28328 (8283)§	1	Lighting insert blank
53	44678-11 (8283)	1	Transition connector
54	44678-12 (8283)	1	Transition connector

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Headrail Assembly Module

Figure 5-18. Headrail Assembly Module

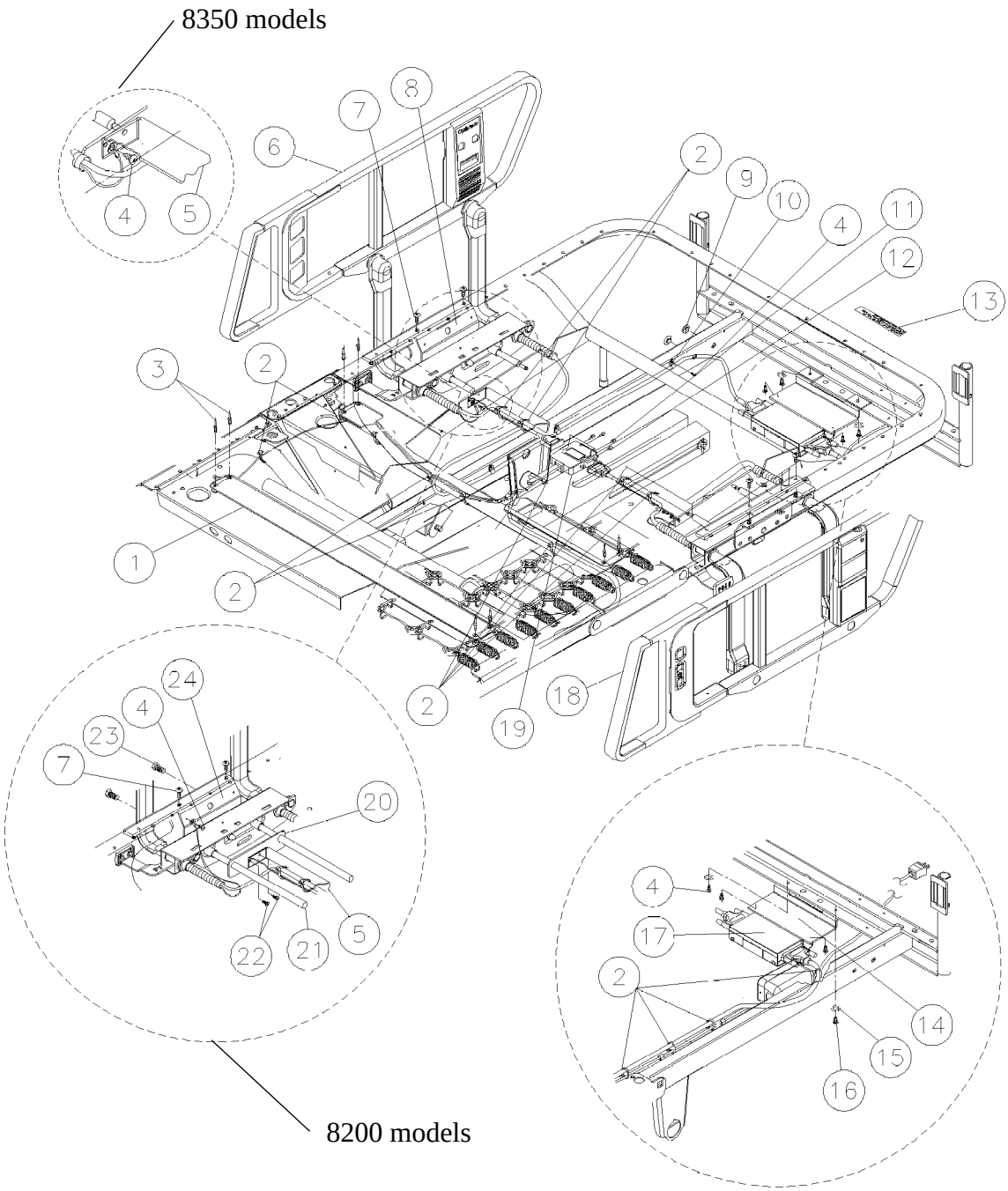

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Table 5-27. Headrail Assembly Module—Option 51 (Bed Functions, and Nurse Call)

Item Number	Part Number	Quantity	Description
1			
2	19124 (8283)	12	Large cable tie
3			
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
13	34778 (8283)	1	Caution label
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
24	26140 (8283)	2	Slide bracket assembly

Table 5-28. Headrail Assembly Module—Option 52 (Bed Functions, Nurse Call, and Entertainment)

Item Number	Part Number	Quantity	Description
1			
2	19124 (8283)	12	Large cable tie
3			
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
13	34778 (8283)	1	Caution label
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

Table 5-29. Headrail Assembly Module—Option 53 (Bed Functions, Nurse Call, Entertainment, and Lighting)

Item Number	Part Number	Quantity	Description
1			
2	19124 (8283)	12	Large cable tie
3			
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

Table 5-30. Headrail Assembly Module—Option 54 (Bed Functions, Nurse Call, Entertainment, and Bed Exit System)

Item Number	Part Number	Quantity	Description
1	SA1481 (8283)	1	Tape switch kit
2	19124 (8283)	15	Large cable tie
3	36790 (8283)	8	Drive rivet
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
12	42006 (8283)	2	Screw lock
13	34778 (8283)	1	Caution label
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

Table 5-31. Headrail Assembly Module—Option 55 (Bed Functions, Nurse Call, Entertainment, Lighting, and Bed Exit System)

Item Number	Part Number	Quantity	Description
1	SA1481 (8283)	1	Tape switch kit
2	19124 (8283)	15	Large cable tie
3	36790 (8283)	8	Drive rivet
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
13	34778 (8283)	1	Caution label
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

Table 5-32. Headrail Assembly Module—Option 56 (Bed Functions, Nurse Call, and Bed Exit System)

Item Number	Part Number	Quantity	Description
1	SA1481 (8283)	1	Tape switch kit
2	19124 (8283)	15	Large cable tie
3	36790 (8283)	8	Drive rivet

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
4	4759 (8283)	7	Screw
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10	20312 (8283)	3	Cable clamp
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
13	34778 (8283)	1	Caution label
14	28815 (8283)	1	Junction box bracket
15	15907 (8283)	2	Lockwasher
16	44489 (8283)	2	Six lobe pan head screw
17	45591-48 (8283)	1	Junction box assembly
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Table 5-33. Headrail Assembly Module—Option 59 (Upgradeable)

Item Number	Part Number	Quantity	Description
1			
2	19124 (8283)	6	Large cable tie
3			
4			
5	45669-48 (8283)	1	Testport bracket
6	6059706 (8283)§	1	Siderail assembly, rh, head
7	43880 (8283)	4	Torx pan head screw
8	23485 (8283)	2	Slide bracket assembly
9	33358 (8283)	8	Plug button
10			
11	28967 (8283)	2	Screw
12	42006 (8283)	2	Screw lock
13			
14			
15	15907 (8283)	2	Lockwasher
16			
17			
18	6059723 (8283)§	1	Siderail assembly, lh, head
19	46204-02 (8283)	1	Testport cable assembly
20	45954 (8283)§	2	Testport conversion bracket
21	24690 (8283)	2	Head slide rod
22	43878 (8283)	4	Torx button head screw
23	9001216 (8283)	4	Truss head rivet
24	26140 (8283)	2	Slide bracket assembly

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

NOTES:

Headrail (Mounting Parts)

Figure 5-19. Headrail (Mounting Parts)

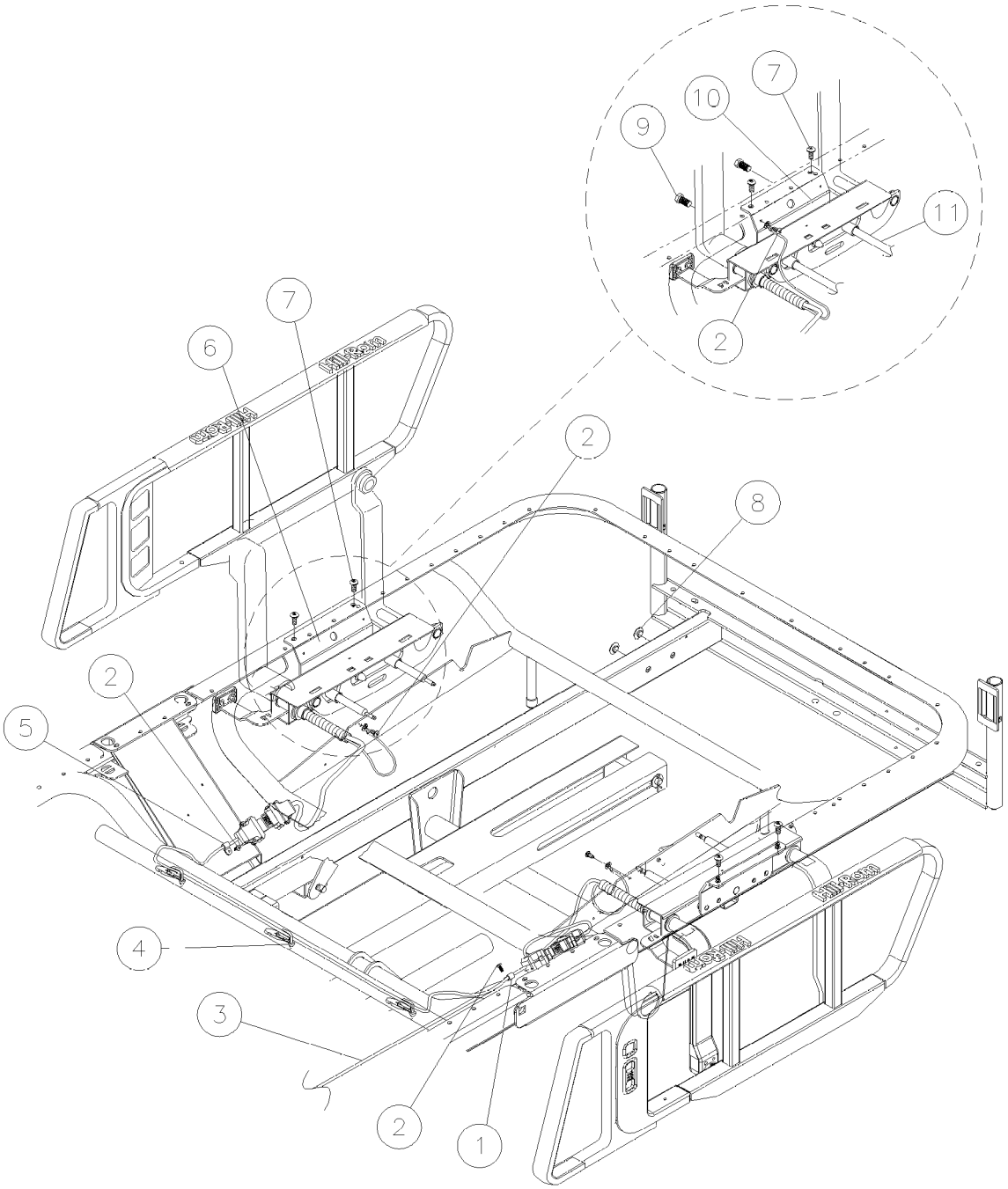

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Table 5-34. Headrail (Mounting Parts)

Item Number	Part Number	Quantity	Description
1	20312 (8283)	1	Cable clamp
2	4759 (8283)	3	Screw
3	33004 (8283)	1	Control cable assembly
4	19124 (8283)	3	Large cable tie
5	17292 (8283)	1	Cable clamp
6	23485 (8283)	2	Slide bracket assembly (8350)
7	43880 (8283)	4	Torx pan head screw
8	33358 (8283)	8	Plug button
9	90016-02 (8283)	4	Bolt (8200)
10	26140 (8283)	2	Slide bracket assembly (8200)
11	24690 (8283)	2	Head slide rod (8200)

Headrail Modules—M4508348 (3/4 Length)/M4508349 (Full Length)

Figure 5-20. Headrail Modules—M4508348 (3/4 Length)/M4508349 (Full Length)

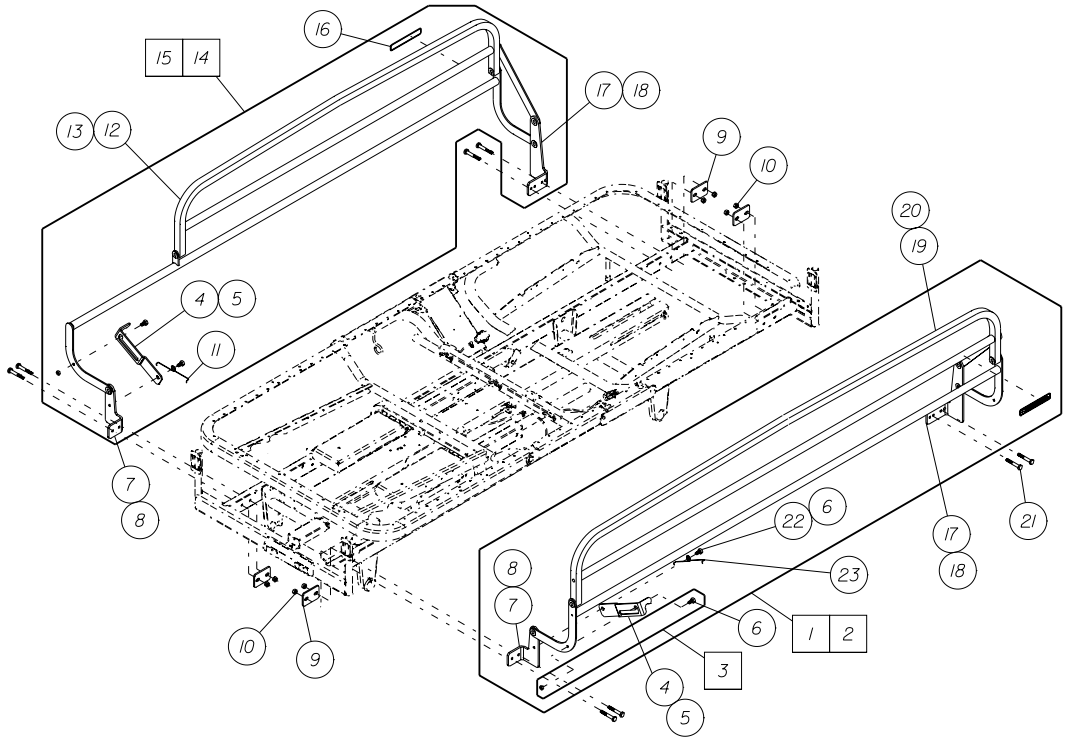

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Table 5-35. Headrail Modules—M4508348 (3/4 Length)/M4508349 (Full Length)

Item Number	Part Number	Quantity	Description
1	32547 (8283)§	1	Siderail assembly head—lh
2	32548 (8283)§	1	Siderail assembly head—rh
3	SA1221 (8283)	2	Shoulder bolt, nuts
4	26631 (8283)	1	Latch lh
5	26624 (8283)	1	Latch rh
6	SA4841 (8283)	As required	Red Loctite
7	28412 (8283)§	1	Support bracket foot lh
8	28411 (8283)§	1	Support bracket foot rh
9	26633 (8283)§	4	Back plate
10	9428 (8283)	8	Nut
11	27298 (8283)	1	Torsion spring rh
12	32542 (8283)§	1	Siderail welded assembly rh
13	32540 (8283)§	1	Siderail welded assembly lh
14	32544 (8283)§	1	Siderail assembly head rh
15	32543 (8283)§	1	Siderail assembly head lh
16	41696-02 (8283)	2	Warning/caution label
17	28408 (8283)§	1	Support bracket, head lh
18	28410 (8283)§	1	Support bracket, head rh
19	32546 (8283)§	1	Siderail welded assembly lh
20	32545 (8283)§	1	Siderail welded assembly rh
21	90017-32 (8283)	8	Hex screw
22	27296 (8283)	2	Shoulder bolt
23	27297 (8283)	1	Torsion spring lh

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Head Motor and Drive Unit Assembly (P8200 Models Only)

Figure 5-21. Head Motor and Drive Unit Assembly (P8200 Models Only)

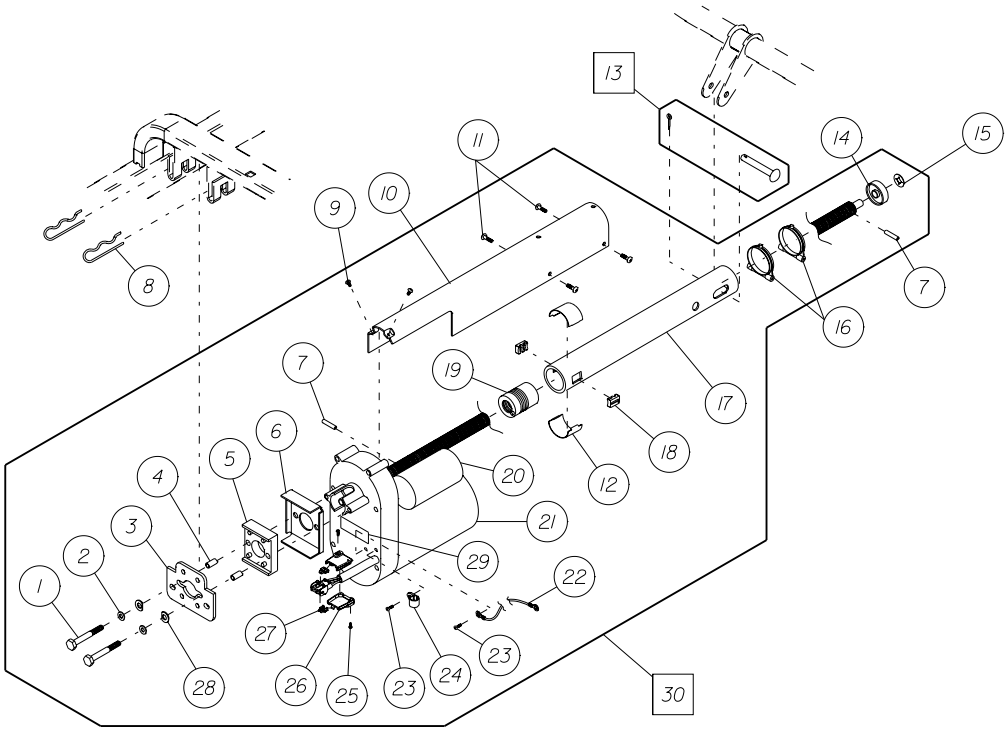

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Table 5-36. Head Motor and Drive Unit Assembly (P8200 Models Only)

Item Number	Part Number	Quantity	Description
1	29456 (8283)	2	Screw
2	17175 (8283)	2	Washer
3	29392 (8283)	1	Motor mount
4	29454 (8283)	2	Spacer
5	29395 (8283)	2	Resilient mount
6	29386 (8283)	1	Rubber retainer
7	10640 (8283)	2	Roll pin
8	24556 (8283)	2	Hair pin
9	17232 (8283)	2	Screw
10	29149 (8283)§	1	Head drive cover
11	4759 (8283)	4	Screw
12	27717 (8283)	2	Clip
13	SA0983 (8283)	1	Clevis pin, cotter pin
14	27859 (8283)	1	Roller
15	23143 (8283)	1	Pushnut
16	27718 (8283)	2	Tube guide
17	27719 (8283)	1	Tube
18	37947 (8283)	2	Iron dog
19	27860 (8283)	1	Drive nut assembly
20	See “Capacitor Parts List” on page 5-102.	1	Capacitor-See “Capacitor Parts List” on page 5-102.
21	SA1249 (8283)	1	Knee motor, adapter
22	39240-01 (8283)	2	Ground strap
23	17017 (8283)	1	Screw
24	20312 (8283)	2	Cable clamp

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
25	16116 (8283)	2	Screw
26	36234 (8283)	1	Strain relief
27	36233 (8283)	2	Strain relief adapter
28	1012 (8283)	1	Washer
29	25318 (8283)	1	Service label
30	29474-01 (8283)	1	Head motor assembly

NOTES:

Head Motor and Drive Unit Assembly (P8350 Models Only)

Figure 5-22. Head Motor and Drive Unit Assembly (P8350 Models Only)

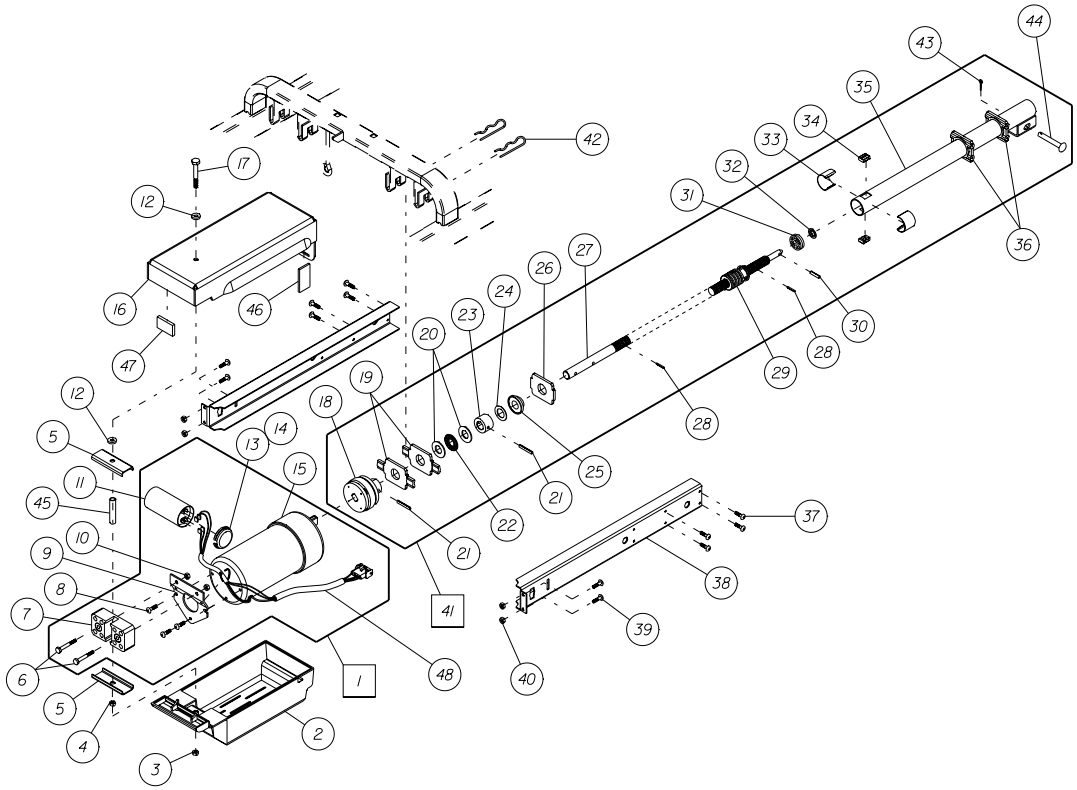

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Table 5-37. Head Motor and Drive Unit Assembly (P8350 Models Only)

Item Number	Part Number	Quantity	Description
1	32920 (8283)	1	Head and knee motor
2	40453 (8283)	1	Head and knee motor cover
3	32909 (8283)	1	Locknut
4	831 (8283)	1	Locknut
5	29389 (8283)	2	Motor mount channel
6	90018-28 (8283)	2	Hex head cap screw
7	36249 (8283)	1	Rear motor mount assembly
8	16042 (8283)	3	Sims screw
9	32604 (8283)	1	Motor mounting plate
10	4435 (8283)	2	Locknut
11	See “Capacitor Parts List” on page 5-102.	2	Capacitor-See “Capacitor Parts List” on page 5-102.
12	17175 (8283)	1	Washer
13	40523 (8283)	1	Cap
14	15942 (8283)	1	Electrical tape
15	35000S (8283)	1	Universal motor assembly
16	32605 (8283)§	1	Motor bracket
17	90016-45 (8283)	1	Head cap screw
18	36250 (8283)	2	Coupling assembly
19	32589 (8283)	2	Mounting plate
20	11579 (8283)	2	Thrust washer
21	3517 (8283)	1	Spring pin
22	11578 (8283)	1	Thrust bearing
23	32596 (8283)	1	Spacer
24	31556 (8283)	1	Wave washer

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
25	34613 (8283)	1	Bearing
26	32590 (8283)	1	Bearing brace
27	42246 (8283)	2	Head screw
28	10640 (8283)	1	Roll pin
29	37938 (8283)	1	Drive nut—plastic
30	128 (8283)	1	Roll pin
31	32638 (8283)	1	Roller
32	32960 (8283)	1	Pushnut
33	27717 (8283)	2	Clip
34	37947 (8283)	2	Iron dog
35	38564 (8283)	1	Head tube assembly
36	32591 (8283)	2	Tube guide
37	34680 (8283)	8	Screw
38	32594 (8283)§	2	Head screw cover
39	3947 (8283)	4	Screw
40	3800 (8283)	4	Locknut
41	32704 (8283)	1	Head screw assembly
42	24556 (8283)	2	Hair pin
43	11093 (8283)	1	Cotter pin
44	4453 (8283)	1	Pin
45	29411 (8283)	1	Spacer
46	28579 (8283)	1	Tape
47	38260 (8283)	1	Foam tape
48	40409 (8283)	1	Cable assembly universal motor capacitor

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

NOTES:

Knee Motor and Drive Unit Assembly (P8200 Models Only)

Figure 5-23. Knee Motor and Drive Unit Assembly (P8200 Models Only)

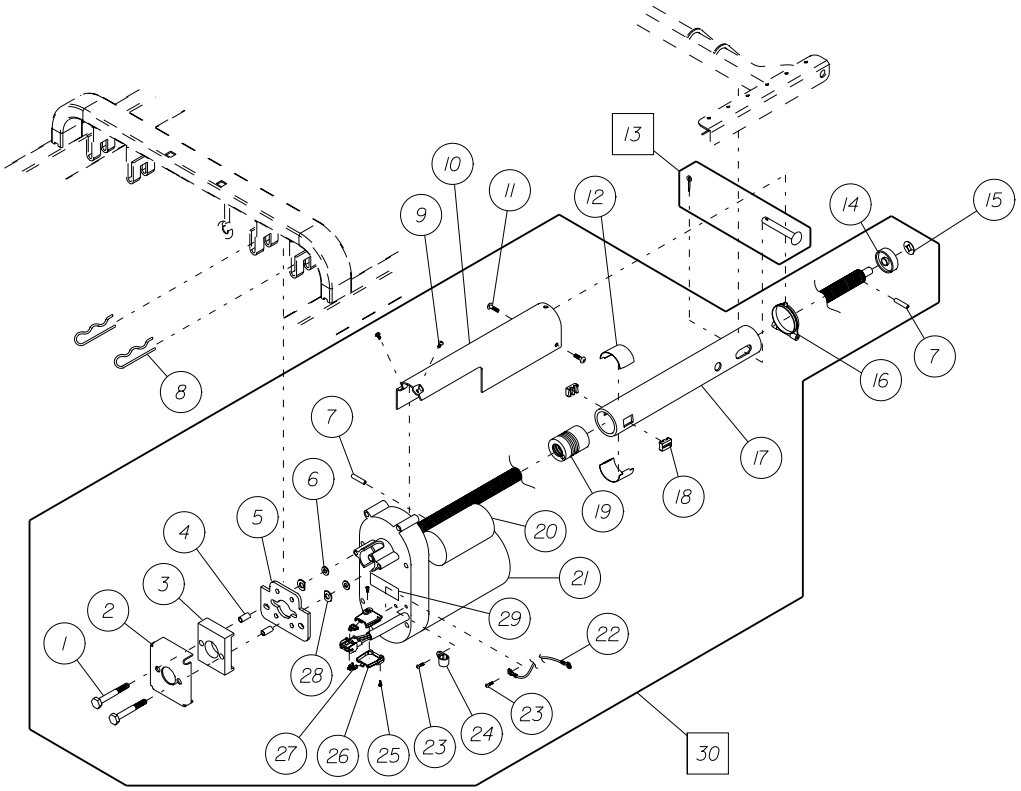

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Table 5-38. Knee Motor and Drive Unit Assembly (P8200 Models Only)

Item Number	Part Number	Quantity	Description
1	29456 (8283)	2	Screw
2	29386 (8283)	1	Rubber retainer
3	29395 (8283)	1	Resilient mount
4	29454 (8283)	2	Spacer
5	29392 (8283)	1	Motor mount
6	17175 (8283)	2	Washer
7	10640 (8283)	2	Roll pin
8	24556 (8283)	2	Hair pin
9	17232 (8283)	2	Screw
10	29150 (8283)§	1	Knee drive cover
11	4759 (8283)	2	Screw
12	27717 (8283)	2	Clip
13	SA0983 (8283)	1	Clevis pin, cotter pin
14	27859 (8283)	1	Roller
15	23143 (8283)	1	Pushnut
16	27718 (8283)	1	Tube guide
17	27730 (8283)	1	Knee tube
18	37947 (8283)	2	Iron dog
19	27860 (8283)	1	Drive nut assembly
20	See “Capacitor Parts List” on page 5-102.	1	Capacitor-see “Capacitor Parts List” on page 5-102.
21	SA1249 (8283)	1	Knee motor, adapter
22	39240-01 (8283)	1	Ground strap
23	17017 (8283)	2	Screw
24	20312 (8283)	2	Cable clamp

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
25	16116 (8283)	2	Screw
26	36234 (8283)	2	Strain relief
27	36233 (8283)	2	Strain relief adapter
28	1012 (8283)	2	Washer
29	25318 (8283)	1	Service label
30	29459-01 (8283)	1	Knee motor assembly

NOTES:

Knee Motor and Drive Unit Assembly (P8350 Models Only)

Figure 5-24. Knee Motor and Drive Unit Assembly (P8350 Models Only)

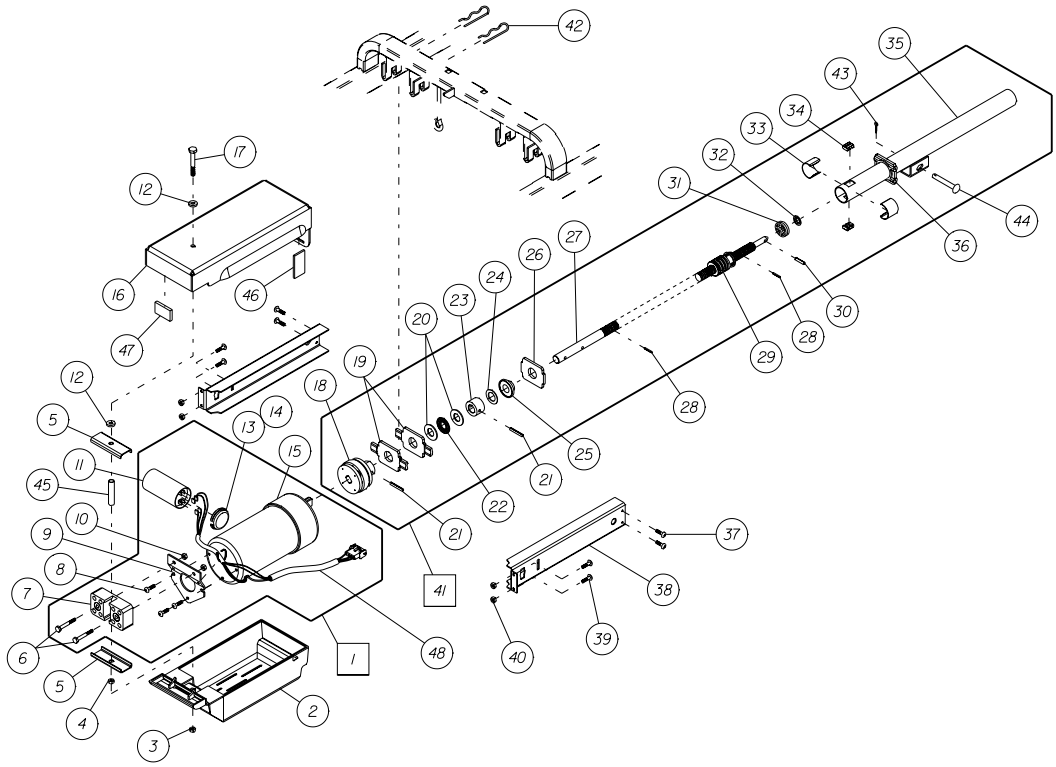

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Table 5-39. Knee Motor and Drive Unit Assembly (P8350 Models Only)

Item Number	Part Number	Quantity	Description
1	32920 (8283)	1	Head and knee motor
2	40453 (8283)	1	Head and knee motor cover
3	32909 (8283)	1	Locknut
4	831 (8283)	1	Locknut
5	29389 (8283)	2	Motor mount channel
6	90018-28 (8283)	2	Hex head cap screw
7	36249 (8283)	1	Rear motor mount assembly
8	16042 (8283)	3	Sims screw
9	32604 (8283)	1	Motor mounting plate
10	4435 (8283)	2	Locknut
11	See “Capacitor Parts List” on page 5-102.	2	Capacitor-see “Capacitor Parts List” on page 5-102.
12	17175 (8283)	1	Washer
13	40523 (8283)	As required	Cap
14	15942 (8283)	1	Electrical tape
15	35000S (8283)	1	Universal motor assembly
16	32605 (8283)§	1	Motor bracket
17	90016-45 (8283)	1	Head cap screw
18	36250 (8283)	2	Coupling assembly
19	32589 (8283)	2	Mounting plate
20	11579 (8283)	2	Thrust washer
21	3517 (8283)	1	Spring pin
22	11578 (8283)	1	Thrust bearing
23	32596 (8283)	1	Spacer
24	31556 (8283)	1	Wave washer

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
25	34613 (8283)	1	Bearing
26	32590 (8283)	1	Bearing brace
27	32601 (8283)	2	Head and knee screw
28	10640 (8283)	1	Roll pin
29	37938 (8283)	1	Drive nut—plastic
30	128 (8283)	1	Roll pin
31	32638 (8283)	1	Roller
32	32960 (8283)	1	Pushnut
33	27717 (8283)	2	Clip
34	37947 (8283)	2	Iron dog
35	38565 (8283)	1	Knee tube assembly
36	32591 (8283)	1	Tube guide
37	34680 (8283)	4	Screw
38	32592 (8283)§	2	Knee screw cover
39	3947 (8283)	4	Screw
40	3800 (8283)	4	Locknut
41	32705 (8283)	1	Knee screw assembly
42	24556 (8283)	2	Hair pin
43	11093 (8283)	1	Cotter pin
44	4453 (8283)	1	Pin
45	29411 (8283)	1	Spacer
46	28579 (8283)	1	Tape
47	38260 (8283)	1	Foam tape
48	40409 (8283)	1	Cable assembly universal motor capacitor

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

NOTES:

Hilow Motor and Drive Unit Assembly (P8200 and P8350 Old Style)

Figure 5-25. Hilow Motor and Drive Unit Assembly (P8200 and P8350 Old Style)

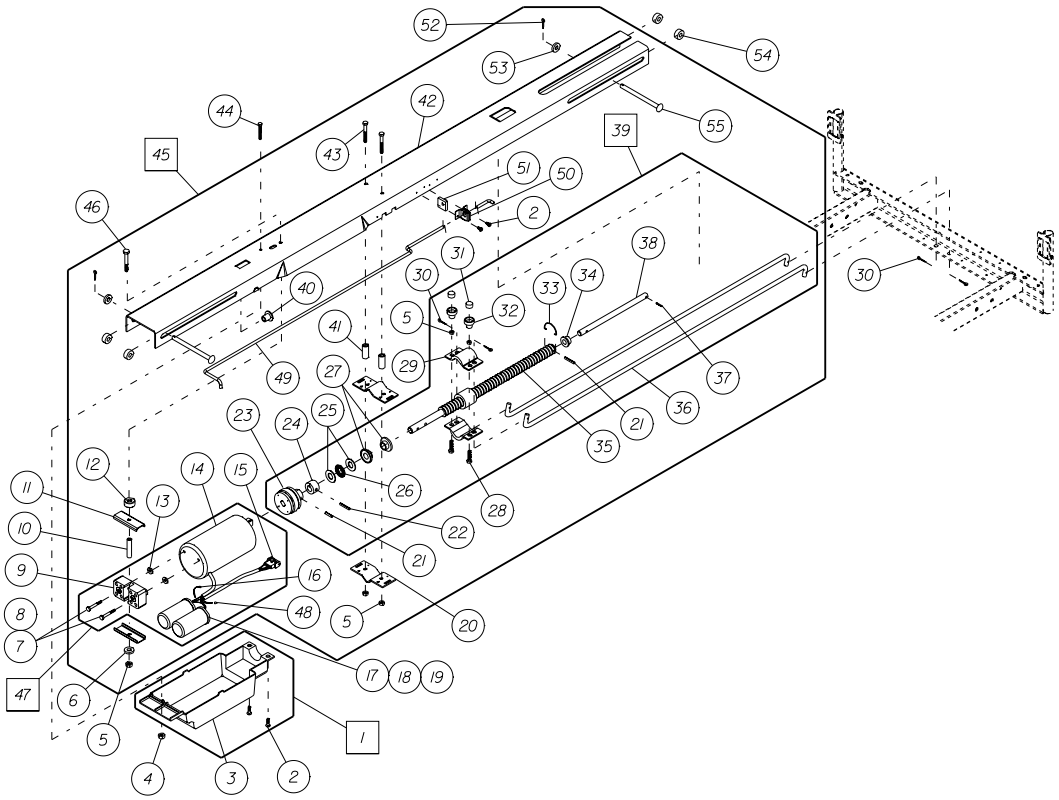

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Table 5-40. Hilow Motor and Drive Unit Assembly (P8200 and P8350 Old Style)

Item Number	Part Number	Quantity	Description
1	SA0993 (8283)	1	Hilow motor cover, screws
2	4759 (8283)	4	Screw
3	29404 (8283)§	1	Hilow motor cover
4	755 (8283)	1	Locknut
5	831 (8283)	5	Locknut
6	19918 (8283)	1	Washer
7	90018-32 (8283)	2	Cap screw
8	25329 (8283)	As required	Adhesive
9	36249 (8283)	1	Rear motor mount assembly
10	29411 (8283)	1	Spacer
11	29389 (8283)	2	Motor mount channel
12	29414 (8283)	1	Spacer
13	1012 (8283)	2	Washer
14	32999 (8283)	1	Hilow motor
15	32997 (8283)	1	Cable assembly
16	19124 (8283)	1	Large cable tie
17	SA1499 (8283)	2	25 MFD capacitors and jumpers
18	33872 (8283)	2	End cap
19	15942 (8283)	As required	Electrical tape
20	24501 (8283)	2	Screw support clamp
21	3517 (8283)	2	Spring pin
22	12434 (8283)	1	Roll pin
23	36250 (8283)	1	Coupling assembly
24	12223 (8283)	1	Collar
25	11579 (8283)	2	Thrust washer

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
26	11578 (8283)	1	Thrust bearing
27	34613 (8283)	2	Bearing
28	90017-20 (8283)	2	Screw
29	24499 (8283)	2	Drive nut clamp
30	17405 (8283)	4	Cotter pin
31	25278 (8283)	2	Felt
32	25277 (8283)	2	Slide
33	1662 (8283)	As required	Safety wire
34	24506 (8283)	1	Bushing
35	33879 (8283)	1	Hilow screw and nut assembly
36	24500 (8283)	2	Hilow tie rod
37	128 (8283)	1	Roll pin
38	32963 (8283)	1	Extension shaft
39	32972 (8283)	1	Hilow screw assembly
40	19730 (8283)	1	Grommet
41	24502 (8283)	2	Spacer
42	32703 (8283)§	1	Hilow drive channel
43	90016-36 (8283)	2	Screw
44	25288 (8283)	1	Carriage bolt
45	39951 (8283)	1	Hilow drive assembly
46	29422 (8283)	1	Cap screw
47	32999 (8283)	1	Hilow motor
48	32741 (8283)	1	Wire joint
49	33030 (8283)	1	Hilow limit rod
50	25211 (8283)	1	Bracket

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
51	25212 (8283)	1	Pad
52	11093 (8283)	2	Cotter pin
53	10902 (8283)	2	Washer
54	24497 (8283)	4	Spacer
55	24496 (8283)	2	Clevis pin

Hilow Motor and Drive Unit Assembly—New Style With Ball Screw (P8350 Models Only)

Figure 5-26. Hilow Motor and Drive Unit Assembly—New Style With Ball Screw (P8350 Models Only)

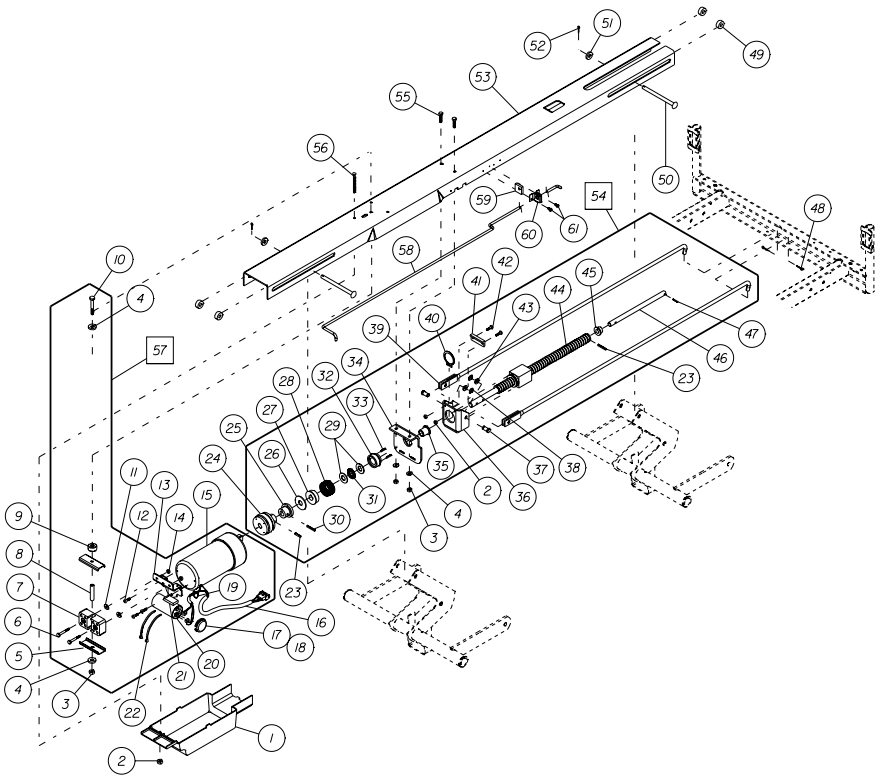

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Table 5-41. Hilow Motor and Drive Unit Assembly—New Style With Ball Screw (P8350 Models Only)

Item Number	Part Number	Quantity	Description
1	39671 (8283)§	1	Hilow motor cover
2	755 (8283)	3	Locknut
3	831 (8283)	3	Locknut
4	35667 (8283)	4	Washer
5	29389 (8283)	2	Motor mount channel
6	90018-32 (8283)	2	Cap screw
7	36249 (8283)	1	Rear motor mount assembly
8	29411 (8283)	1	Spacer
9	29414 (8283)	1	Spacer
10	29422 (8283)	1	Cap screw
11	25283 (8283)	2	Washer
12	16042 (8283)	3	Sims screw
13	38265 (8283)	1	Bracket
14	4435 (8283)	2	Locknut
15	35000S (8283)	1	Universal motor assembly
16	40409 (8283)	1	Cable assembly universal motor capacitor
17	40523 (8283)	1	Cap
18	15942 (8283)	As required	Electrical tape
19	14450 (8283)	1	Small cable tie
20	See “Capacitor Parts List” on page 5-102.	1	Capacitor-see “Capacitor Parts List” on page 5-102.
21	38260 (8283)	2	Foam tape
22	19124 (8283)	2	Large cable tie
23	3517 (8283)	1	Spring pin

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Item Number	Part Number	Quantity	Description
24	36250 (8283)	1	Coupling assembly
25	39837 (8283)	1	Fixed brake
26	19917 (8283)	1	Brake washer
27	39877 (8283)	1	Floating brake drum assembly
28	28082 (8283)	2	Brake spring
29	11578 (8283)	1	Thrust bearing
30	24633 (8283)	1	Pin
31	40741 (8283)	1	Thrust race
32	39813 (8283)	1	Brake block
33	124 (8283)	2	Roll pin
34	39812 (8283)	1	Brake bracket
35	39652 (8283)	1	Bushing
36	39811 (8283)	1	Nut bracket
37	39950 (8283)	2	Clevis pin
38	35326 (8283	2	E-ring
39	39938 (8283)	2	Tie rod assembly
40	39315 (8283)	1	Retaining ring
41	39654 (8283)	1	Slider
42	100 (8283)	2	Machine screw
43	4540 (8283)	2	Washer
44	39594 (8283)	1	Hilow ball screw
45	39653 (8283)	1	Bushing
46	32963 (8283)	1	Extension shaft
47	142 (8283)	1	Roll pin
48	17405 (8283)	2	Cotter pin
49	24497 (8283)	4	Spacer
50	24496 (8283)	2	Clevis pin
51	10902 (8283)	2	Washer
52	11093 (8283)	2	Cotter pin

Item Number	Part Number	Quantity	Description
53	39092 (8283)§	1	Hilow drive channel
54	39954 (8283)	1	Hilow ball screw assembly
55	90095-12 (8283)	2	Hex head machine bolt
56	25288 (8283)	1	Carriage bolt
57	40408 (8283)	1	Hilow motor assembly
58	33030 (8283)	1	Hilow limit rod
59	25212 (8283)	1	Pad
60	25211 (8283)	1	Bracket

§ Specify dash number if product color is:

-48 Light neutral (off-white)

-33 Taupe (brown)

Drive Module

Figure 5-27. Drive Module

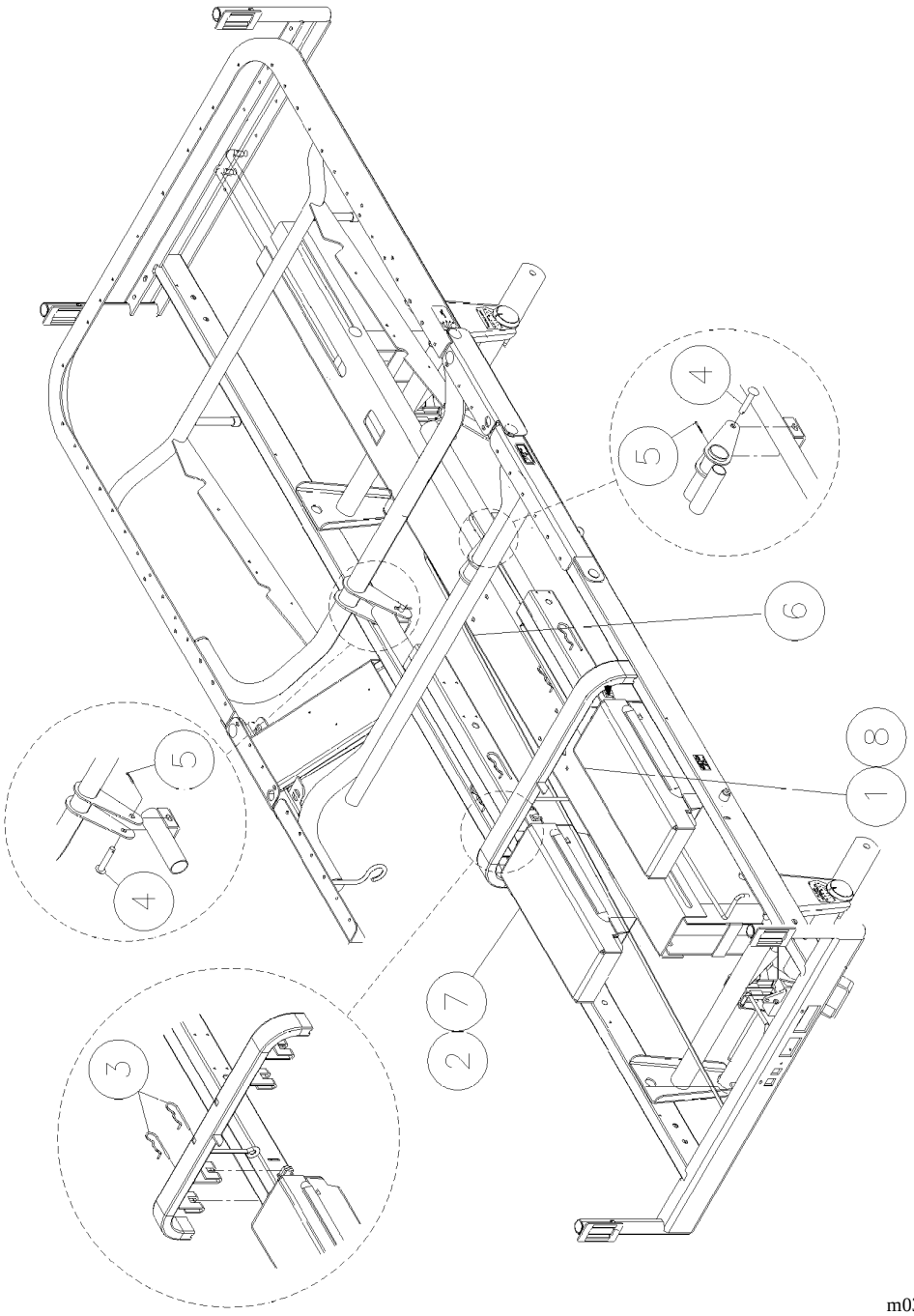

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Table 5-42. Drive Module

Item Number	Part Number	Quantity	Description
1	6053502 (8283)	1	Knee drive assembly 8200
2	6053601 (8283)	1	Head drive assembly 8200
3	24556 (8283)	4	Hair pin
4	4453 (8283)	2	Pin
5	11093 (8283)	2	Cotter pin
6	32999 (8283) or 40408 (8283)	1	Hilow drive assembly (8200 and old style 8350) Hilow drive assembly (new style 8350)
7	32067 (8283)	1	Head drive assembly 8350
8	32608 (8283)	1	Knee drive assembly 8350

Capacitor Parts List

See table 5-43 on page 5-102 for the capacitor parts list for the Patient Care bed.

Table 5-43. Capacitor Parts List

Motor	Manufacturer Model No.	Capacitor
Head and knee (P8350 models only)	EM5R-83-1A K37MYC223331 K37MYC223332	40434 (8283)
	EM5R-80-1 K37MY22C3057 5KCP10H6232X	30146 (8283)
Hilow (P8350 models only)	EM5R-183-1 K37MYC123157 K37MYC223295 K37MYC223296	40435 (8283)
	EM5R-83-1A K37MYC223331 K37MYC223332	40434 (8283)
	K37MY22C3057 5KCP10H6232X	30146 (8283)
Head (P8200 models only)	V01653AK76 V01653AB76 V01653AO76	30147 (8283)
	K37MYC21135507 K37MYC162747	30146 (8283)
Knee (P8200 models only)	V01653AL76 V01653AC76 V01653AP76 V01653AN76	30147 (8283)
	K37MYC211356 K37MYC162746	30146 (8283)
Hilow (P8200 models only)	K37GYC121358 K37GYC121387	40435 (8283)
	6525910700 6525910706	30147 (8283)

NOTES:

P.C. Board Component Parts List—P.C. Board P/N 44047-01

Figure 5-28. P.C. Board Component Parts List—P.C. Board P/N 44047-01

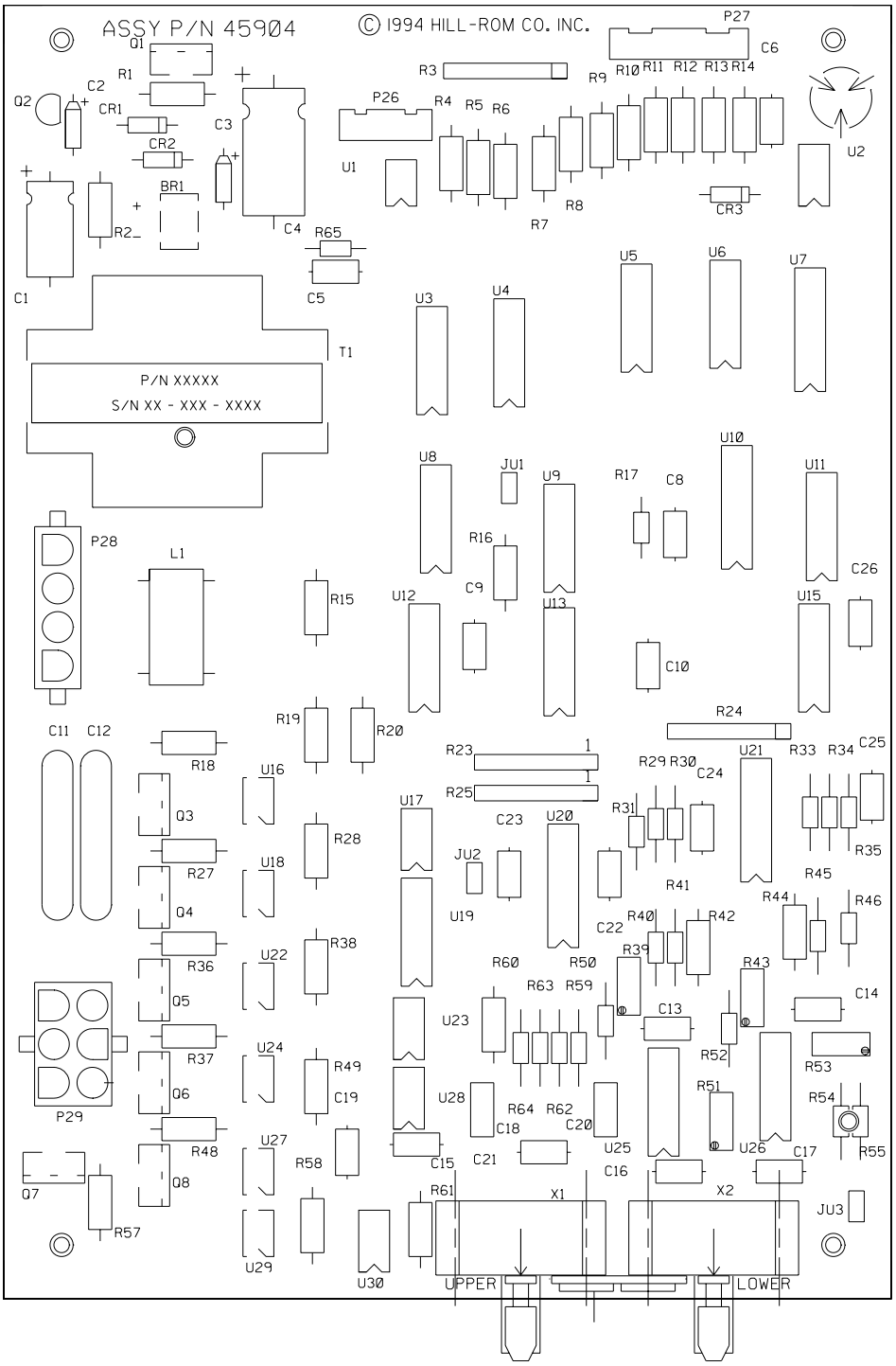

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Table 5-44. P.C. Board Component Parts List—P.C. Board P/N 44047-01

Component Symbol	Part Number	Description
BR1	30205 (8283)	Diode assembly
C1	30108 (8283)	Capacitor
C2, C3	30144-105 (8283)	Capacitor
C4	30107 (8283)	Capacitor—ASIC board
C5, C6, C10, C13 through C17, C22 through C26	30109-104K (8283)	Capacitor
C8	30109-334K (8283)	Capacitor
C9, C19, C21	30109-224K (8283)	Capacitor
C18, C20	30101-474K (8283)	Capacitor
CR1, CR2, CR3	30201-4003B (8283)	Diode silicon
JU1, JU2, JU3	30982-2 (8283)	Jumper
L1	30016 (8283)	Resistor
P26	30956-05 (8283)	Connector
P27	30934 (8283)	Connector
P28	30925 (8283)	Socket header
P29	30921 (8283)	Header—6 pin circuit
Q1	30315 (8283)	Regulator
Q2	30316 (8283)	Regulator
Q3, Q4	90003-02 (8283)	Triac
Q5 through Q8	30323-02 (8283)	Triac
R1, R2	30014 (8283)	Resistor
R3	30012-222 (8283)	Resistor
R4	30007-271 (8283)	Resistor
R5 through R10, R12, R42, R44	30007-104 (8283)	Resistor
R11, R16	30007-275 (8283)	Resistor
R13, R14	30007-221 (8283)	Resistor
R15	30007-106 (8283)	Resistor
R17	30006-475 (8283)	Resistor
R18, R27, R36, R37, R48, R57	30013-181 (8283)	Resistor

Component Symbol	Part Number	Description
R19, R20, R28, R38, R49, R58	30007-181 (8283)	Resistor
R23	30018-273 (8283)	Resistor
R24	30012-103 (8283)	Resistor
R25	30018-105 (8283)	Resistor
R29	30019-1240B (8283)	Resistor
R30	30019-2740B (8283)	Resistor
R31	30019-2210B (8283)	Resistor
R33	30019-3481B (8283)	Resistor
R34	30019-1101B (8283)	Resistor
R35	30019-5491B (8283)	Resistor
R39, R43	30054-101 (8283)	Potentiometer
R40	30019-1581B (8283)	Resistor
R41	30019-2801B (8283)	Resistor
R45, R46	30019-1004B (8283)	Resistor
R50	30019-2000B (8283)	Resistor
R51, R53	30054-104 (8283)	Potentiometer
R52	30019-1000B (8283)	Resistor
R54	30019-1003B (8283)	Resistor
R55	30019-1503B (8283)	Resistor
R59, R62, R63, R64	30019-1004B (8283)	Resistor
R60, R61	30007-225 (8283)	Resistor
T1	30606 (8283)	Power transformer
U1	30419 (8283)	Integrated circuit
U2, U17, U23, U28	30405-40107 (8283)	Integrated circuit
U3, U4, U12	30400-4081B (8283)	Integrated circuit
U5, U8	30400-4071B (8283)	Integrated circuit
U6	30400-4073B (8283)	Integrated circuit
U7	30410-4049B (8283)	Integrated circuit
U9	30400-4093B (8283)	Integrated circuit
U10	30410-4040B (8283)	Integrated circuit
U11	30400-4024B (8283)	Integrated circuit
U13	30400-40106 (8283)	Integrated circuit

Component Symbol	Part Number	Description
U15	30400-4013B (8283)	Integrated circuit
U16	30420-3010 (8283)	Integrated circuit
U18, U22, U24, U27, U29	30421 (8283)	Optocoupler
U19	30400-4012B (8283)	Integrated circuit
U20, U21	30403-LP365 (8283)	Integrated circuit
U25, U26	30402-101HP (8283)	Integrated circuit
U30	30406-1458 (8283)	Integrated circuit
X1, X2	30710 (8283)	Transducer

P.C. Board Component Parts List—Integrated Air Support System Board P/N 45904 (Beds Before 11/30/95)

Figure 5-29. P.C. Board Component Parts List—Integrated Air Support System Board P/N 45904 (Beds Before 11/30/95)

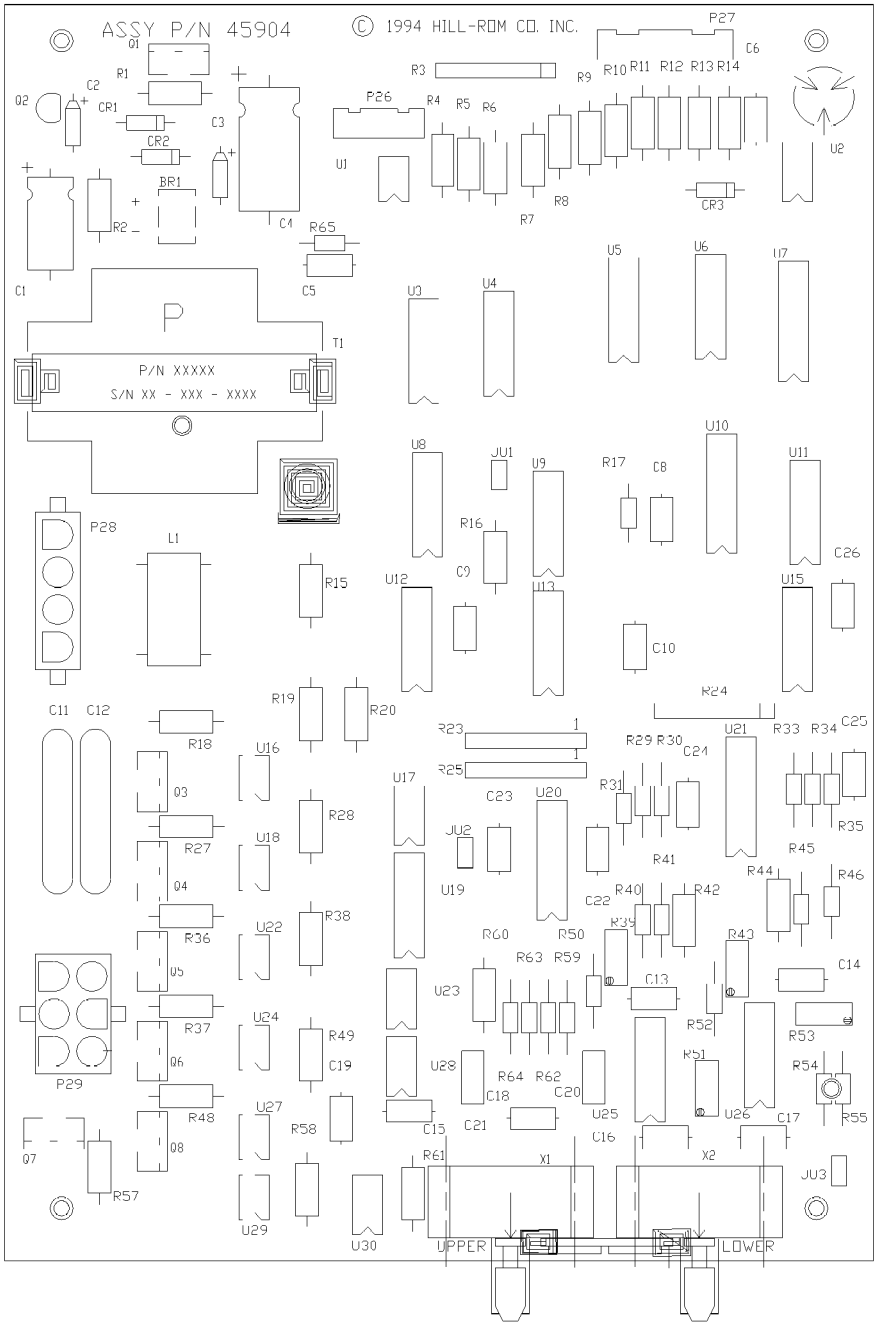

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Table 5-45. P.C. Board Component Parts List—Integrated Air Support System Board P/N 45904 (Beds Before 11/30/95)

Component Symbol	Part Number	Description
BR1	30205 (8283)	Diode assembly
C1	301089 (8283)	Capacitor
C2, C3	30144-105 (8283)	Capacitor
C4	301078 (8283)	Capacitor—ASIC board
C5, C6, C10, C13 through C17, C22 through C26	30109-104K5 (8283)	Capacitor
C8	30109-334K5 (8283)	Capacitor
C9, C19, C21	30109-224K5 (8283)	Capacitor
C18, C20	30101-474K8 (8283)	Capacitor
CR1, CR2, CR3	30201-4003B7 (8283)	Diode silicon
JU1, JU2, JU3	30982-2 (8283)	Jumper
L1	300160 (8283)	Resistor
P26	30956-05 (8283)	Connector
P27	30934 (8283)	Connector
P28	30925 (8283)	Socket header
P29	30921 (8283)	Header—6 pin circuit
Q1	303159 (8283)	Regulator
Q2	303167 (8283)	Regulator
Q3, Q4	90003-02 (8283)	Triac
Q5 through Q8	30323-029 (8283)	Triac
R1, R2	300148 (8283)	Resistor
R3	30012-222 (8283)	Resistor
R4	30007-271 (8283)	Resistor
R5 through R10, R12, R42, R44	30007-104 (8283)	Resistor
R11, R16	30007-275 (8283)	Resistor
R13, R14	30007-221 (8283)	Resistor
R15	30007-106 (8283)	Resistor
R17	30006-475 (8283)	Resistor
R18, R27, R36, R37, R48, R57	30024-181 (8283)	Resistor

Component Symbol	Part Number	Description
R19, R20, R28, R38, R49, R58	30007-181 (8283)	Resistor
R23	30018-273 (8283)	Resistor
R24	30012-103 (8283)	Resistor
R25	30018-105 (8283)	Resistor
R29	30019-1240B6 (8283)	Resistor
R30	30019-2740B6 (8283)	Resistor
R31	30019-2210B6 (8283)	Resistor
R33	30019-3481B6 (8283)	Resistor
R34	30019-1101B6 (8283)	Resistor
R35	30019-5491B6 (8283)	Resistor
R39, R43	30054-1019 (8283)	Potentiometer
R40	30019-1581B6 (8283)	Resistor
R41	30019-2801B6 (8283)	Resistor
R45, R46	30019-1004B6 (8283)	Resistor
R50	30019-2000B6 (8283)	Resistor
R51, R53	30054-1049 (8283)	Potentiometer
R52	30019-1000B6 (8283)	Resistor
R54	30019-1003B6 (8283)	Resistor
R55	30019-1503B6 (8283)	Resistor
R59, R62, R63, R64	30019-1004B6 (8283)	Resistor
R60, R61	30007-225 (8283)	Resistor
R65	300167 (8283)	Resistor
T1	30606 (8283)	Power transformer
U1	30419 (8283)	Integrated circuit
U2, U17, U23, U28	30405-40107B (8283)	Integrated circuit
U3, U4, U12	30400-4081B (8283)	Integrated circuit
U5, U8	30400-4071B (8283)	Integrated circuit
U6	30400-4073B (8283)	Integrated circuit
U7	30410-4049B (8283)	Integrated circuit
U9	30400-4093B (8283)	Integrated circuit
U10	30410-4040B (8283)	Integrated circuit
U11	30400-4024B (8283)	Integrated circuit

Component Symbol	Part Number	Description
U13	30400-40106 (8283)	Integrated circuit
U15	30400-4013B (8283)	Integrated circuit
U16	30420-3010 (8283)	Integrated circuit
U18, U22, U24, U27, U29	30421 (8283)	Optocoupler
U19	30400-4012B (8283)	Integrated circuit
U20, U21	30403-LP365 (8283)	Integrated circuit
U25, U26	30402-101HP (8283)	Integrated circuit
U30	30406-1458 (8283)	Integrated circuit
X1, X2	30710 (8283)	Transducer

P.C. Board Component Parts List—Integrated Air Support System Board P/N 46752 (Beds After 11/30/95)

Figure 5-30. P.C. Board Component Parts List—Integrated Air Support System Board P/N 46752 (Beds After 11/30/95)

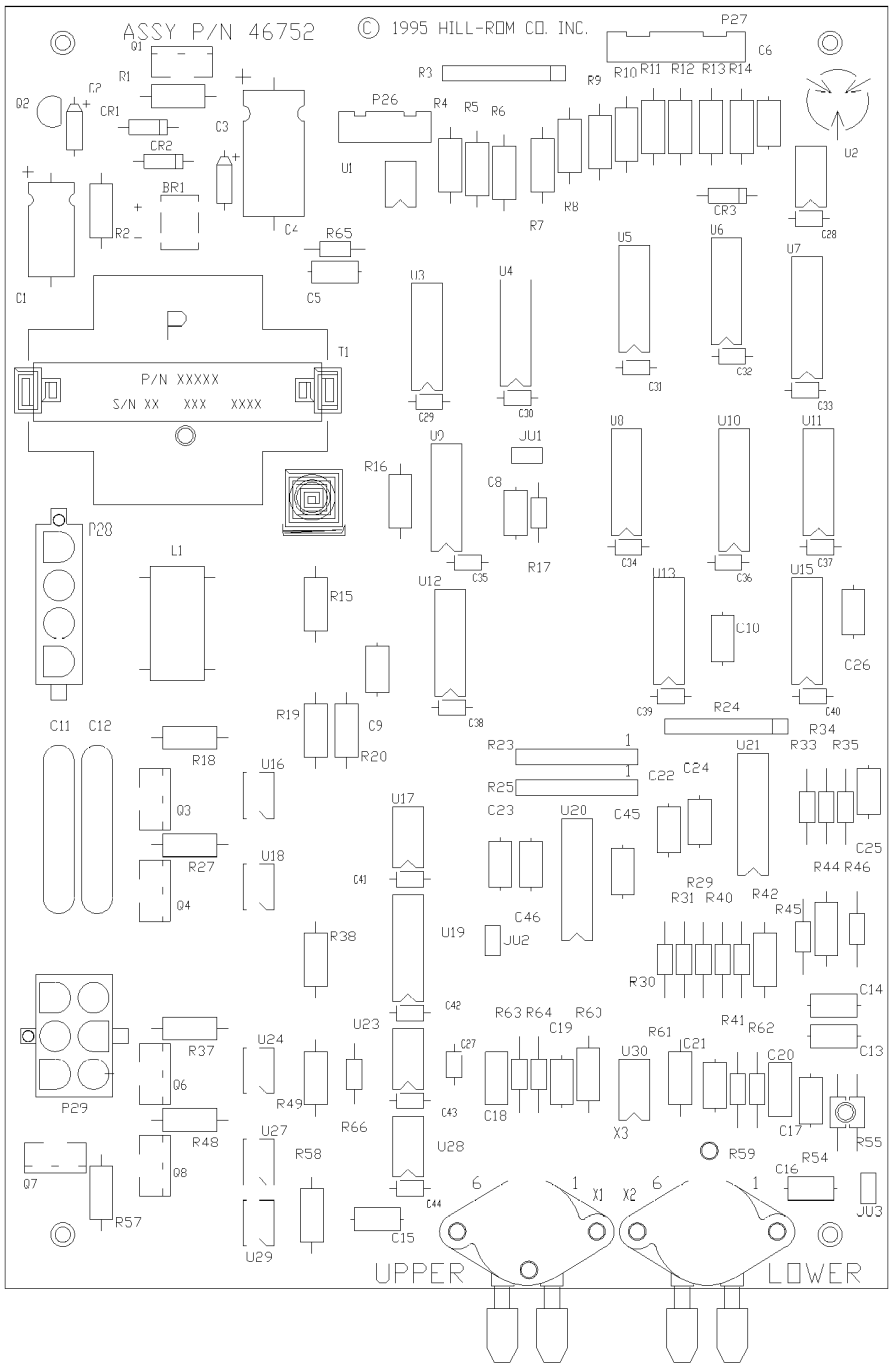

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Table 5-46. P.C. Board Component Parts List—Integrated Air Support System Board P/N 45904 (Beds After 11/30/95)

Component Symbol	Part Number	Description
BR1	30205 (8283)	Diode assembly
C1	301089 (8283)	Capacitor
C2, C3	30144-105 (8283)	Capacitor
C4	301078 (8283)	Capacitor—ASIC board
C5, C6, C10, C13 through C17, C22 through C26	30109-104K5 (8283)	Capacitor
C11, C12	30103 (8283)	Capacitor
C8	30109-334K5 (8283)	Capacitor
C9, C19, C21	30109-224K5 (8283)	Capacitor
C18, C20	30101-474K8 (8283)	Capacitor
C27-C44	30109-473K (8283)	Capacitor
C45, C46		
CR1, CR2, CR3	30201-4003B7 (8283)	Diode silicon
JU1, JU2, JU3	30982-2 (8283)	Jumper
L1	30610 (8283)	Resistor
P26	30956-05 (8283)	Connector
P27	30934 (8283)	Connector
P28	4314504 (8283)	Socket header
P29	47018 (8283)	Header—6 pin circuit
Q1	303159 (8283)	Regulator
Q2	303167 (8283)	Regulator
Q3, Q4	90003-02 (8283)	Triac
Q6 through Q8	30323-029 (8283)	Triac
R1, R2	300148 (8283)	Resistor
R3	30012-222 (8283)	Resistor
R4	30007-271 (8283)	Resistor
R5 through R10, R12, R42, R44	30007-104 (8283)	Resistor
R11, R16	30007-275 (8283)	Resistor
R13, R14	30007-221 (8283)	Resistor
R15	30007-106 (8283)	Resistor

Component Symbol	Part Number	Description
R17	30006-475 (8283)	Resistor
R18, R27, R37, R48, R57	30024-181 (8283)	Resistor
R19, R20, R38, R49, R58	30007-181 (8283)	Resistor
R23	30018-273 (8283)	Resistor
R24	30012-103 (8283)	Resistor
R25	30018-105 (8283)	Resistor
R29	30019-3090B6 (8283)	Resistor
R30	30019-6650B6 (8283)	Resistor
R31	30019-9530B6 (8283)	Resistor
R33	30019-2551B6 (8283)	Resistor
R34	30019-5900B6 (8283)	Resistor
R35	30019-6651B6 (8283)	Resistor
R39, R43	30054-101 (8283)	Potentiometer
R40	30019-3921B6 (8283)	Resistor
R41	30019-4121B6 (8283)	Resistor
R45, R46, R59, R62-R64	30019-1004B6 (8283)	Resistor
R50	30019-2000B (8283)	Resistor
R51, R53	30054-104 (8283)	Potentiometer
R52	30019-1000B (8283)	Resistor
R54	3000-6473 (8283)	Resistor
R55	3000-6104 (8283)	Resistor
R59, R62, R63, R64	30019-1004B6 (8283)	Resistor
R60, R61	30007-225 (8283)	Resistor
R65	300167 (8283)	Resistor
R66	3000-6154 (8283)	Resistor
T1	30606 (8283)	Power transformer
U1	30419 (8283)	Integrated circuit
U2, U17, U23, U28	30405-40107B (8283)	Integrated circuit
U3, U4, U12	30400-4081B (8283)	Integrated circuit
U5, U8, U19	30400-4071B (8283)	Integrated circuit
U6	30400-4073B (8283)	Integrated circuit
U7	30410-4049B (8283)	Integrated circuit

Component Symbol	Part Number	Description
U9	30400-4093B (8283)	Integrated circuit
U10	30410-4040B (8283)	Integrated circuit
U11	30400-4024B (8283)	Integrated circuit
U13	30400-40106B (8283)	Integrated circuit
U15	30400-4013B (8283)	Integrated circuit
U16	30420-3010 (8283)	Integrated circuit
U18, U24, U27, U29	30421 (8283)	Optocoupler
U19	30400-4012B (8283)	Integrated circuit
U20, U21	30403-LP365 (8283)	Integrated circuit
U25, U26	30402-101HP (8283)	Integrated circuit
U30	30406-1458 (8283)	Integrated circuit
X1, X2	46749 (8283)	Transducer

P.C. Board Component Layout—Night Light with Scale P/N 43200-01

Figure 5-31. P.C. Board Component Layout—Night Light with Scale P/N 43200-01

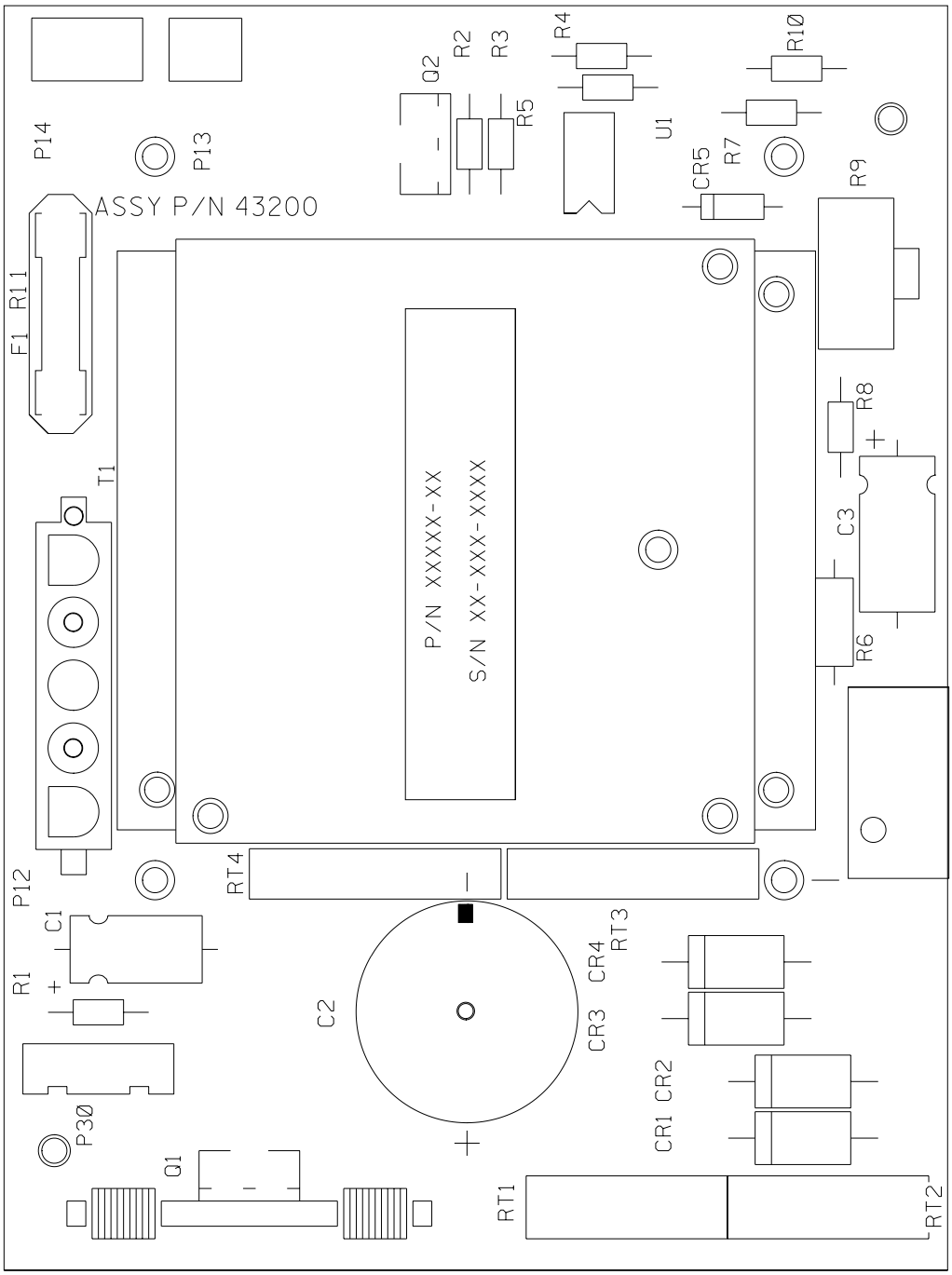

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Table 5-47. P.C. Board Component Layout—Night Light with Scale P/N 43200-01

Component Symbol	Part Number	Description
C1	30127 (8283)	Capacitor
C2	43669-478 (8283)	Capacitor
C3	30108 (8283)	Capacitor
CR1 through CR4	30210-5401B (8283)	Diode
CR5	30201-4003B (8283)	Diode silicon
P12	42835-05 (8283)	Connector
P13	30995-02 (8283)	Connector header post
P14	30995-03A (8283)	Connector header post
P30	30956-05 (8283)	Connector
Q1	39616 (8283)	Regulator assembly
Q2	30323-01 (8283)	Triac
R2	30006-472 (8283)	Resistor
R3	30006-152 (8283)	Resistor
R4	30006-105 (8283)	Resistor
R5, R7, R8	30006-153 (8283)	Resistor
R6	30007-101 (8283)	Resistor
R9	30051 (8283)	Potentiometer
R10	30006-224 (8283)	Resistor
R11	30016 (8283)	Resistor
RT1, RT2	43821-02 (8283)	PTC polyswitch
RT3, RT4	44227-01 (8283)	PTC thermistor
S1	30808 (8283)	Switch, night light
T1	43197 (8283)	Transformer
U1	30406-741C (8283)	Integrated circuit

P.C. Board Component Layout—Bed Exit P.C. Board P/N 44482-01

Figure 5-32. P.C. Board Component Layout—Bed Exit P.C. Board P/N 44482-01

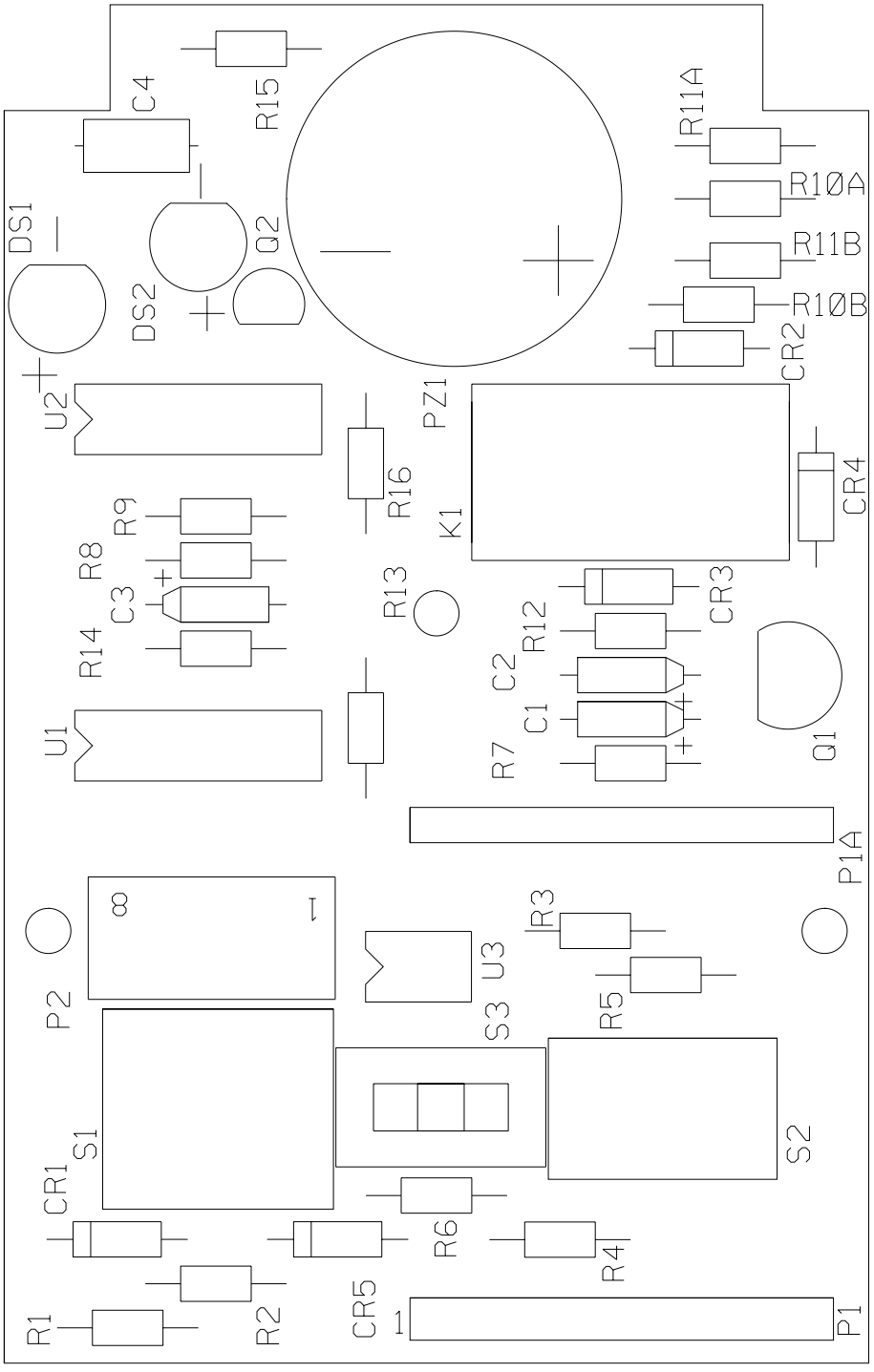

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Table 5-48. P.C. Board Component Layout—Bed Exit P.C. Board P/N 44482-01

Component Symbol	Part Number	Description
C2, C3	30144-105 (8283)	Capacitor
C4	30109-104K (8283)	Capacitor
CR1 through CR5	30201-4003B (8283)	Diode silicon
DS1, DS2	30500 (8283)	LED, red
K1	30700 (8283)	Relay
P1, P1A	44479 (8283)	Connector
P2	44478-08 (8283)	Connector
PZ1	30117 (8283)	Piezo
Q1	30300-3906A (8283)	Transistor
Q2	30300-3904A (8283)	Transistor
R3, R7, R12	30006-102 (8283)	Resistor
R4, R8	30006-105 (8283)	Resistor
R5, R6	30006-225 (8283)	Resistor
R9, R10B, R11B	30016 (8283)	Resistor
R13	30006-275 (8283)	Resistor
R14	30006-475 (8283)	Resistor
R15	30006-391 (8283)	Resistor
R16	30006-472 (8283)	Resistor
S1	30811 (8283)	Switch
S2	30812 (8283)	Switch
S3	44492 (8283)	Switch
U1, U2	30400-4093B (8283)	Integrated circuit
U3	30419 (8283)	Integrated circuit

P.C. Board Component Layout—P.C. Board Assembly P/N 45695-01

Figure 5-33. P.C. Board Component Layout—P.C. Board Assembly P/N 45695-01

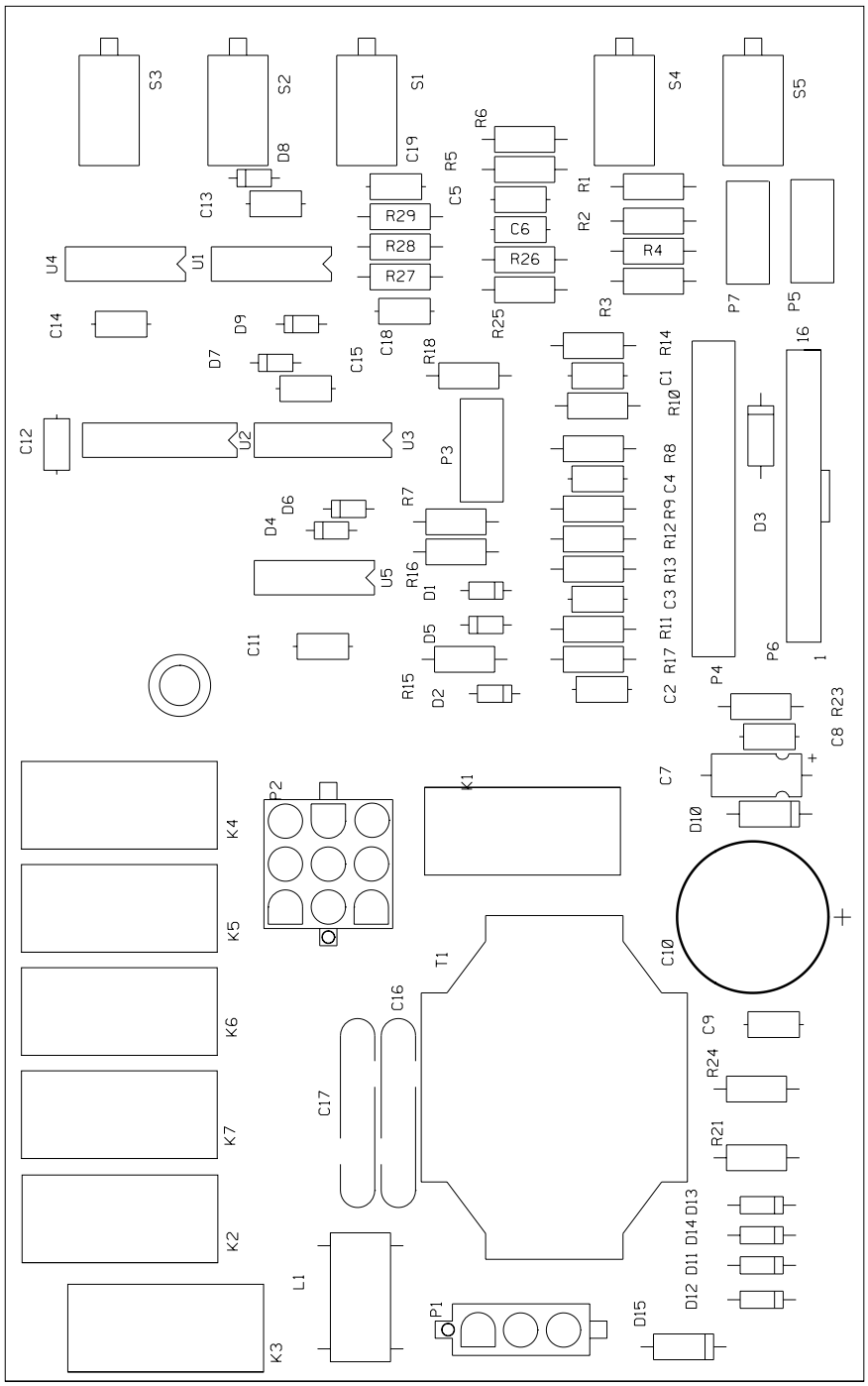

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Table 5-49. P.C. Board Component Layout—P.C. Board Assembly P/N 45695-01

Component Symbol	Part Number	Description
C1 through C6, c18, C19	30109-683K (8283)	Capacitor
C7	30116 (8283)	Capacitor
C8, C9, C11 through C15	30109-104K (8283)	Capacitor
C10	43669-478 (8283)	Capacitor
C16, C17	30103 (8283)	Capacitor
D1, D2, D11 through D14	30201-4003B (8283)	Diode silicon
D3, D10, D15	30214-180A (8283)	Tranzorb
D4 through D9	30200-4148B (8283)	Diode silicon
E1	32319 (8283)	Eyelet
K1 through K7	30702 (8283)	Relay
L1	30610 (8283)	Toroid assembly
P1	41543-02 (8283)	Connector
P2	42836-09 (8283)	Connector
P3, P4, P5, P7	30995 (8283)	Connector
P6	43231-16 (8283)	Connector 16 position
R1, R2, R4, R6, R7, R9, R10, R12, R13, R15, R16, R18, R25, R28	30007-474 (8283)	Resistor
R3, R5, R8, R11, R14, R17, R26, R27, R29	30007-472 (8283)	Resistor
R21, R24	27316 (8283)	Resistor
R23	30007-221 (8283)	Resistor
S1 through S3	30800-01B (8283)	Lockout switch
S4, S5	30800-02 (8283)	Switch
T1	30606 (8283)	Power transformer
U1, U5	30400-4081B (8283)	Integrated circuit
U2	30414-2804A (8283)	Integrated circuit
U3	30410-4049B (8283)	Integrated circuit
U4	30400-4072B (8283)	Integrated circuit

P.C. Board Component Layout—Interface Board P/N 44578

Figure 5-34. P.C. Board Component Layout—Interface Board P/N 44578

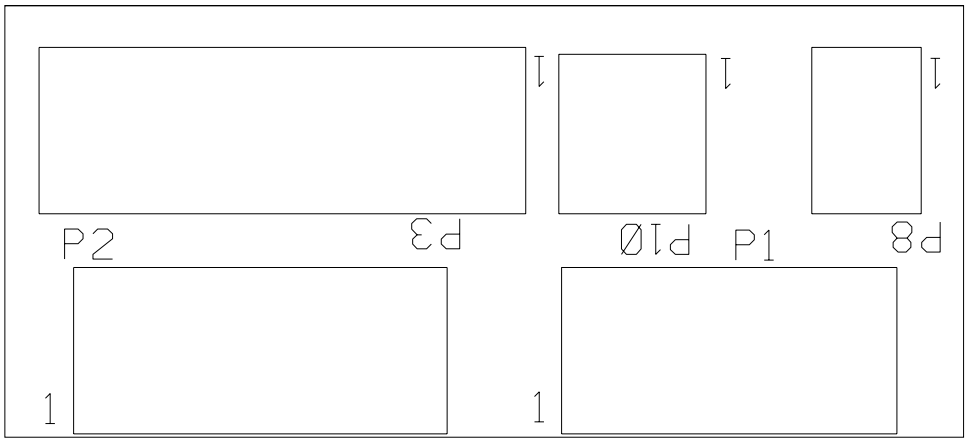

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Table 5-50. P.C. Board Component Parts List—Interface Board P/N 44578

Component Symbol	Part Number	Description
P1	44478-08 (8283)	Connector
P2	44478-09 (8283)	Connector
P3	44478-12 (8283)	Connector
P8	44478-02 (8283)	Connector
P10	44478-03 (8283)	Connector

Chapter 6
General Procedures

Chapter Contents

6

NOTES:

Bed Service

WARNING:
Powered bed mechanisms can cause serious injury. Operate the bed only with persons clear of mechanisms.

WARNING:
Unplug the bed from its power source prior to service or cleaning. Refer to the service manual and in-service manual for additional precautions.

When you work with the bed in the high position, set the brakes and place bed stands under the upper lift arm pivots. This will help prevent injury in case someone accidentally actuates the bed down switch.

If service on the bed requires it to be placed on its side, be sure to store and pad the siderails to prevent damage. Also, remove the brake/steer pedal to prevent damage.

WARNING:
When using the manual crank during power failure, unplug the bed from its power source so that unexpected resumption of power will not rotate the handle.

Cleaning and Care

WARNING:
Unplug the bed from its power source prior to service or cleaning. Refer to the service manual or in-service manual for additional precautions.

Steam Cleaning

Do not use any steam cleaning device on the Patient Care bed. The excessive moisture involved can damage mechanisms and components in the Patient Care bed. Clean the bed with a lightly dampened cloth and ordinary disinfectants.

Suggestions for Easy Maintenance

Use neutral soap suds and lukewarm water to remove soil or stains for a fresh new appearance. Then rinse with clean water and dry.

Hard to Clean Spots

Use standard household cleaners and/or a soft bristle brush to remove troublesome spots or stains that will not come out easily. Heavy dried-on soil and excreta may first require soaking to loosen.

NOTE:
Do not use harsh cleaners, solvents, or detergents.

Disinfection

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

NOTE:
Use only those solutions recommended by the manufacturer.

Lubrication Requirements

Hill-Rom uses oilite bearings and bushings in several places throughout the Patient Care bed. Oilite bearings and bushings have pores that retain oil giving them a self-lubricating quality. This self-lubricating quality is neutralized if you use any lubricant containing silicone on them or anywhere else on the bed.

CAUTION:
Do not use any lubricant containing silicone anywhere on the Patient Care bed. Failure to do so could result in equipment damage.

The following lubricants can be safely used on the Patient Care bed.

- P/N 8252—M-1 penetrating oil (small bottle—use on oilite bushings and bearings)
- P/N SA3351—red lithium grease (small tube—use on drive screws)
- P/N SA3352—gear grease (small tube—use on motor gears only)
- P/N SA0646—Teflon spray lubricant (dry) (aerosol spray can—use anywhere else bed needs lubrication)

6

Preventive Maintenance

The Patient Care bed must have an effective maintenance program. We recommend that you perform preventive maintenance and testing for Joint Commission On Accreditation of Healthcare Organizations (JCAHO) annually. This not only meets JCAHO requirements, but will help to ensure a long and productive life for the Patient Care bed. This will help minimize downtime due to excessive wear failures.

The preventive maintenance schedule that follows is intended to guide a technician through a normal preventive maintenance procedure on the Hill-Rom Patient Care bed. Check each item on the schedule, and make any necessary adjustments during the maintenance process.

The preventive maintenance schedule is intended to be used in conjunction with the preventive maintenance checklist following it. This checklist is designed to keep a running maintenance history and subsequent repair costs for one individual Patient Care bed. However. the hospital can modify this checklist or invent another to fit their needs. Keeping close records and maintaining the Patient Care bed and its accessories are two good ways of reducing downtime and at the same time, keeping the nursing staff happy and efficient.

Preventive Maintenance Schedule

Table 6-1. Preventive Maintenance Schedule

Function	Procedure
Hilow limits	Run the hilow function to the upper and lower limits to ensure proper function of the limit switches.
Contour limits	When the head section is activated from the flat position, the knee will raise to 15° to form a contour position. This function is defeated by the knee lockout switch.
Trendelenburg mechanisms	Run the bed into both Trendelenburg and Reverse Trendelenburg to ensure proper operation of the mechanisms.
Drive screws	Inspect, clean, and lubricate the hilow drive.
Lockout switches	Test each lockout individually to ensure proper operation.
Brake and steer	Test the brakes to determine if the bed moves when the brake is activated. Adjust if required. Inspect the steer activation, and adjust if required.
Caster tires	Check caster tires for cuts, wear, tread, etc. Replace if necessary.
Siderail controls	Test the switches in the siderails for proper operation. Also check for momentary operation at this time.
Siderail frame	Test the siderail for proper latching. Adjust if required.
Pivot points	Lubricate all pivot points on the bed.
Power cord and plug	Check the cord and plug for cuts, nicks, or breaks. Replace if required.
Motor capacitors	Check the capacitors to make sure they are not weak or defective. Replace if necessary.
CPR release (optional)	Test the CPR release for proper operation.
Night light	Check to make sure the night light functions properly. Adjust the sensitivity if required.
Bed exit system	Check that the bed exit system works properly and that it places the appropriate call when activated.
Head and foot panels	Check the aesthetics.

Function	Procedure
Overall appearance	Touch up the paint where necessary. Inspect the labels, and replace them if necessary. Check the general aesthetics.
Communications	Inspect and test the communication junction box. Test all SideCom Communication System features for proper function. Inspect the communication cable, including the male and female pins in the plug.
Integrated air support system	Check the mattress for punctures, cuts, or tears. Check the air compressor unit. Check all hose connections and O-rings to prevent air leaks. Test the “Excessive Airloss” feature.
Electrical test	Test the bed for electrical leakage.

Preventive Maintenance Checklist

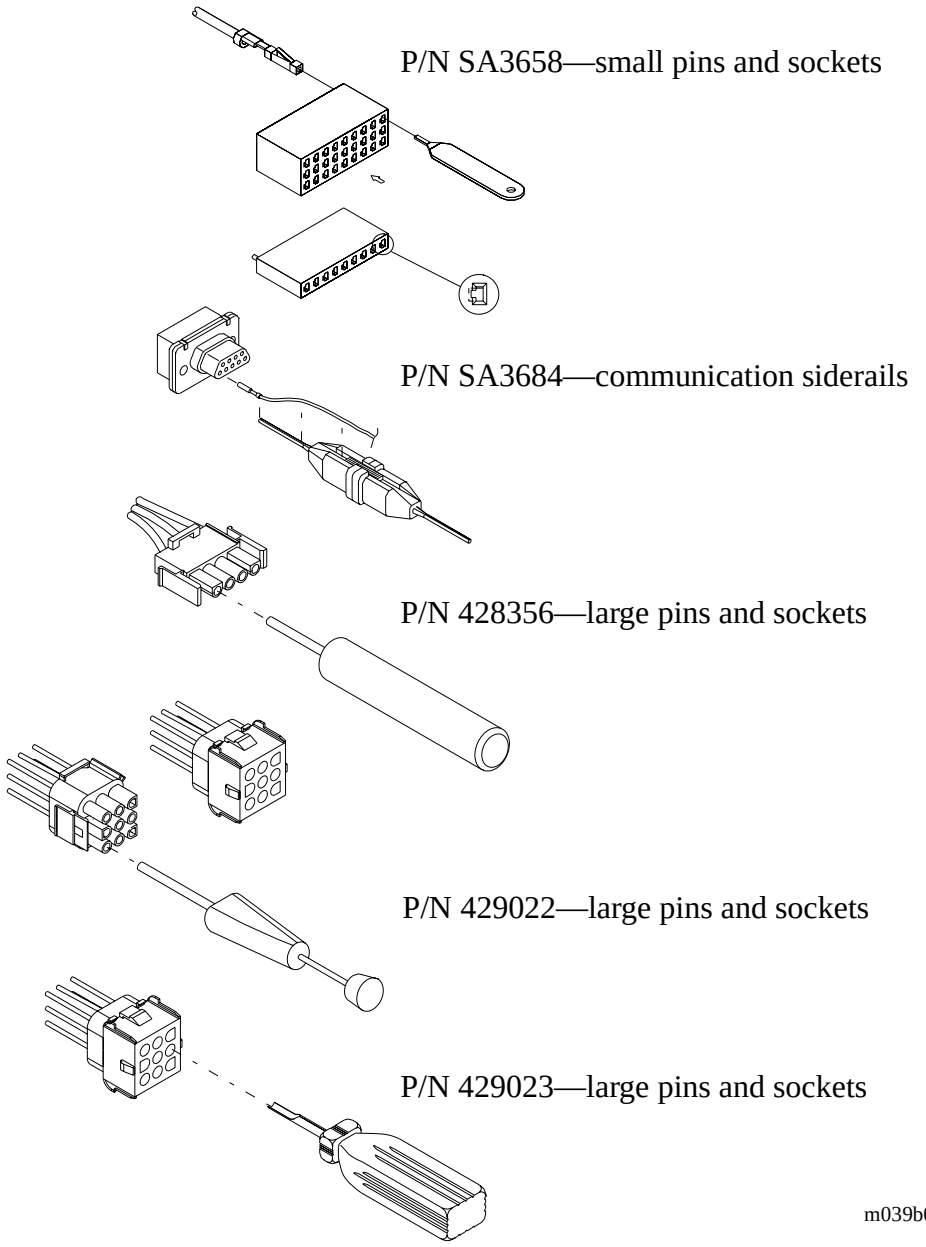
Table 6-2. Preventive Maintenance Checklist

Date																						
																						Function
Hill-Rom Company Inc.	**Manufacturer**																					Hilow limits
																						Contour limits
																						Trendelenburg mecha-
																						Drive screws
																						Lockout switches
																						Brake and steer
																						Caster tires
																						Siderail controls
	Model Number																					Siderail frame
																						Pivot points
																						Power cord and plug
																						Motor capacitors
																						CPR release (optional)
																						Night light
																						Bed exit system
																						Head and foot panels
	Serial Number																					Overall appearance
																						Communications
																						Integrated air support system
																						Electrical test
	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

Figure 6-1 on page 6-9 illustrates the five extraction tools used by Hill-Rom. The part numbers are located beside the extraction tool along with a brief description of where the tool is most commonly used. See the section “Service Parts Ordering” on page 5-5 in chapter 5 for information on ordering parts.

Figure 6-1. Hill-Rom Extraction Tool List



NOTES:

Chapter 7
Accessories

Chapter Contents

NOTES:

Accessories

See table 7-1 on page 7-3 for available accessories for the Patient Care bed.

Table 7-1. Accessories List

Part Number	Description
P818C08	Roller bumpers
P5036	DynamicAire Sleep Surface upgrade kit (P8200 models only)
P5037	DynamicAire Sleep Surface upgrade kit (P8350 models only)
P4039HD††	Head and foot panel assembly (wooden without hilow switch)
P4041FB††	Foot panel assembly (wooden with hilow switch)
P2217	IV rod
P938CA	Mattress complete (air)
P938EA	Flame retardant mattress (air)
P807B	SureRest III mattress
P807C	SureRest III mattress (flame retardant)
P846	Trapeze support
P846D	Trapeze support (Canada)
P9912A	Bed extender
P847B	Fracture frame adapter set—3/4" pin
P847C	Fracture frame adapter set—1/2" pin
P495-02	Patient Phone
P855C1	Siderail pads—head and foot
P855C1H	Siderail pads—head only

†† Specify wood and laminate finish.

7.1 Roller Bumper Assembly—P818C08

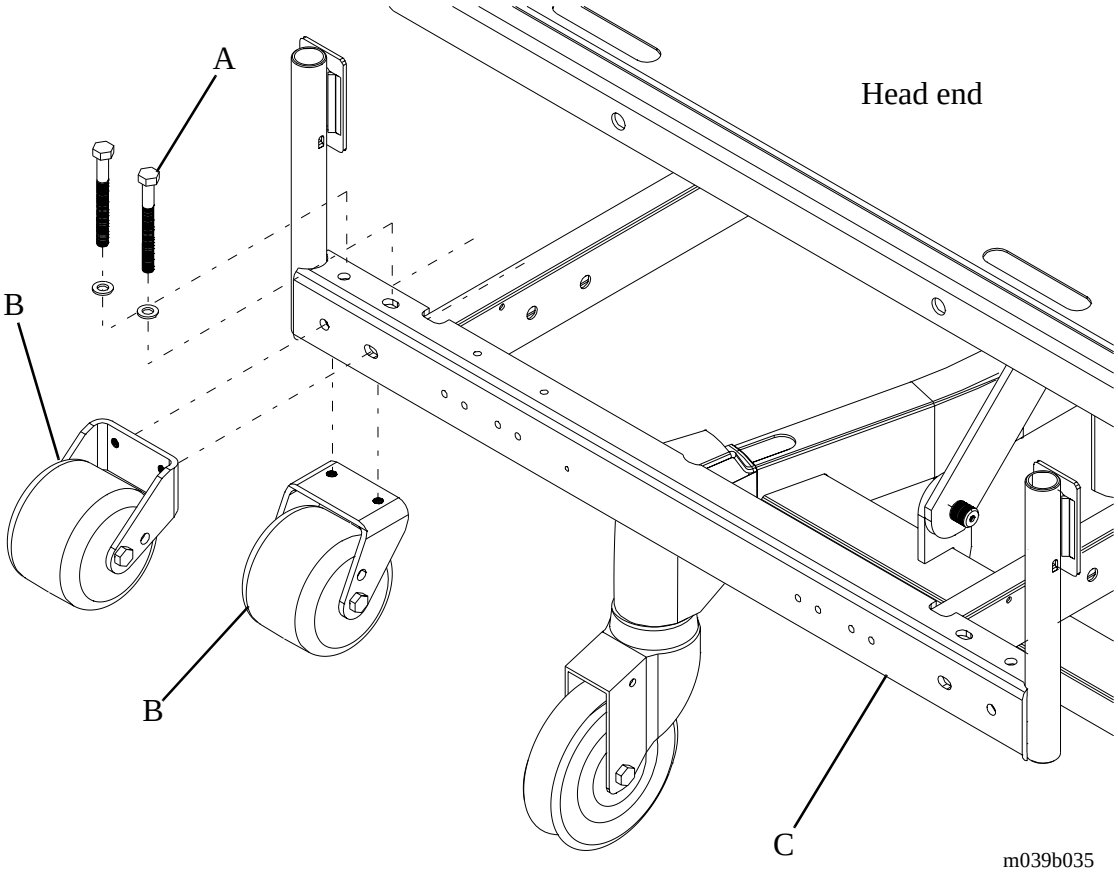
Hill-Rom provides docking and wall protection features. The bed can be equipped with wall protecting roller bumpers (can be retrofitted as desired).

Installation

Tools required: Crescent wrench

Using the crescent wrench, install the two bolts (A) to secure the roller bumper (B) to the bed frame (C) (see figure 7-1 on page 7-4).

Figure 7-1. Roller Bumper Assembly



NOTE:
Use only one pair of bumpers per bed. Use either top, bottom, or face mounted roller bumpers.

NOTE:
Use P818C08 bottom/top mount roller bumpers for light neutral (off-white) beds and for taupe (brown) beds.

Removal

Reverse the removal procedure for installation of the roller bumper assembly.

7.2 IV Rod—P2217

The two-sectioned, telescopic IV rod mounts in any of the six sockets located on the bed—two at the head end, two in the seat section, and two at the foot end. The rod is adjustable in length so that it may be raised or lowered with respect to the bed frame.

Installation

Tools required: None

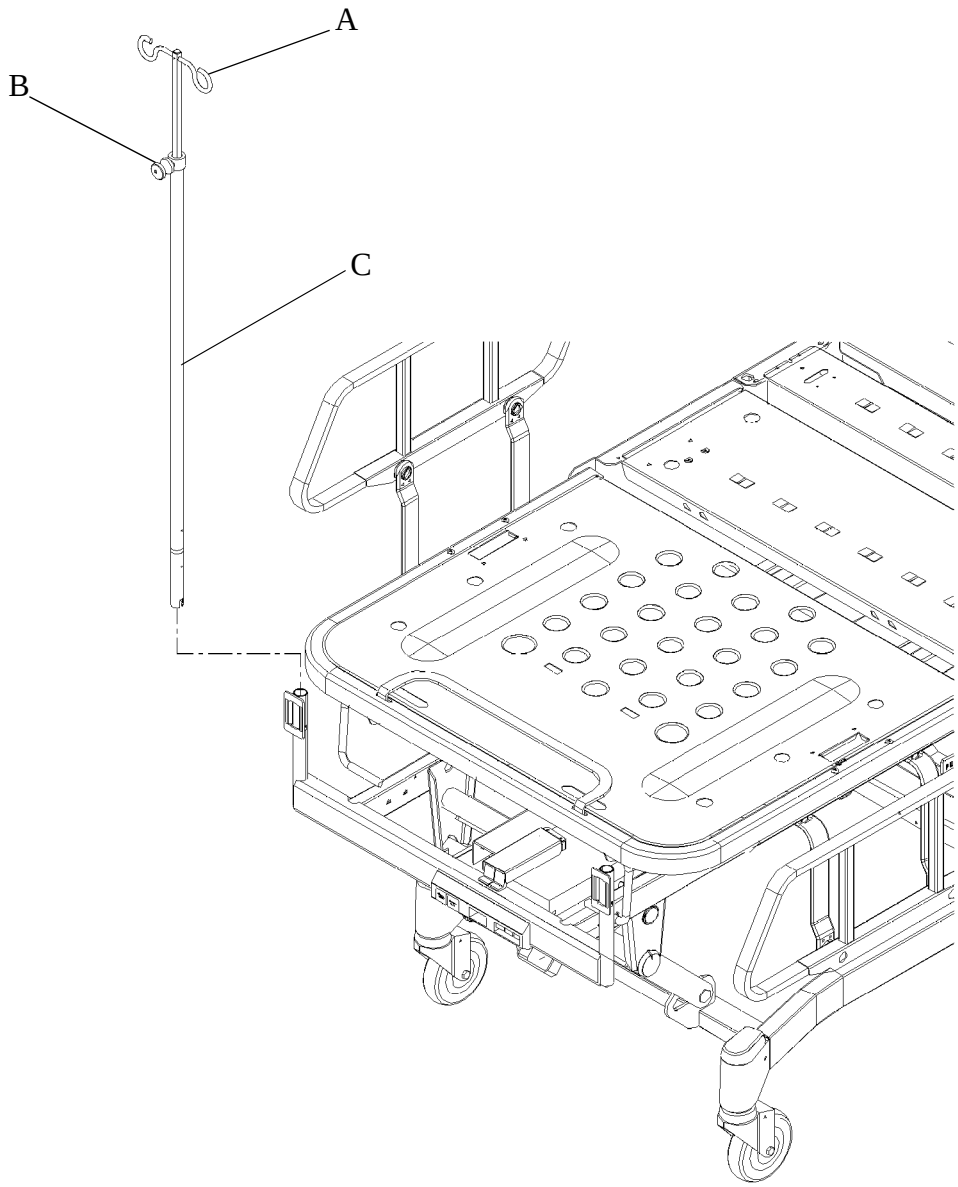
Install the rod by inserting it into the desired socket and twisting the lower section clockwise to lock in place.

Adjustment

1. To extend the rod, pull upward on the upper section (A) to the desired height (see figure 7-2 on page 7-7).

2. To lower the pole, pull outward on the release knob (B) and manually lower the upper section (A) into the lower section (C).

Figure 7-2. Regular IV Rod—P2217



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Removal

To remove the rod, twist the lower section counterclockwise, and lift it from the socket.

7.3 Trapeze Support Assembly—P846 or P846D

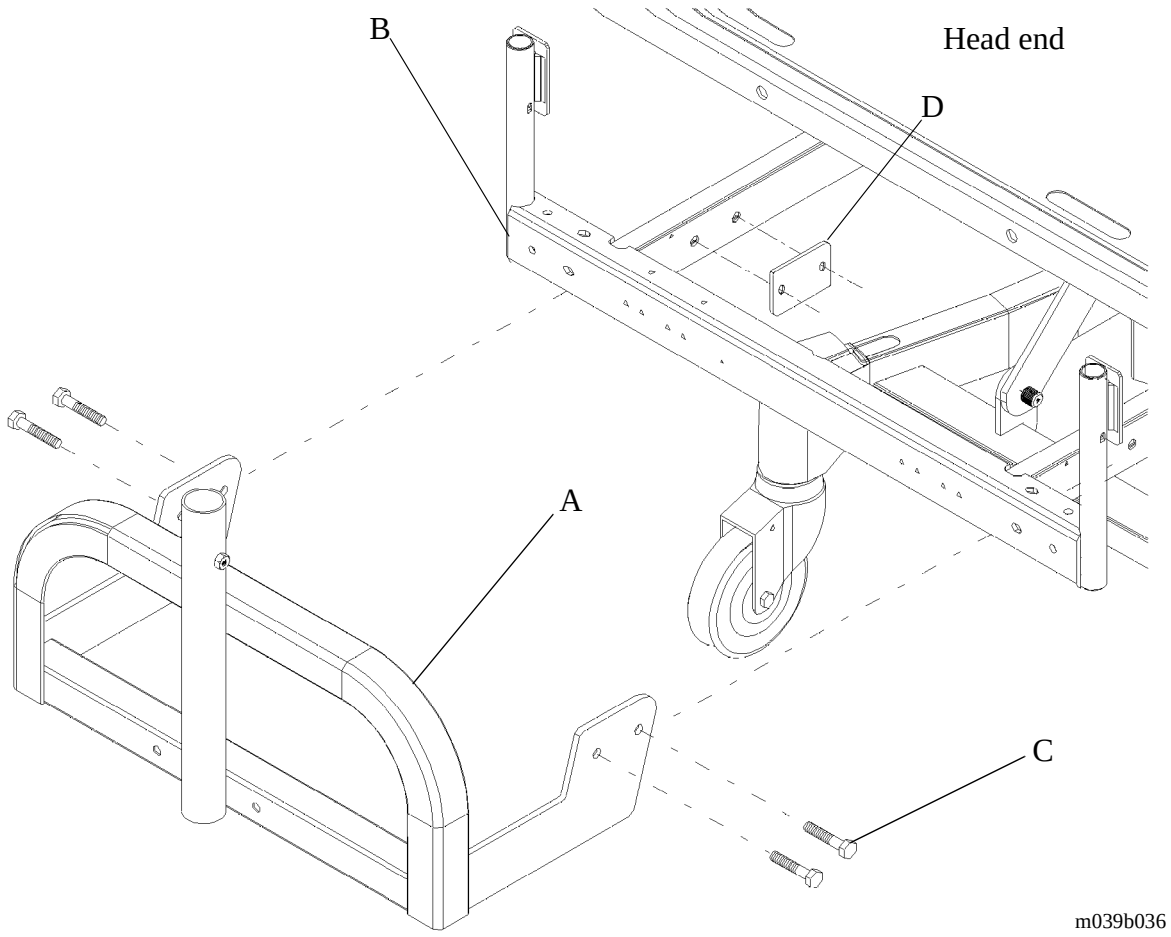
Installation

Tools required: 3/8" socket Drive ratchet
3/8" wrench

1. Remove the hole plugs from the lower frame at the end of bed to which trapeze support is to be installed.

2. Position the trapeze support assembly (A) and backing plate (D) to the main frame (B) (see figure 7-3 on page 7-8).

Figure 7-3. Trapeze Support Assembly



3. Use the 3/8-16 screws (C) and locknuts to fasten the trapeze support assembly (A) and backing plate (D) to the main frame (B) of the bed.

NOTE:
The trapeze support assembly may be secured to the head end of the main frame.

CAUTION:
Do not lower the bed frame while the trapeze support assembly is attached to the bed. Use the control box lockout to deactivate the hilow function.

Removal

Reverse the installation procedure to remove the trapeze support assembly from the bed.

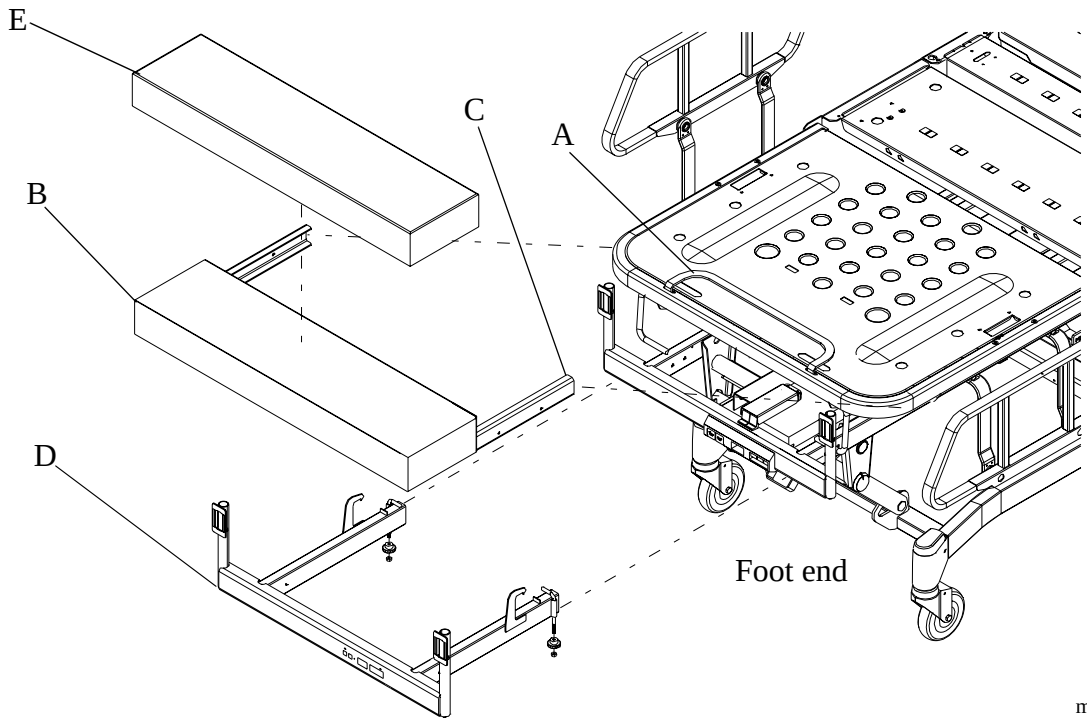
7.4 Bed Extender Assembly—P9912A

Installation

Tools required: None

1. Lift the foot end panel vertically, and remove it from the bed.
2. Lift the foot section manually into the first notch of the foot rack.
3. Fold down the mattress stop (A) on the foot section of the bed (see figure 7-4 on page 7-10).
4. Attach the upper extender (B) by sliding the channels (C) over the end of the foot section.

Figure 7-4. Bed Extender Assembly



5. Push the upper extender until it locks into place.
6. Attach the lower extender (D) to the bed frame.
7. Tighten the locking device to secure the lower extender to the bed frame.

8. Remove the foot section from the first notch of the foot rack, and lower the foot section.

9. Place the bed extender pad (E) onto the frame with the magnets down.

10. Assemble the foot end panel to the bed.

Removal

Reverse the installation procedure to remove the bed extender from the bed.

7.5 Fracture Frame Adapter Socket—P847B/P847C

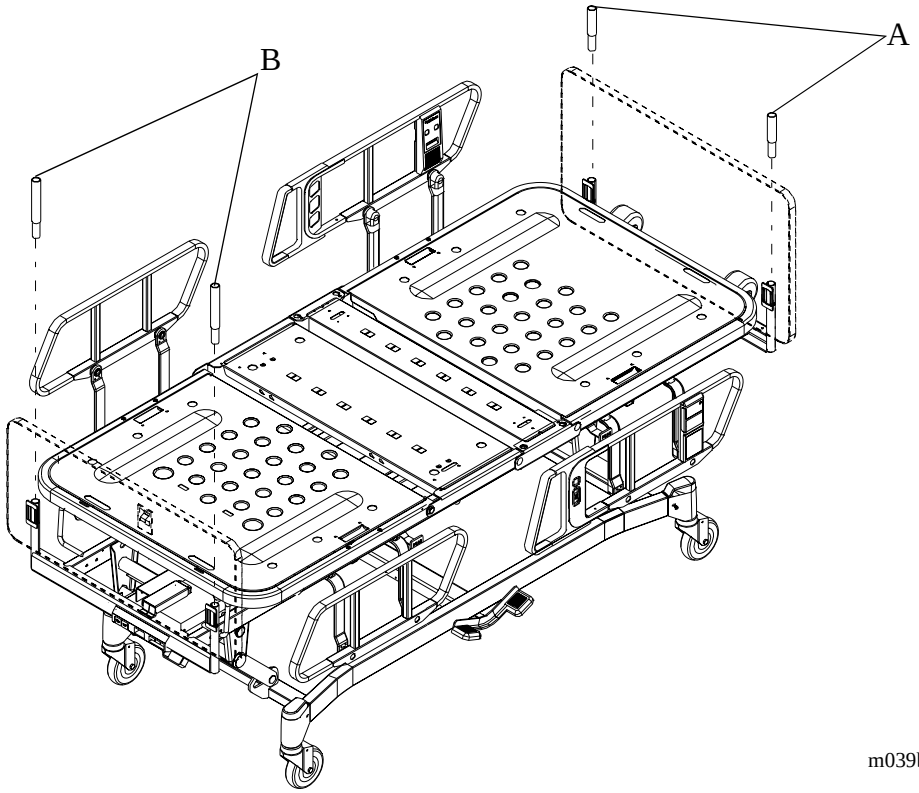
Hill-Rom has two different fracture frame adapter socket sets available to handle most fracture frame equipment. The model P847B sockets have a 3/4" inside diameter while the P847C sockets have a 1/2" inside diameter. Please specify which size is needed when ordering.

Installation

Tools required: None

1. Insert the short adapter tubes (A) into the available IV sockets at the head end of the bed (see figure 7-5 on page 7-12).

Figure 7-5. Fracture Frame Adapter Socket Sets



2. Insert the long adapter tubes (B) into the available IV sockets at the foot end of the bed.

Removal

Reverse the installation procedure for removal of the fracture frame adapter sockets.

Schematic Wiring Diagram—Integrated Air Support System Board P/N 45904 (Beds before 11/30/95)

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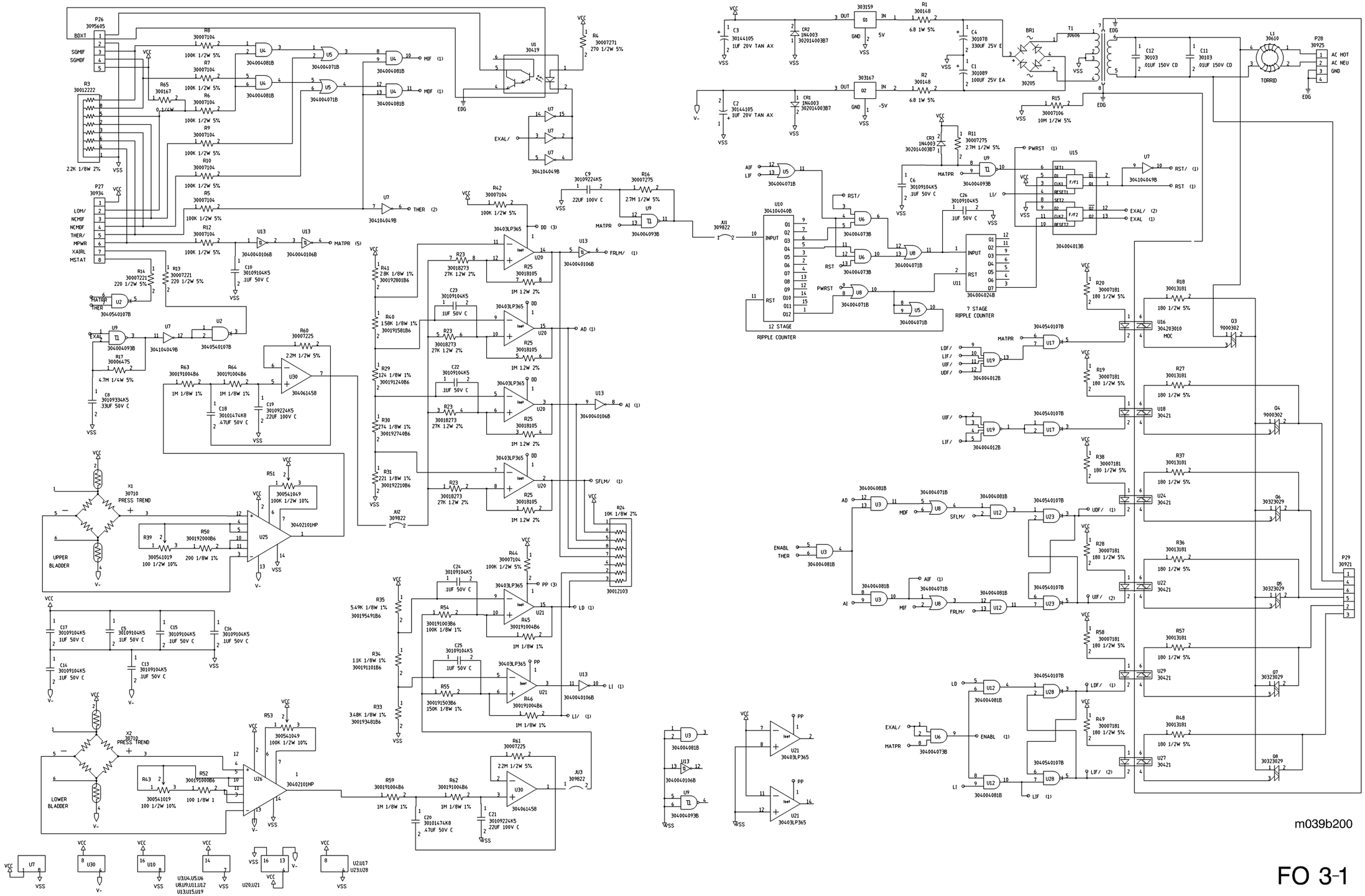

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FO 3-1

Schematic Wiring Diagram—Integrated Air Support System Board P/N 47652 (Beds After 11/30/95)

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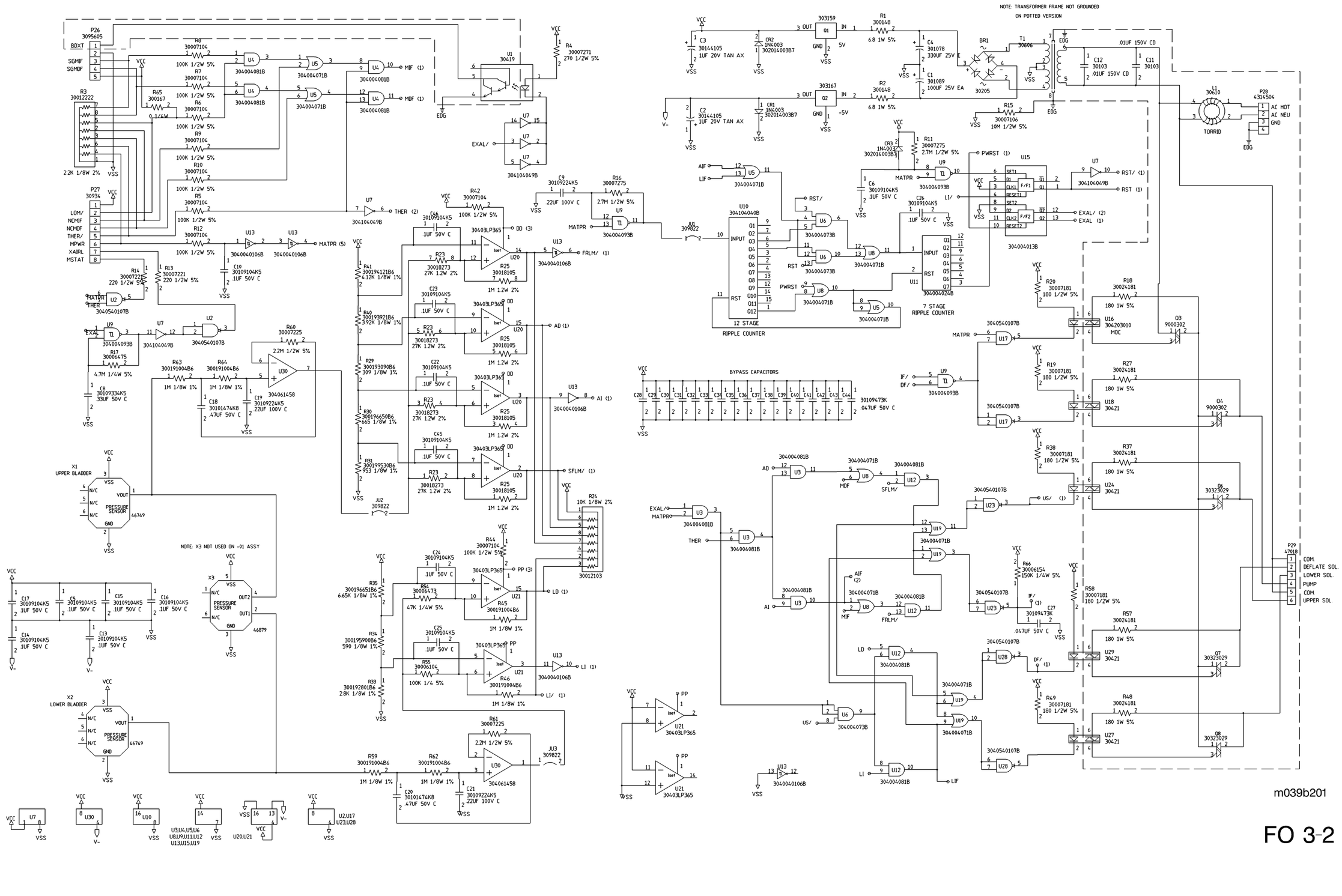

FO 3-2

Schematic Wiring Diagram—Control Board P/N 45695-02

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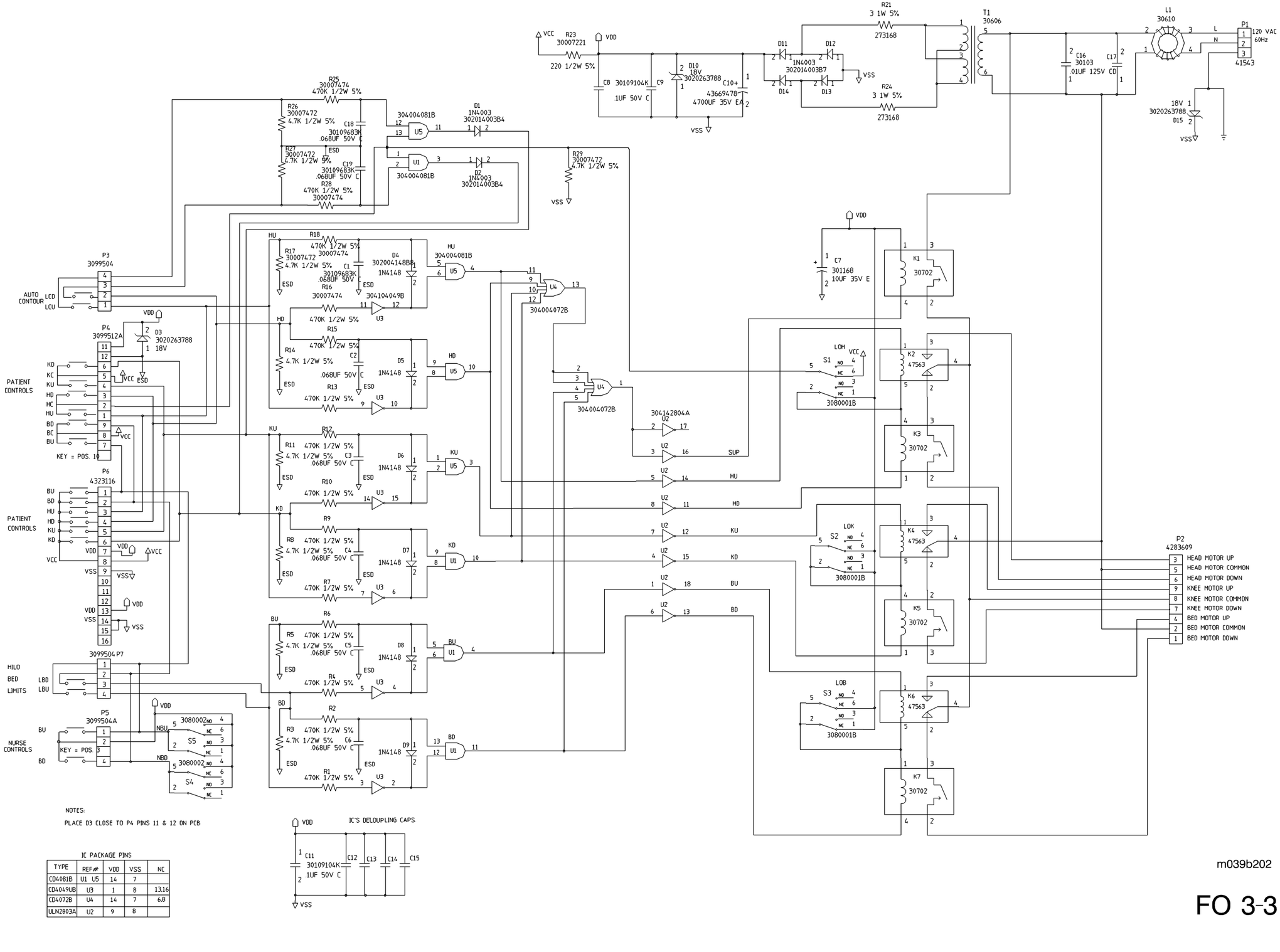

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FO 3-3