# Affinity® Four Birthing Bed

## Service Manual

### Product No. P3700E

Applicable for beds with Serial Number R298AAXXXX and higher.

195826 REV 2

Enhancing outcomes for patients and their caregivers.®

Hill-Rom

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**Manufactured by:**

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This manual (195826) was originally released and supplied in English. For a list of available translations, contact Hill-Rom Technical Support.

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Replace this manual (195826) if it is damaged and/or can not be read.

For product support or to order additional copies of this manual (195826), contact your distributor, local Hill-Rom representative, or go to www.Hill-Rom.com.

**Reference Documents**

*Affinity® Three Birthing Bed and Affinity® Four Birthing Bed User Manual* (USR025)

*Affinity® Three Birthing Bed and Affinity® Four Birthing Bed Quick Reference Guide* (145080)

*Affinity® Four Birthing Bed Unpacking Instructions* (E Model Beds) (180987)

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# Chapter 1 Introduction

1

## PURPOSE

This manual supplies requirements for the Affinity® Four Birthing Bed normal operation and maintenance. It also includes parts lists (in chapter 5) so that you can order replacement components.

This manual is intended only for beds manufactured after the introduction of the Low-Voltage Air System. This system was introduced on beds with Serial Number R298AAXXXX and higher.

## AUDIENCE

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

## REFERENCE DOCUMENTS

For more information (such as operating instructions, features, specifications, and product symbols), refer to the *Affinity® Three Birthing Bed and Affinity® Four Birthing Bed User Manual* (USR025).

## DOCUMENT SYMBOLS

This manual contains different typefaces and symbols to make the content easier to read and understand:

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

  - A WARNING identifies situations or actions that may have an effect on patient or user safety. To ignore a warning could cause patient or user injury.
  - A CAUTION identifies special procedures or precautions that persons must obey to help prevent equipment damage.

## MODEL IDENTIFICATION

**Table 1-1. Model Identification**

| Model Number | Description |
|---|---|
| P3700E | Affinity® Four Birthing Bed |

**NOTE:**

This Service Manual (195826) is only intended for beds with Serial Number R298AAXXXX and higher.

## SAFETY INFORMATION

Train and educate your staff on the hazards associated with electric beds. Do not allow persons to have their entire body below the sleep surface and within the confines of the bed. Unplug the bed from its power source, and put the lockout switch in the locked position before you clean or service the bed. If service persons need to get under the bed, they must block up the hilow portion as an added precaution. Make sure that the foot section is correctly mounted to the yoke.

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

### BED POSITION

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

### SIDERAILS

Leave the siderails fully up and locked when the patient is left unattended. When you raise the siderails, be sure that you hear the click that signals the up and locked condition. Gently pull on the siderails to make sure that they are firmly in position.

Siderails are intended as a reminder, not a restraint device. Appropriate medical persons should determine the level of restraint necessary to make sure that a patient remains safely in bed.

### BRAKE AND STEER PEDALS

Always keep the casters in the brake position when the bed is occupied. Patients often use the bed for support when getting in or out of bed, and serious injuries can result if the bed moves. After brakes are set, rock the bed gently to make sure that they are locked.

Put the casters in the steer position when you move the bed. This will make the bed easier to put in position or transport.

### FLUIDS

When massive spills occur in the area of the P.C. boards, motors, or transformers, 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 examine the bed completely. Fluids can short out controls, which can make the bed inoperable or cause the bed to operate erratically. Component failure caused by fluids can even cause the bed to operate without warning, and cause injury.
5. Do not put the bed back into service until it is unquestionably dry and tested safe to operate.

### Surface/Mattress

**WARNING:**

Some safety features of the bed may not function or may not operate as intended with mattresses that are not designed specifically for this bed. Check with the mattress manufacturer to make sure that the safety features of the bed have been tested and verified to operate correctly with the replacement mattress. Failure to do so could cause serious personal injury or equipment damage.

**NOTE:**

Hill-Rom recommends the use of Hill-Rom® mattresses that have been designed and tested specifically for the bed. If you purchase a replacement mattress from Hill-Rom or another manufacturer, make sure that the safety features of the bed have been tested and verified to operate correctly with the replacement mattress. The replacement mattress should meet the applicable regulations and technical standards to minimize the risk of injury to patients and caregivers.

For the latest list of mattresses, please contact Customer Service.

### Water Mattress

We do not recommend the use of a water mattress on this bed.

### Lockout Switch

Whenever a patient or visitor should be restricted from operating the siderail controls, activate the lockout switch located at the head end of the bed (on the main frame). The lockout switch is for the convenience of the staff and the safety of the patient. Use the lockout switch when appropriate.

### CPR Release

Only healthcare professionals should use the emergency CPR release. The two release handles are under the head section of the bed near the seat section.

To activate the CPR release, pull the handle away from the bed. Continue to pull out on the handle until the head section is flat. When this is complete, attend to the patient. The bed will automatically flatten the head and seat sections and reset itself to be ready to use after the emergency.

**WARNING:**

A bed that is transported with the steer caster locked in an incorrect position can drift from side to side during transport. Personal injury or equipment damage could occur.

**WARNING:**

Only facility-authorized maintenance persons should service the bed. Service by unauthorized persons could cause personal injury or equipment damage.

**WARNING:**

Unplug the bed from its power source and disconnect the battery backup before checking ohms/resistance measurements. Failure to disconnect line voltage to the bed can damage the VOM and cause equipment damage or personal injury.

**WARNING:**
Refer to your VOM owner's manual for complete and detailed information regarding the operation of your VOM. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Support the head section before removing the cotter pins and clevis pins. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
The head end of the main frame is supported by the two Trend-Like position gas springs. Any servicing will require that a support device be put just beneath the head end of the main frame. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Do not attempt to remove the gas spring damper with the head section fully raised and the spring compressed. Lower the head section until the cylinder of the gas spring is free in the slide bracket of the main frame, and support the head section securely before removing the cotter pins and clevis pins. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Failure to correctly mount the foot section to the yoke latches could cause equipment damage or personal injury.

**WARNING:**
Failure to correctly mount the foot section to the yoke slide brackets could cause equipment damage or personal injury.

**WARNING:**
Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Make sure that the bed is stable before removing the caster. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Follow the product manufacturer's instructions. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Follow all applicable Infection Control Policies and Procedures. Failure to do so could cause the spread of infection.

**WARNING:**
Powered bed mechanisms can cause serious injury. Operate the bed only with persons clear of mechanisms. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Unplug the bed from its power source and put the lockout switch in the locked position during routine maintenance or cleaning. Refer to the *Affinity® Three Birthing Bed and Affinity® Four Birthing Bed User Manual* (USR025) and specific sections in this service manual for additional precautions. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Make sure that all electrical/mechanical loads are removed prior to maintenance/repair of the bed's drive system or other mechanical assemblies. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Visually examine the bushings annually. If wear is apparent, replace them. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Only facility-authorized persons should do preventive maintenance on the bed. Preventive maintenance done by unauthorized persons could cause personal injury or equipment damage.

**WARNING:**
Examine the pivot point fasteners semi-annually. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Use primers with adequate ventilation. Avoid skin contact and prolonged or repeated breathing of vapors. Do not allow primers to be trapped under rings, watch bands, etc. Observe all directions on the primer can. Failure to do so could cause personal injury.

**WARNING:**
Avoid skin contact with the Loctite® accelerator, primer, or adhesive. Skin contact with the Loctite® accelerator, primer, or adhesive could cause personal injury.

**WARNING:**
The labor bar is intended to be used in the prescribed manner only. Failure to use this product as outlined may cause personal injury or equipment damage.

**WARNING:**
Insufficient tightening will allow the cradles to slip and lose their original position. Personal injury could occur.

**WARNING:**
The supports are intended to be used in the prescribed manner only. Failure to use this product as outlined may cause personal injury or equipment damage.

**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

**WARNING:**
The voltage in the electrical system presents an electrical shock hazard. Do standard electrical service procedures before attempting service within the P.C. board enclosure. Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Do not expose the unit to excessive moisture which would allow liquid to pool. Personal injury or equipment damage could occur.

**CAUTION:**
Disconnect the battery if the bed will not be in service for extended periods of time. Failure to do so could cause damage to the life of the battery, or damage to the bed. Contact the appropriate maintenance persons.

**CAUTION:**
Do not position the head of the bed against a wall or beneath any fixtures. This is to prevent damage due to the arcing motion of the bed while the bed is being raised and lowered.

**CAUTION:**
Make sure that the night light is not damaged when the bed is being lowered. Failure to do so could cause equipment damage.

**CAUTION:**
Do not pull on the mattress material when unfastening the mattress retaining snaps. Unfasten the mattress retaining snaps at the snap location. Failure to do so could cause equipment damage.

**CAUTION:**
Make sure that the fuse housing is correctly oriented for the voltage rating (110-120V or 220-240V) on the bed that you are servicing. Failure to do so could cause equipment damage.

**CAUTION:**
Do not cut or remove the cable ties that attach the battery leads to the electronics pan. This ensures the proper connection of the batteries during the replacement procedure. Possible equipment damage could occur if the cable ties are removed.

**CAUTION:**
To prevent component damage, make sure that your hands are clean, and **only** handle a P.C. board by its edges. Failure to do so could cause equipment damage.

**CAUTION:**
For shipping and storage, put the removed P.C. board in an antistatic protective bag. Failure to do so could cause equipment damage.

**CAUTION:**
Support the siderail during the removal procedure. Failure to do so could cause equipment damage.

**CAUTION:**
Make sure that the siderail does not drop when the pins are removed. Failure to do so could cause damage to the wiring going to the siderail.

**CAUTION:**
Do not use harsh cleansers or detergents such as scouring pads and heavy-duty grease removers, or solvents such as toluene, xylene, and acetone. Equipment damage could occur.

**CAUTION:**
Make sure that the metal platform is dry before placing the mattress back onto the bed. Failure to do so could cause equipment damage.

**CAUTION:**
Mattress damage caused by improper draping and/or cleaning procedures is not covered by warranty.

**CAUTION:**
Standard OB packs and paper drapes will not keep the sheets dry.

**CAUTION:**
When handling electronic components, wear an antistatic strap. Failure to do so could cause component damage.

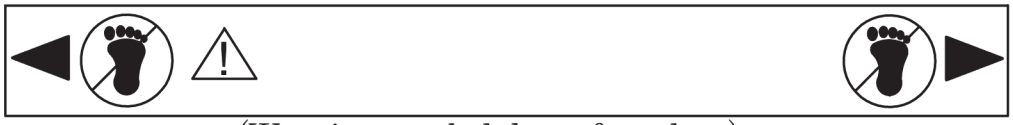
**CAUTION:**
Do not use silicone-based lubricants. Equipment damage could occur.

## WARNING AND CAUTION LABELS

**Figure 1-1. Warning and Caution Labels (Sheet 1 of 3)**

45836


45836-00



(Warning symbol, keep feet clear)

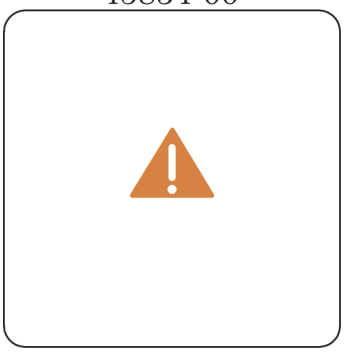
45832


45832-00

(Warning symbol, danger is present)

45834

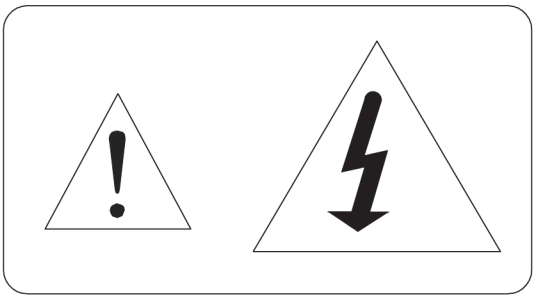

45834-00



(Warning symbol, danger is present)

67020


67020-00



(Warning symbol, electric shock hazard)

195826_1_002

**Figure 1-2. Warning and Caution Labels (Sheet 2 of 3)**

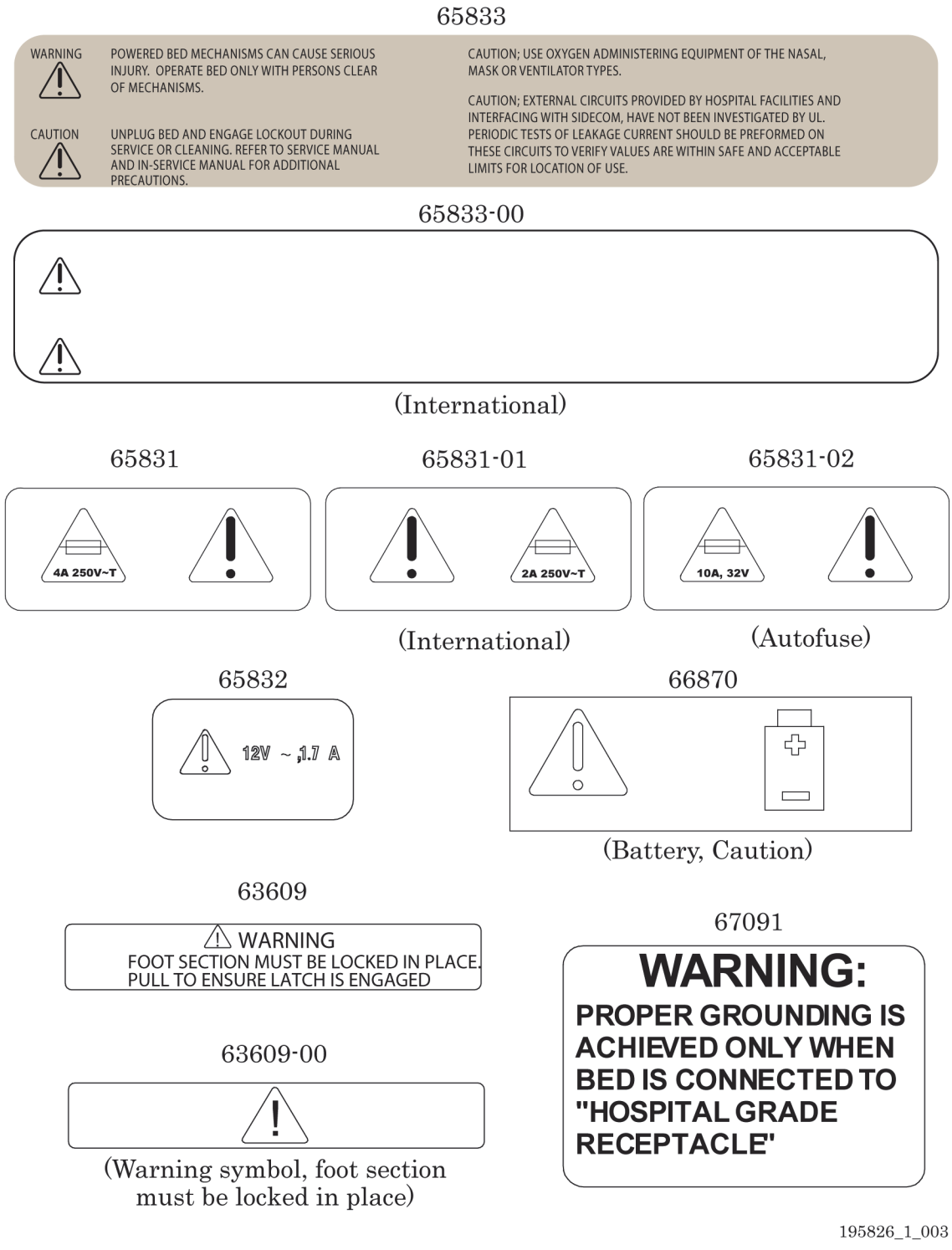
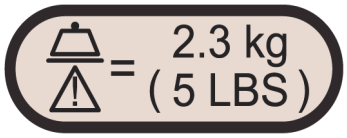
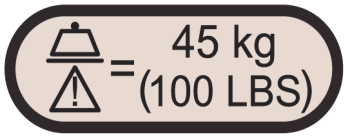


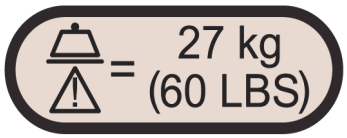
**Figure 1-3. Warning and Caution Labels (Sheet 3 of 3)**



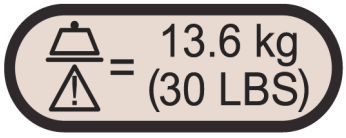

67090-01 Anesthesia Screen



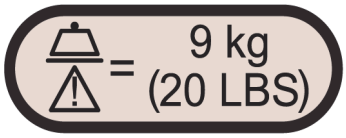

67090-08 Labor Bar



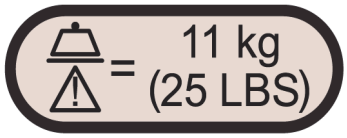

67090-03 Attached Calf Support



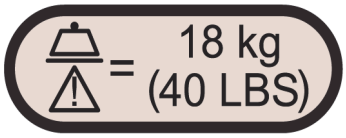

67090-09 Oxygen Tank Holder



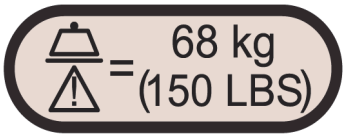

67090-04 Foley Hook Kit




67090-10 Permanent IV Pole




67090-07 Infusion Support System




67090-11 Foot Supports

195826_1_004

# Chapter 2
# Troubleshooting



## GETTING STARTED

**WARNING:**

Only facility-authorized persons should troubleshoot the bed. Troubleshooting by unauthorized persons could cause personal injury or equipment damage.

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

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

To isolate or identify a problem and to make sure that a repair was done correctly after completing each corrective action (replacing or adjusting a part, seating a connector, etc.), do the **Function Checks**.

To make sure that a repair was done correctly, do the **Final Actions** after the Function Checks.

If troubleshooting procedures do not isolate the problem, contact Hill-Rom Technical Support.

## TEST EQUIPMENT

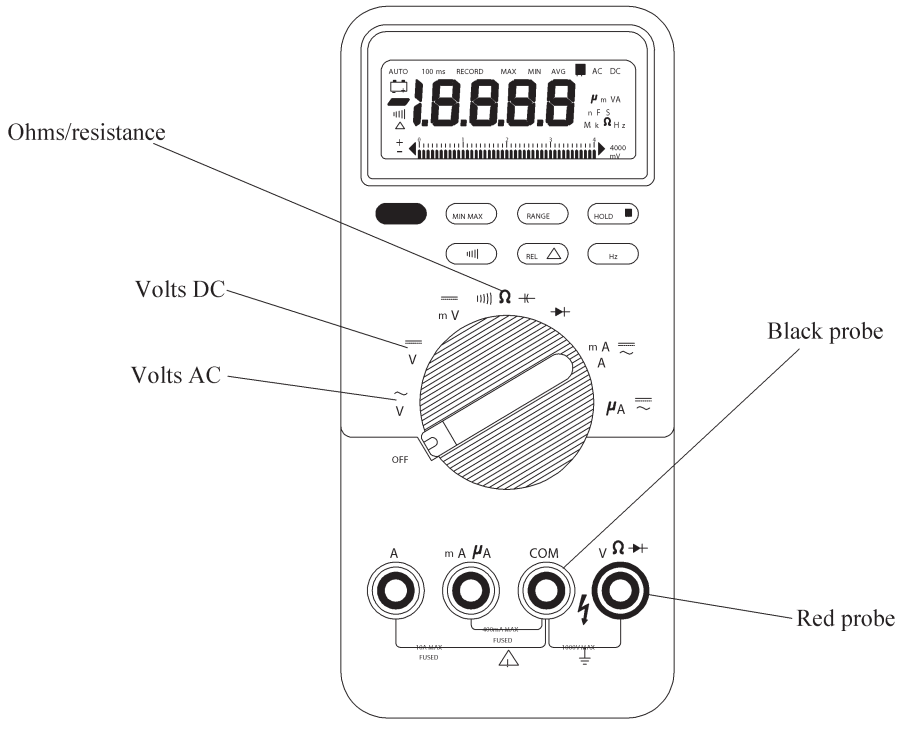
You will need a digital or analog multimeter (VOM) with fine tip probes to troubleshoot the bed.

**WARNING:**

See your VOM owner's manual for complete and detailed information regarding the operation of your VOM. Failure to do so could cause personal injury or equipment damage.

Figure 2-1 on page 2-2 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. VOM**




195826_1_005

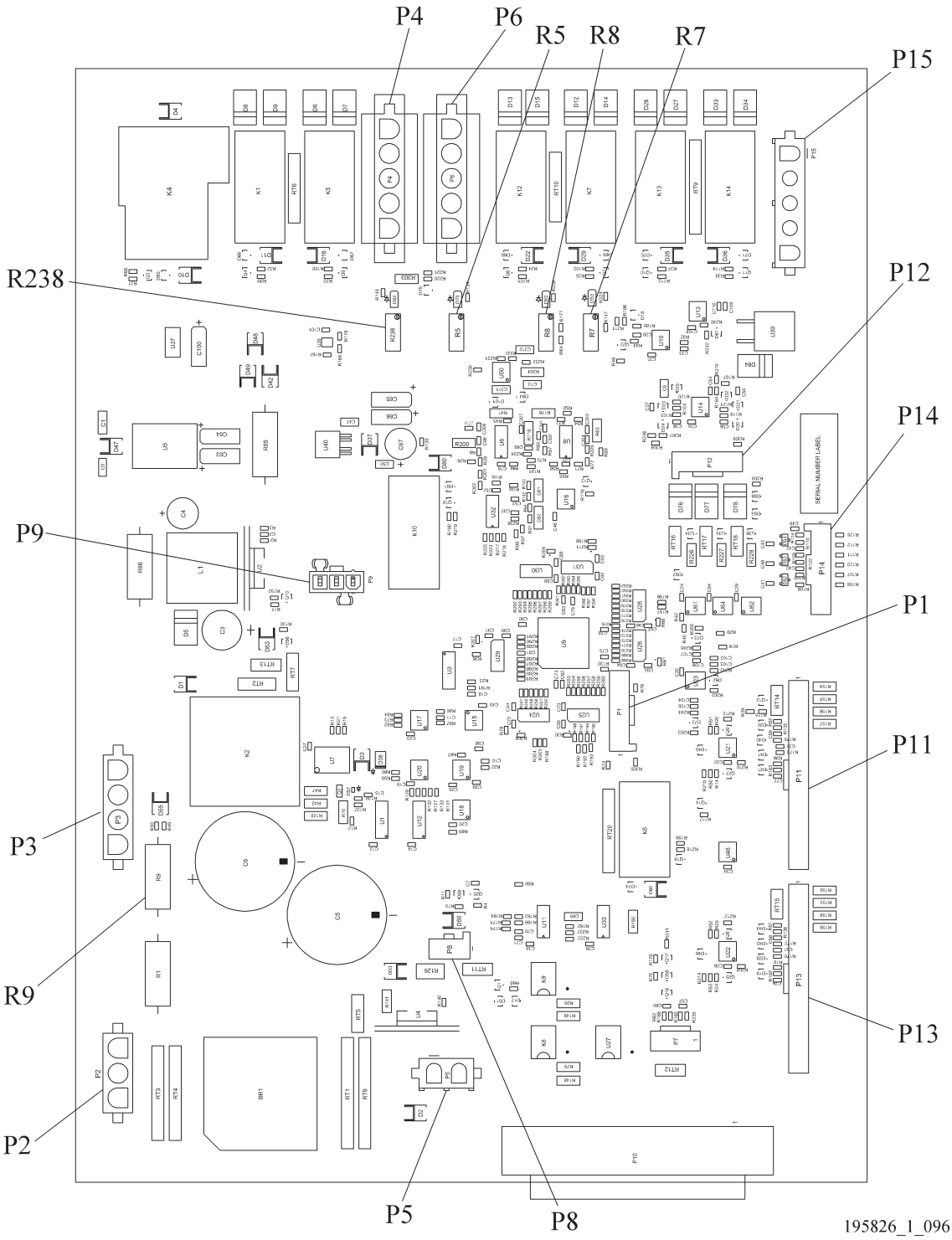
Figure 2-1 on page 2-2 shows the correct connection for the fine tip probes. The red probe plugs into the port marked "V Ω." The black probe plugs into the port marked "COM." The troubleshooting repair analysis procedure (RAP) identifies where on the bed to connect the red probe and black probe.

**WARNING:**

Unplug the bed from its power source and disconnect the battery backup before checking ohms/resistance measurements. Failure to disconnect line voltage to the bed can damage the VOM and cause equipment damage or personal injury.

2

**Figure 2-2. Logic Control P.C. Board—P/N 183093; Connector and Resistor Identification**



## INITIAL ACTIONS

To gather information from operators in regard to problems with the bed, use Initial Actions. Make a note of symptoms or other information about the problem that the operator describes. This information helps identify the probable cause.

1. Someone who can explain the problem is available.

   **Yes** **No**
   ↓ → Go to "Function Checks" on page 2-5.

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

   **Yes** **No**
   ↓ → Go to "Function Checks" on page 2-5.

3. The problem is caused by improper operator action.

   **Yes** **No**
   ↓ → Go to "Function Checks" on page 2-5.

4. Instruct the operator to refer to the procedures in the *Affinity® Three Birthing Bed and Affinity® Four Birthing Bed User Manual* (USR025). Do the "Function Checks" on page 2-5.

## QUICK REFERENCE PROBLEM/SOLUTION MATRIX

If a problem with the bed system is readily identified, use Table 2-1 on page 2-4 to quickly go to the applicable troubleshooting procedure. If the problem is not readily identified, go to "Function Checks" on page 2-5.

**Table 2-1. Quick Reference Problem/Solution Matrix**

| Problem | Solution |
|---|---|
| Siderail Control Malfunction | RAP 2.1 on page 2-9 |
| Head Up/Down Malfunction | RAP 2.2 on page 2-11 |
| Foot Up/Down Malfunction | RAP 2.3 on page 2-12 |
| Hilow Up/Down Malfunction | RAP 2.4 on page 2-13 |
| Bed Air Surface Malfunction | RAP 2.5 on page 2-13 |
| Head Drive Operation Failures | RAP 2.6 on page 2-15 |
| Foot Drive Operation Failures | RAP 2.7 on page 2-15 |
| Hilow Up Malfunction (When The Foot Section Is Lowered) | RAP 2.8 on page 2-16 |
| Hilow Drive Operation Failures | RAP 2.9 on page 2-16 |
| Brake Caster Malfunction | RAP 2.10 on page 2-17 |
| Night Light Does Not Illuminate | RAP 2.11 on page 2-17 |
| Night Light Does Not Turn Off | RAP 2.12 on page 2-18 |
| Siderail Mechanism Does Not Hold | RAP 2.13 on page 2-18 |
| Trend-Like Position Malfunction | RAP 2.14 on page 2-19 |
| Battery Backup Malfunction | RAP 2.15 on page 2-19 |
| Battery Charger Malfunction | RAP 2.16 on page 2-20 |
| CPR Release Malfunction | RAP 2.17 on page 2-21 |

## FUNCTION CHECKS

Function checks determine whether the bed is operating correctly. All caregiver control panel functions are available from both the right and left siderails. When checking redundant function controls, activate each of the siderails to determine if the fault is contained in one or both of the siderails.

1. Initial Actions have been done.

   **Yes** **No**
   ↓ → Go to "Initial Actions" on page 2-4.

2. The bed is plugged into an appropriate power source.

   **Yes** **No**
   ↓ → Plug the bed into an appropriate power source. Go to Step 3.

3. The lockout switch is in the "ON" (unlocked) position before proceeding with the function checks.

   **Yes** **No**
   ↓ → Put the lockout switch in the "ON" (unlocked) position. Go to Step 4.

4. The optional pendant, if equipped, is connected correctly.

   **Yes** **No**
   ↓ → Connect the pendant to the pendant connector, located on the bottom motor cover. Go to Step 5.

5. Examine the siderail cable connections to the logic control P.C. board cable. The cables are connected correctly.

   **Yes** **No**
   ↓ → Connect the siderail cable to the cable from the logic control P.C. board. Go to Step 6.

6. Visually examine the bed for loose connections on cable assemblies and electrical wires. All cable connections and wiring are correctly secured.

   **Yes** **No**
   ↓ → Attach the cable connections and wiring. Go to Step 7.

7. Examine the bed for signs of obvious damage. The bed appears to be all right.

   **Yes** **No**
   ↓ → Repair the damage, and go to "Hilow System Functional Check" on page 2-5.

### HILOW SYSTEM FUNCTIONAL CHECK

1. Use the bed function controls to put the bed in these positions:
   - Put the bed in the mid-height position.
   - Raise the foot section to the high position.
   - Lower the head to the low position.
   - Make sure that the bed is out of the Trend-Like position (the sleep surface is level).
2. Momentarily press the **Bed Up** control. The bed rises.

   **Yes** **No**
   ↓ → Go to RAP 2.4 on page 2-13.

3. Momentarily press the **Bed Down** control. The bed lowers.

   **Yes** **No**
   ↓ → Go to RAP 2.4 on page 2-13.

4. Press the **Bed Up** control and then the **Bed Down** control. The hilow motor is free of excessive noise or any mechanical binding/grinding.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

5. Press the **Bed Up** control and then the **Bed Down** control to raise, and then lower the sleep surface. The bed sleep surface stops and does not drift downward or coast.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

6. Press the **Bed Down** control to fully lower the bed to the low position.
   - If the bed has the Lift-off Foot Section installed, the top of the seat section is 18.5 to 19.5 inches (47.0 to 49.5 cm) above the floor.
   - If the bed has the Stow and Go® Foot Section installed, the top of the seat section is 19.0 to 20.0 inches (48.25 to 50.8 cm) above the floor

   **Yes** **No**
   ↓ → Adjust the hilow limit switch (LBD) (see Procedure 4.5 on page 4-9). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

### TREND-LIKE POSITION FUNCTIONAL CHECK

1. Put the bed into a mid-height position. Activate the Trend-Like position release handle at the head end of the bed, and put the bed in and out of the Trend-Like position. The bed goes in and out of Trend-Like position smoothly, and the sleep surface is attached when the handle is released:

   **Yes** **No**
   ↓ → Adjust the Trend-Like position sensing switch (see Procedure 4.11 on page 4-21). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

### HEAD SYSTEM FUNCTIONAL CHECK

1. Make sure that the sleep surface is level, and put the bed in the following positions:
   - Put the bed in a mid-height position with the hilow function.
   - Put the head section in a mid-height position with the head function.
2. Momentarily activate the head up switch. The head section rises.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

3. Momentarily activate the head down switch. The head section lowers.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

4. Activate the head up or down switch. The head motor is free of excessive noise or any mechanical binding/grinding.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

5. Raise the head section to the high position with the head up switch. Make a note of the position of the sleep surface. The head section stops and does not drift downward or coast.

   **Yes** **No**
   ↓ → Go to RAP 2.6 on page 2-15.

6. Raise the head section to the highest position with the head up switch. Evenly distribute a maximum of 50 lb (23 kg) of weight on the head section of the sleep surface. Pull the CPR release. The head section lowers to a flat position within approximately 7 seconds.

   **Yes** **No**
   ↓ → Adjust the CPR release cables (see Procedure 4.7 on page 4-14). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

### FOOT SYSTEM FUNCTIONAL CHECK

1. Put the bed in the following positions:
   - Put the bed in the mid-height position with the hilow function.
   - Use the foot function to raise the foot section until the mattress is level with the seat section mattress.
   - Lower the head section to the low position with the head function.
   - Make sure that the bed is out of the Trend-Like position (the sleep surface is level).
2. Press the foot up switch, and activate the foot section. The foot section rises when the foot up switch is activated.

   **Yes** **No**
   ↓ → Go to RAP 2.8 on page 2-16.

3. Press the foot down switch. The foot section lowers when the foot down switch is activated.

   **Yes** **No**
   ↓ → Go to RAP 2.3 on page 2-12.

4. Raise the foot section to the high position using the foot up switch. The top of the foot section stops approximately 1.75 to 2.25 inches (4.5 to 5.7 cm) above the seat section.

   **Yes** **No**
   ↓ → Adjust the foot limit switch (see Procedure 4.10 on page 4-19). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

5. Lower the foot section to the low position with the foot down switch. The foot drive stops when the foot lift arm is 6.0 to 6.25 inches (15.25 to 15.9 cm) below the seat section.

   **Yes** **No**
   ↓ → Adjust the foot limit switch (see Procedure 4.10 on page 4-19). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

6. Lower the bed to the low position with the hilow down switch. Lower the foot section with the foot down switch. The bed automatically rises from the low position.

   **Yes** **No**
   ↓ → Go to RAP 2.8 on page 2-16.

7. Activate the foot up or down switch. The foot motor is free of excessive noise or any mechanical binding/grinding.

   **Yes** **No**
   ↓ → Go to RAP 2.7 on page 2-15.

### AIR SYSTEM FUNCTIONAL CHECK

1. Press the seat inflate control, and activate the bed air surface. The seat section mattress inflates.

   **Yes** **No**
   ↓ → Go to RAP 2.5 on page 2-13.

2. Press and hold the seat deflate control, and activate the bed air surface. The seat section mattress deflates.

   **Yes** **No**
   ↓ → Go to RAP 2.5 on page 2-13.

3. Press the back inflate control, and activate the bed air surface. The lumbar section inflates.

   **Yes** **No**
   ↓ → Go to RAP 2.5 on page 2-13.

4. Press the back deflate control to activate the bed air surface. The lumbar section deflates.

   **Yes** **No**
   ↓ → Go to RAP 2.5 on page 2-13.

### OTHER BED FUNCTIONAL CHECKS

1. The lockout switch locks out the designated inboard/outboard controls when put in the "OFF" position (locked), and enables the functions when put in the "ON" position (unlocked). The lockout functions operate correctly.

   **Yes** **No**
   ↓ → Replace the faulty rocker switch (see Procedure 4.23 on page 4-40). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

2. Operate all radio, TV, nurse call, and lighting functions in both siderails. All functions operate correctly.

   **Yes** **No**
   ↓ → Replace the P.C. switch board that has the faulty function(s) for the caregiver controls (see Procedure 4.26 on page 4-44) or for the patient controls (see Procedure 4.25 on page 4-42). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

3. Do the brake/steer performance check. Put the brake steer pedal into the brake position and then the steer position. The brake and steer functions operate correctly.

   **Yes** **No**
   ↓ → Go to RAP 2.10 on page 2-17, and adjust the brake and steer functions (see Procedure 4.31 on page 4-53). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

4. Operate the labor grips on both sides of the bed. The labor grips latch when in the full up position and then release when the release handle is activated.

   **Yes** **No**
   ↓ → Replace the faulty labor grips (see Procedure 4.16 on page 4-27).

5. If applicable, operate the calf supports. The calf support arms latch in the full up position and the calf support locks in position, and can be unlocked and repositioned.

   **Yes** **No**
   ↓ → If the calf support arm does not latch, adjust the calf support module (see "Adjustment" on page 4-26). The calf support arms latch in the full up position, and can be unlocked and repositioned.

   **Yes** **No**
   ↓ → Replace the calf support assembly (see Procedure 4.14 on page 4-26).

6. Operate the siderail latching mechanism by raising and then lowering the siderail. The siderail latches when in the full up position and lowers slowly when the release handle is activated and allowed to free fall.

   **Yes** **No**
   ↓ → Replace the faulty siderail assembly (see Procedure 4.24 on page 4-41).

7. Unplug the bed from its power source, and make sure that the battery backup is operating correctly by activating bed functions. The battery backup provides sufficient power to operate the bed functions.

   **Yes** **No**
   ↓ → Go to RAP 2.15 on page 2-19.

8. Go to "Final Actions" on page 2-9.

## FINAL ACTIONS

1. Complete the required preventive maintenance procedures. See "Preventive Maintenance" on page 6-4.
2. Complete all required administrative tasks.

## 2.1 Siderail Control Malfunction

1. If the bed does not have the optional pendant, go to Step 2. Make sure that the optional pendant, if equipped, does not have any controls that are activated, such as if the pendant is under the mattress. The pendant does not have any controls activated.

   **Yes** **No**
   ↓ → Disconnect the pendant from the bed. If this solves the problem, replace the pendant and go to "Final Actions" on page 2-9. Otherwise, go to Step 2.

2. Only one function on the siderail control does not operate.

   **Yes** **No**
   ↓ → Go to Step 6.

3. The same function does not operate on the opposite siderail control.

   **Yes** **No**
   ↓ → Replace the siderail control board that does not operate. For caregiver controls, see Procedure 4.26 on page 4-44; for patient controls, see Procedure 4.25 on page 4-42. If this does not solve the problem, go to Step 10.

4. Disconnect each siderail from the Logic P.C. Board, one at a time.
   a. Use a small flat-tipped screwdriver on the connector located near the siderail latch, or remove the top motor cover (see Procedure 4.1 on page 4-3) and disconnect connectors P11 and P13.
   b. Check the function with one siderail disconnected, then disconnect the other siderail. Connect the first siderail and check the function.
   c. The function does not operate with each siderail disconnected.

      **Yes** **No**
      ↓ → Replace the siderail control board that does not operate. For caregiver controls, see Procedure 4.26 on page 4-44; for patient controls, see Procedure 4.25 on page 4-42. If this does not solve the problem, go to Step 10.

5. Do the troubleshooting procedure for the function that does not operate (see Table 2-1 on page 2-4). If this does not solve the problem, go to Step 10.

6. The bed is connected to AC power

   **Yes** **No**
   ↓ → Connect the bed to AC power and go to Step 7.

7. Make sure that the siderail controls are not locked out. Make sure that the lock symbol on the siderail is not on and the lockout switch is not in the locked position. The siderail controls are not locked out.

   **Yes** **No**
   ↓ → If the lockout switch was in the locked position, put the lockout switch in the unlocked position. If the siderail controls do not operate after the lockout switch has been put in the unlocked position, go to Step 8.

8. Make sure that both siderail controls have power. Switch the lockout switch between the unlocked and locked position. The lock symbol turns on when the lockout switch is in the locked position.

   **Yes** **No**
   ↓ → If the lock symbol on a siderail does not come on when the lockout switch is on, make sure that all of the electrical connections are attach, including the battery connections and the battery fuse. If any connection is not attach, make it attach and go to Step 8. If the connections are all attach, go to Step 9.

9. Replace the siderail control board that has the malfunction. For caregiver controls, see Procedure 4.26 on page 4-44; for patient controls, see Procedure 4.25 on page 4-42. The function still does not operate.

   **Yes** **No**
   ↓ → Go to "Final Actions" on page 2-9.

10. Replace the logic control P.C. board. This solves the problem.

    **Yes** **No**
    ↓ → Contact Hill-Rom technical support.

11. Go to "Final Actions" on page 2-9.

## 2.2 Head Section Malfunction

The head section motor does not operate. If the motor operates, but has other problems, go to "Head Drive Operation Failures" on page 2-15.

1. The other bed functions operate, and the head section does not operate on the opposite siderail.

   **Yes** **No**
   ↓ → Troubleshoot the siderail control panel. Go to Procedure 2.1 on page 2-9.

2. Check the CPR mechanism. It is adjusted correctly so that the CPR release at the head motor is not under tension when the CPR handles are in the resting position.

   **Yes** **No**
   ↓ → Adjust the CPR mechanism (see Procedure 4.7 on page 4-14). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 3.

3. Use the CPR handles to release the head section, and raise it by hand. The head section raises smoothly.

   **Yes** **No**
   ↓ → Check the head drive motor for visible damage. If there is visible damage, replace the head drive motor (see Procedure 4.6 on page 4-12). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 4.

4. Remove the top motor cover and access the control board (see Procedure 4.1 on page 4-3). Make sure that the head motor connections are attach. The head motor is securely plugged into the control board.

   **Yes** **No**
   ↓ → Disconnect and connect the electrical connector and make sure that it is securely plugged in. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 5.

5. Set the multimeter to read DC volts (V DC). Put the positive lead on pin 1 of the P4 connector (see Figure 2-2 on page 2-3), and the negative lead on pin 2 of the P4 connector. The voltage measures 24-35 V DC when the Head Up control is activated, and -24 to -35 V DC when the Head Down control is activated.

   **Yes** **No**
   ↓ → Replace the logic control P.C. Board (see Procedure 4.21 on page 4-36). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 6

6. Replace the head drive motor. The head drive functions.

   **Yes** **No**
   ↓ → Replace the logic control P.C. Board (see Procedure 4.21 on page 4-36). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom customer support.

7. Go to "Final Actions" on page 2-9.

## 2.3 Foot Section Malfunction

The foot section motor does not operate. If the motor operates, but has other problems, go to "Foot Drive Operation Failures" on page 2-15.

1. The other bed functions operate, and the foot section does not operate on the opposite siderail.

   **Yes** **No**
   ↓ → Troubleshoot the siderail control panel. Go to Procedure 2.1 on page 2-9.

2. Use the Bed Up control to raise the bed to the highest position.
3. Make sure the bed is not in the Trend-like position.
4. Remove the top motor cover (see Procedure 4.1 on page 4-3), and disconnect the foot section motor (P6) and the head section motor (P4) from the logic control P.C. board (see Figure 2-2 on page 2-3).

**CAUTION:**

Make sure that you observe the foot section when you move it while connected to the P4 connector of the logic control P.C. Board. This procedure bypasses the electronic position limiters of the foot section. Make sure that the foot section does not hit an obstruction or the floor. Equipment damage can occur.

5. Connect the foot section motor to the P4 electrical connector on the logic control P.C. board. The foot section moves when the Head Up or Head Down control is pressed.

   **Yes** **No**
   ↓ → Replace the foot section motor (see Procedure 4.9 on page 4-17) and go to "Final Actions" on page 2-9.

6. Connect the foot section motor to the P6 electrical connector on the logic control board. Connect the head section motor to the P4 electrical connector on the logic control board. Set the multimeter to read DC volts (V DC).
7. Put the positive multimeter lead on pin 1 of the P6 connector, and the negative multimeter lead on pin 2 of the P6 connector. The voltage measures 24-35 V DC when the Foot Up control is activated, and -24 to -35 V DC when the Foot Down control is activated.

   **Yes** **No**
   ↓ → Adjust the foot limit potentiometers (see Procedure 4.10 on page 4-19). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 9

8. Go to Step 11.
9. Set the multimeter to V DC. Put the negative multimeter lead on pin 1 of the R9 resistor and the positive multimeter lead on pin 3 of the P6 connector. The voltage measures 4.5-5.5 V DC

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

10. Set the multimeter to V DC. Put the negative multimeter lead on pin 1 of the R9 resistor and the positive multimeter lead on pin 6 of the P6 connector. The voltage measures less than 0.25 V DC.

    **Yes** **No**
    ↓ → Contact Hill-Rom technical support.

11. Replace the foot section motor (see Procedure 4.9 on page 4-17), and go to "Final Actions" on page 2-9.

## 2.4 Hilow Malfunction

The hilow motor does not operate. If the motor operates, but has other problems, go to "Head Drive Operation Failures" on page 2-15.

1. The other bed functions operate, and the hilow function does not operate on the opposite siderail.

   **Yes** **No**
   ↓ → Troubleshoot the siderail control panel. Go to Procedure 2.1 on page 2-9.

2. Use the Foot Up control to raise the foot section to the highest position. Make sure the bed is not in the Trend-like position. The hilow function does not operate.

   **Yes** **No**
   ↓ → Go to "Final Actions" on page 2-9.

3. Remove the top motor cover (see Procedure 4.1 on page 4-3), and set the multimeter to read DC volts (V DC).

4. Put the positive lead on pin 1of the P15 connector, and the negative lead on pin 2 of the P15 connector (see Figure 2-2 on page 2-3). The voltage measures 24-35 V DC when the Bed Up control is activated, and -24 to -35 V DC when the Bed Down control is activated.

   **Yes** **No**
   ↓ → Adjust the hilow limit potentiometers (see Procedure 4.5 on page 4-9). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 6

5. Go to Step 8.

6. Set the multimeter to V DC. Put the negative lead on pin 1 of the R9 resistor and the positive lead on pin 3 of the P15 connector. The voltage measures 4.5-5.5 V DC.

   **NOTE:**

   Pin 1 of the R9 resistor is the pin closest to the P3 connector (see Figure 2-2 on page 2-3).

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

7. Set the multimeter to V DC. Put the negative lead on pin 1 of the R9 resistor and the positive lead on pin 4 of the P15 connector. The voltage measures less than 0.25 V DC when the bed is not in the low position.

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

8. Replace the hilow section motor (see Procedure 4.4 on page 4-6) and go to "Final Actions" on page 2-9.

## 2.5 Air System Malfunction

1. The other bed functions operate, and the air system does not operate on the opposite siderail.

   **Yes** **No**
   ↓ → Troubleshoot the siderail control panel. Go to Procedure 2.1 on page 2-9

2. Make sure that the bed is connected to AC wall power.

3. Use the Bed Up control to raise the bed to the highest position.

4. Remove the top motor cover to gain access to the logic control P.C. board (see Procedure 4.1 on page 4-3).

5. Do a visual check of the air hoses for leaks, disconnected hoses, or obstructed hoses. The hoses are in good condition.

   **Yes** **No**
   ↓ → Repair or replace the hoses. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 6.

6. Do the check of the air pump.
   a. Set the multimeter to measure AC volts (V AC).
   b. Put the leads of the multimeter on pins 1 and 2 of the P9 connector on the logic control P.C. board (see Figure 2-2 on page 2-3). The voltage is 22-28V AC when the Seat Inflate or Lumbar Inflate control is pressed.

      **Yes** **No**
      ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

   c. Replace the air pump (see Procedure 4.17 on page 4-29).

7. Do the check of the lumbar solenoid:
   a. Set the multimeter to measure DC volts (V DC).
   b. Put the leads of the multimeter on pins 1 and 2 of the P12 connector on the logic control P.C. board (see Figure 2-2 on page 2-3). The voltage is 0 V DC, and rises to 10-12 V DC and settles to 5-6 V DC when the Lumbar Inflate or Lumbar Deflate control is pressed.

      **Yes** **No**
      ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

   c. Replace the air manifold (see Procedure 4.18 on page 4-32).

8. Do the check of the seat solenoid:
   a. Set the multimeter to measure DC volts (V DC).
   b. Put the leads of the multimeter on pins 3 and 4 of the P12 connector on the logic control P.C. board (see Figure 2-2 on page 2-3). The voltage is 0 V DC, and rises to 10-12 V DC and settles to 5-6 V DC when the Seat Inflate or Seat Deflate control is pressed.

      **Yes** **No**
      ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

   c. Replace the air manifold (see Procedure 4.18 on page 4-32).

9. Do the check of the exhaust solenoid:
   a. Set the multimeter to measure DC volts (V DC).
   b. Put the leads of the multimeter on pins 5 and 6 of the P12 connector on the logic control P.C. board (see Figure 2-2 on page 2-3). The voltage is 0 V DC, and rises to 10-12 V DC and settles to 5-6 V DC when the Seat Deflate or Lumbar Deflate switch is pressed.

      **Yes** **No**
      ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36).

   c. Replace the air manifold (see Procedure 4.18 on page 4-32).

10. Install the top motor cover (see Procedure 4.1 on page 4-3).
11. Go to "Final Actions" on page 2-9.

## 2.6 Head Drive Operation Failures

The hilow motor runs, but other problems with the motor are suspected (i.e. it is noisy, it drifts, etc.).

1. Raise and lower the head section with the head function. Look for evidence of physical damage to the drive system (i.e., check for a bent motor shaft, loose metal, etc.). The drive system passes inspection.

   **Yes** **No**
   ↓ → Replace the head motor (see Procedure 4.6 on page 4-12). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 2.

2. Examine the mounting clevis pins and cotter pins on the head motor drive. The clevis pins are installed correctly.

   **Yes** **No**
   ↓ → Install the head motor clevis pins correctly to attach the head motor to the bed frame. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 3.

3. Raise and lower the head section under a load condition. The head drive runs quietly.

   **Yes** **No**
   ↓ → Examine for damage to the head motor. Replace if necessary (see Procedure 4.6 on page 4-12). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 4.

4. Using the head function, raise and lower the head section. The head motor retains its position, and does not drift or coast.

   **Yes** **No**
   ↓ → Replace the head motor (see Procedure 4.6 on page 4-12). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

5. Go to "Final Actions" on page 2-9.

## 2.7 Foot Drive Operation Failures

The foot motor runs, but other problems with the motor are suspected (i.e., it is noisy, it drifts, etc.).

1. Raise and lower the foot section with the foot function. Look for evidence of physical damage to the drive system (i.e., check for a bent motor shaft, loose metal, etc.). The drive system passes inspection.

   **Yes** **No**
   ↓ → Replace the foot motor (see Procedure 4.9 on page 4-17). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 2.

2. Examine the mounting clevis pins and cotter pins on the foot motor drive. The pins are installed correctly.

   **Yes** **No**
   ↓ → Install the mounting pins correctly to attach the foot motor to the bed frame. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 3.

3. Raise and lower the foot section under a load condition. The foot drive runs quietly.

   **Yes** **No**
   ↓ → Examine for damage to the foot motor. Replace if necessary (see Procedure 4.9 on page 4-17). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 4.

4. Using the foot function, raise the foot section up and down. The foot motor retains its position, and does not drift or coast.

   **Yes** **No**
   ↓ → Replace the foot motor (see Procedure 4.9 on page 4-17). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

5. Go to "Final Actions" on page 2-9.

## 2.8 Hilow Up Malfunction (When The Foot Section Is Lowered)

The hilow function (or motor) fails to automatically raise the bed from the low position when the foot section is lowered to its lowest point.

1. Activate the hilow function from the siderails and pendant control. The hilow function works correctly.

   **Yes** **No**
   ↓ → Troubleshoot the hilow function. Go to "Hilow Malfunction" on page 2-13 or "Hilow Drive Operation Failures" on page 2-16. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 2.

2. Put the bed into the low position. Lower the foot section to the low position. The bed automatically rises.

   **Yes** **No**
   ↓ → Check the hilow and foot limit switches. See Procedure 4.5 on page 4-9 or Procedure 4.10 on page 4-19. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

3. The bed is operating normally. Go to "Final Actions" on page 2-9.

## 2.9 Hilow Drive Operation Failures

The hilow motor runs, but other problems with the motor are suspected (i.e., it is noisy, it drifts, etc.).

1. Raise and lower the bed with the hilow function. Look for evidence of physical damage to the drive system (i.e., check for a bent motor shaft, loose metal, etc.). The drive system does not appear damaged.

   **Yes** **No**
   ↓ → Replace the hilow motor (see Procedure 4.4 on page 4-6). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 2.

2. Examine the mounting clevis pins and cotter pins on the hilow motor drive. The clevis pins are installed correctly.

   **Yes** **No**
   ↓ → Install the hilow motor clevis pins correctly to attach the hilow motor to the bed frame. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 3.

3. Raise and lower the bed under a load condition. The hilow drive runs quietly.

   **Yes** **No**
   ↓ → Examine for damage to the hilow motor. Replace if necessary (see Procedure 4.4 on page 4-6). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 4.

4. Using the hilow function, raise and lower the bed. The hilow motor retains its position, and does not drift or coast.

   **Yes** **No**
   ↓ → Replace the hilow motor (see Procedure 4.4 on page 4-6). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

5. Go to "Final Actions" on page 2-9.

## 2.10 Brake Caster Malfunction

1. The brake caster pedal locks in the brake position when you push on it with your foot.

   **Yes** **No**
   ↓ → Examine the caster for excessive wear. If necessary, replace the damaged caster (see Procedure 4.27 on page 4-45). If this solves the problem, go to "Final Actions" on page 2-9. If this does not solve the problem, go to Step 2.

2. The casters lock in the brake position and do not roll or rotate when you push in the brake pedal.

   **Yes** **No**
   ↓ → Adjust the caster assembly (see Procedure 4.27 on page 4-45). If this solves the problem, go to "Final Actions" on page 2-9. If this does not solve the problem, go to Step 3.

3. Another part of the bed interferes with the brake mechanism.

   **Yes** **No**
   ↓ → Contact Hill-Rom Technical Support.

4. Take appropriate actions to eliminate the interference. This solves the problem.

   **Yes** **No**
   ↓ → Contact Hill-Rom Technical Support.

5. Go to "Final Actions" on page 2-9.

## 2.11 Night Light Does Not Illuminate

1. The night light comes on when the bed is connected to AC power, or when the bed is not in Battery Sleep mode.

   **Yes** **No**
   ↓ → Make sure that the night light lamp cable is plugged into both the logic control P.C. board connector P9, and the night light P.C. board. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, replace the night light assembly (see Procedure 4.3 on page 4-5). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 3.

2. The system functions normally. Go to "Final Actions" on page 2-9.

3. Set the multimeter to measure DC volts (V DC). Put the positive lead on pin 1 of connector P8 and the negative lead to pin 1 of the R9 resistor. The voltage measures 11-13 V DC.

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

4. Replace the night light assembly (see Procedure 4.3 on page 4-5) and go to "Final Actions" on page 2-9.

## 2.12 Night Light Does Not Turn Off

1. The night light is on more than 4 minutes after the bed is disconnected from AC power.

   **Yes** **No**
   ↓ → The night light is functioning correctly. Go to "Final Actions" on page 2-9.

2. Press any bed up/down control and do not press any other controls for at least 5 minutes. The night light is on.

   **Yes** **No**
   ↓ → The night light is functioning correctly. Go to "Final Actions" on page 2-9.

3. Disconnect each siderail from the Logic P.C. Board, one at a time.
   a. Use a small flat-tipped screwdriver on the connector located near the siderail latch, or remove the top motor cover and disconnect connectors P11 and P13.
   b. Wait 5 minutes with one siderail disconnected, then disconnect the other siderail. Connect the first siderail and wait 5 minutes
   c. The night light stays on with each siderail disconnected.

      **Yes** **No**
      ↓ → Replace the siderail control board for the side that permitted the night light to turn off when disconnected. For caregiver controls, see Procedure 4.26 on page 4-44; for patient controls, see Procedure 4.25 on page 4-42. If this does not solve the problem, go to Step 4.

4. Replace the logic control P.C. board. If this does not solve the problem, contact Hill-Rom Technical Support.

## 2.13 Siderail Mechanism Does Not Hold

1. From the low (stow) position, raise the siderail by pulling the siderail up until it clicks in the locked position. It rises and clicks into position.

   **Yes** **No**
   ↓ → Examine for obstructions, missing hardware, or loose fasteners. If found, repair or replace the siderail (see Procedure 4.24 on page 4-41). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 2.

2. Grasp the top of the siderail, and push and pull firmly on the siderail. The siderail remains latched in the locked position.

   **Yes** **No**
   ↓ → Examine for obstructions or loose fasteners. If found, repair or replace the siderail (see Procedure 4.24 on page 4-41). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 3.

3. Stow the siderail as follows: grasp and pull the release handle out, and allow the siderail to swing down in a controlled, dampened, manner to the fully stowed position. The siderail goes down into the stored position.

   **Yes** **No**
   ↓ → Examine for obstructions in the center arm, loose fasteners, missing spring, or binding. If found, repair or replace the siderail (see Procedure 4.24 on page 4-41). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 4.

4. Another part of the bed interferes with the siderail.

   **Yes** **No**
   ↓ → If the siderail still does not operate correctly, contact Hill-Rom Technical Support.

5. Take appropriate actions to eliminate the interference. This solves the problem.

   **Yes** **No**
   ↓ → Contact Hill-Rom Technical Support.

6. Go to "Final Actions" on page 2-9.

## 2.14 Trend-Like Position Malfunction

1. If unable to put the bed in the Trend-Like position, press the hilow up switch to raise the bed to a higher position. Push down on the Trend-Like position release handle. The head end is 8° below the foot end.

   **Yes** **No**
   ↓ → Make sure that the Trend-Like position release handles are correctly adjusted and functional. See Procedure 4.11 on page 4-21 for access instructions to service the Trendelenburg features. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, contact Hill-Rom Technical Support.

2. Go to "Final Actions" on page 2-9.

## 2.15 Battery Backup Malfunction

The bed hilow, foot section, or head section does not function when it is not connected to AC power.

**NOTE:**

When the bed is powered by the battery backup, or when the bed is connected to AC power and the battery is fully charged, the battery indicator is on. The battery indicator flashes when the battery is charging. If the battery indicator is off, the battery is in sleep mode or is fully discharged. The optional air system is not intended to operate when the bed is not connected to AC power.

1. The lockout switch at the head end of the bed is in the unlocked position.

   **Yes** **No**
   ↓ → Put the lockout switch in the unlocked position and go to Step 2.

2. Press any caregiver bed up/down control. The battery indicator remains off.

   **Yes** **No**
   ↓ → If the bed up/down, foot up/down, or head up/down functions operate, the bed is functioning normally. Go to "Final Actions" on page 2-9. Otherwise, troubleshoot the siderail control s. Go to "Siderail Control Malfunction" on page 2-9.

3. Connect the bed to AC power. The battery indicator flashes to show that the battery is charging.

   **Yes** **No**
   ↓ → Go to Step 6.

4. Permit the battery to fully charge and disconnect the bed from the AC power. If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 6.
5. Visually examine for loose connections on cable assemblies and electrical wires. All cable connections and electrical wires are correctly secured.

   **Yes** **No**
   ↓ → Attach the cable connections and electrical wires. If this solves the problem, go to "Final Actions" on page 2-9.

6. Set the multimeter to measure resistance and check the battery fuse for electrical continuity. The battery fuse is in good condition.

   **Yes** **No**
   ↓ → Replace the battery fuse (see Procedure 4.20 on page 4-33). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, go to Step 7.

7. Set your multimeter to measure DC volts (V DC). Measure the voltage at the battery. The voltage is below 23 V DC.

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36). If this solves the problem, go to "Final Actions" on page 2-9. Otherwise, continue to Step 8.

8. Replace the two batteries in the battery backup assembly (see Procedure 4.20 on page 4-33). This solves the problem.

   **Yes** **No**
   ↓ → Contact Hill-Rom Technical Support.

9. Go to "Final Actions" on page 2-9.

## 2.16 Battery Charger Failure

1. Make sure that the bed is plugged into a wall power source.
2. Remove the top motor cover (see Procedure 4.1 on page 4-3) and set the multimeter to read DC volts (V DC).
3. Remove the battery connector from the logic control P.C. board.
4. Put the positive probe on pin 1 of the P5 connector. Put the negative probe on pin 1 of the R9 resistor. The voltage is 26.4-28.4 V DC

   **Yes** **No**
   ↓ → Replace the logic control P.C. board (see Procedure 4.21 on page 4-36). If this does not solve the problem, contact Hill-Rom Technical Support.

5. Replace the battery (see Procedure 4.20 on page 4-33). If this does not solve the problem, contact Hill-Rom Technical Support.

## 2.17 CPR Release Malfunction

1. Pull and hold the CPR release handle. The head section goes into the full flat position. (When unoccupied, the head section may require slight downward hand pressure to rotate completely into the full flat position.)

   **Yes** **No**
   ↓ → Check the adjustment of the CPR function (see Procedure 4.7 on page 4-14). If this solves the problem, go to "Final Actions" on page 2-9. If this does not solve the problem, go to Step 2.

2. Visually examine the head drive motor assembly for damage or missing parts. The head drive motor assembly is in good working condition.

   **Yes** **No**
   ↓ → Replace the head drive motor assembly (see Procedure 4.6 on page 4-12). If this solves the problem, go to "Final Actions" on page 2-9. If this does not solve the problem, go to Step 3.

3. Another part of the bed interferes with the CPR release mechanism.

   **Yes** **No**
   ↓ → If the head section still does not release, contact Hill-Rom Technical Support.

4. Take appropriate actions to eliminate the interference. This solves the problem.

   **Yes** **No**
   ↓ → Contact Hill-Rom Technical Support.

5. Go to "Final Actions" on page 2-9.

## NOTES:

# Chapter 3
# Theory of Operation

## INTRODUCTION

The Theories of Operation for the Affinity® Four Birthing Bed are as follows:

- Mechanical System
- Electrical System
- Air System (optional)

The interaction between these subsystems lets all the operational functions be used.

The Electrical system diagrams are at the end of this chapter.



## MECHANICAL SYSTEM

The mechanical subsystem has two connected systems:

- Bed frame
- Sleep surface

### Head Section

The head section features an electric motor that uses leverage to elevate the patient's torso and head. A hinge joins the head section to the seat section, which moves at the same time as the head section, to provide more patient support and comfort.

### Seat Section

The seat section is connected by a hinge to the head section. When the head section is raised, the seat section lowers at the hinge, to provide more patient support and comfort.

### Foot Section

The foot section features an electric motor that moves a pantograph structure in order to raise and lower the patient's legs and feet. On beds with a lift-off foot section, an optional utility tray can be installed to support tools and equipment.

### Emergency CPR Release

The CPR control handles are at the middle of the bed, under the hinge between the seat section and the head section of the sleep deck. Pulling one of the handles disengages the driving gear of the head section motor inside the actuator. This lets the head section drop under the pull of gravity, and cushioned by a single gas spring/damper.

### Hilow System

The hilow system features an electric motor that moves a pantograph structure in order to raise and lower the upper frame of the bed.

### CASTERS

The bed has four casters: three brake and one brake/steer. Each caster has a 30° inclination activation mechanism and three positions:

- Brake caster—Brake/Neutral/Neutral
- Steer caster—Brake/Neutral/Steer

The brake/steer caster is on the left side, at the foot end.

### CENTRAL BRAKING SYSTEM

The braking system has thee brake casters and one brake/steer caster. The casters are controlled by the brake/steer pedals connected by a hexagonal bar at the center of the bed, and connecting rods that go to the casters.

### STEERING

The left foot-end caster is the brake/steer caster. It is controlled by the brake/steer pedal. When the brake/steer pedal is put in the steer position, the brake/steer caster locks parallel with the frame of the bed.

### TRENDELENBURG-LIKE POSITION

The Trendelenburg-Like Position control is a fully mechanical function accessed by the caregiver. Trend-Like Position handles on each side of the head section will release the Trend-Like Position gas piston to allow for up to 8° of Trendelenburg-Like positioning.

### HEADBOARDS

The headboard is a blow-moulded plastic structure with built-in push handles. Optional wood headboards are available. Push handles can be installed with the wood headboards.

## ELECTRICAL SYSTEM

### POWER MODULE

The Power entry module is a dual fuse holder and line filter combined. One fuse in the Line and one fuse in the Neutral. To make sure that you have the current part numbers, go to "Electronics Module (Sheet 1 of 2)" on page 5-44.

For 100 V, 50/60 Hz power, use Hill-Rom® part number 7061001, fuse, 5.0 A.

For 120 V, 50/60 Hz power, use Hill-Rom® part number 4314317, fuse, 4.0 A.

For 230 V, 50/60 Hz power, use Hill-Rom® part number 182100, fuse, 2.0 A.

The main transformer has 3 input primary taps: gray is 100 V, black is 120 V, orange is 230 V. The secondary is 24 V AC. The main transformer provides low voltage AC power to the control board.

Two 12 V DC, 7.2 Ah batteries connected in series with a 10 A automotive style fuse provides 24 V DC battery power to the control board.

### CONTROL BOARD

The bed is operated by a logic control P.C. board. This unit controls the electrical functions of the bed: hilow, head section, foot section, night light, and optional air system.

## AC Input Power

The control board is powered via connector P2, pins 1 and 3, while the bed is plugged into wall power. The typical voltage between these two pins is 25 V AC, 50/60 Hz. This power is provided by an isolation step down transformer. The voltage here at no load and 120 V, 60 Hz is typically 25.4 V AC. Positive Temperature Coefficient (PTC) fuses, RT3 and RT4, are used for transformer overcurrent protection. These PTC fuses could trip anywhere between 10 to 20 Arms. These PTC fuses are sized to protect the transformer and any downstream overload or shorts without nuisance tripping during the bed's normal operation.



## DC Input Power

Two 12 V, 7.0 Ah batteries connected in series are provided at connector P5, pins 1 and 2, as backup power for bed articulation and nurse call function. Externally, there is a 10 A fuse between the batteries. PTC fuses RT1 and RT8 provide additional overcurrent protection. The typical current draw on the battery during sleep mode is approximately 0.35 mAdc.

## AC to DC Power Conversion

The full wave bridge diode, BR1, and bulk capacitors C5 and C6 make up the linear power supply that converts AC power to DC power. The two 1K-ohm resistors are used to discharge the bulk capacitors when AC power is removed. This DC power is named Vmot. The voltage range is approximately 20 to 40 V DC depending on the line voltage and load current.

## Power Control

The main control relay, K2, supplies DC power to the motor and main logic regulators from either Vmot or Vbat_p (protected battery). This relay coil is powered directly by the battery. Only in the energized state can the relay supply battery power to the motors. Basic operation of the main control relay is: when AC power is available relay K2 is de-energized and supplies Vmot to the board. When AC power is not available and relay K2 is de-energized, the only power being drawn from the battery is U40, the siderail logic regulator. The current draw on the battery during sleep mode is approximately 0.35 mAdc. In this sleep mode, siderail LEDs are not illuminated but the rest of the siderail circuits are energized. When the caregiver or patient presses the correct siderail control, or the trend-like position handle, a wakeup signal is sent. If AC power is not available, the wakeup signal sets the flip-flop, U19, and energizes relay K2, which powers up the control board. The relay will remain active until the wakeup signal goes low and the sleep timer, U1 and U12, expires. Approximately 3.7 minutes after releasing the siderail control. The current draw on the battery during the awake mode is approximately 0.25 Adc. The AC Detect circuit monitor the transformer secondary, "VAC+", and will show no AC at 19.8 vrms. AC is active at 20vrms and greater.

## Voltage Regulators

U2 is a National Semi LM2595 adjustable switching regulator, set for a +12.14 V DC +/- 4% output. U5 is a fixed 5 V regulator with an output of +5.0 V DC +/- 0.2 V. These two regulators are only on when AC power is available or during battery wakeup mode. U40 is a low current 5 volt fixed regulator for the battery wake up circuit. The output is 5.0 V+/- 0.2 V DC and the typical current draw is 30mA with a maximum of 50mAdc. This regulator is operational when AC power is available and as long as the battery is greater than approximately 13 V DC. U37 is a 3.3 V DC fixed regulator. Output is 3.3 V DC +/- 2%. U38 is a 1.8 V DC fixed regulator. Output is 1.8 V DC +/- 4%

## Battery Charger

U4 is a unique regulator designed for battery charging. The battery charge voltage is 27.25 V+/- 1.4 V; 0.55 A max current draw. The current is limited to 0.55 A by the 1 ohm resistor, R126. This is a voltage mode battery charger. When the battery is low, it charges at the maximum current possible until the voltage approaches 27.25 V. Then the current starts to decrease and will eventually float at 27.25 V DC +/- 1.4 V.

## Battery Charge Indicator

The battery charge indicator LEDs on the siderails will only show the charge status while on AC power or in battery wake up mode. The battery indicator has 3 modes: off, flashing, and on. The LEDs should be off if the battery voltage is less than 22v, flashing between 22v and 24 volts, and on if greater than 24 volts. The battery circuit is simple and should not be used during bed articulation. The battery charge status should be reasonable when the bed is idle (no bed articulation) and the bed is on AC power or in battery wake up mode.

## Night Light

The night light is always on while AC power is on or in battery wake up mode. Power to the night light is 12 V from the switching regulator

## Siderail Interface Circuit

The siderail interface has 4 functions: siderail LED connection/driver, part of the wake up circuit, power to the siderails, and SPI interface.

The siderail control and LED functions of both rails are controlled from connectors P11 and P13 on the control board. Each rail is provided connections or a driver to control the LEDs on the siderail boards.

The wake up function consists of a logic high signal from P11-5 or P13-5. The signal from each rail is filtered (for ESD) and de-bounced and then "or"-ed for the battery wake up signal via U21, U22, and U19. This circuit is powered by the VCC5BAT power rail.

The SPI (serial peripheral interface) is the communication network between the siderail user controls and the CPLD, U9, on the control board. The CPLD is the master and the caregiver siderail boards are the slaves. The CPLD receives inputs (MISO) only, which are the user control switch data. The CPLD supplies a common chip select (shift/load signal) and the clock signal. These 3 SPI interface circuits, clock, MISO, shift/load, are designed with two different power supply sides. The CPLD side uses the VCC5 power rail for supply power while the siderail side uses the VCC5BAT power rail. The two sides must be isolated so that when in the sleep mode, battery power does not leak into the unpowered logic power, VCC5. This back feeding could power up the logic side and draw unnecessary power from the battery.

## Articulation Lockout Control

Connector P3 links the lockout control to the control board. Pins 1 and 3 of connector P3 carry all the motor current and these are the pins that are controlled by the lockout control. So the lockout control disconnects all power to the motor supervisory relay. When activated this control also activates the siderail lockout LEDs.

## Motor Drivers

The lockout control provides motor power to the supervisory relay, K4. The supervisory relay supplies power to the head, hilow, and foot motor relays. The supervisory relay is activated whenever a motor function is requested to operate as a safety for individual motor relay failures. Each motor has two relays, one for up and one for down. The contacts for the two relays are set up in an H-bridge fashion with the motor coil grounded when the relays are de-energized. This aids dynamic motor braking. A set of four motor coil recirculation diodes are provided to protect the relay contacts as they are switching. In general, the individual motor relays turn on approximately 40 milliseconds before the supervisory relay. The motor and supervisory relays turn off at about the same time.

The hilow motor uses a smart FET to turn on and off the hilow motor. This was necessary to keep the relay contacts from sticking due to the high load current of this motor. The smart FET, U39, turns on last and off first, keeping the switching loads out of the relays.



## Hilow And Foot Position Limits

The hilow and foot position limits are necessary to keep the foot and hilow mechanisms from crashing into each other during articulation. The foot and hilow motors have internal potentiometers with wiper outputs that correspond to the actuator stroke. These potentiometer outputs are fed into some opamp buffers which then feed into comparators to generate actuator stroke limits. The buffers are necessary to isolate the noisy potentiometers from the noise sensitive high speed comparators. The on-board trim potentiometers and the resistor strings provide voltage reference adjustments for the actuator stroke limits. Upper and lower limit LEDs are provided for ease of adjustment.

Potentiometer R8 controls LBD2 (limit bed down 2). This limit, LBD2, stops the hilow down motion when the foot section is at it lower limit. LBD2 is measured from the floor to the flattened seat section and is 23.00-23.50 inches (584.2-596.9 mm). Upper and lower limit LEDs are provided for ease of adjustment

## Complex Programmable Logic Device (CPLD), U9, Functions:

1. Acts as master for SPI communications between itself and both siderail caregiver boards. It generates the clock and shift/load signals to collect and shift the 32 bits of input control data from each rail. This 32 bit stream is identical from each rail and is "or"-ed together in the CPLD. The stream is fed into a 32 bit serial to parallel shift register. Each shift register output is latched into a flip-flop using the shift/load signal. These flip-flop outputs represent a control on the siderail.
2. Receives inputs from Pendant controls and Trend-like position handle switches. These signals are direct and mix with the limit logic in order to run the articulation motors.

3. Articulation control - the head motor needs no limit control and uses the actual motor internal limits for its stroke. The CPLD limit logic controls whether the hilow or foot motor runs or not when requested depending on the positions of the foot and hilow at the time of the request. The bed hilow high limit is not really needed and will be disabled external to the CPLD. This logic is needed in order to keep the foot and hilow mechanisms from running into each other. There are features integrated into this logic. For instance, if the doctor wanted to lower the foot to the lower level, the logic may lift the bed up first before lowering the foot section any more. The foot full up limit and foot full down limit have been disabled external to the CPLD because they are no longer needed. The logic has been changed so that the head up and bed up functions will not run at the same time. The bed up function will always take priority over the head up function.
4. Air system control - the CPLD flip-flop outputs control the air system directly, except that the CPLD provides a caregiver only feature that allows the user to just touch the seat inflate or deflate briefly and these functions will run continuously for approximately 22 seconds without holding the controls. Pressing either control will stop the 22 second timer.
5. SideCom® control - the siderail entertainment, lighting controls, and nurse call controls are decoded as described in Step 1 on page 3-5, and the output flip-flop signals are sent in a parallel fashion to the SideCom® board.

## Nurse Call Watchdog Timer

The nurse call relay is U27 and isolates the SideCom® circuits from the bed secondary circuits. It can be operated by any nurse call control in either siderail. It can also get set if there is a fault in the SPI bus. There is a single unused bit in each siderail 32 bit stream that is set high. Both MISO streams are "and"-ed in the CPLD and this high bit clears the nurse call watchdog timer, U3. So if one siderail cable is not connected, the watchdog bit will be low and not reset the timer. The timer will send a nurse call in approximately 30 seconds.

## Main Clock Oscillator

The main SPI clock is set to 24KHz +/- 10%, 50% +/- 5% duty cycle.

## Nurse Call LEDs

The bed deviates from the normal SideCom® use of the yellow nurse call and red nurse answer LEDs, it combines both into one orange LED. When the patient presses the nurse call control and the nurse call station acknowledges it, the station sets the yellow nurse call signal. The control board, via relay K9, flashes the siderail orange nurse LED at a 1.0Hz +/- 33%. This shows the patient that the nurse station has acknowledged the nurse call. When the nurse answers the call, the orange LED will stop flashing and stay on solid via relay K8.

## Air System

The 26.5 V AC air pump is connected to P9-1 and 2. Power to the pump comes directly from the transformer secondary "24 V AC". RT20 protects the pump from overcurrent and two relay closures are required for the pump to operate. Three signals are required to turn on the pump: AC_ON, AIR_SUPER, and PUMP_AIR. The pump draws about 1.9 Arms. There are three air valve solenoid drivers: lumbar, exhaust, and seat. The air solenoid valves are connected to logic control P.C. board connector P12. The solenoid valves are intermittent duty and require PWM to hold them and reduce power to the solenoid. The power to each solenoid driver has a supervisory relay in series with the 12 V DC rail and each has a PTC fuse for overcurrent protection. Each driver circuit drives the solenoid at turn on with full power for 1.25 sec +/- 35%, then holds with a 24KHz PWM signal at 50% duty +/- 5%. The holding current is 0.25 A DC +/- 20%.

## Pendant Inputs

The pendant is connected to logic control P.C. board connector P14 and the pendant functions are only the three motor articulation functions. These signals go directly to the CPLD and do not use the SPI interface. These signals have switch de-bounce and ESD protection components.

## Oscillator Circuits

IC, U11, is an un-buffered inverter used to create two oscillators. The 1.0Hz oscillator is used for the yellow nurse call flashing and flashing of the battery charge indicator LED. The output should be 1.0Hz +/- 33%. The other oscillator is 24KHz +/- 10% and is used to drive the air solenoids and used to create the SPI clock. The duty cycle should be 50% +/- 5%.

## Ripple Counter Oscillators

U1 is used for the wakeup timer and the oscillator output is 1.1KHz +/- 20%. U3 is used for the SPI problem watchdog timer and the oscillator output is 250.0Hz +/- 20%.



### CAREGIVER BOARD OPERATION

Each control on the caregiver board and each control on the patient board is parallel connected to a parallel-in serial-out 32 bit shift register. When the shift_load/ signal goes low, the control status is presented to the shift register latch. Then when the shift_load/ signal goes high, the control data is latched and will start to shift into the control board when the clock starts. LEDs are driven individually from the control board to show to the user various bed status. The wakeup circuit is connected to both caregiver and patient nurse call controls and caregiver articulation controls only.

### SIDECOM® BOARD OPERATION

The SideCom® board (relay junction), 64547, serves as the interface between the bed and the hospital headwall entertainment, lighting, and nurse call systems. It isolates the circuits between the headwall systems and the bed secondary circuits. Inputs and outputs come from the FPGA or directly from the siderails via connector P6.

The speaker/microphone and volume control lines are directly connected from the siderail to the headwall with only the wire insulation as isolation. There are 7 relays that provide left and right, direct and indirect lighting, left and right radio control, and TV channel control. The universal TV controller (UTV), U3, provides signals for the more modern hospital TVs. The UTV signal is isolated by K5. The board has jumpers on it to provide for the older TVs but is rarely used anymore. The nurse call phono jack, P4, is used for hand control nurse call controls or sip and puff controls. When the dummy plug is removed a nurse call is made.

The P5 connector connects directly to the hospital headwall SideCom® interface.

Refer to the schematic diagram at the end of this section (see page 3-9) for specific information about the cabling.

# AIR SYSTEM (OPTIONAL)

## AIR PUMP AND MANIFOLD

The optional air system uses a linear air pump and solenoid valve manifold to inflate and deflate the seat and lumbar bladders in correctly equipped mattresses. The pump and solenoid valve manifold are controlled by the logic control P.C. board.

The pump supplies air pressure to the solenoid valve manifold, and the seat or lumbar solenoid valve opens to allow air flow into the air bladder in the applicable section of the mattress. The solenoid valve manifold opens the deflate valve and the seat or lumbar valve to allow air flow out of the air bladder in the applicable section of the mattress.

## AIR MATTRESS AND AIR BLADDERS

The optional air mattress is a version of the standard mattress with an air bladder in the seat section and another air bladder in the lower part of the head section. The air pressure is controlled by input from the caregiver and patient siderail controls.

The air bladders are inflated when the inflate control on the siderail panel is activated, and maintain the air pressure until the deflate control is activated.

## ELECTRICAL SYSTEM

**Figure 3-1. Functional Block Diagram**

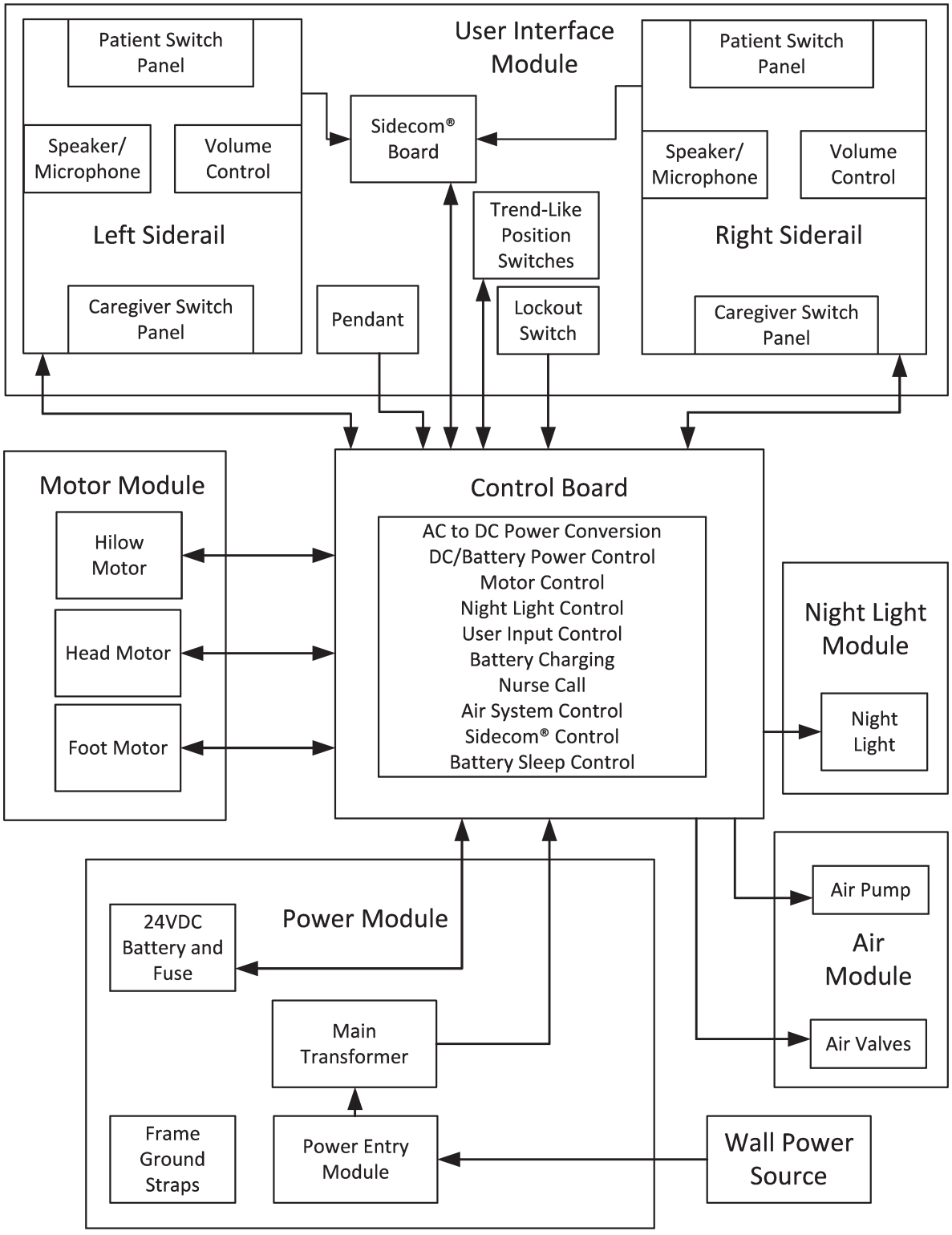


**Figure 3-2. Logic Control P.C. Board Top—P/N 183093**

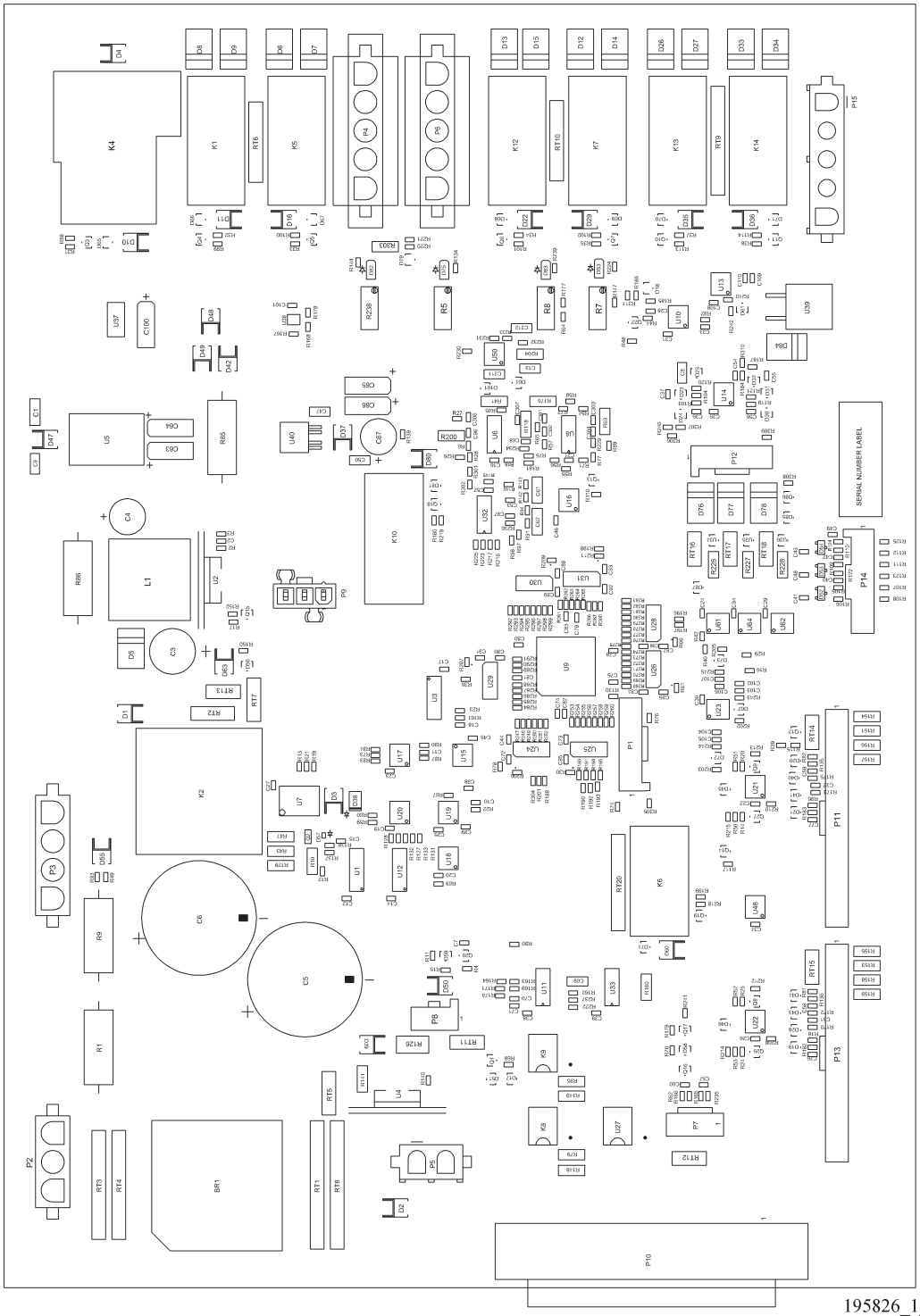


**Figure 3-3. Caregiver Siderail P.C. Board—P/N 176667**

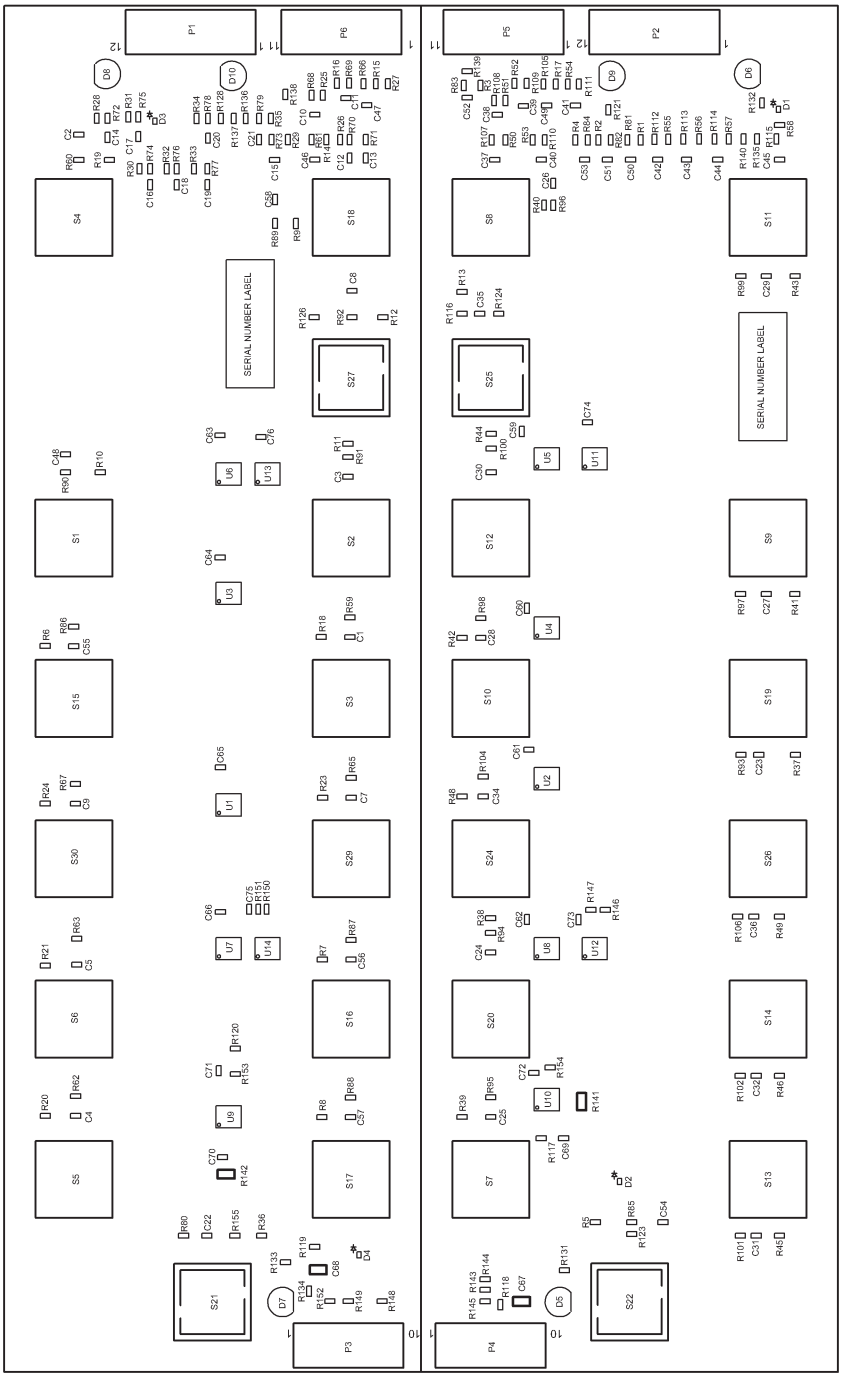



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**Figure 3-4. Patient Siderail P.C. Board—P/N 176664**

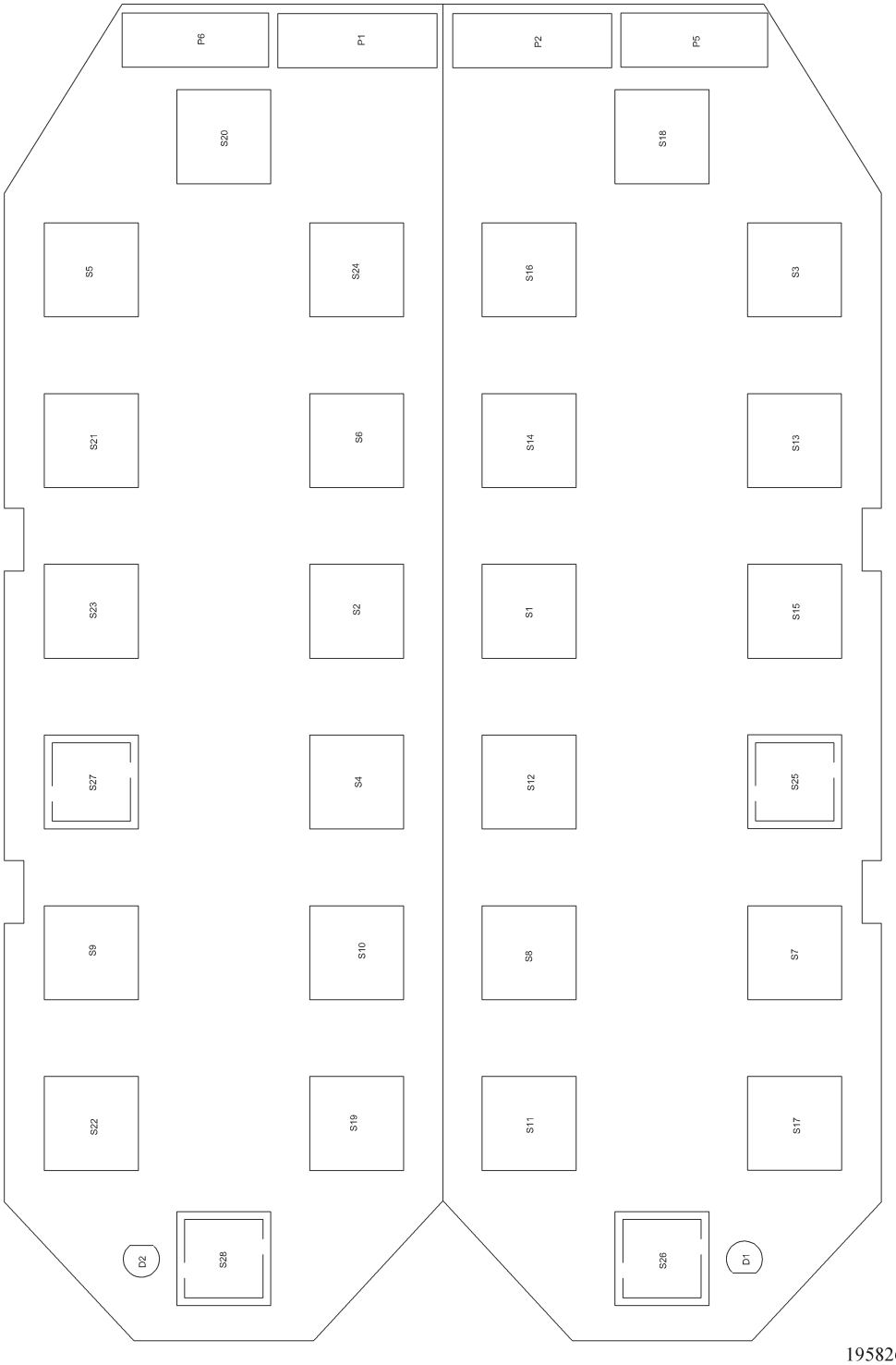
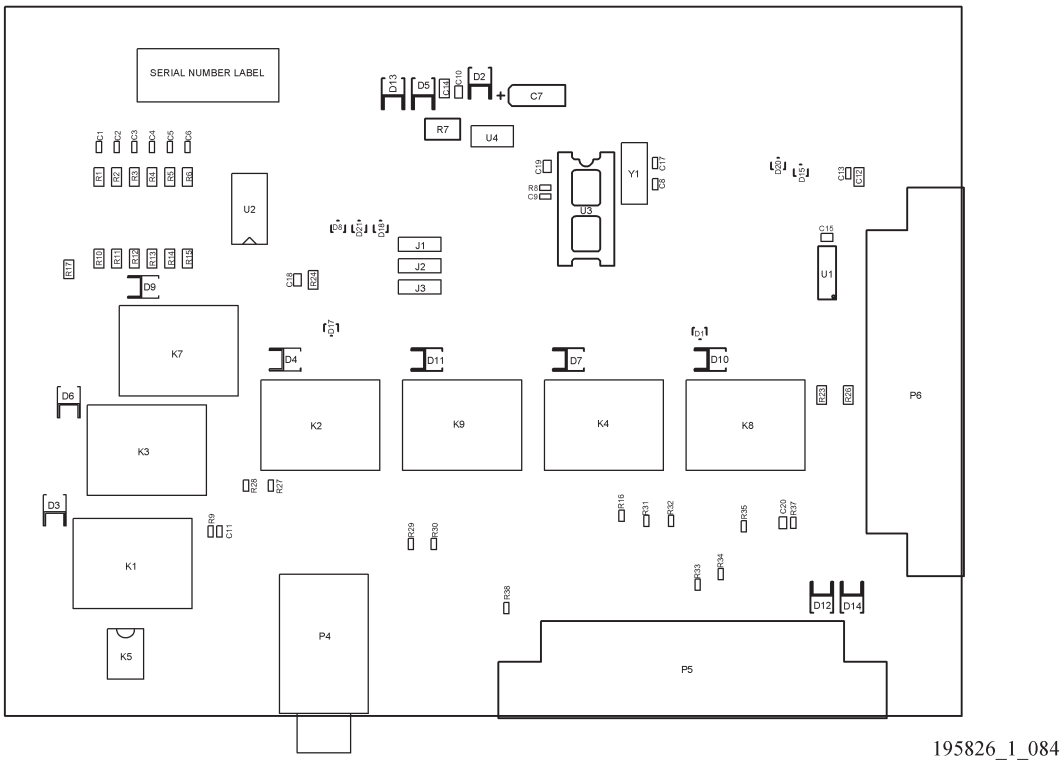


**Figure 3-5. SideCom P.C. Board—P/N 6454702**




## WIRING DIAGRAMS

The following wiring diagrams detail the electrical circuits and the P.C. boards on the bed. Use these diagrams as troubleshooting aids.

These wiring diagrams are on fold-out pages at the rear of the this manual:

| Wiring Diagram | Part Number | Fold-out Number |
|---|---|---|
| Control Board (Sheet 1) | 183091 | 3-1.1 |
| Control Board (Sheet 2) | 183091 | 3-1.2 |
| Control Board (Sheet 3) | 183091 | 3-1.3 |
| Control Board (Sheet 4) | 183091 | 3-1.4 |
| Control Board (Sheet 5) | 183091 | 3-1.5 |
| Night Light Schematic | 183053 | 3-2 |
| Caregiver Siderail Schematic | 176665 | 3-3 |
| Patient Siderail Schematic | 176662 | 3-4 |
| Relay Junction P.C. Board Schematic | 64545 | 3-5 |
| Affinity® Four Bed Schematic | 192403 | 3-6 |

## NOTES:

# Chapter 4
# Procedures

## TOOL AND SUPPLY REQUIREMENTS

- Digital or analog multimeter (VOM)
- Ratchet
- T10 Torx® head bit
- T25 Torx® head bit
- 7/16" socket
- 3/4" socket
- 5/16" wrench
- 7/16" wrench
- 1/2" wrench
- 11/16" wrench
- Adjustable wrench
- 3/32" hex wrench
- 1/4" hex wrench
- 5/32" hex wrench
- Small screwdriver
- Short Phillips head screwdriver
- Needle nose pliers
- External snap-ring tool
- E-ring tool
- Split-ring tool
- Small wire cutters
- Hammer
- 1/8" drift punch
- Tape measure
- Marker pen
- Bed jack
- Anti-seize lubricant
- Blue Loctite® #242
- Red Loctite® #262
- Isopropyl alcohol
- Turpentine
- Warehouse safety stand kit (M01976) or equivalent

## USING LOCTITE® ADHESIVE

The proper use of Loctite® retaining compounds during service is essential to enable certain fasteners to be correctly retained.

The Loctite® adhesive/sealant retaining compounds, are anaerobic, single-component resins supplied as a liquid. These resins remain in a liquid state in the presence of air, but harden into insoluble plastic film solids when confined between clean, close-fitting metal surfaces. They can be used in conjunction with natural rubber, glass, ceramics, and thermosetting plastic surfaces, such as phenolic and polyester. Also, they do not usually harm nylon, polyethylene, or saran. However, in their liquid state, they sometimes soften or craze vinyl, cellulosic, styrene, methacrylate plastic, such as Plexiglas®, and varnished finishes. Cured resins do not affect any of these materials. It is important to make a note of that an opened bottle of these products has a definite shelf-life of about 6 months, which affects its serviceability.

The resins referred to within this manual usually cure to their hardened state on metal parts without need of primers. However, the use of a recommended primer will help degrease the part and leave a light deposit of a catalyst to speed curing. The temperature of the parts also affects their cure time. At 40° F (4° C) it may take weeks to cure, but at 75° F (24° C), parts cure within the time length shown on the bottle.

**WARNING:**

Use primers with adequate ventilation. Avoid skin contact and prolonged or repeated breathing of vapors. Do not allow primers to be trapped under rings, watch bands, etc. Observe all directions on the primer can. Failure to do so could cause personal injury.

When using the product recommended during the service procedure:

1. Disassemble the parts, remove the old Loctite®, and clean the parts. Reapply the new Loctite® during reassembly.
2. Apply to clean surfaces only. If necessary, degrease the parts.
3. Use liquid sparingly (usually one or two drops on threaded fasteners). Be sure to apply where thread engagement begins.
4. Assemble the parts and allow them to cure. Observe the time stated on bottle label before placing back into service.

**WARNING:**

Avoid skin contact with the Loctite® accelerator, primer, or adhesive. Skin contact with the Loctite® accelerator, primer, or adhesive could cause personal injury.

If difficulty is experienced in removal or disassembly of a part with Loctite® #262 or #271 applied, heating the screw, bolt, nut, etc. aids in its removal.

### PURPLE LOCTITE® ADHESIVE #222 (P/N SA4842)

Typical usage is as a low strength adhesive for screws. It is also suitable for sealing threads, fittings, and cylindrical parts. It normally cures in 2 to 6 hours at 75° F (24° C) and permits disassembly under condition of maximum thread engagement.

### BLUE LOCTITE® ADHESIVE #242 (P/N SA3618)

Typical usage is as a medium strength adhesive for nuts, screws, keys, and splines. It is not normally used on fasteners smaller than ¼" (6.4 mm) with more than ½" (12.7 mm) engagement **if removal is desired**. It is also suitable for hydraulic, pneumatic, and pipe fittings. It normally cures in 2 to 6 hours at 75° F (24° C) and permits disassembly under condition of maximum thread engagement.

### RED LOCTITE® ADHESIVE #262 (P/N SA4841)

Typical usage is as a medium to high strength adhesive for nuts, screws, etc. Normally it is not used on fasteners smaller than ¼" (6.4 mm) with more than ½" (12.7 mm) engagement **if removal is desired**. It normally cures in 0.5 to 2 hours at 75° F (24° C) and permits disassembly under condition of maximum thread engagement.

### RED LOCTITE® ADHESIVE #271 (P/N SA4840)

Typical usage is as a high strength adhesive for studs and screws. It is not normally used on fasteners smaller than 3/8" (9.5 mm) with more than ½" (12.7 mm) engagement **if removal is desired**. It is also suitable for hydraulic, pneumatic, and pipe fittings. It normally cures in 0.5 to 2 hours at 75° F (24° C) and **does not** permit easy disassembly.

## 4.1 Top Motor Cover

Tools: Ratchet T25 Torx® head bit



### REMOVAL

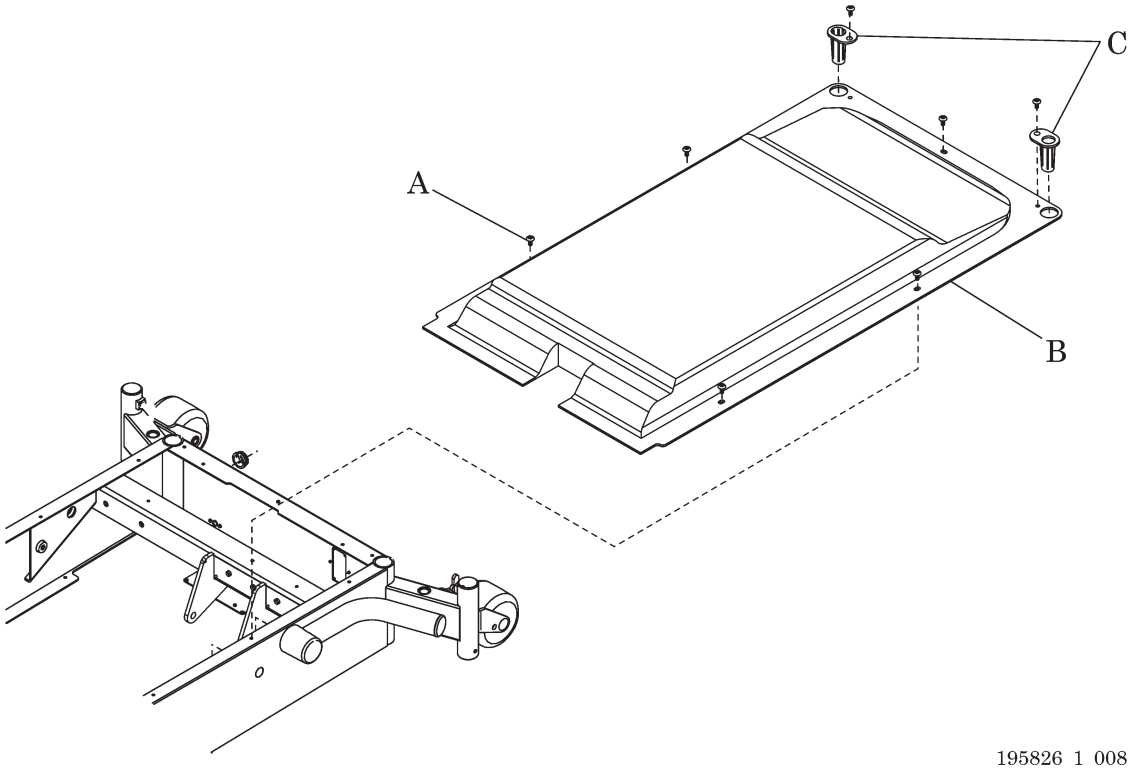
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is not in the Trend-Like position.
3. Raise the bed to the high position.
4. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the seven screws (A) that attach the top motor cover (B) (see Figure 4-1 on page 4-4).
8. Remove the two headboard bushings (C) from the top motor cover (B).
9. Remove the top motor cover (B) from the bed.
10. If necessary, remove the gasket.

**Figure 4-1. Top Motor Cover Assembly**




### REPLACEMENT

Do the removal procedure in reverse order.

## 4.2 Bottom Motor Cover

Tools: Ratchet T25 Torx® head bit

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the bed to the highest position.

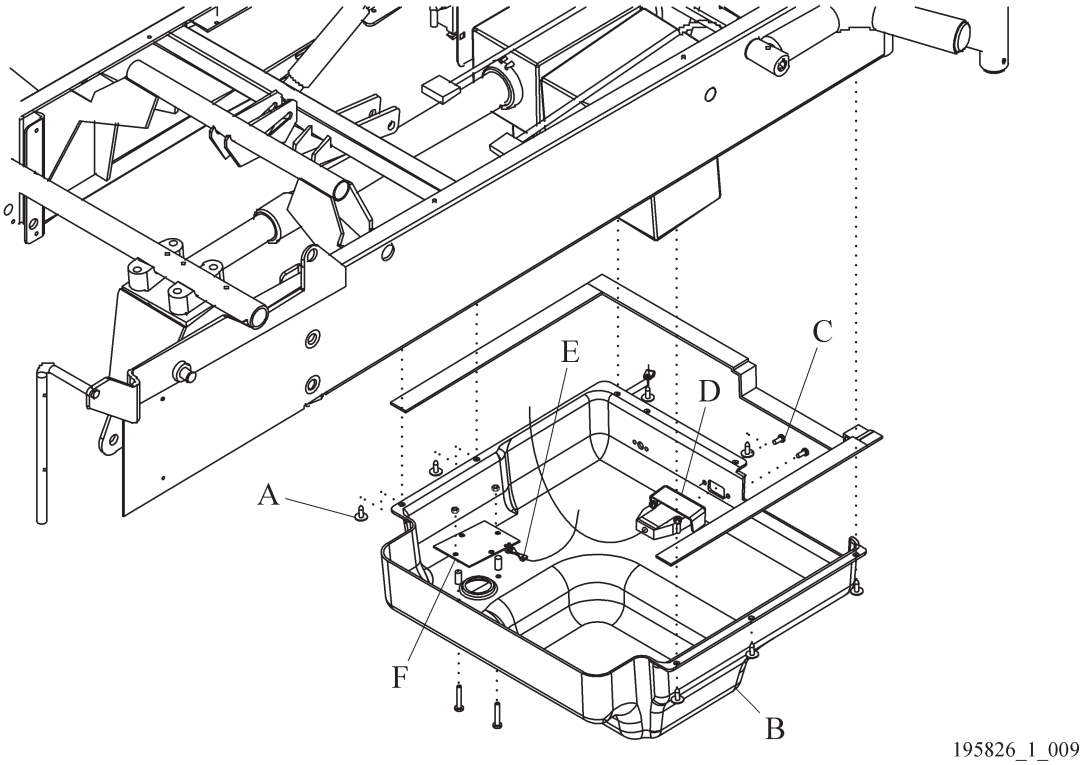
**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the eight screws (A) that attach the bottom motor cover (B).
7. Remove the two screws (C) that attach the pendant control cable (D) to the bottom motor cover (B).
8. Disconnect the electrical connector (E) from the night light P.C. board (F).
9. Remove the bottom motor cover (B) from the bed.

**NOTE:**
The bottom cover has a gasket installed and the night light P.C. board will be connected to the cover.

**Figure 4-2. Bottom Motor Cover Assembly**






### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

## 4.3 Night Light and Cable Assembly

Tools: T25 Torx® head bit Ratchet

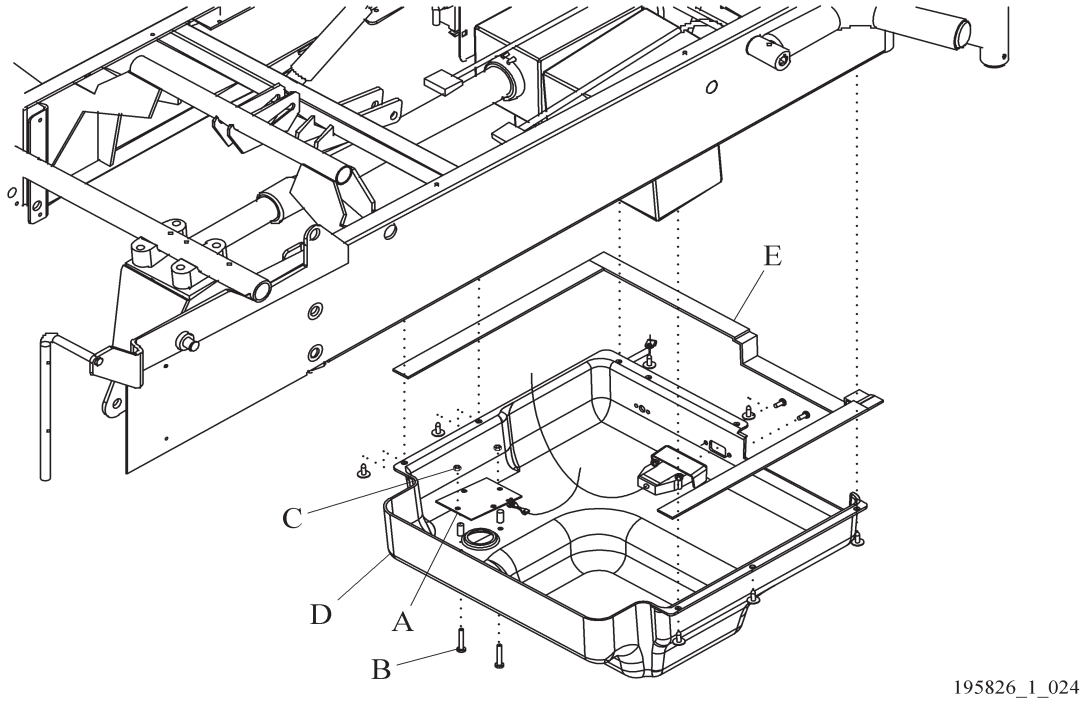
### REMOVAL

1. Remove the bottom motor cover (see Procedure 4.2 on page 4-4).
2. Remove the two screws (B) and the two nuts (C) that attach the night light P.C. board (A) to the bottom cover (D) (see Figure 4-3 on page 4-6).
3. Remove the night light P.C. board assembly (A) from the bottom motor cover (D). Make sure that you do not damage the bottom motor cover gasket (E).

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

**Figure 4-3. Night Light**




## 4.4 Hilow Drive Motor Assembly

Tools: T25 Torx® head bit Ratchet Needle nose pliers
Warehouse safety stand kit (M01976) (optional)

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Raise the bed to the high position.
3. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the top motor cover (see Procedure 4.1 on page 4-3).
7. Remove the bottom motor cover (see Procedure 4.2 on page 4-4).

**WARNING:**

You must support the bed. The bed will fall during this procedure if not supported. Failure to support the bed could cause personal injury or equipment damage.

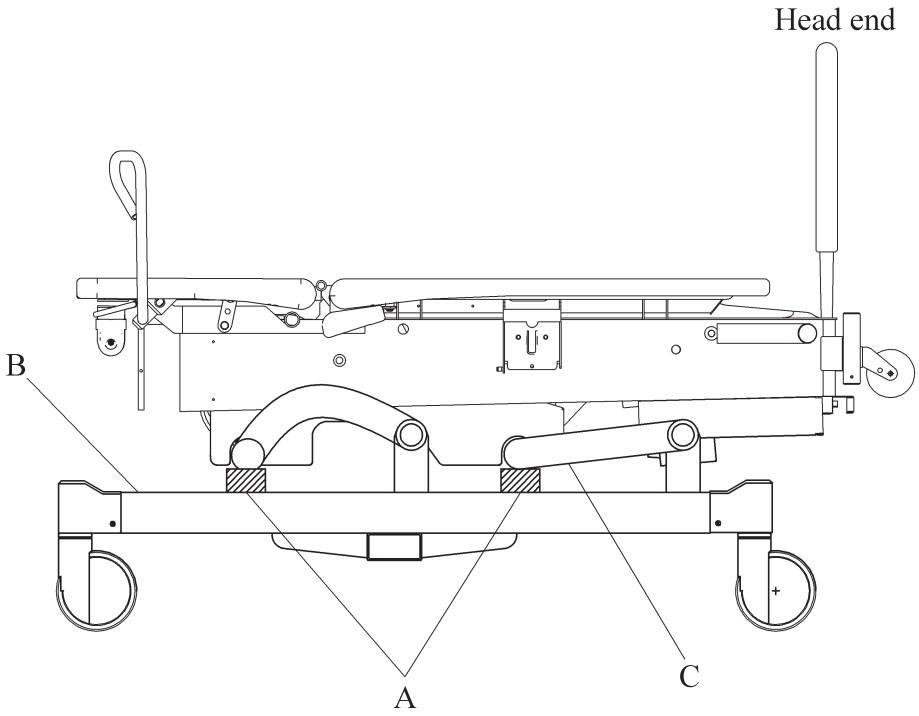
8. Put the C-channel pieces of the warehouse safety stand in the locations (A) shown in Figure 4-4 on page 4-7.
9. Make sure that the warehouse safety stand is adequately assembled and secured.

**CAUTION:**

Make sure the night light is not damaged when the bed is being lowered. Failure to do so could cause equipment damage.

10. Put the lockout switch in the unlocked position, and lower the bed (B) until both lift arms (C) rest on the warehouse safety stand.

**Figure 4-4. Bed Support Location**




11. Remove the four screws (D) that attach the electronics plate weldment (E) to the bed frame (see Figure 4-5 on page 4-8).
12. To improve access to the hilow drive motor assembly (F) on the right side, carefully lift and move the electronics plate weldment (E) to the patient's left side of the bed.
13. Unplug the hilow drive motor assembly (F) power cable (G) from logic control P.C. board (H) connector P15.
14. Remove two cotter pins (I) from the two clevis pins (J) that attach the hilow drive motor assembly (F) to the bed frame.
15. Remove the two clevis pins (J) from the hilow drive motor assembly (F) and from the bed frame.

**NOTE:**

There is a bushing around the clevis pins.

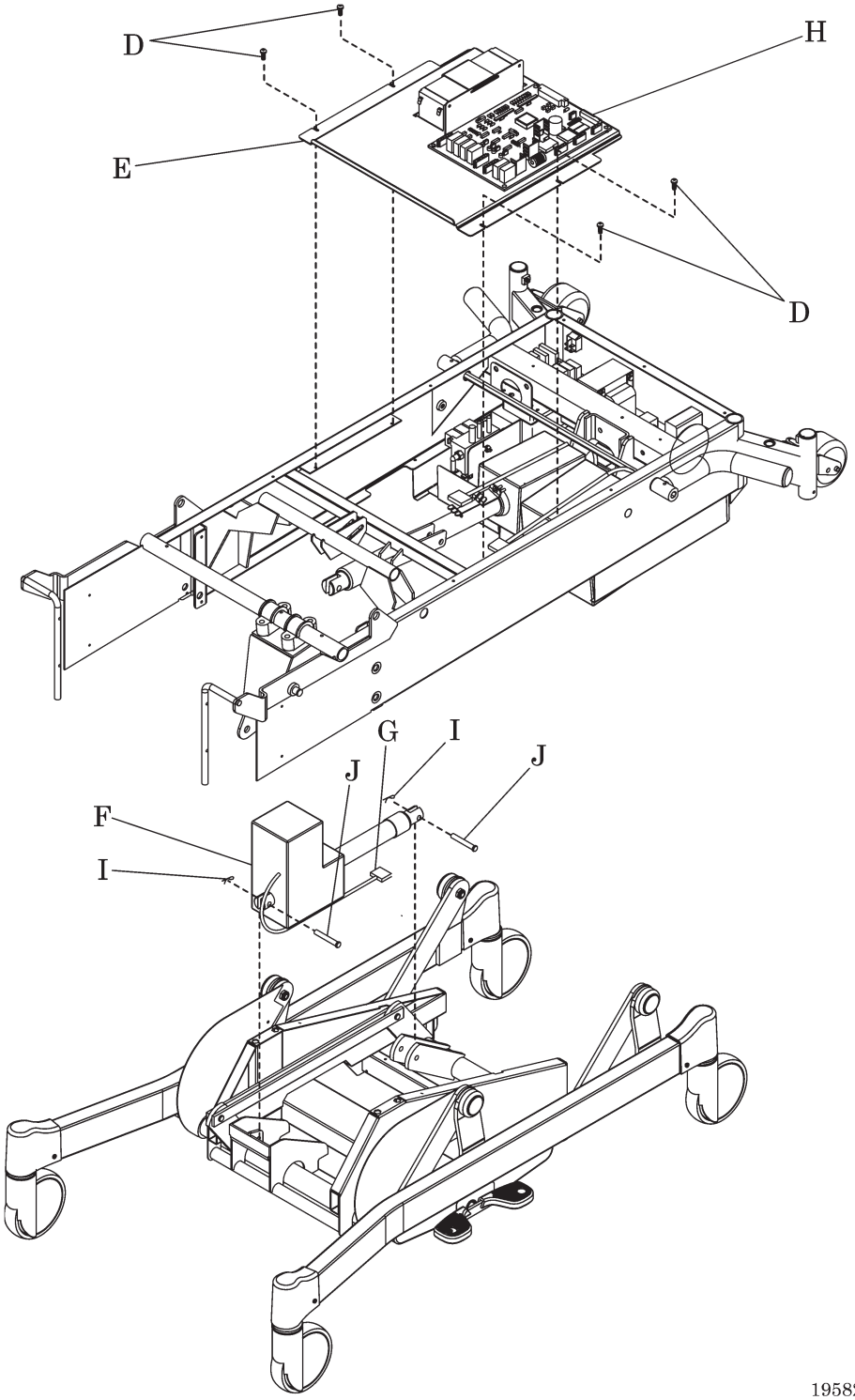
16. Remove the hilow drive motor assembly (F).

### REPLACEMENT

1. Do the removal procedure in reverse order.

2. Do the "Hilow Bed Height Adjustment" on page 4-9.
3. Do the "Function Checks" on page 2-5.

**Figure 4-5. Hilow Drive Motor Assembly**



## 4.5 Hilow Bed Height Adjustment

Tools: Small screwdriver Tape measure

The hilow limit switch enables the correct maximum raised position of the bed. Its adjustment should be checked whenever the bed's hilow system is serviced, such as when replacing the motor and during preventive maintenance. This switch controls the bed's travel limits and the Trend-Like function limits.

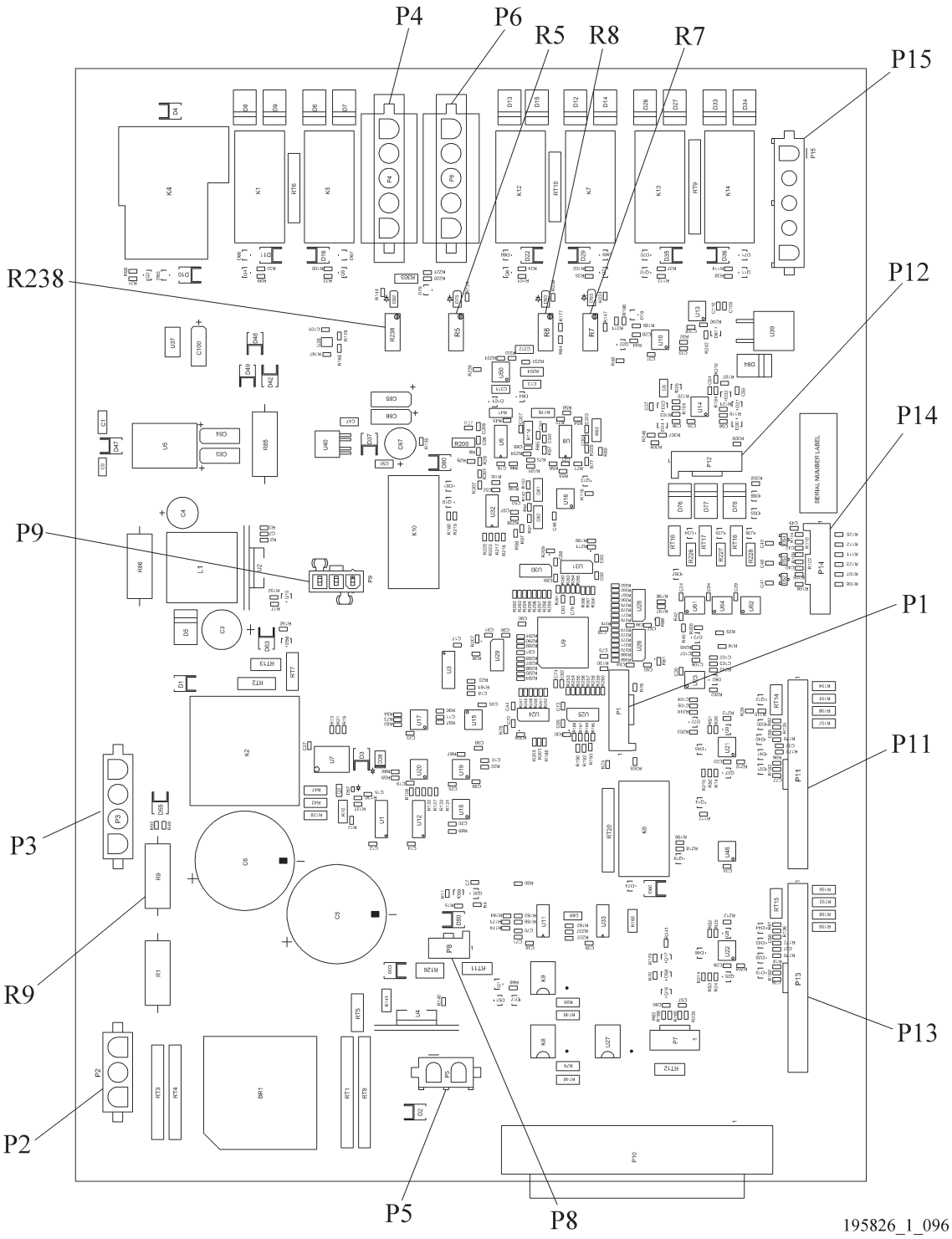
There are five limits controlled by this switch. Adjusting the bed travel to the correct maximum height provides the correct adjustment of the other four limits.

### ADJUST THE HILOW LIMIT SWITCHES

1. Make sure the bed is operational with the hilow system correctly installed and connected.
2. Set the brake/steer pedal to the brake position.
3. Make sure the bed is out of the Trend-Like position.
4. Make sure that the head section is in the flat position.
5. Use the **Bed Up** control to raise the bed to the highest position.
6. Use the **Foot Up** control to raise the foot section to the highest position.
7. Remove the mattress.
8. Use the hilow function to lower the bed until the top of the seat section is 23.0 to 23.5 inches (58.4 to 59.7 cm) above the floor.
9. Use the **Head Up** control to raise the head section to the high position.
10. Remove the top motor cover (see Procedure 4.1 on page 4-3).
11. Adjust the LBD2 potentiometer (R8), as follows (see Figure 4-6 on page 4-11):
    a. Turn the screw clockwise until the LED turns off.
    b. Turn the screw counterclockwise until the LED turns back on.
12. Use the **Head Down** control to lower the head section to the flat position.
13. Use the **Bed Down** control to lower the bed.
    - If the bed has the Stow and Go® foot section installed, lower the bed until the top of the seat section is 19.0 to 20.0 inches (48.25 to 50.8 cm) above the floor
    - If the bed has the lift-off foot section installed, lower the bed until the top of the seat section is 18.5 to 19.5 inches (47.0 to 49.5 cm) above the floor
14. Adjust the LBD potentiometer (R7) as follows:
    a. Turn the screw clockwise until the LED turns off.
    b. Turn the screw counterclockwise until the LED turns back on.
15. Use the **Bed Up** control to raise the bed to the highest position.
16. Use the **Bed Down** control to lower the bed until it stops.
    - If the bed has the Stow and Go® foot section installed, make sure that the top of the seat section is 19.0 to 20.0 inches (48.25 to 50.8 cm) above the floor
    - If the bed has the lift-off foot section installed, make sure that the top of the seat section is 18.5 to 19.5 inches (47.0 to 49.5cm) above the floor

17. If necessary, adjust the LBD (R7) potentiometer.
    - If the top of the seat section is below the correct range, turn the screw on the LBD (R7) potentiometer counterclockwise until the bed stops in the correct range.
    - If the top of the seat section is above the correct range, turn the screw on the LBD (R7) potentiometer clockwise until the bed stops in the correct range.
18. Use the **Bed Up** control to raise the bed to the highest position.
19. Use the **Foot Down** control to lower the foot section to the lowest position.
20. Use the **Bed Down** control to lower the bed until it stops. Make sure that the top of the seat section is 23.0 to 23.5 inches (58.4 to 59.7 cm) above the floor.
21. If necessary, adjust the LBD2 (R8) potentiometer.
    - If the top of the seat section is below the correct range, turn the screw on the LBD2 (R8) potentiometer counterclockwise until the bed stops in the correct range.
    - If the top of the seat section is above the correct range, turn the screw on the LBD2 (R8) potentiometer clockwise until the bed stops in the correct range.
22. Install the top motor cover (see Procedure 4.1 on page 4-3). Do the "Function Checks" on page 2-5.

**Figure 4-6. Logic Control P.C. Board—P/N 183093; Connector and Resistor Identification**



## 4.6 Head Drive Motor Assembly

Tools: T25 Torx® head bit, Ratchet, Needle nose pliers, Small wire cutters, Warehouse safety stand kit (M01976) or equivalent

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Raise the bed to the high position.
3. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the top motor cover (see Procedure 4.1 on page 4-3).
7. Remove the bottom motor cover (see Procedure 4.2 on page 4-4).

**WARNING:**

Do not work under an unsupported load. Make sure to install the jack stands or suitably support the bed. Personal injury can occur.

8. Support the bed with the warehouse safety stand kit (or equivalent).

**CAUTION:**

Make sure the night light is not damaged when the bed is being lowered. Failure to do so could cause equipment damage.

9. Remove the four screws (A) that attach the electronics plate weldment (B) to the bed frame (see Figure 4-7 on page 4-13).
10. To improve access to the head drive motor assembly (C), carefully lift and move the electronics plate weldment (B) to the patient's left side of the bed.
11. Unplug the power cable (C) from logic control P.C. board connector P4.
12. Disconnect the CPR actuator from the head motor as follows:
    a. Remove the two screws (D) that attach the cover (E) to the motor (F).
    b. Slide the cover (E) down.
    c. Remove the cable attachment (G) from the mount (H).
    d. Remove the cable assembly (I) from the mount (H).

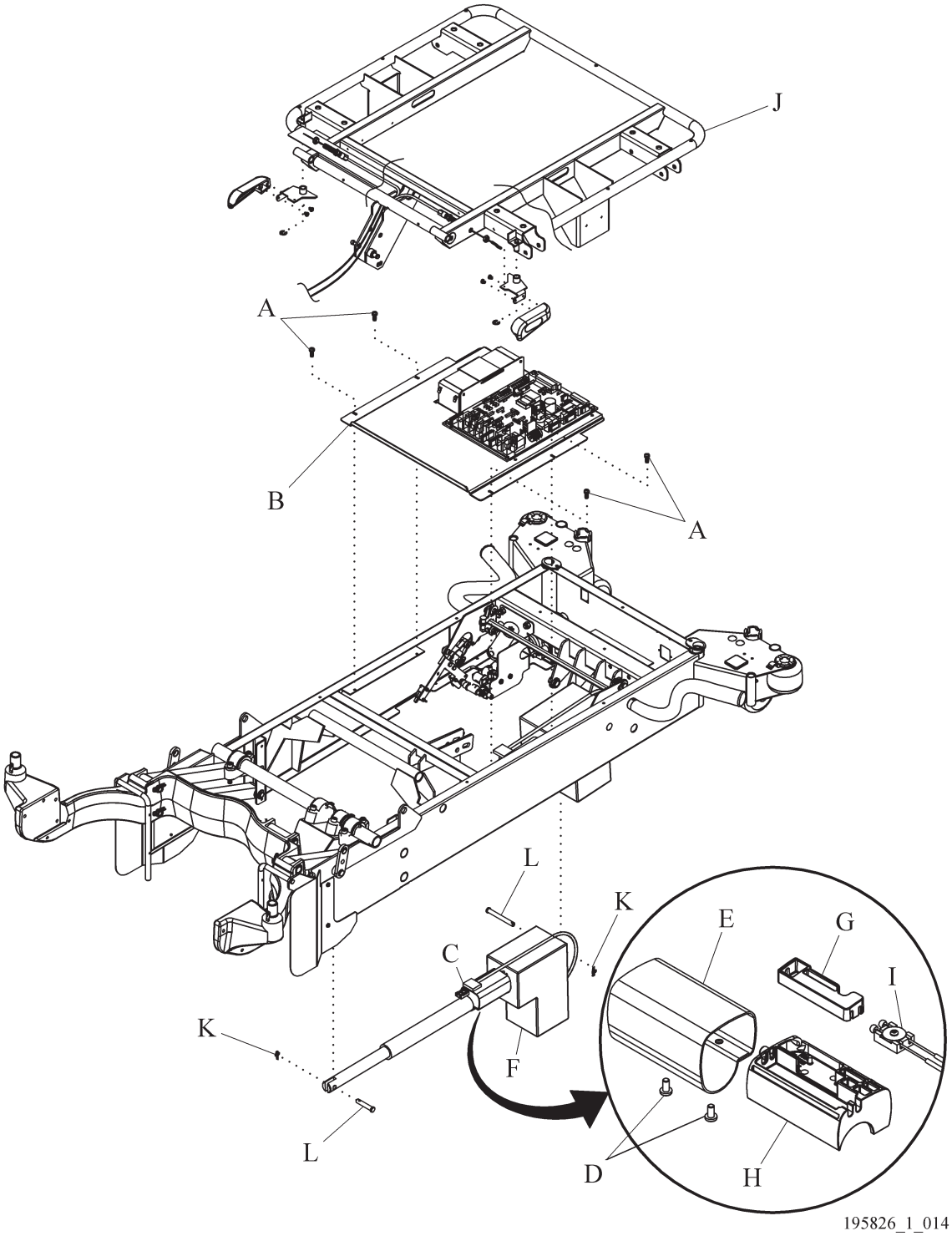
**WARNING:**

Support the head section before removing the cotter pins and clevis pins. Failure to do so could cause personal injury or equipment damage.

13. Lift the head section frame (J) upward, and support it.
14. Remove the cotter pins (K) from the two clevis pins (L) that attach the head drive motor assembly (E) to the bed frame.

15. Remove the head drive motor assembly (C) from the bed frame.

**Figure 4-7. Head Drive Motor Assembly**



### REPLACEMENT

1. Do the removal procedure in reverse order. As you replace components, make sure of these:
   a. Make sure the CPR cable routing is correct and free from binding.
   b. Make sure all cable ties, clamps, and connectors are correctly installed.
2. Do the "Function Checks" on page 2-5.

### ADJUSTMENT

To adjust the CPR function, see Procedure 4.7 on page 4-14.

## 4.7 CPR Release Adjustment

Tools: Adjustable wrench

### ADJUSTMENT

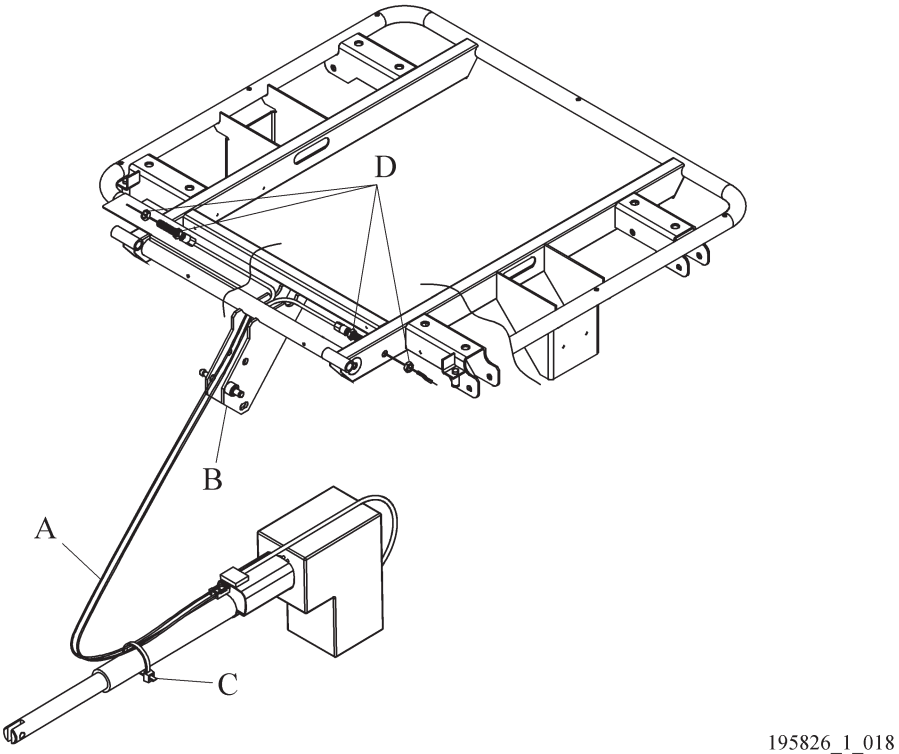
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Put the bed in a mid-height position.
4. Raise the head section to its highest position.
5. Make sure the siderails are in the up position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

6. Unplug the bed from its power source.
7. Put the siderail lockout switch at the head end of the bed in the locked position.
8. Remove the top motor cover (see Procedure 4.1 on page 4-3).
9. Make sure the CPR cables (A) are routed inside the head section weldment (B) (see Figure 4-8 on page 4-15).

**Figure 4-8. CPR Release**




10. Make sure the CPR cables (A) are secured **loosely** with the cable tie (C) located on the head drive motor assembly.

**NOTE:**

The cable tie should be snug enough to attach the cable, but not tight enough to pinch the cable sheath.

11. Adjust the CPR cable tensioning nuts (D) until the CPR release works correctly on both sides of the bed.
12. Do the "Function Checks" on page 2-5.

## 4.8 Head Section Gas Spring Damper (CPR Assist)

Tools: Needle nose pliers Screwdriver
Warehouse safety stand kit (M01976) or equivalent

### REMOVAL

1. Raise the bed to the highest position.

**WARNING:**

Do not work under an unsupported load. Make sure to install the jack stands or suitably support the bed. Personal injury can occur.

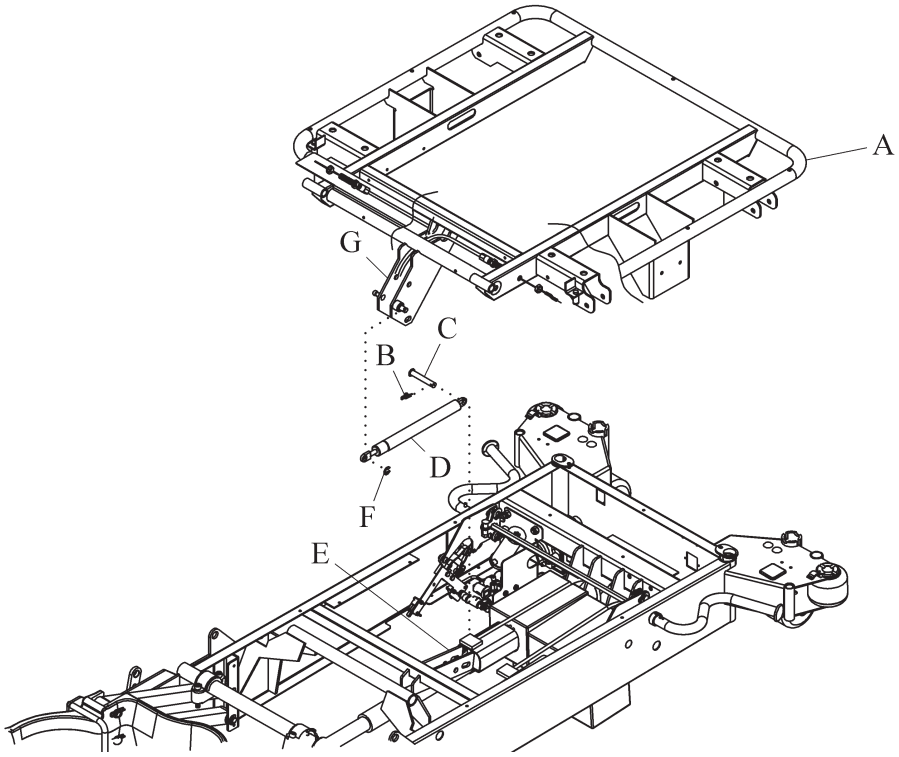
2. Support the bed with the warehouse safety stand kit (or equivalent).

**WARNING:**

Do not attempt to remove the gas spring damper with the head section raised. Lower the head section. Failure to do so could cause personal injury or equipment damage.

3. Lower the head section (A) to the lowest position (see Figure 4-9 on page 4-16). Use the head down control on the caregiver side panel or use the CPR handle.
4. Remove the cotter pin (B) from the clevis pin (C) that attaches the head section gas spring and damper (D) cylinder end to the bed frame weldment (E).
5. Remove the e-ring (F) that attaches the head section gas spring and damper (D) rod end to the head section frame weldment (G).
6. Remove the head section gas spring and damper (D) from the bed.

**Figure 4-9. Head Section Gas Spring Damper (CPR Assist)**




## REPLACEMENT

1. Do the removal procedure in reverse order.
2. Make sure that the cylinder end of the gas spring damper (D) is toward the head end of the bed, and the rod end of the gas spring damper is toward the foot end of the bed.
3. Do the "Function Checks" on page 2-5.

## 4.9 Foot Drive Motor Assembly

Tools: T25 Torx® head bit Ratchet Needle nose pliers
Warehouse safety stand kit (M01976) or equivalent

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Raise the bed to the high position.
3. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the top motor cover (see Procedure 4.1 on page 4-3).

**WARNING:**

Do not work under an unsupported load. Make sure to install the jack stands or suitably support the bed. Personal injury can occur.

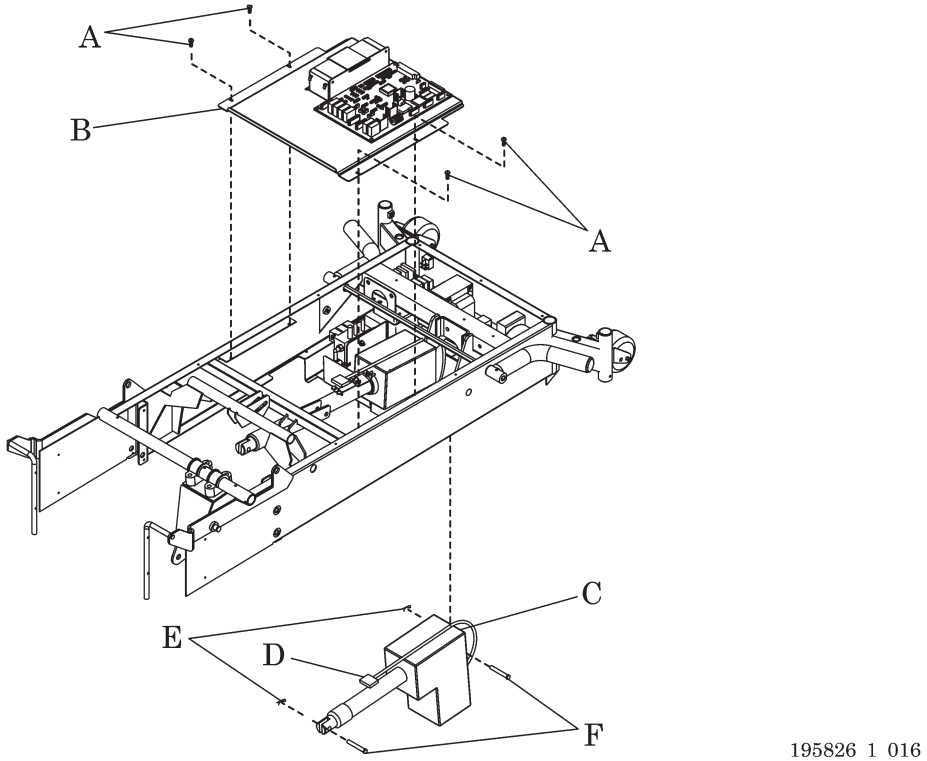
7. Support the bed with the warehouse safety stand kit (or equivalent).

**WARNING:**

You must support the foot yoke. The foot yoke will fall during this procedure if not supported. Failure to do so could cause personal injury or equipment damage.

8. Support the foot yoke with the warehouse safety stand kit (or equivalent).
9. Deactivate the lockout function, and lower the foot section until the foot yoke is supported.
10. Remove the four screws (A) that attach the electronics plate weldment (B) to the bed frame (see Figure 4-10 on page 4-18).

**Figure 4-10. Foot Drive Motor Assembly**




11. To improve access to the foot drive motor assembly (C) on the left side, carefully lift and move the electronics plate weldment (B) to the patient's right-hand side of the bed.
12. Disconnect the foot drive motor assembly (C) power cable (D) from P6 on the logic control P.C. board.
13. Remove the two cotter pins (E) from the two clevis pins (F) that attach the foot drive motor assembly (C) to the bed frame.
14. Remove the two clevis pins (F) from the foot drive motor assembly (C), and from the bed frame.

**NOTE:**

There are bushings around the clevis pins.

15. Remove the foot drive motor assembly (C).

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Foot Limit Switch Adjustment" on page 4-19.
3. Do the "Function Checks" on page 2-5.

## 4.10 Foot Limit Switch Adjustment

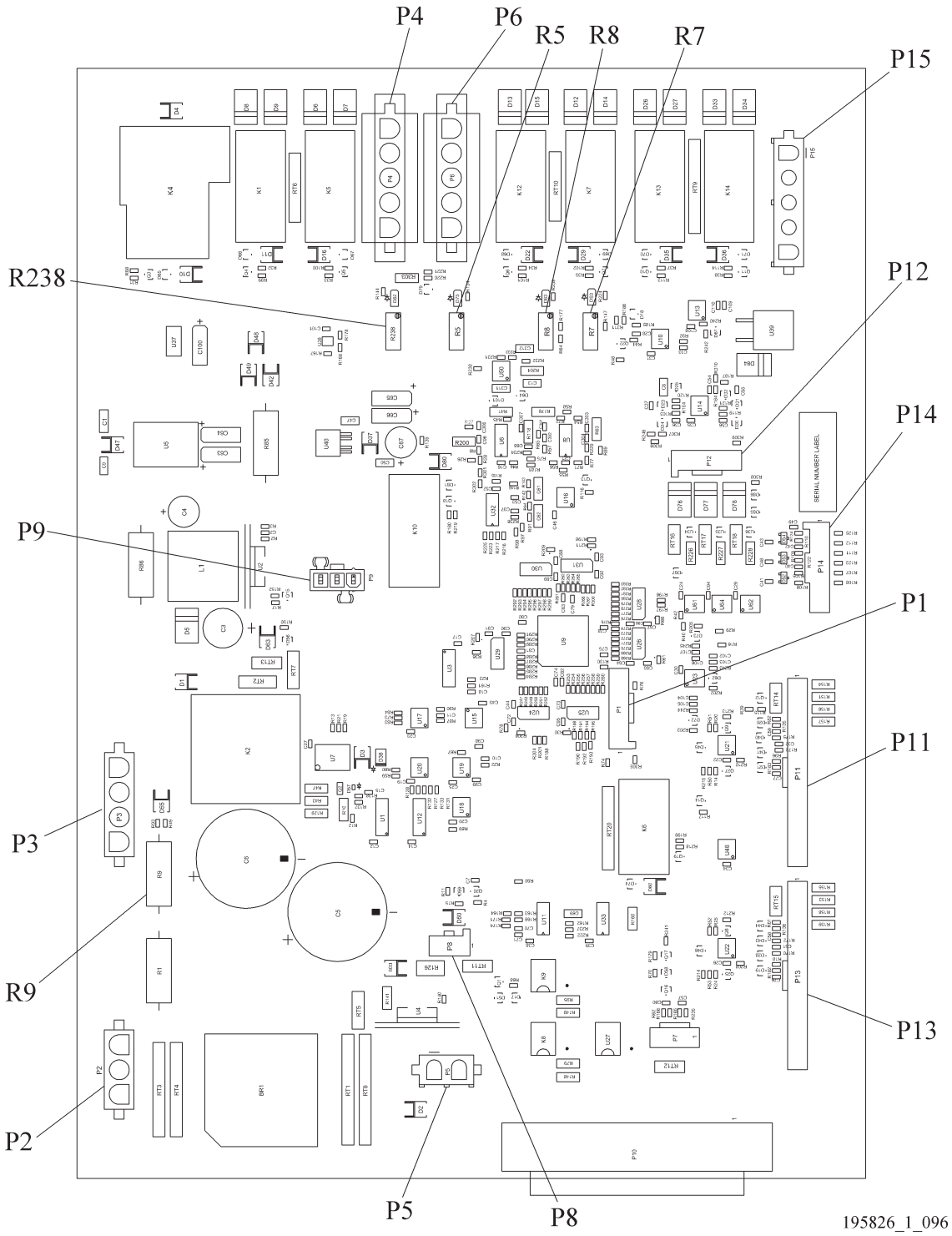
Tools: Small screwdriver Tape measure

The foot limit switch adjustment should be done whenever the bed's foot system is serviced, such as when the foot motor is replaced, when the hilow switch is adjusted, and during preventive maintenance.

### ADJUST THE FOOT LIMIT SWITCHES

1. Make sure the bed is operational with the hilow system correctly installed and connected.
2. Set the brake/steer pedal to the brake position.
3. Make sure the bed is out of the Trend-Like position.
4. Make sure that the head section is in the flat position.
5. Use the **Bed Up** control to raise the bed to the highest position.
6. Remove the mattress.
7. Remove the top motor cover (see Procedure 4-1 on page 4-4).
8. Use the **Foot Up** control to raise the foot section so that the top of the foot section is 1.75 to 2.25 inches (4.5 to 5.7 cm) above the top of the seat section.
9. Adjust the LFU potentiometer (R5) as follows (see Figure 4-11 on page 4-20):
   a. Turn the screw clockwise until the LED turns off.
   b. Turn the screw counterclockwise until the LED turns back on.
10. Use the **Head Down** control to lower the head section to the flat position.
11. Use the **Foot Down** control to lower the foot section so that the top of the foot section is 6.0 to 6.25 inches (15.25 to 15.9 cm) below the top of the seat section.
12. Adjust the LFD potentiometer (R238) as follows (see Figure 4-11 on page 4-20):
    a. Turn the screw clockwise until the LED turns off.
    b. Turn the screw counterclockwise until the LED turns back on.
13. Use the **Foot Up** control to raise the foot section until it stops. Make sure that the top of the foot section is 1.75 to 2.25 inches (4.5 to 5.7 cm) above the top of the seat section.
14. If necessary, adjust the LFU (R5) potentiometer.
    - If the top of the seat section is below the correct range, turn the screw on the LFU (R5) potentiometer counterclockwise until the bed stops in the correct range.
    - If the top of the seat section is above the correct range, turn the screw on the LFU (R5) potentiometer clockwise until the bed stops in the correct range.
15. Use the **Foot Down** control to lower the bed until it stops. Make sure that the top of the foot section is 6.0 to 6.5 inches (15.25 to 16.5 cm) below the top of the seat section.
16. If necessary, adjust the LFD (R238) potentiometer.
    - If the top of the seat section is below the correct range, turn the screw on the LFD (R238) potentiometer counterclockwise until the bed stops in the correct range.
    - If the top of the seat section is above the correct range, turn the screw on the LFD (R238) potentiometer clockwise until the bed stops in the correct range.
17. Install the top motor cover (see Procedure 4-1 on page 4-4).
18. Do the "Function Checks" on page 2-5.

**Figure 4-11. Logic Control P.C. Board—P/N 183093; Connector and Resistor Identification**



## 4.11 Trend-Like Position Sensing Switch

Tools: 5/16" wrench

There are two contact-type microswitches installed in the Trend-Like position mechanism. Only one switch requires adjustment. Proper adjustment of the Trend-Like position sensing switch (TS) keeps the bed from going too low while in the Trend-Like position. The Trend-Like position handle switch (TH) installed in the release arm mechanism is activated whenever the Trend-Like position handle is pulled and does not require adjustment.

### ADJUSTMENT

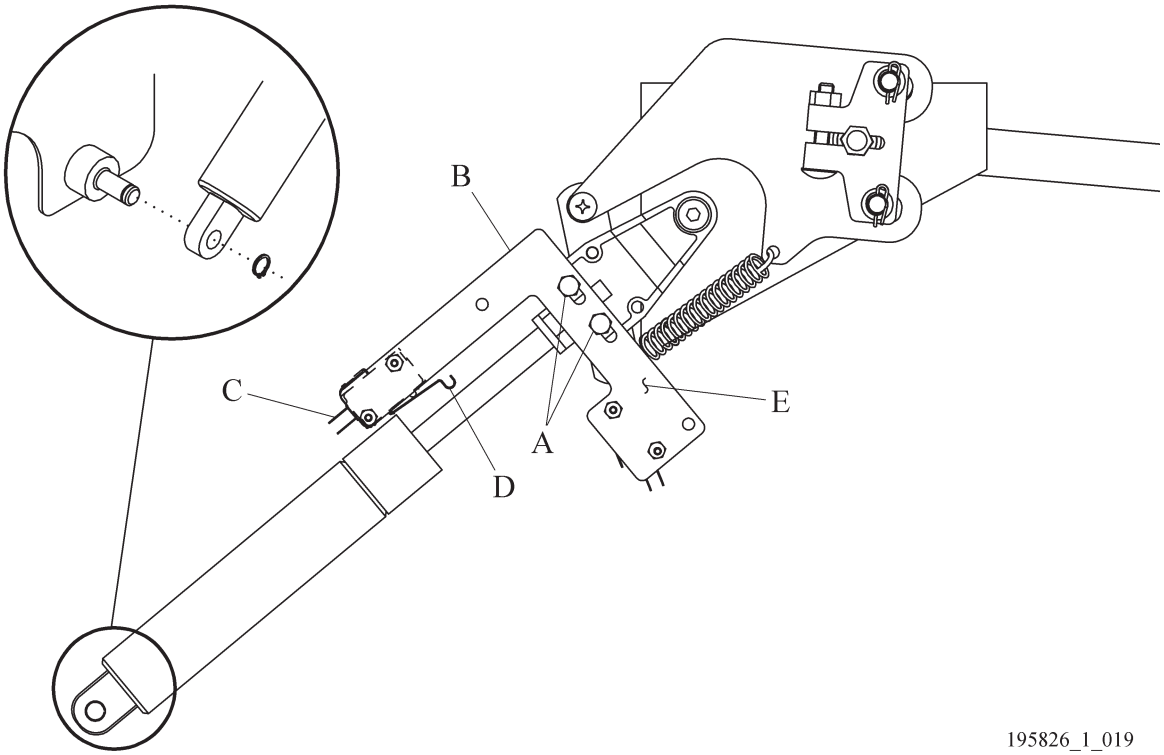
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Put the bed in a mid-height position.
4. Raise the head section to its highest position.
5. Make sure the siderails are in the up position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

6. Unplug the bed from its power source.
7. Put the siderail lockout switch at the head end of the bed in the locked position.
8. Remove the top motor cover (see Procedure 4.1 on page 4-3).
9. If the bed is equipped with the optional air system, the 5/16" Trend-Like position switch adjusting screws are accessible. However, easier access may be obtained by removing the air package (see Procedure 4.17 on page 4-29).
10. Loosen the two screws (A) that attach the switch bracket (B) to the Trend-Like position release mechanism (E) (gas head and release lever) (see Procedure 4-12 on page 4-22).
11. Use the Trend-Like position handle to put the bed in the Trend-Like position while observing the actuator arm (D) of the TS switch (C).
12. When the bed is in the Trend-Like position, the TS switch (C) should be activated by the Trend-Like position gas spring cylinder.
13. Make sure the actuator arm (D) is fully activated. (The arm is fully activated when the switch makes an audible click.)
14. Tighten the two screws (A) that attach the switch bracket (B) to the Trend-Like position release mechanism (E).
15. After the adjustment is complete, make sure the Trend-Like position system is operating correctly. See "Function Checks" on page 2-4.
16. Reverse the removal procedures to reinstall the optional air system (if so equipped) and the top motor cover.
17. Make sure all Trend-Like functions operate correctly. See "Function Checks" on page 2-4".

**Figure 4-12. Trend-Like Position Assembly**




## 4.12 Trend-Like Position Gas Spring

Tools: 11/16″ wrench Split-ring removal tool

**WARNING:**
The head end of the main frame is supported by the two Trend-Like position gas springs. Any servicing will require that a support device be put just beneath the head end of the main frame. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

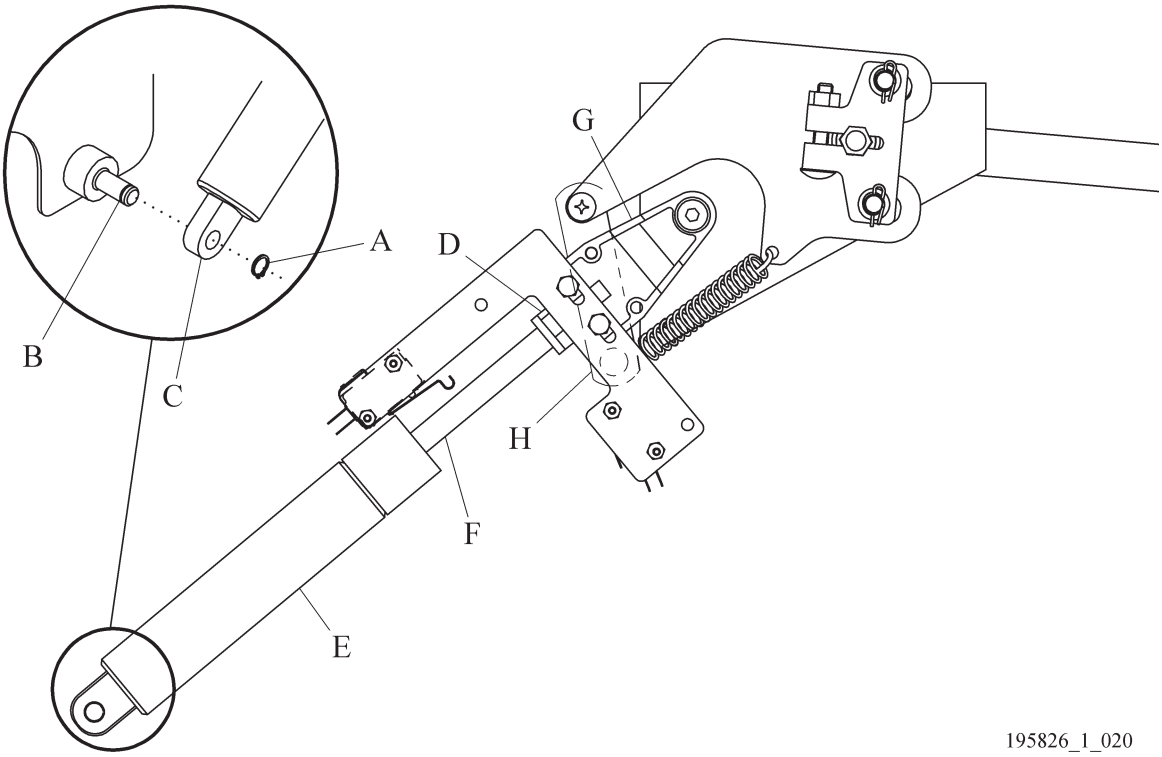
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position

**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the top motor cover (see Procedure 4.1 on page 4-3).
7. Remove the split-ring (A) from the post (B) at the cylinder end (C) of the Trend-Like position gas spring (E) (see Procedure 4-12 on page 4-22).
8. Slide the cylinder end (C) of the Trend-Like position gas spring (E) off the post (B).

9. It may be necessary to apply upward force on the head end of the main frame to free the cylinder from the post.
10. Loosen the jam nut (D) on the rod end (F) of the gas spring (E).
11. Turn the rod end (F) counterclockwise to remove it from the release assembly (G).

**Figure 4-13. Trend-Like Position Gas Spring Damper Assembly**






## REPLACEMENT

1. Install the jam nut (D) all the way down on the rod end (F) of the new gas spring damper (E).
2. Thread the rod end (F) of the new gas spring damper (E) into the release assembly (G) until the plunger in the end of the rod just touches. Then, turn the rod back two turns so that the rod does not touch, or is no more than 1/16" (1.6 mm) away from the release arm (H).
3. Tighten the jam nut (D) to lock the rod end (F) in this position.
4. Slide the cylinder end (C) of the Trend-Like position gas spring (E) onto the post (B), and install the split-ring (A) to attach it.
5. Check for proper Trend-Like position operation by activating the Trend-Like position handle.
6. Make sure the gas spring damper releases when the handle is in the middle of its travel.
7. Install the top motor cover (see Procedure 4-1 on page 4-4).
8. Do the "Function Checks" on page 2-4.

## 4.13 Foot Support Module

Tools: 5/32" hex wrench, 7/16" wrench, T25 Torx® head bit, Ratchet

### REMOVAL

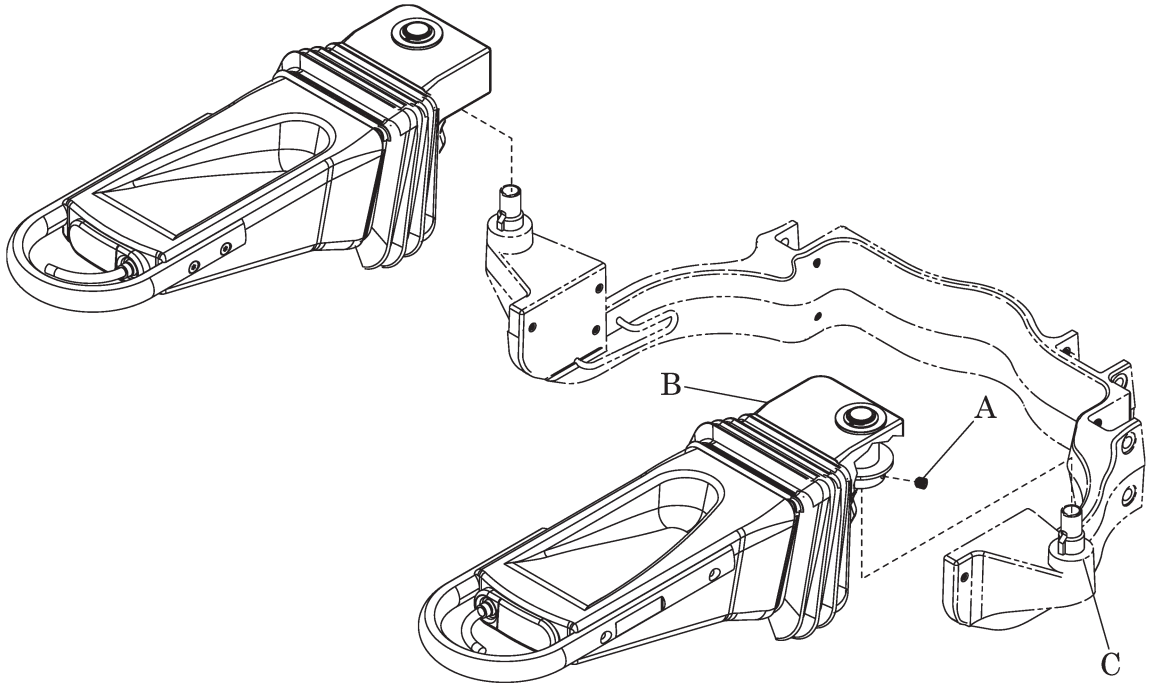
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

3. Unplug the bed from its power source.
4. Put the siderail lockout switch at the head end of the bed in the locked position.
5. Remove the foot section from the bed. See Procedure 4.17 on page 4-29.
6. Remove the set screw (A) that secures the foot support module (B) to the yoke assembly (C) (see Figure 4-14 on page 4-24).
7. Remove the foot support module (B) from the yoke assembly (C).

**Figure 4-14. Foot Support Module**



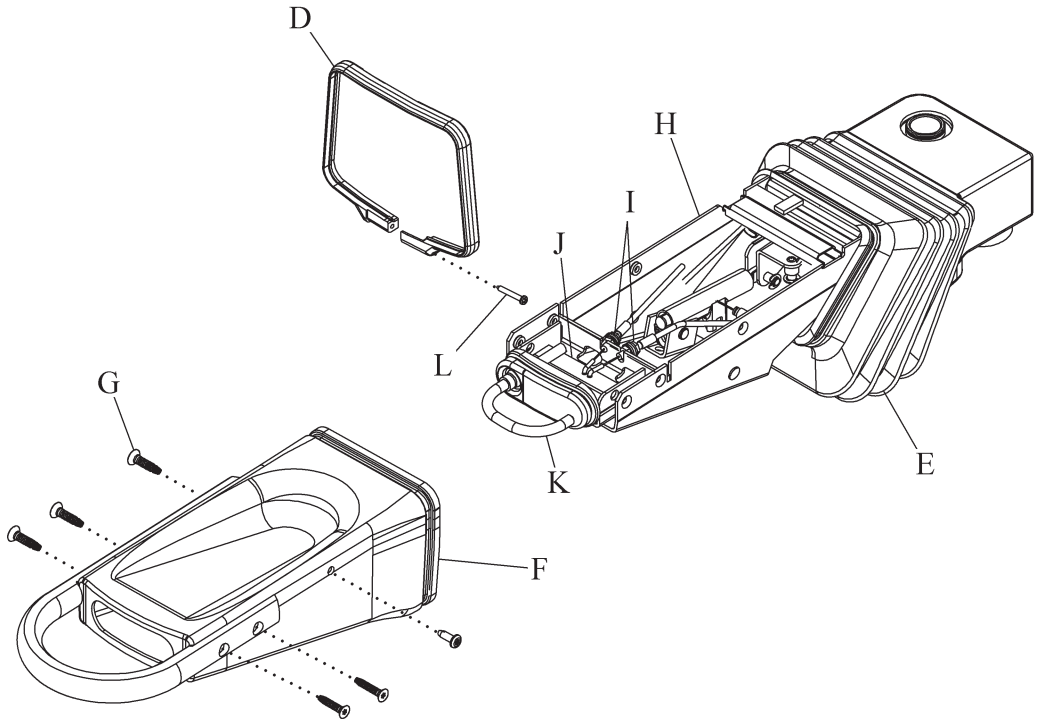

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

### ADJUSTMENT

1. Remove the screw (L) that attaches the strap (D) to the foot support bellows (E) and the foot support heel cup (F). Remove the strap (D). (see Figure 4-15 on page 4-25)
2. Remove the four screws (G) attaching the foot support heel cup (F) to the foot rest weldment (H).
3. Remove the foot support heel cup (F) from the foot rest weldment (H) and the foot support bellows (E).
4. Adjust the cable tensioning nuts (I) so that the cable ends ride freely in the mounting holes of the release handle weldment (J) without binding.
5. Reassemble the foot support heel cup (F), Torx® head screws (G), and bellows wireform (D) to the foot rest weldment (H) and the foot support bellows (E).
6. Make sure the foot support release handle (K) functions correctly.

**Figure 4-15. Disassembled Foot Support**



## 4.14 Calf Support Module

Tools: T30 Torx® socket

### REMOVAL

1. Set the brake.
2. Remove the screws (A and B) from the calf support (C).
3. Remove the calf support (C) from the foot support module (D).

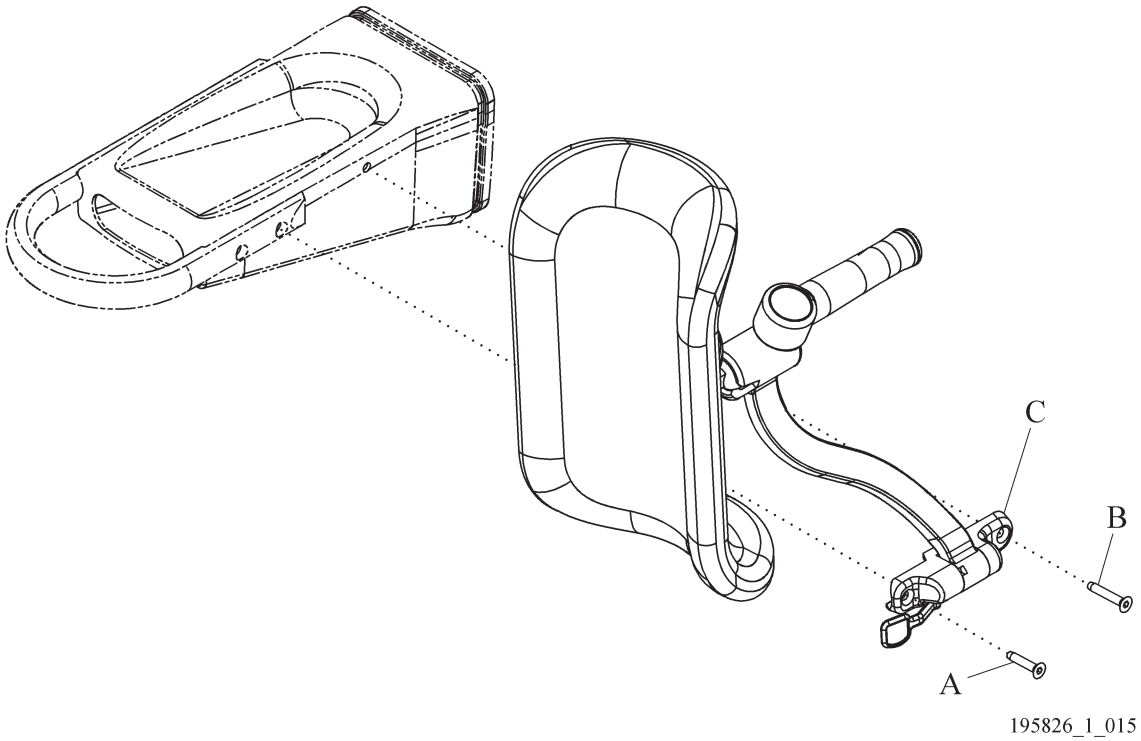
### REPLACEMENT

1. Do the removal procedures in reverse order.
2. Do the "Function Checks" on page 2-5.

### ADJUSTMENT

1. If the calf support does not lock correctly, order the Calf Support Kit (167970) and follow the instructions (see "Calf Support Module" on page 5-19).

**Figure 4-16. Calf Support Module**



## 4.15 Head Section Mattress Assembly

Tools: None

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Carefully lift the mattress from the head end of the bed.

**CAUTION:**

Do not pull on the mattress material when unfastening the mattress retaining snaps. Unfasten the mattress retaining snaps at the snap location. Failure to do so could cause equipment damage.

4. Locate and unfasten the two mattress retaining snaps beneath the seat section.
5. If the mattress has air bladders, disconnect the two hoses located beneath the seat section.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Make sure the two air hoses are correctly installed below the seat section.
3. Do the "Function Checks" on page 2-5.

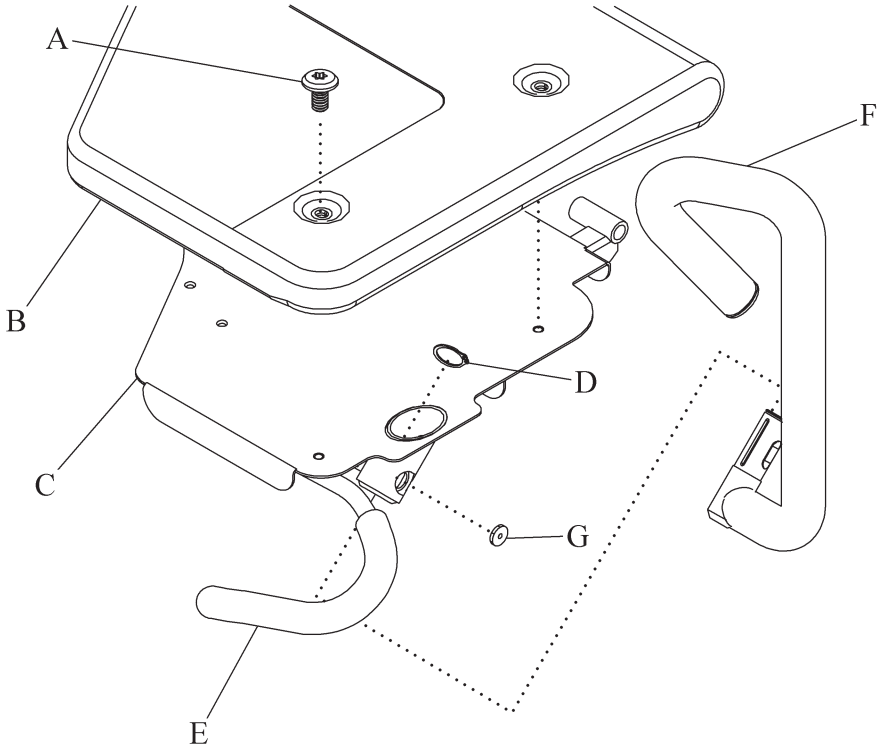
## 4.16 Labor Grips

Tools: T25 Torx® head bit, Ratchet, External snap-ring removal tool, Lubri-film spray (P/N 36958), Plug insertion tool (P/N 151085)

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Remove the mattress to gain access to the seat panel. See Procedure 4.15 on page 4-27.
4. Remove the screws (A) that attach the seat panel (B) to the seat pan (C) (see Figure 4-17 on page 4-28).
5. Remove the plug (G).

**Figure 4-17. Labor Grips**

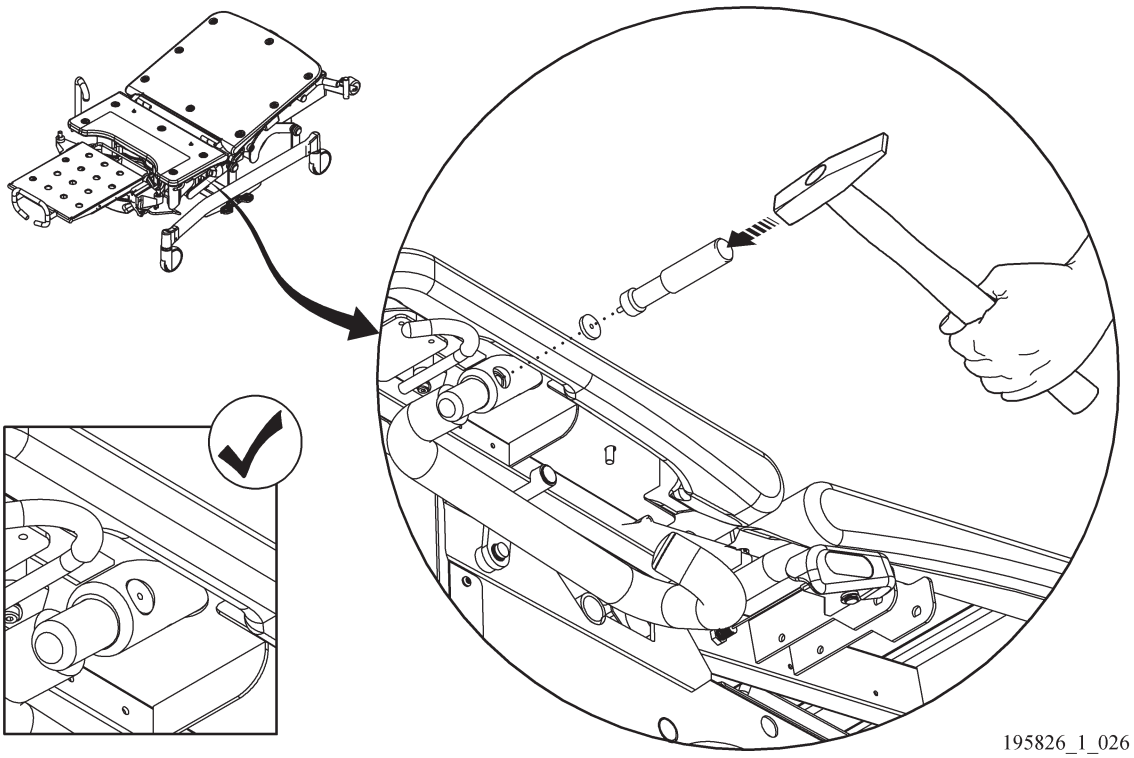



6. Remove the external snap ring (D) from the pull handle.
7. Pull and hold the release (E) for the labor grip handle (F).
8. Slide the labor grip handle (F) from its socket.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Apply lubri-film spray (P/N 36958) to the arm of the labor grip that slides into the socket.
3. Install the plug (see Figure 4-18 on page 4-29).
4. Do the "Function Checks" on page 2-5.

**Figure 4-18. Labor Grip Plug Installation**






## 4.17 Bed Surface Air System Assembly

Tools: Small wire cutters (2) ½" wrench

**NOTE:**

When servicing the air system, it is important to make sure the lumbar and seat inflate/deflate hoses are connected to the correct fittings on the air manifold. The hose from the left side of the bed is the lumbar hose; the hose from the right side is the seat hose.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the bed to the high position.
4. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the top motor cover (see Procedure 4.1 on page 4-3).
8. Remove the bottom motor cover (see Procedure 4.2 on page 4-4).

9. Disconnect the hose (A) leading from the right side of the mattress to the air manifold fitting (B) (see Figure 4.18 on page 4-32).
10. Disconnect the hose (C) leading from the left side of the mattress to the air manifold fitting (D).
11. Disconnect the cable (E) from the air manifold to the logic control P.C. board connector P12 (see Figure 4-20 on page 4-31).
12. Disconnect the cable (F) from the air pump to the logic control P.C. board connector P9.
13. Remove the two nuts (G) and the two bolts (H) that attach the air system (I) to the bed frame.
14. Remove the air system (I) from the bed.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Make sure all air system functions operate correctly.
3. Do the "Function Checks" on page 2-5.

**Figure 4-19. Bed Surface Air System Cable Connections**

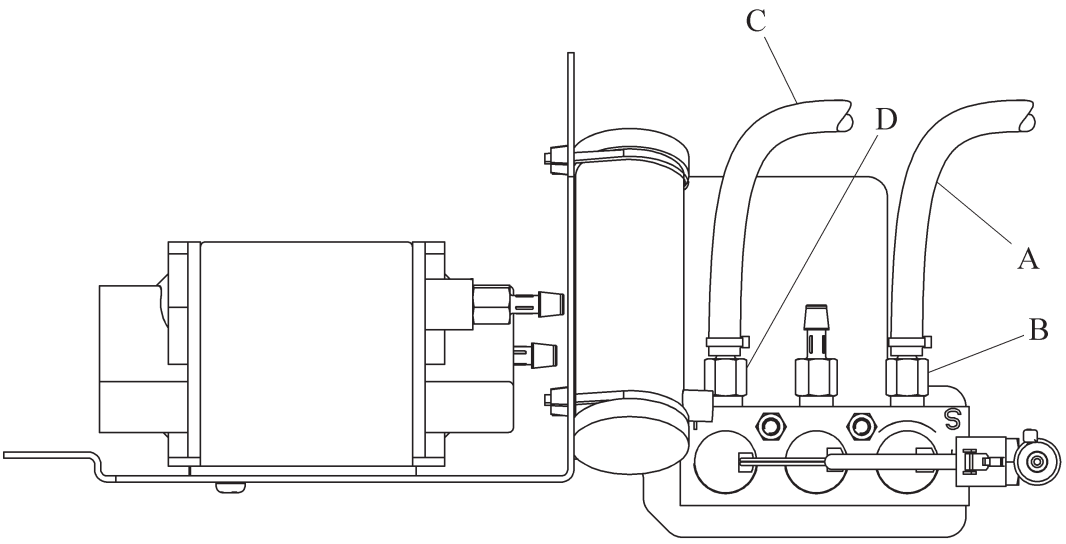



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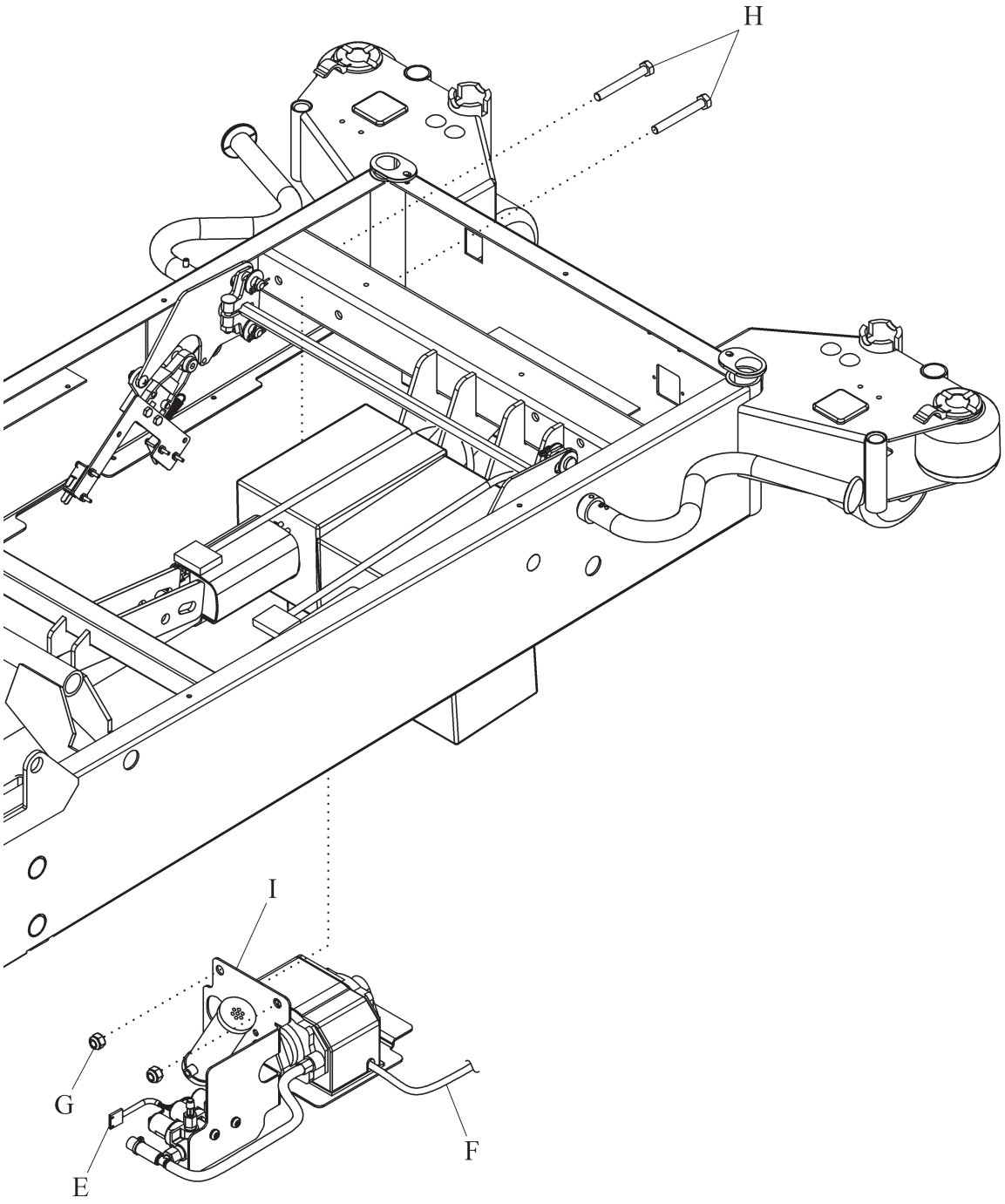
**Figure 4-20. Bed Surface Air System Assembly**



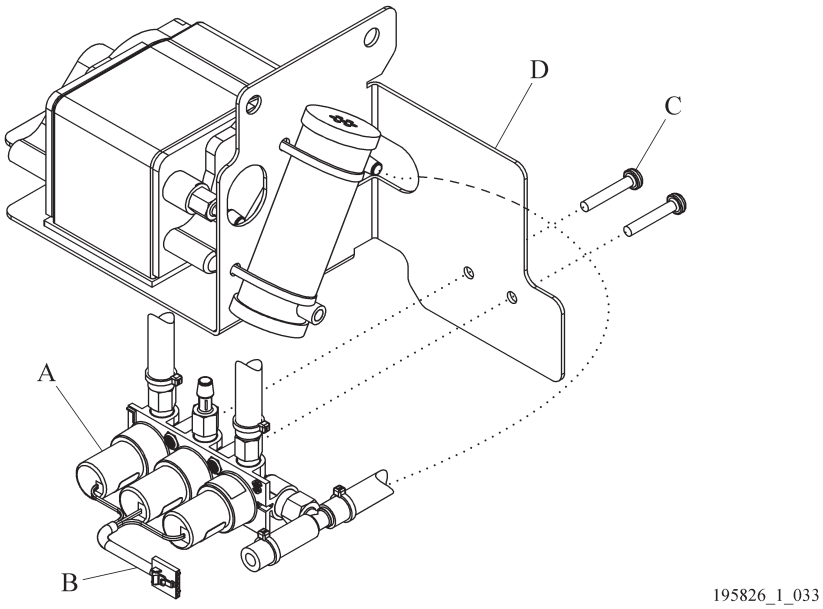
## 4.18 Air System Manifold Assembly

Tools: Torx® T25 driver

### REMOVAL

1. Remove the air system assembly (see Procedure 4.17 on page 4-29).
2. Disconnect the air hoses from the manifold assembly (A) (see Figure 4-21 on page 4-32).
3. Disconnect the cable (B) from the air manifold to the logic control P.C. board connector P12.
4. Remove the two screws (C) that attach the manifold assembly (A) to the mounting plate (D).

**Figure 4-21. Air System Manifold Assembly**




### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

## 4.19 Line Voltage Fuses

Tools: Small screwdriver

Two mains fuses protect the high voltage circuit. The fuses (line voltage fuses) are located in the fuse holder in the power entry module at the head end of the bed.

**WARNING:**
Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

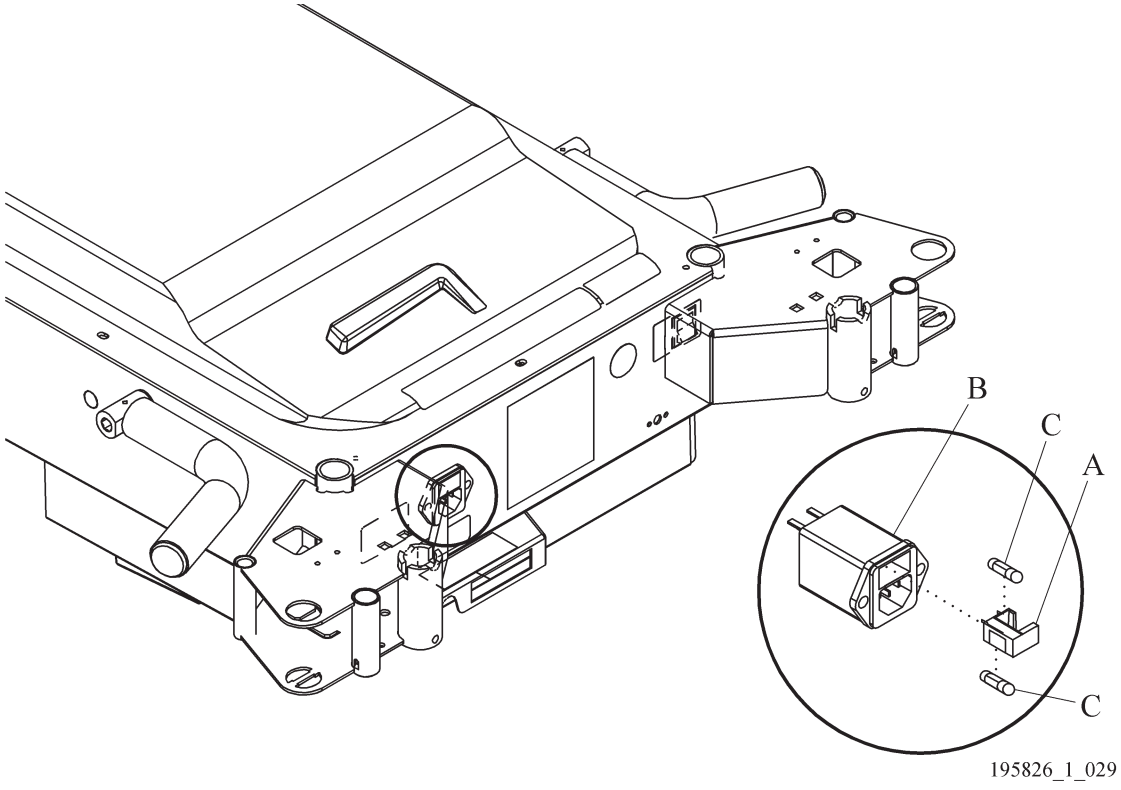
1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the bed to a comfortable working height.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the fuse holder (A) from the power entry module (B) (see Figure 4-22 on page 4-33).
7. Remove the appropriate line voltage fuse (C) from the fuse holder (A).

**Figure 4-22. Fuse Location**




### REPLACEMENT

1. Install a serviceable line voltage fuse (C) into the fuse holder (A).
2. Install the fuse holder (A) into the power entry module (B).
3. Do the "Function Checks" on page 2-5.

## 4.20 Battery Assembly

| | | | |
|---|---|---|---|
| Tools: | T25 Torx® head bit<br>Small screwdriver | Ratchet | Digital multimeter (VOM) |

### BATTERIES

**WARNING:**

Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

## Removal

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position.
4. Raise the bed to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the top motor cover (see Procedure 4.1 on page 4-3).

**CAUTION:**

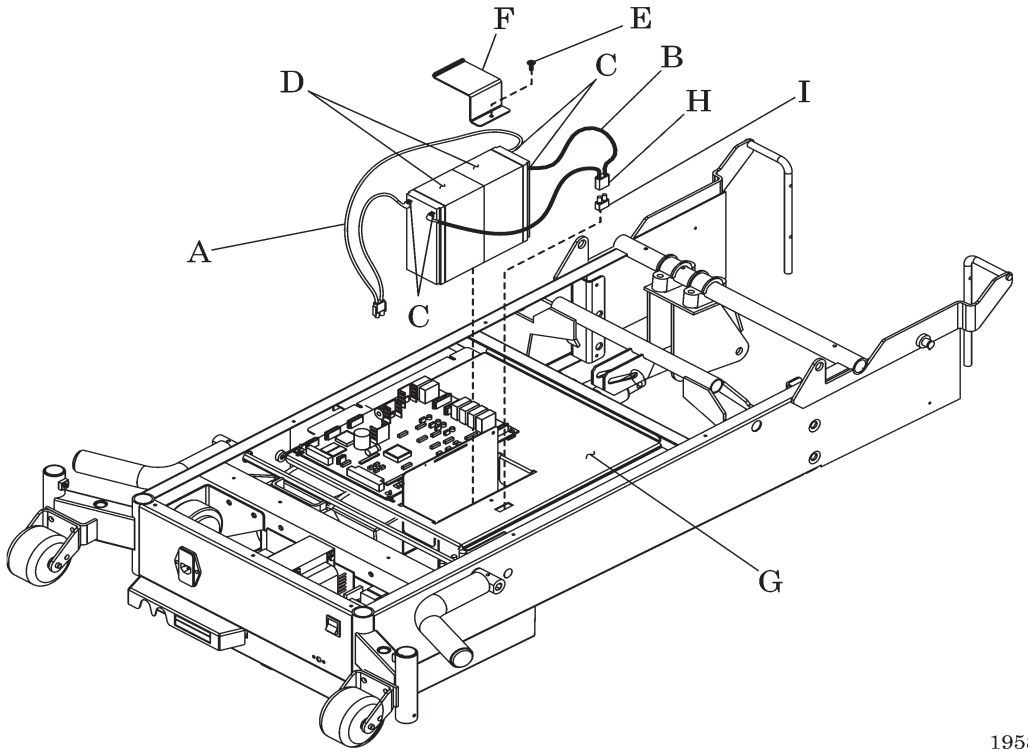
Do not cut or remove the cable ties that attach the battery leads to the electronics pan. This will help to make sure that the batteries are connected correctly during the replacement procedure. Possible equipment damage could occur if the cable ties are removed.

8. Unplug the battery cable assembly (A) from logic control P.C. board connector P5 (see Figure 4-23 on page 4-35).
9. Unplug the battery cable assemblies (A and B) from the four connection points (C) on the two batteries (D).
10. Remove the screw (E) that secures the battery holder bracket (F) to the electronics plate weldment (G).
11. Remove the two batteries (D) from the electronics plate weldment (G).

## Replacement

1. Do the removal procedure in reverse order.
2. Do the “Function Checks” on page 2-5.

**Figure 4-23. Battery Assembly**




4

### BATTERY FUSE

**WARNING:**

Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

## Removal

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

1. Unplug the bed from its power source.
2. Put the siderail lockout switch at the head end of the bed in the locked position.
3. Remove the top motor cover (see Procedure 4.1 on page 4-3).
4. Carefully pull the battery fuse housing (H) from the electronics plate weldment (G).
5. Remove the battery fuse (I) from the battery fuse housing (H).

## Replacement

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

## 4.21 Logic Control P.C. Board Assembly

Tools: Needle nose pliers Isopropyl alcohol

**WARNING:**

The voltage in the electrical system presents an electrical shock hazard. Do standard electrical service procedures before attempting service within the P.C. board enclosure. Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the bed to the high position. If the hilow function is inoperable, skip this step.
4. Raise the head section to the high position. If the head function is inoperable, activate the CPR release and manually raise the head section.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the top motor cover (see Procedure 4.1 on page 4-3).
8. Identify and disconnect the wiring connectors from the logic control P.C. board (A), beginning with the battery cable connection P5 (see Figure 4-24 on page 4-37 and Figure 4-25 on page 4-38).

**CAUTION:**

To prevent component damage, make sure your hands are clean, and **only** handle a P.C. board by its edges. Failure to do so could cause equipment damage.

9. Use the needle nose pliers to compress the locking tabs on the five logic control P.C. board mounting standoffs (B), and apply slight upward pressure on the logic control P.C. board (A) to disengage the locking tab on each mounting standoff.

**CAUTION:**

For shipping and storage, put the removed P.C. board in an antistatic protective bag. Failure to do so could cause equipment damage.

10. Handle the logic control P.C. board (A) by its edges with clean hands, remove it from the electronics plate weldment (C).

### REPLACEMENT

1. Do the removal procedure in reverse order.
   a. Make sure that you connect the battery cable connection P5 last.
   b. Make sure the wiring connectors are firmly connected to the logic control P.C. board (A) receptacles.
2. Do the "Hilow Bed Height Adjustment" on page 4-9, and the "Foot Limit Switch Adjustment" on page 4-19.
3. Do the "Function Checks" on page 2-5.

**Figure 4-24. Logic Control P.C. Board Assembly**

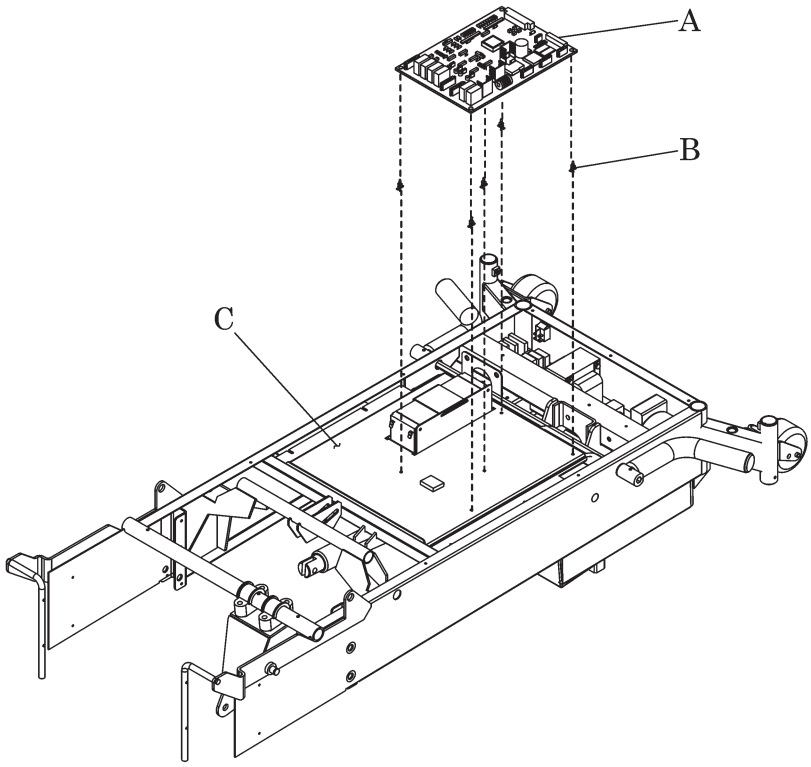



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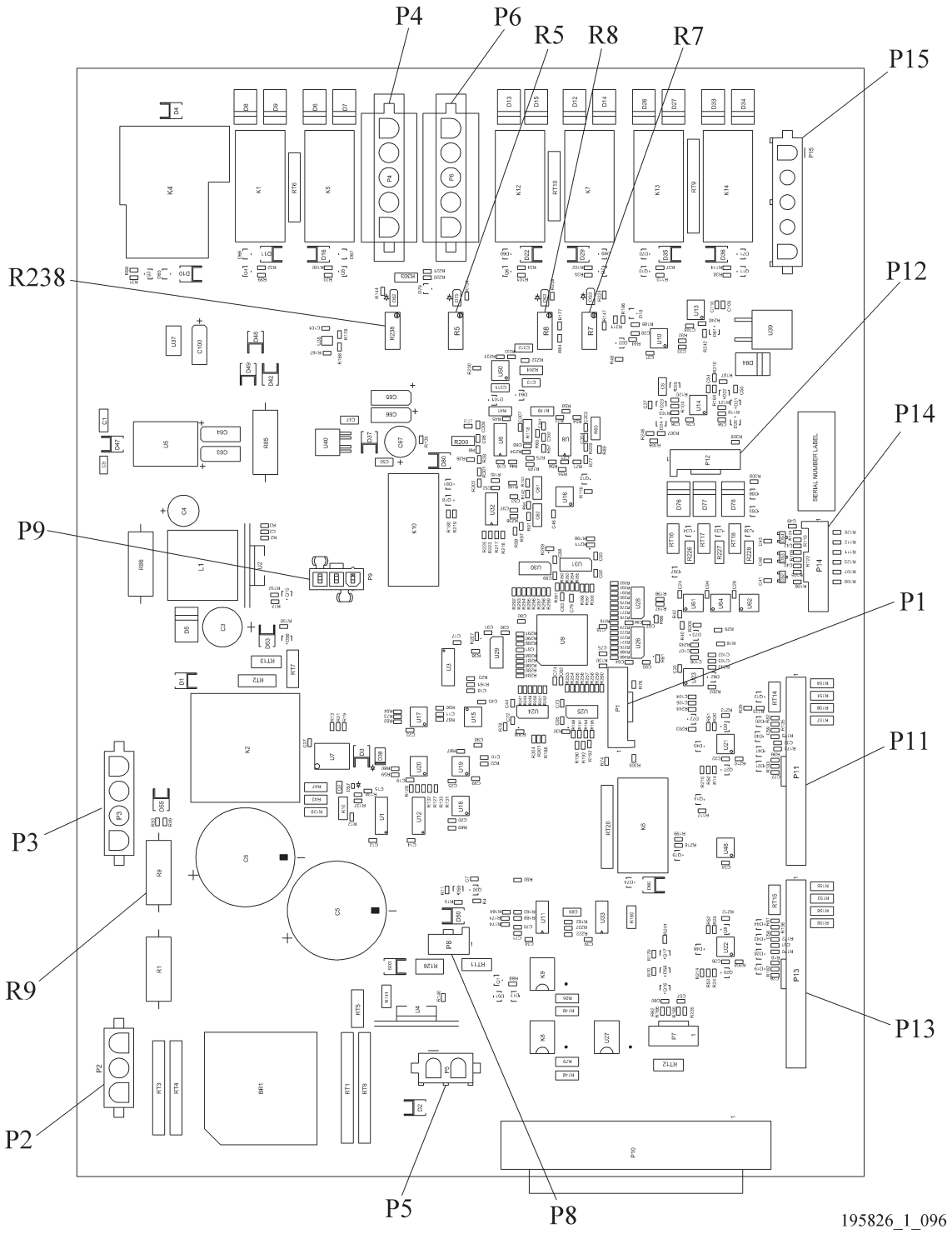
**Figure 4-25. Logic Control P.C. Board—P/N 183093; Connector and Resistor Identification**



## 4.22 Transformer Assembly

Tools: T25 Torx® head bit Ratchet

**WARNING:**

The voltage in the electrical system presents an electrical shock hazard. Do standard electrical service procedures before attempting service within the P.C. board enclosure. Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position.
4. Raise the bed to the high position.

**WARNING:**

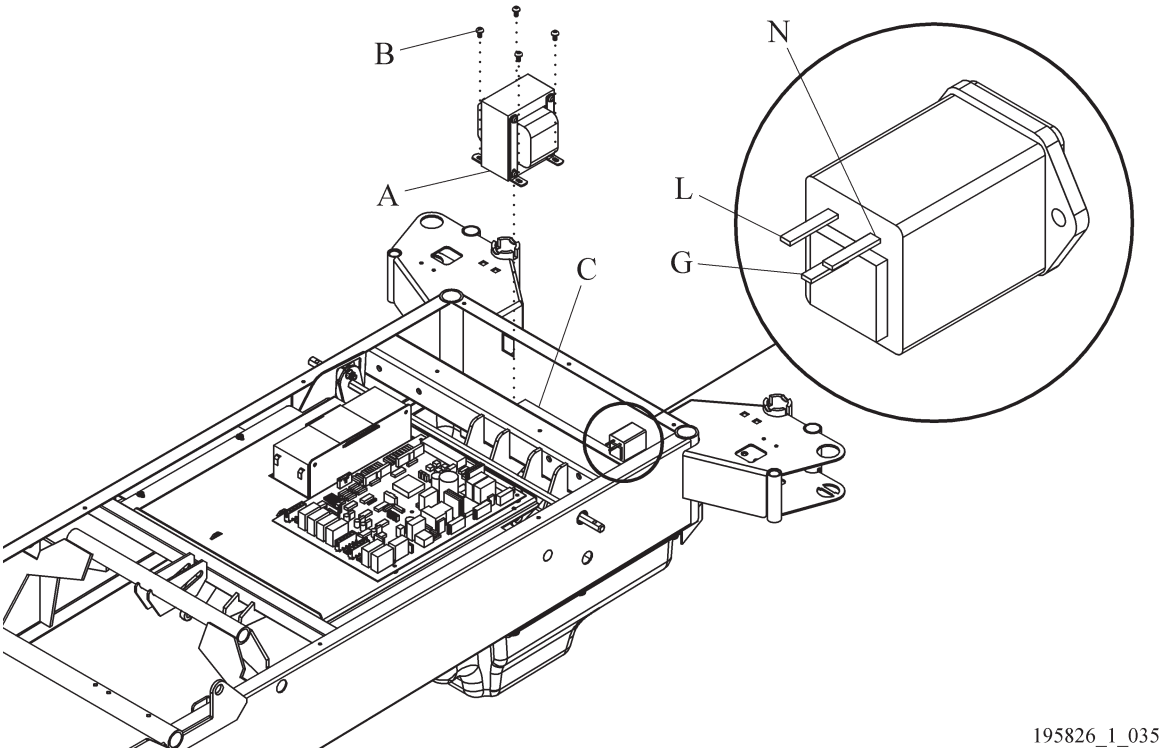
Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the top motor cover (see Procedure 4.1 on page 4-3).
8. Disconnect the transformer electrical cables from the power entry module.
9. Remove the four screws (B) that attach the transformer assembly (A) to the bed frame (C).
10. Remove the transformer assembly (A) from the bed.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Make sure the wiring connectors are firmly connected to the transformer assembly (A) and that the connections at the power entry module are correct for the appropriate voltage of the facility:
   - For all power ranges, connect the green wire with the yellow trace to the ground (G) terminal on the power entry module, and connect the white wire to the neutral (N) terminal on the power entry module.
   - For 100V facility power, connect the gray wire to the hot (L) terminal on the power entry module.
   - For 120V facility power, connect the black wire to the hot (L) terminal on the power entry module.
   - For 230V facility power, connect the orange wire to the hot (L) terminal on the power entry module.
3. Do the "Function Checks" on page 2-5.

**Figure 4-26. Transformer Assembly**




## 4.23 Lockout Switch Assembly

Tools: None

**WARNING:**

The voltage in the electrical system presents an electrical shock hazard. Do standard electrical service procedures before attempting service within the P.C. board enclosure. Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure that the bed is out of the Trend-Like position.
3. Raise the head section to the high position.
4. Raise the bed to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

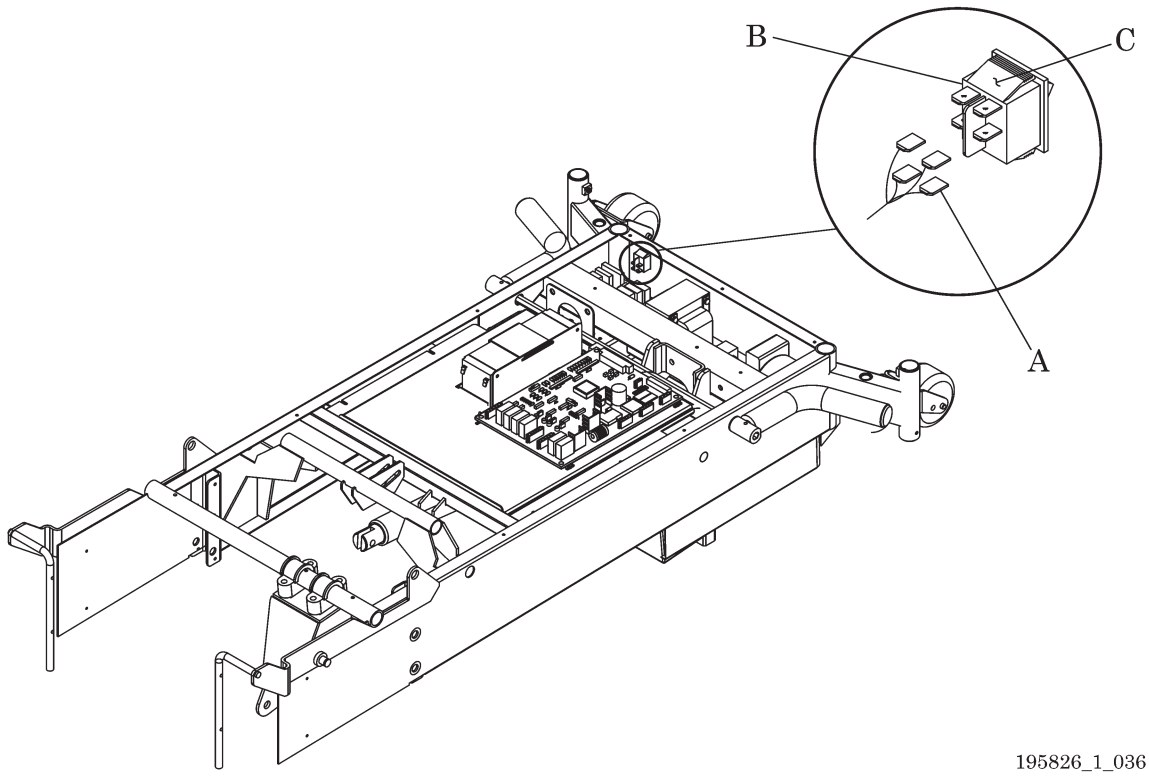
5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the top motor cover (see Procedure 4.1 on page 4-3).

8. Identify and disconnect the wiring connector (A) from the lockout switch assembly (B) (see Figure 4-27 on page 4-41).
9. Compress the tabs (C) on the lockout switch assembly (B).
10. Remove the lockout switch assembly (B) from the bed.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Make sure the wiring connector (A) is firmly connected to the lockout switch assembly (B).
3. Do the "Function Checks" on page 2-5.

**Figure 4-27. Lockout Switch Assembly**




## 4.24 Siderail Assembly

Tools: Small screwdriver, Ratchet, Needle nose pliers, 7/16" socket

**WARNING:**

Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

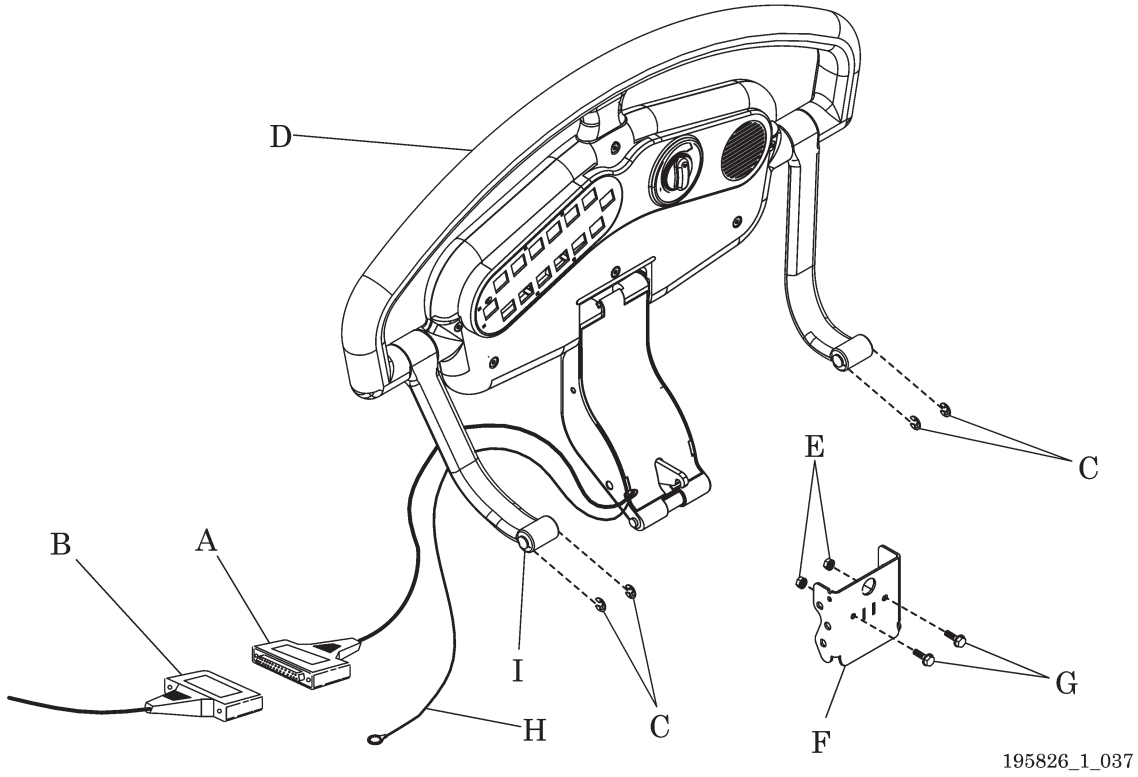
4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Disconnect the siderail cable (A) from the cable (B) that connects to the logic control P.C. board (see Figure 4-28 on page 4-42).
7. Disconnect the ground strap (H).

**CAUTION:**

Support the siderail during the removal procedure. Failure to do so could cause equipment damage.

8. Remove the four e-rings (C) that attach the siderail assembly (D) to the head section.
9. Remove the two nuts (E) and bolts (G) that attach the siderail mounting bracket (F) to the head section.

**Figure 4-28. Siderail Assembly**




## 4.25 Patient Siderail (Inboard) P.C. Switch Board

Tools: T25 Torx® head bit Ratchet T10 Torx® head bit

**WARNING:**

Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position.
4. Raise the bed to the high position.

**WARNING:**

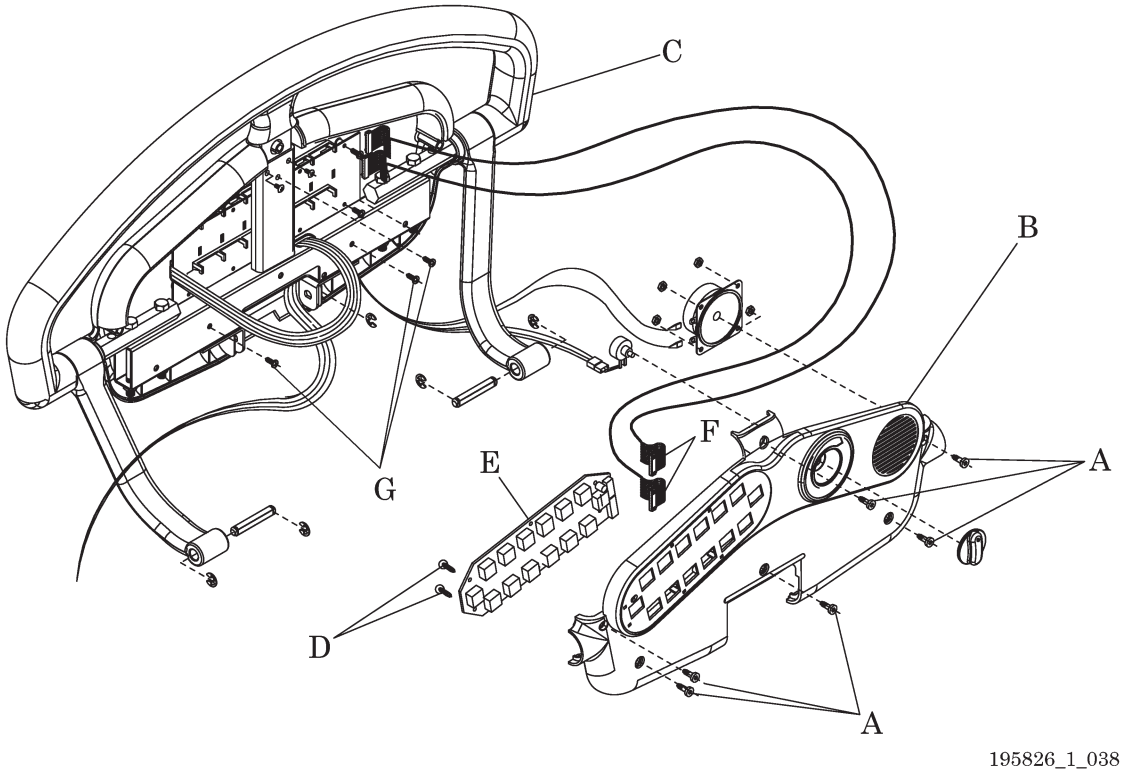
Failure to unplug the bed could cause injury or equipment damage.

5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the eight plastic screws (A) that attach the patient siderail cover (B) to the siderail assembly (C) (see Figure 4-29 on page 4-44).
8. Carefully remove the patient siderail cover (B) from the siderail assembly (C).
9. Make a note of the wires and cable assembly routings and connections to make sure that they are installed correctly during the replacement procedure.
10. Remove the four screws (D) that attach the P.C. switch board (E) to the patient siderail cover (B).
11. Slide the P.C. switch board (E) off the patient siderail cover (B) tabs, and remove the board from the patient siderail cover (B).
12. Disconnect the two SideCom® Communication System cable assemblies (F) from the P.C. switch board (E).

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

**Figure 4-29. Patient Siderail (Inboard) P.C. Switch Board**




## 4.26 Caregiver Siderail (Outboard) P.C. Switch Board

Tools: T25 Torx® head bit Ratchet T10 Torx® head bit

**WARNING:**
Follow all electrical safety precautions when servicing the bed's electrical system. Failure to do so could cause personal injury or equipment damage.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Make sure the bed is out of the Trend-Like position.
3. Raise the head section to the high position.
4. Raise the bed to the high position.

**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

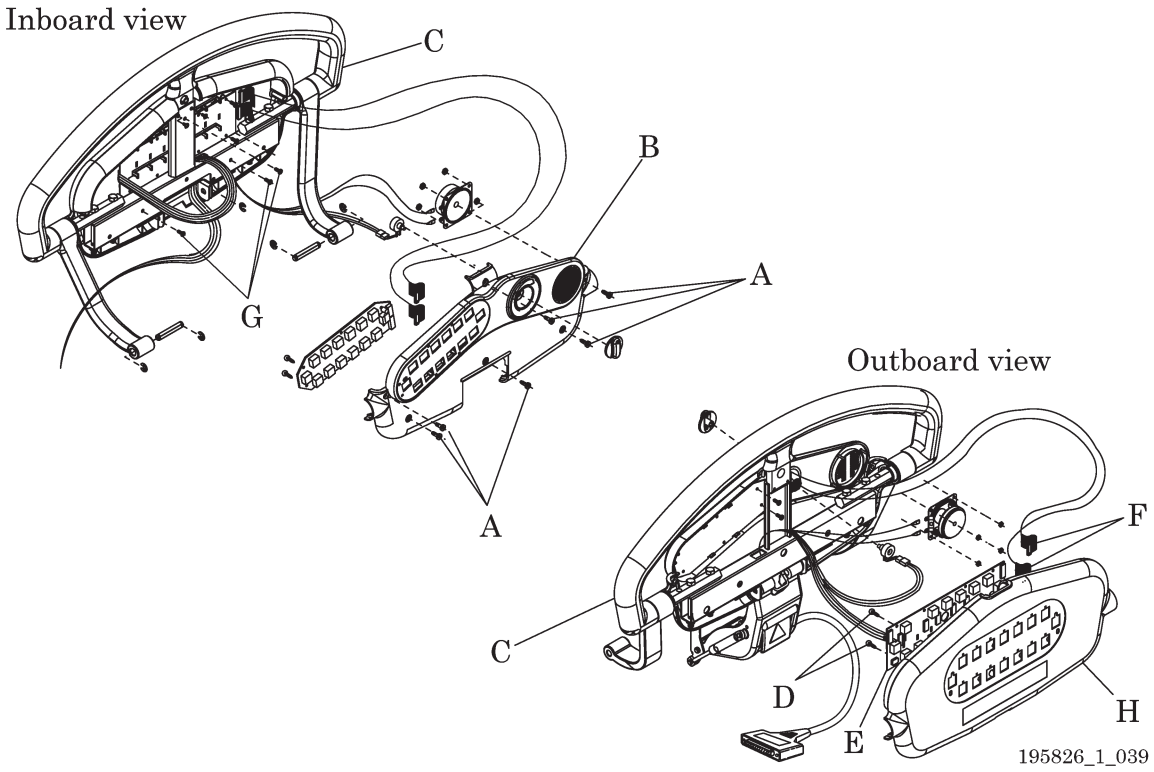
5. Unplug the bed from its power source.
6. Put the siderail lockout switch at the head end of the bed in the locked position.
7. Remove the eight plastic screws (A) that attach the patient siderail cover (B) to the siderail assembly (C) (see Figure 4-30 on page 4-45).
8. Carefully separate the patient siderail cover (B) from the siderail assembly (C).

9. Make a note of the wires and cable assembly routings and connections to make sure that they are installed correctly during the replacement procedure.
10. Remove the three screws (G) that attach the caregiver siderail cover (H) to the siderail assembly (C).
11. Carefully remove the caregiver siderail cover from the siderail assembly (C).
12. Make a note of the orientation of the wires and cable assemblies to make sure proper installation during the replacement procedure.
13. Remove the four screws (D) that attach the P.C. switch board (E) to the caregiver siderail cover (H).
14. Slide the P.C. switch board (E) off the caregiver siderail cover (H) tabs, and remove the board from the caregiver siderail cover (H).
15. Disconnect the two SideCom® Communication System cable assemblies (F) from the P.C. switch board (E).

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

**Figure 4-30. Caregiver Siderail (Outboard) P.C. Switch Board**




## 4.27 Foot Section (Lift Off)

Tools: None

### REMOVAL

1. Turn the foot mattress side panels (A) up (see Figure 4-31 on page 4-46).

2. Hold the mattress handles (B) or (G) that are on both sides of the mattress.
3. Pull straight up and then toward yourself.
4. Stand the foot section up on the pull handle (C) base or on the perineal stand.

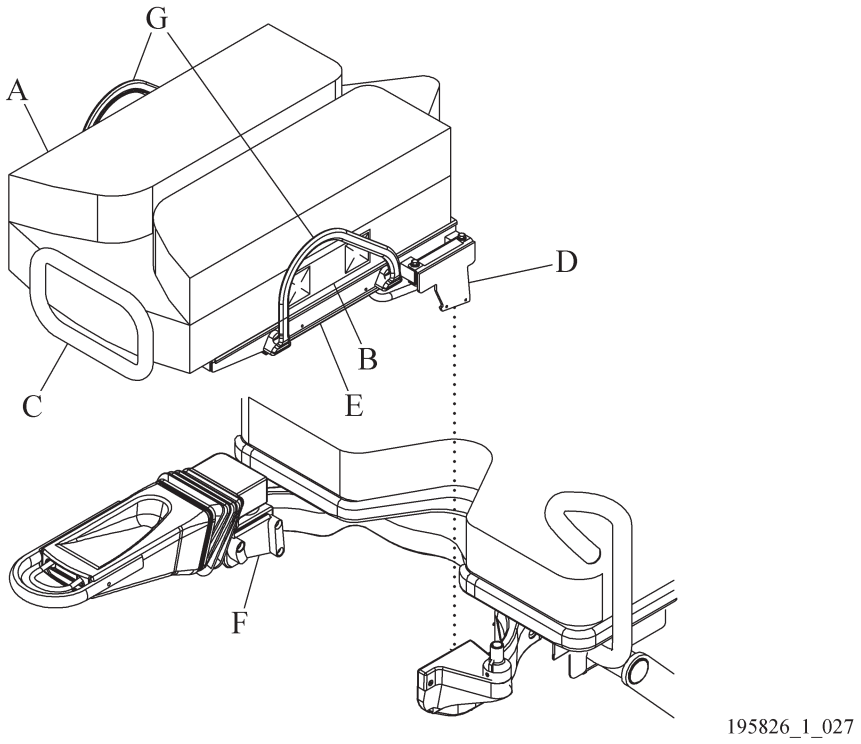
### REPLACEMENT

**WARNING:**

Failure to correctly mount the foot section to the yoke latches could cause equipment damage or personal injury.

1. Hold the mattress handles (B) or (G) that are on both sides of the mattress.
2. Align the foot section slides (D) with their receptacles (F) on the bed.
3. Lower the foot section (E) on to the bed.
4. Pull upward on the pull handle (C) to make sure that the foot section is correctly attached to the bed.

**Figure 4-31. Foot Section (Lift Off)**




## 4.28 Stow and Go® Foot Section Wireform

Tools: Adjustable wrench 1/4" hex wrench Phillips head screwdriver

### REMOVAL

1. Set the brakes.
2. Raise the bed to the full up position.

3. Raise the foot section to the full up position.

**WARNING:**

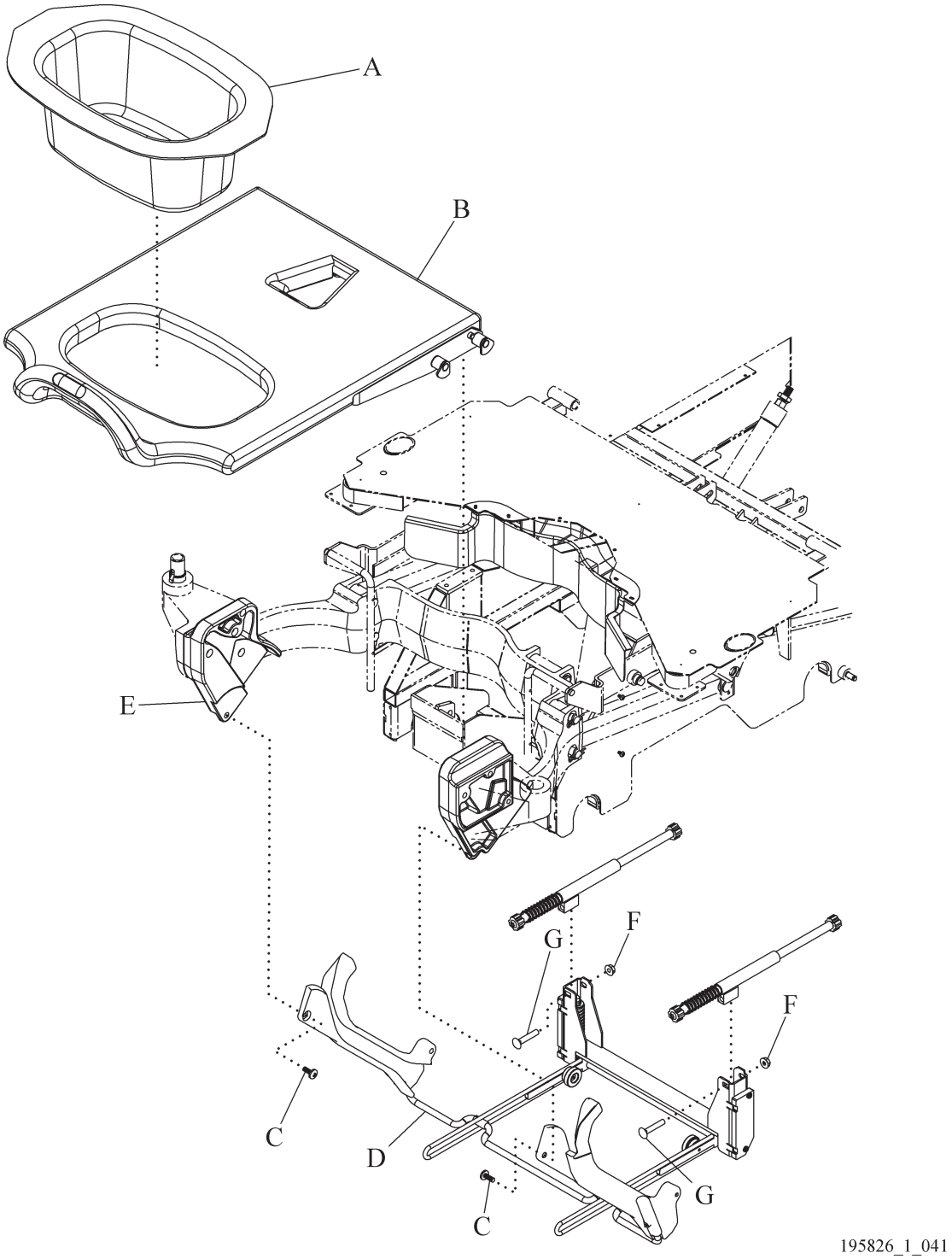
Failure to unplug the bed can cause personal injury or equipment damage.

4. Unplug the bed from its power source.
5. Put the siderail lockout switch at the head end of the bed in the locked position.
6. Remove the placenta basin (A) from the foot section (B) (see Figure 4-32 on page 4-48).
7. Remove the foot section (B).
8. Remove the two screws (C) that attach the wireform (D) to the foot section weldment (E).
9. Remove the two nuts (F) from the bolts (G).
10. Support the weight of the wireform (D) with one hand.
11. Remove one bolt (G).
12. Remove the other bolt (G).
13. Remove the wireform (D) from the bed.

### REPLACEMENT

1. Do the removal procedure in reverse order.
2. Do the "Function Checks" on page 2-5.

**Figure 4-32. Wireform Removal**



## 4.29 Ramps—Stow and Go® Feature

Tools: 1/8" hex wrench **or** hex bit socket
1/2" wrench 1/2" hex wrench Ratchet

### REMOVAL

1. Make sure the brakes are set.
2. Raise the bed to the highest position.

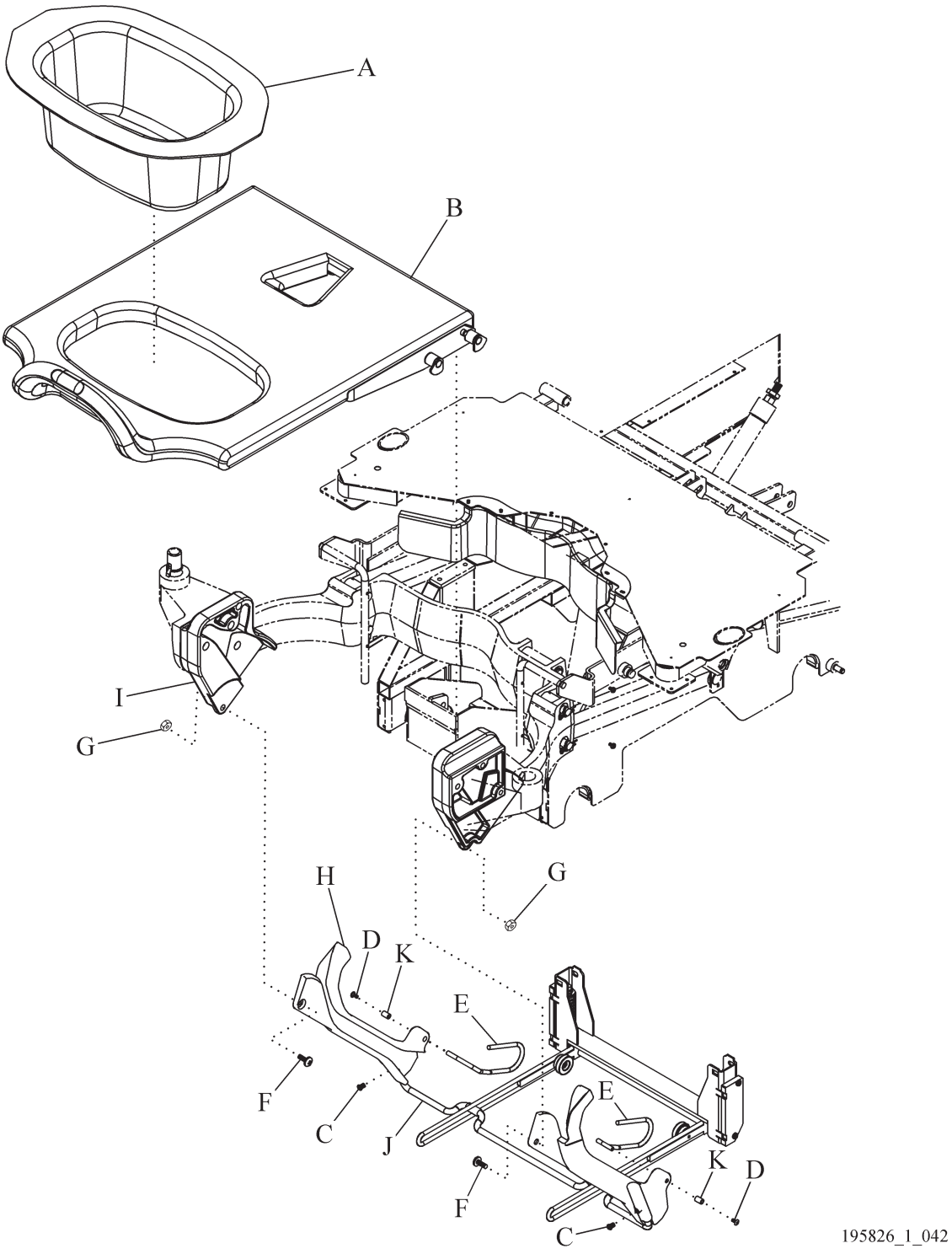
**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

3. Unplug the bed.
4. Put the siderail lockout switch at the head end of the bed in the locked position.
5. Remove the placenta basin (A) (see Figure 4-33 on page 4-50).
6. Stow the foot section (B).
7. Loosen, do not remove, the setscrew (C).
8. Remove the screws (D) that attach the wire guide (E) to the ramps (H).
9. Remove the bolts (F) and nuts (G) from the ramps (H).
10. Remove the ramps (H) from the lock blocks (I).
11. Remove the ramps (H) from the bed.

### REPLACEMENT

1. Do the removal procedure in reverse order.
   a. Use the new setscrews (C) supplied with the ramps (H).
   b. Tighten the setscrews (C) until they do not move.
   c. Pull on the wireform (J), and make sure it stays inside the ramps (H).
   d. Make sure that the bushings (K) are installed in the lower part of the ramps (H).
2. Do the "Function Checks" on page 2-4.

**Figure 4-33. Ramp Removal**



## 4.30 Caster Assembly

| Tools: | T25 Torx® head bit | 5/32" hex wrench | Ratchet |
|---|---|---|---|
| | 3/16" hex wrench | Bed jack | Turpentine |

**NOTE:**

When the brake/steer pedal is in steer, the left foot-end caster locks into a position that is parallel to the bed.

### REMOVAL

1. Set the brake/steer pedal to the brake position.
2. Remove the two screws (A) that attach the leg cover (B) over the caster (C) (see Figure 4-34 on page 4-52).

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

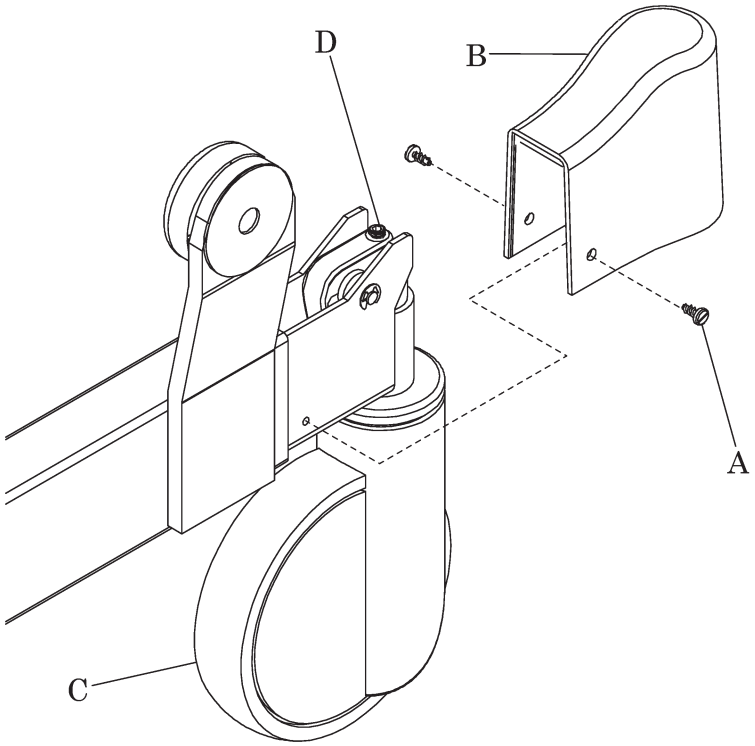
3. Unplug the bed.
4. Put the siderail lockout switch at the head end of the bed in the locked position.
5. Remove the leg cover (B).
6. Remove the caster mounting screw (D).
7. Put a jack under the base frame, and raise the base frame high enough to remove the caster (C).

**WARNING:**

Make sure the bed is stable before you remove the caster. Failure to do so could cause personal injury or equipment damage.

8. Remove the caster (C) from the bed.

**Figure 4-34. Caster Assembly**




### REPLACEMENT

1. Do the removal procedure in reverse order.

**NOTE:**

The new brake/steer caster could have 2 or 4 bolt holes in the stem. If the stem has a green dot on it, the green dot is toward the head end of the bed during installation.

2. Make sure the caster (C) rolls and swivels freely, and that all brake and steer functions operate correctly.

**NOTE:**

The brake/steer casters with the green dot will lock in the trailing position only.

### BRAKE AND STEER CASTER ADJUSTMENT

1. Set the brake/steer pedal to the neutral position.
2. Do Step 1 through Step 5 of "Removal" on page 4-51.
3. Turn the setscrew (D) clockwise while you turn the caster (C) approximately 2" (approximately 50 mm) from side to side, until you hear a light ratcheting sound.
4. Turn the setscrew (D) counterclockwise until the ratcheting stops.
5. Set the brake/steer pedal to the brake position.
6. Make sure the caster (C) tire does not roll.
7. If the caster (C) tire rolls, tighten the setscrew (D) slightly.

8. If the brake still does not hold, examine the caster (C) tire for wax buildup. Clean the tire with turpentine if necessary.
9. Set the brake/steer pedal to the steer position.
10. Turn the brake/steer caster (C). The caster (C) should lock into a position parallel with the length of the bed.
11. Set the brake/steer pedal to the neutral position.
12. Turn the brake/steer caster (C) 180°. The caster should again lock into a position parallel to the length of the bed.
13. Set the brake/steer pedal to the in neutral position.
14. Turn the brake/steer caster (C) from side to side, and listen for a ratcheting sound.
15. If necessary, loosen the setscrew (D) to permit the caster (C) to turn without ratcheting, but so that it can still be locked in the steer position.

### BRAKE CASTER ADJUSTMENT

1. Do Step 1 through Step 8 of "Brake and Steer Caster Adjustment" on page 4-52.

## 4.31 Central Braking System

| | | | |
|---|---|---|---|
| Tools: | Phillips head screwdriver | 1/8" drift punch | 7/16" wrench |
| | Blue Loctite® #242 | Hammer | ½" wrench |
| | E-ring removal tool | Anti-seize compound | Needle nose pliers |
| | Marker pen | Small screwdriver | T25 Torx® screwdriver |
| | Red Loctite® #262 | (2) pieces of 2" x 4" x 36" lumber | |

The brake/steer caster is at the left foot end of the base frame. The other three casters are brake casters. To service the central braking system mechanism, lay the bed on its side. Before you do this, you must disable the siderail and remove the brake/steer pedal.

### REMOVAL

1. Determine which side the bed will be put on.
2. Disable the siderail: lower it beneath the bed and tie it in this position, or remove it as an assembly from the bed (see Procedure 4.24 on page 4-41).
3. Set the brake/steer pedal (A) to the steer position (see Figure 4-35 on page 4-54).
4. Remove the two screws (B) that attach the leg covers (C) to the bed (D).
5. Remove the leg covers (C).
6. Remove the foot-end rocker arm (E) as follows:
   a. Remove the E-ring (F) from one side of the groove pin (G) that holds the rocker arm (E) above the caster.
   b. Remove the groove pin (G) to free the rocker arm (E).
   c. Remove the spacers (H) on each side of the rocker arm (E).
   d. Remove the hairpin (I) and connector pin (J) that attaches the metal brake strip (K) to the rocker arm (E).
   e. Lift out and remove the rocker arm (E).
7. Repeat Step 6 for the head-end rocker arm.
8. Set the brake/steer pedal (A) to the neutral position.

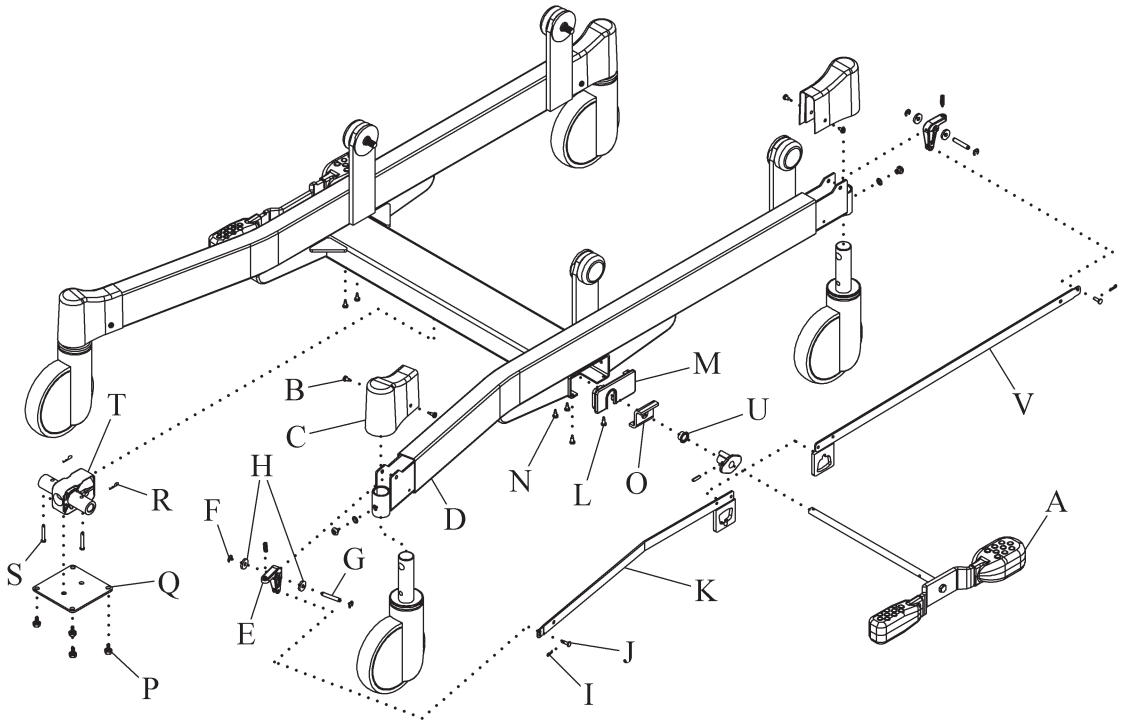
9. Remove the headboard and the foot section from the bed.
10. Put the pads on the floor to protect the bed from damage.

**WARNING:**

Do not turn the bed onto its side without the help of another person. Injury and equipment damage can occur.

11. With the help of another person, carefully turn the bed on to the side with the disabled siderail assembly.
12. Remove the two screws (L) and the end caps (M) that cover the cross tube (behind the brake/steer pedal) at both sides of the base frame.
13. Remove the two screws (N) from the brake rod support bracket (O) on each side of the base frame.
14. Remove the four screws (P) that attach the detent housing plate (Q) at the center of the cross channel.
15. Remove the two hairpins (R) and clevis pins (S) that connect the shaft of both the brake/steer pedals (A) to the detent mechanism assembly (T).
16. Pull the brake/steer pedal (A) free of the cross channel and detent mechanism assembly (T).
17. Repeat Step 2 through Step 16 for the opposite side.
18. Remove the detent mechanism assembly (T) from the cross channel.
19. Slide the brake rod support bracket (O) and bushing (U) from the end of the brake/steer pedal (A).
20. Remove the brake strips (K and V) from the base frame.

**Figure 4-35. Central Braking System**



### REPLACEMENT

1. Do the removal procedure in reverse order. As you replace components, make sure of these:
   a. The brake/steer strip (straight metal strap – V) and the brake strip (bent metal strap – K) are correctly assembled on their respective sides.
   b. The brake strips (K and V) are correctly attached to their cam pivots.
   c. The brake and steer caster or the brake caster is adjusted correctly. See "Brake and Steer Caster Adjustment" on page 4-52 and "Brake Caster Adjustment" on page 4-53.
2. Make sure that the brake and steer functions operate correctly.
3. Do the "Function Checks" on page 2-5.

## 4.32 Line Manager

Tools: 7/16" wrench 1/2" wrench, socket and ratchet

**NOTE:**
The line manager is only compatible with the standard headboard. It is not compatible with the Liberty Hill™ and Freedom Hill™ headboards.

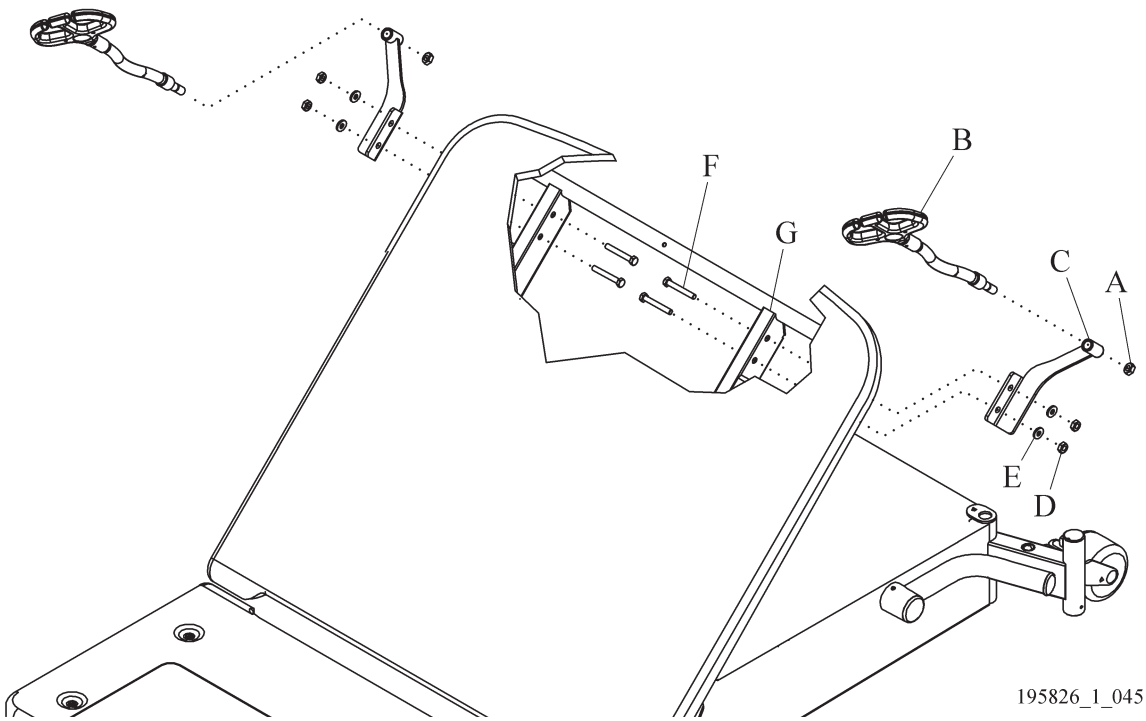
### REMOVAL

1. Set the brakes.
2. Raise the head section to 45°.

**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

3. Unplug the bed.
4. Put the siderail lockout switch at the head end of the bed in the locked position.
5. Do as follows for each side:
   a. Remove the nut (A) that attaches the line manager (B) to the bracket (C) (see Figure 4-36 on page 4-56).
   b. Remove the two nuts (D) and washers (E) from the bolts (F).
   c. Remove the bolts (F) and bracket (C) from the bed frame (G).

**Figure 4-36. Line Manager**




### REPLACEMENT

Do the removal procedure in reverse order.

## 4.33 Push Handles

Tools: 7/16" wrench T25 Torx® screwdriver

**NOTE:**

The push handles are only compatible with the standard headboard. They are not compatible with the Liberty Hill™ and Freedom Hill™ headboards.

### REMOVAL

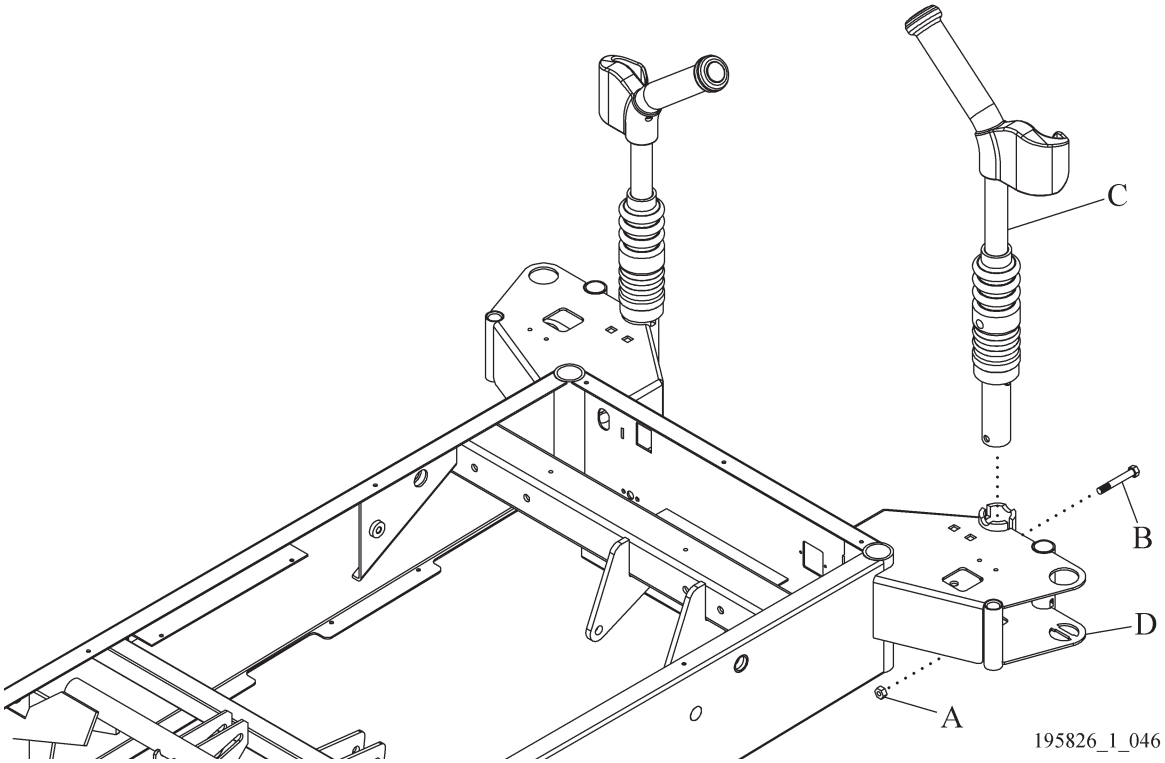
1. Set the brakes.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

2. Unplug the bed.
3. Put the siderail lockout switch at the head end of the bed in the locked position.
4. Remove the nut (A) from the bolt (B) (see Figure 4-37 on page 4-57).
5. Remove the bolt (B) that attaches the handle (C) to the bed (D).
6. Remove the handle (C).

**Figure 4-37. Push Handle**




### REPLACEMENT

Do the removal procedure in reverse order.

## 4.34 Permanant IV Pole—P3732A

Tools: T25 Torx® screwdriver

### REMOVAL

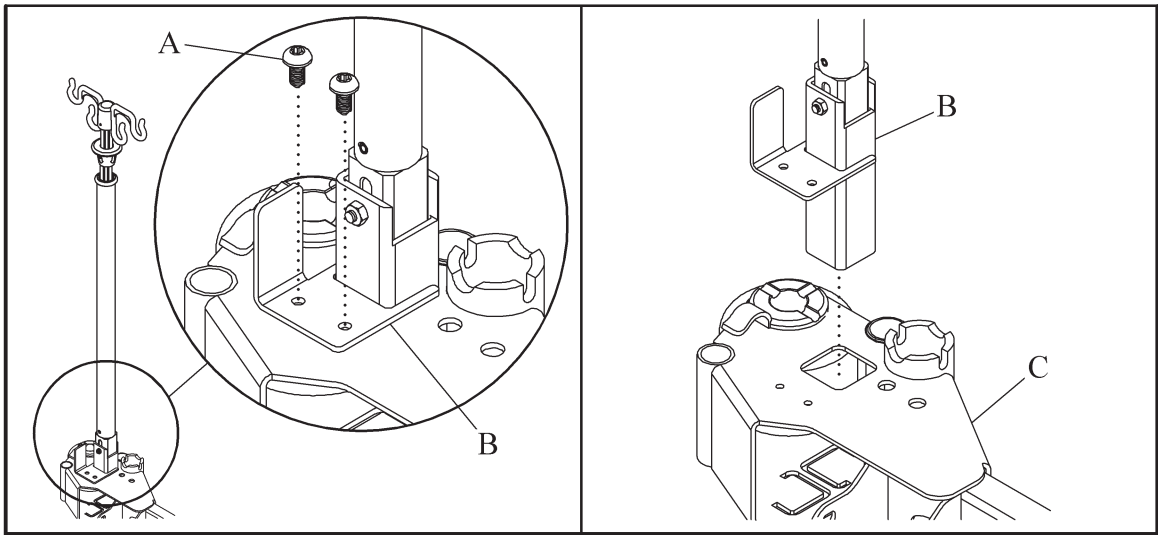
1. Set the brakes.

**WARNING:**

Failure to unplug the bed could cause injury or equipment damage.

2. Unplug the bed.
3. Put the siderail lockout switch at the head end of the bed in the locked position.
4. Remove the two screws (A) from the IV pole (B) (see Figure 4-38 on page 4-58).
5. Remove the IV pole (B) from the bed (C).

**Figure 4-38. IV Pole**




### REPLACEMENT

Do the removal procedure in reverse order.

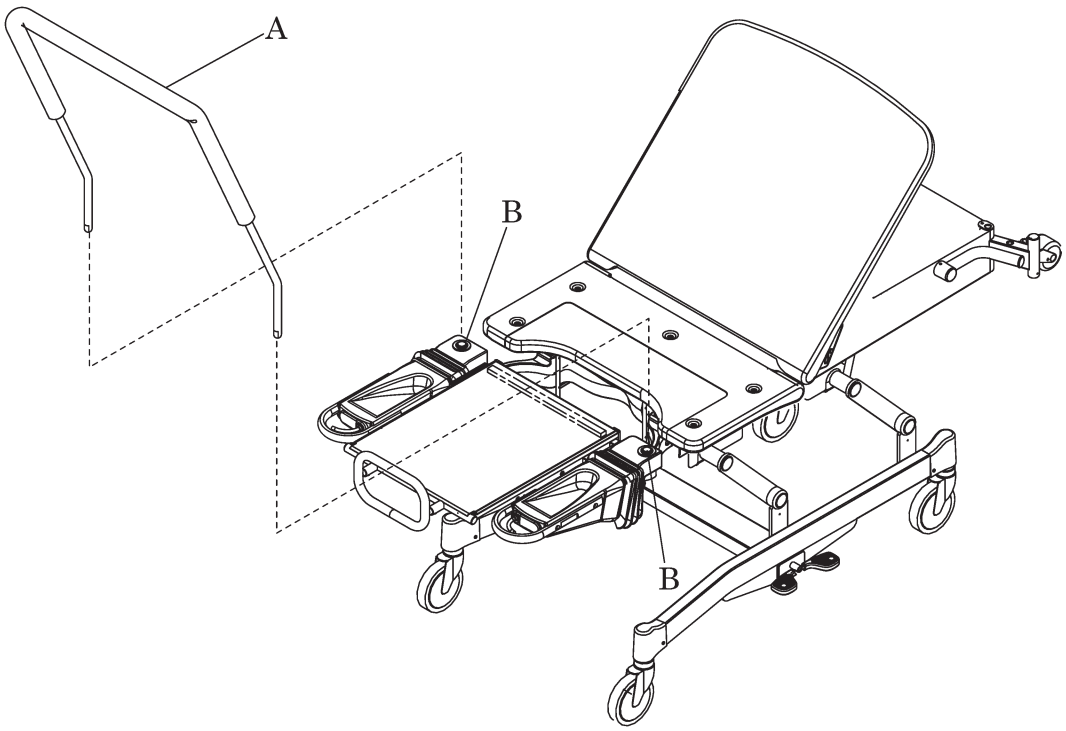
## 4.35 Labor Bar (P3613)

Tools: None

### INSTALLATION

1. Determine the orientation of the labor bar that is required for the position of the patient.
2. Insert the labor bar (A) into the leg support sockets (B) between the seat and foot cushions (see Figure 4-39 on page 4-59).

**Figure 4-39. Labor Bar**






### ADJUSTMENT

Use the **Foot Up/Foot Down** control to raise or lower the labor bar (A) to the desired height.

**NOTE:**
The labor bar can be used in either direction for different positions and purposes.

### REMOVAL

To remove the labor bar (A), reverse the installation procedure.

## 4.36 Oxygen Tank Holder (P27605)

Tools: None

### INSTALLATION

1. Install the mounting bar vertically into a mounting socket at the head end of the frame.
2. Put one E-size oxygen tank in the holder.
3. Tighten the holder thumbscrew.

**NOTE:**
The thumbscrew keeps the oxygen tank from turning in the holder.

### REMOVAL

1. Loosen the thumbscrew that holds the tank securely in the holder.
2. Lift the tank out of the holder.
3. Lift up on the tank holder, and remove it from the mounting sockets.

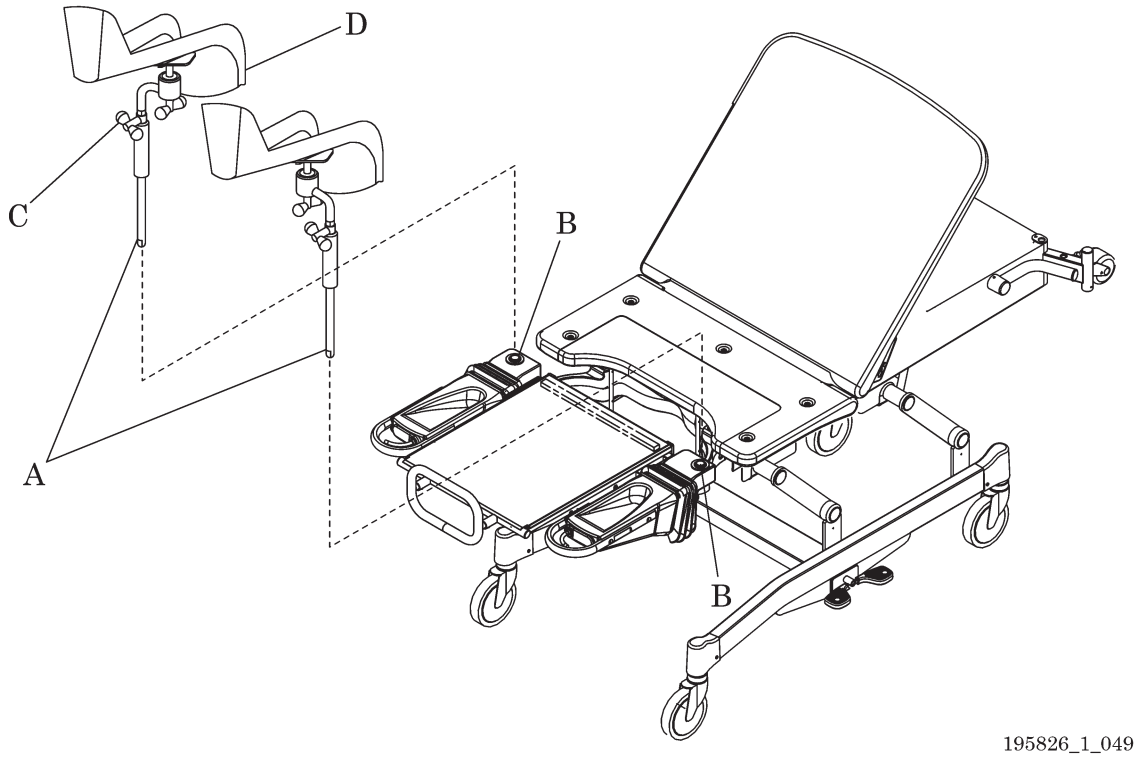
## 4.37 Telescoping Calf Supports (P35745A) or Telescoping Full Leg Supports (P7634C)

Tools: None

### INSTALLATION

1. Set the brake/steer pedal to the brake position.
2. Make sure that the bed is out of the Trend-Like position.
3. Use the **Foot Up/Foot Down** control to put the foot section in a mid-height position.
4. Put the telescoping supports (A) into position and insert them into the mounting post (B) (see Figure 4-40 on page 4-61).

**Figure 4-40. Telescoping Calf or Full Leg Supports**




5. Make sure that the telescoping supports (A) are fully installed and indexed in the applicable position.

**NOTE:**

The ball joints can be indexed inward or outward for different sized patients.

### ADJUSTMENT

1. Loosen the swivel clamp screws (C) so that the cradles (D) can be turned to the desired direction.

**WARNING:**

Failure to tighten the screws may cause the cradles to slip and lose their original position. Personal injury could occur.

2. Tighten the swivel clamp screws (C) to hold the cradles (D) in the desired position.

### REMOVAL

To remove the telescoping supports, reverse the installation procedure.

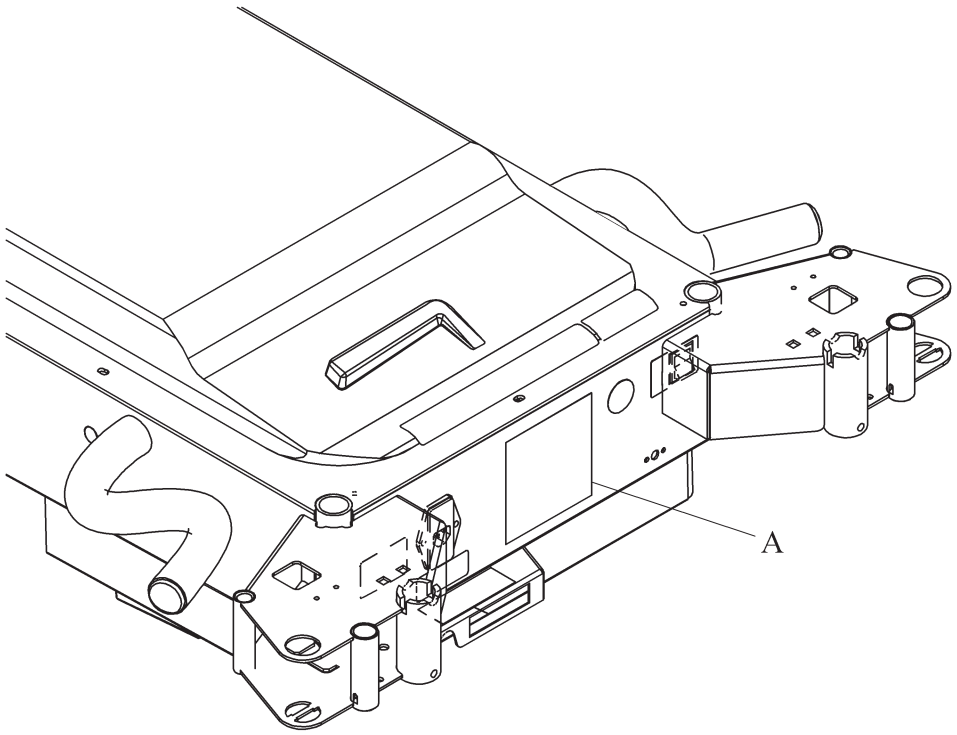
## NOTES:

# Chapter 5
# Parts List

## SERVICE PARTS ORDERING

Use the parts lists in this manual to 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 5-1).

**Figure 5-1. Product Identification Label Location**




195826_1_050

Contact Hill-Rom Technical Support with the data that follows:

- Customer account number
- Purchase order number
- Product number
- Serial number
- Part number(s)

To promptly order parts, request part prices and availability, or follow up on a service order, use this Hill-Rom fax number:

812-934-8472

5

Terms:

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

Address all inquiries to:

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

Address all return goods to:

ATTN SERVICE STORES
RITTER PLANT EAST END DOOR R33
HILL-ROM, INC.
COUNTY ROAD 300E
BATESVILLE IN 47006-9167

**NOTE:**

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

## EXCHANGE POLICY

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

### IN-WARRANTY EXCHANGES

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

**NOTE:**

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

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

**Do not** return any parts without an RMA number. When parts/products have been requested to be returned, Hill-Rom will include an RMA packet with the parts/products shipment. If an RMA number is not available, contact Hill-Rom Technical Support.

### OUT-OF-WARRANTY EXCHANGES

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

## NOTES:

# LIMITED 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 customers. 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 persons 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.

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ADM004 REV 4 July 2010

**Hill-Rom Company, Inc., 1069 State Route 46 E, Batesville, IN 47006-9167**

## RECOMMENDED SPARE PARTS

For a recommended spare parts list to service five or more units, see Table 5-1 on page 5-7.

**Table 5-1. Recommended Spare Parts**

| Part Number | Quantity | Description |
|---|---|---|
| 450846048 | 2 | Caster, 6" swivel |
| 45084-6648 | 1 | Caster, 6" brake |
| 450846448 | 1 | Caster, 6" brake/steer |
| 63920 | 2 | Hilow/foot drive |
| 63927 | 1 | Head drive |
| 4314317 | 5 | Fuse, timelag, 4A, 125V AC, 5 mm x 20 mm<br>120 V AC mains power |
| 182100 | | Fuse, timelag, 2A, 250V AC, 5 mm x 20 mm, high-breaking capacity<br>230 V AC mains power |
| 7061001 | | Fuse, timelag, 5A, 125V AC, 5 mm x 20 mm<br>100 V AC mains power |
| 183093 | 1 | PCB assembly, control, E model beds |
| 63945 | 1 | Cable assembly, battery |
| 6394201 | 1 | Cable assembly, battery-to-battery |
| 6642910S | 5 | Fuse, 10A, 32 V DC, automotive style |
| 150751 | 4 | Plug |
| 151085 | 1 | Plug insertion tool |

## MAIN FRAME MODULE—(SHEET 1 OF 2)

**Figure 5-2. Main Frame Module—(Sheet 1 of 2)**

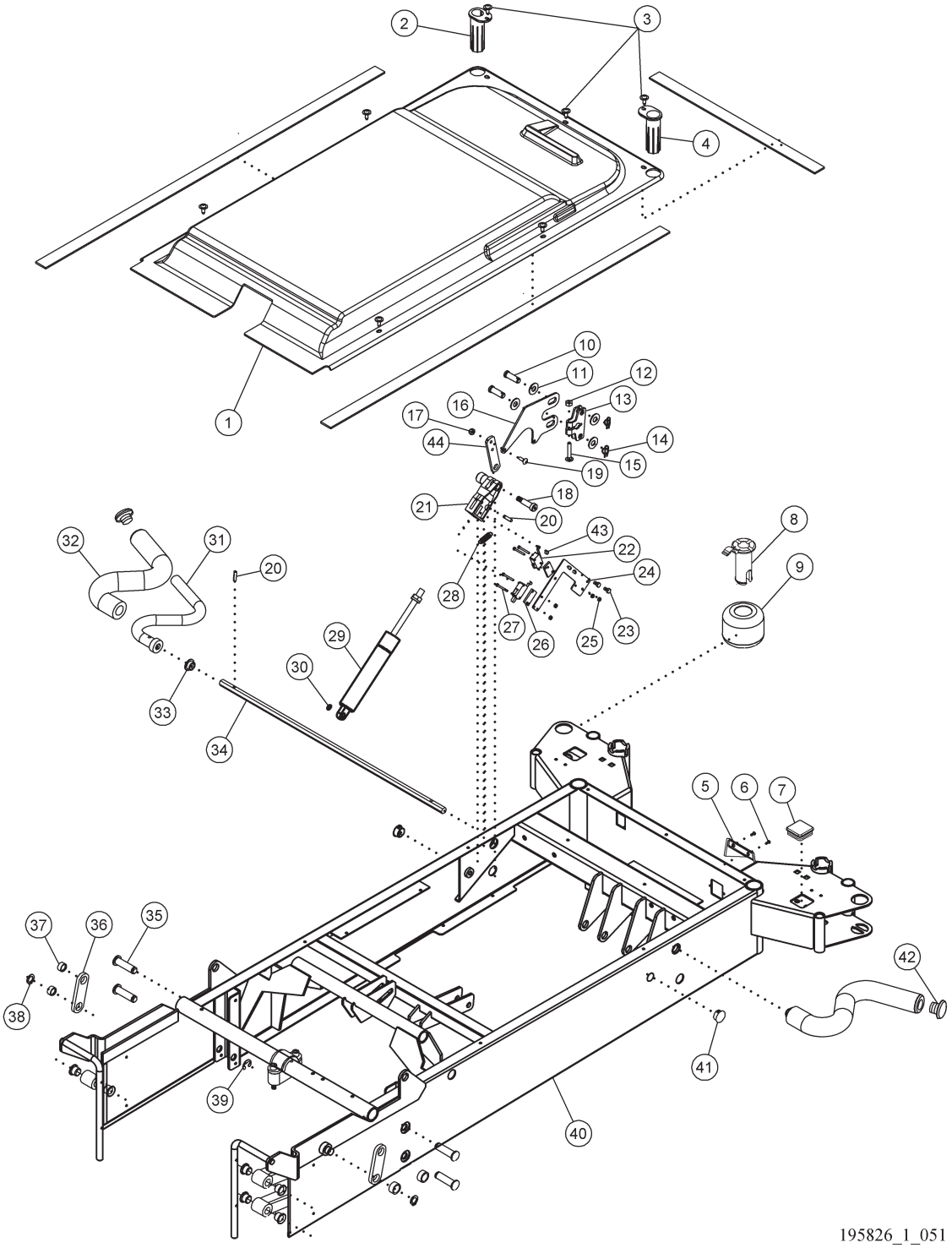


**Table 5-2. Main Frame Module—(Sheet 1 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 6391648 | 1 | Top cover |
| 2 | 41250 | 1 | Headboard bushing, oval |
| 3 | 71993 | 7 | Screw |
| 4 | 41078 | 1 | Headboard bushing, round |
| 5 | 67048 | 1 | Shroud |
| 6 | 10595 | 2 | Screw |
| 7 | 163860 | 2 | Bushing |
| 8 | 4715301 | 2 | Bumper pin |
| 9 | 47219 | 2 | Bumper |
| 10 | 6314304 | 4 | Clevis pin |
| 11 | 4540 | 8 | Washer |
| 12 | 7037606 | 2 | Nut |
| 13 | 192715 | 2 | Lever arm |
| 14 | 61615 | 8 | Retain, rue |
| 15 | 70375 | 2 | Screw |
| 16 | 193029 | 2 | Trendelenburg follower |
| 17 | 33680 | 2 | Nut |
| 18 | 9025916 | 2 | Shoulder bolt |
| 19 | 165540 | 2 | Screw |
| 20 | 9685 | 4 | Roll pin |
| 21 | 41252 | 2 | Trendelenburg gas head |
| 22 | 19512 | 2 | Limit switch |
| 23 | 15463 | 2 | Bolt |
| 24 | 41253 | 1 | Trendelenburg limit switch bracket |
| 25 | 20605 | 4 | Locknut |
| 26 | 34401 | 2 | Spacer |
| 27 | 34402 | 4 | Screw |
| 28 | 43056 | 2 | Extension spring |
| 29 | 142320 | 2 | Trendelenburg gas spring |
| 30 | 43059 | 2 | Retaining ring |
| 31 | 190934 | 2 | Trendelenburg handle weldment |
| 32 | 192158 | 2 | Trendelenburg handle foam (“S” shape) |
| 33 | 46416 | 2 | Bushing |
| 34 | 40915 | 1 | Trendelenburg handle hex bar |
| 35 | 41089 | 4 | Foot section pin |
| 36 | 43039 | 2 | Seat pivot bracket |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 37 | 9026307 | 4 | DU bushing |
| 38 | 36826 | 2 | Retaining ring |
| 39 | 19678 | 4 | Truarc ring |
| 40 | 192599 | 1 | Weldment, mainframe |
| 41 | 3815606 | 2 | Hole plug |
| | Quantity 4 for beds without air system. Refer to Table 5-16 on page 5-43, item 14. | | |
| 42 | 41163 | 2 | Trendelenburg handle plug |
| 43 | 43041 | 2 | Spacer |
| 44 | 41091 | 2 | Trendelenburg release lever |

**NOTES:**

## MAIN FRAME MODULE—(SHEET 2 OF 2)

**Figure 5-3. Main Frame Module—(Sheet 2 of 2)**

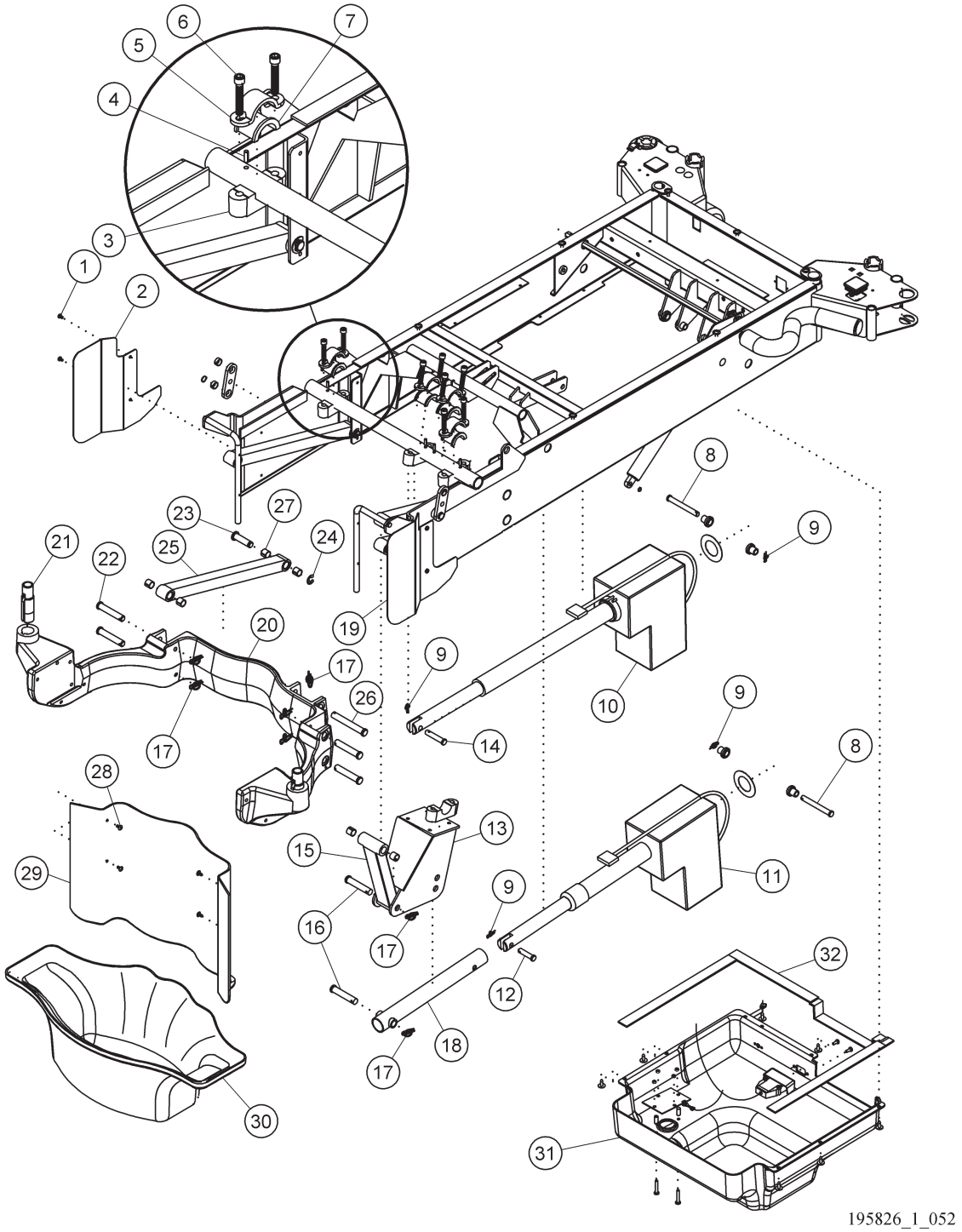
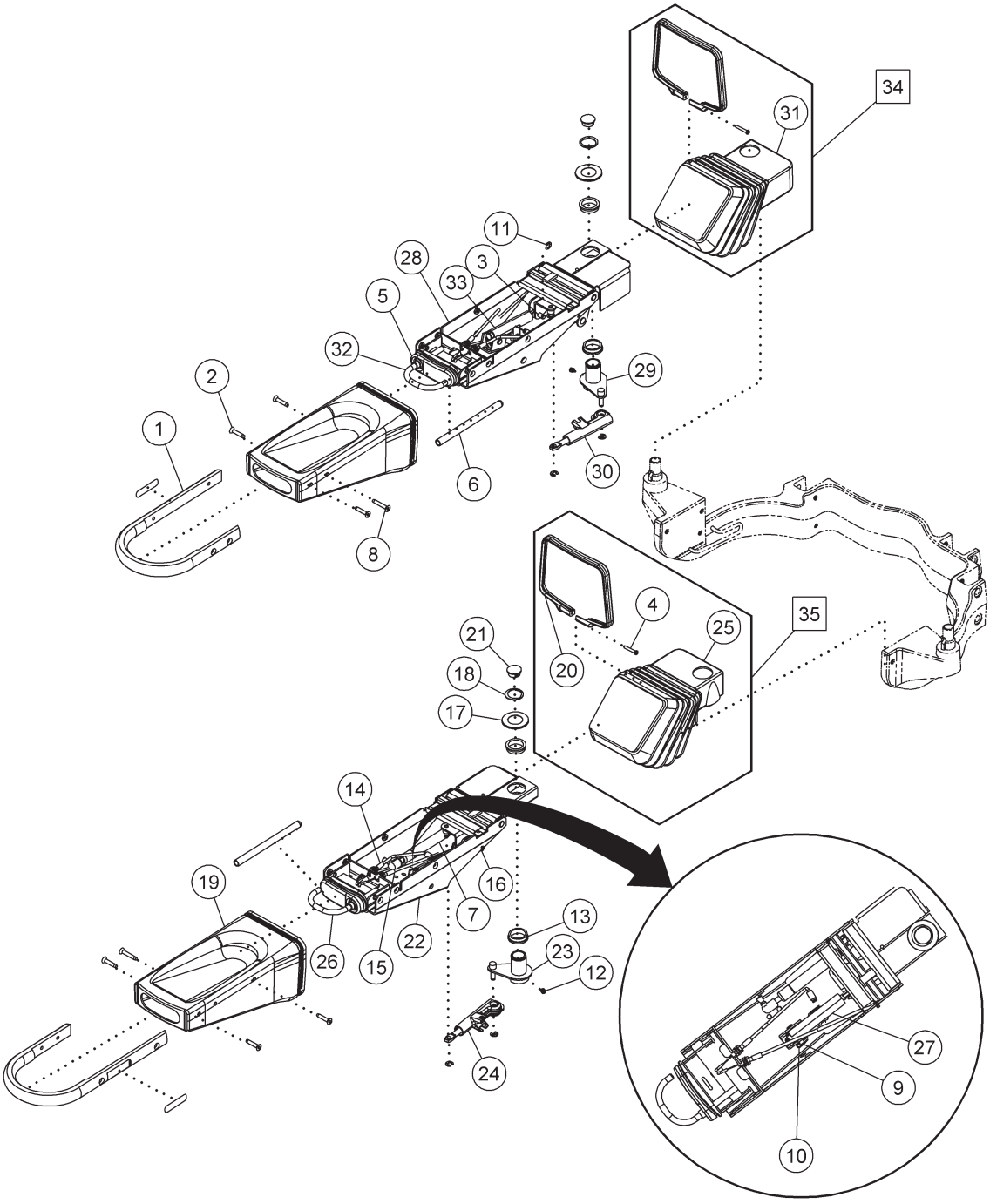


**Table 5-3. Main Frame Module—(Sheet 2 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 393 | 4 | Screw |
| 2 | 41272 | 1 | Shroud, seat side, rh |
| 3 | 41023 | 4 | Trend pivot block |
| 4 | 27509 | 4 | Roll pin |
| 5 | 41037 | 4 | Bushing plate, foot section |
| 6 | 9016128 | 8 | Cap screw |
| 7 | 41036 | 4 | Bushing |
| 8 | 179203 | 3 | Pin, clevis |
| 9 | 61615 | 8 | Rue ring |
| 10 | 63927 | 1 | Drive, head |
| 11 | 191575 | 1 | Drive, hilow, foot |
| 12 | 61653 | 2 | Clevis pin |
| 13 | 6393348 | 1 | Foot section pivot weldment |
| 14 | 6314306 | 1 | Clevis pin |
| 15 | 41263 | 1 | Foot section link bar |
| 16 | 48868 | 2 | Clevis pin |
| 17 | 6161501 | 7 | Rue ring |
| 18 | 65915 | 1 | Extension tube, foot drive |
| 19 | 41273 | 1 | Shroud, seat side, lh |
| 20 | 41112 | 1 | Yoke casting |
| 21 | 40937 | 2 | Post and key |
| 22 | 65967 | 4 | Clevis pin |
| 23 | 41089 | 4 | Foot section pin |
| 24 | 19678 | 4 | Truarc ring |
| 25 | 48874 | 4 | Foot section lift arm |
| 26 | 4886801 | 1 | Clevis pin |
| 27 | 9026301 | 20 | Self lubricating bearing |
| 28 | 43878 | 4 | Screw |
| 29 | 41413 | 1 | Front shroud |
| 30 | 4677248 | 1 | Placenta basin |
| 31 | 6398848 | 1 | Bottom cover weldment |
| 32 | 43878 | 17 | Screw button head Torx® |

## FOOT SUPPORT MODULE

**Figure 5-4. Foot Support Module**




195826_1_053

**Table 5-4. Foot Support Module**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| Not shown | 148944 | 1 | Foot support, complete, lh |
| Not shown | 148945 | 1 | Foot support, complete, rh |
| 1 | 155066 | 2 | Foot support handle |
| 2 | 69391 | 6 | Screw |
| 3 | 43394 | 2 | Clevis pin |
| 4 | 60086 | 2 | Screw |
| 5 | 65829 | 2 | Toe boot |
| 6 | 142961 | 2 | Release handle, vinyl dipped cap |
| 7 | 66152 | 2 | Gas spring |
| 8 | 4921 | 2 | Screw (only used on beds without calf support) |
| 9 | 6604202 | 2 | Clevis pin |
| 10 | 61615 | 2 | Rue ring |
| 11 | 35325 | 6 | E-ring |
| 12 | 66966 | 2 | Set screw |
| 13 | 65700 | 4 | Bushing |
| 14 | 65800 | 2 | Cable, foot tilt |
| 15 | 65799 | 2 | Cable, foot abduction |
| 16 | 19124 | 2 | Wire tie |
| 17 | 66430 | 2 | Washer, plastic |
| 18 | 65964 | 2 | Snap ring |
| 19 | 155065 | 2 | Heel cup |
| 20 | 142825 | 2 | Clamp, bellows |
| 21 | 68112 | 2 | Hole plug |
| 22 | 142959 | 1 | Foot rest weldment, lh |
| 23 | 6572401 | 1 | Cam post weldment, lh |
| 24 | 6580101 | 1 | Mechlok®, foot left, lh |
| 25 | 142958 | 1 | Bellows, foot support, lh |
| 26 | 142377 | 1 | Release handle weldment, lh |
| 27 | 6696801 | 1 | Mechlok®, foot tilt, lh |
| 28 | 142960 | 1 | Foot rest weldment, rh |
| 29 | 6572402 | 1 | Cam post weldment, rh |
| 30 | 6580102 | 1 | Mechlok®, foot lift, rh |
| 31 | 143010 | 1 | Bellows, foot support, rh |
| 32 | 143225 | 1 | Release handle weldment, rh |
| 33 | 6696502 | 1 | Mechlok®, foot tilt, rh |
| 34 | 145103 | 1 | Kit, bellows assembly, rh (includes 4, 20, and 32) |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 35 | 145104 | 1 | Kit, bellows assembly, lh (includes 4, 20, and 26) |
| Not shown | 155065S | 1 | Heel cup kit |
| Not shown | 163716S | 1 | Heel cup and handle kit |
| Not shown | 163717S | 1 | Heel cup and bellows kit, rh |
| Not shown | 163718S | 1 | Heel cup and bellow kit, lh |
| Not shown | 39172 | As required | Adhesive |

**NOTES:**

## CALF SUPPORT MODULE

**Figure 5-5. Calf Support Module**

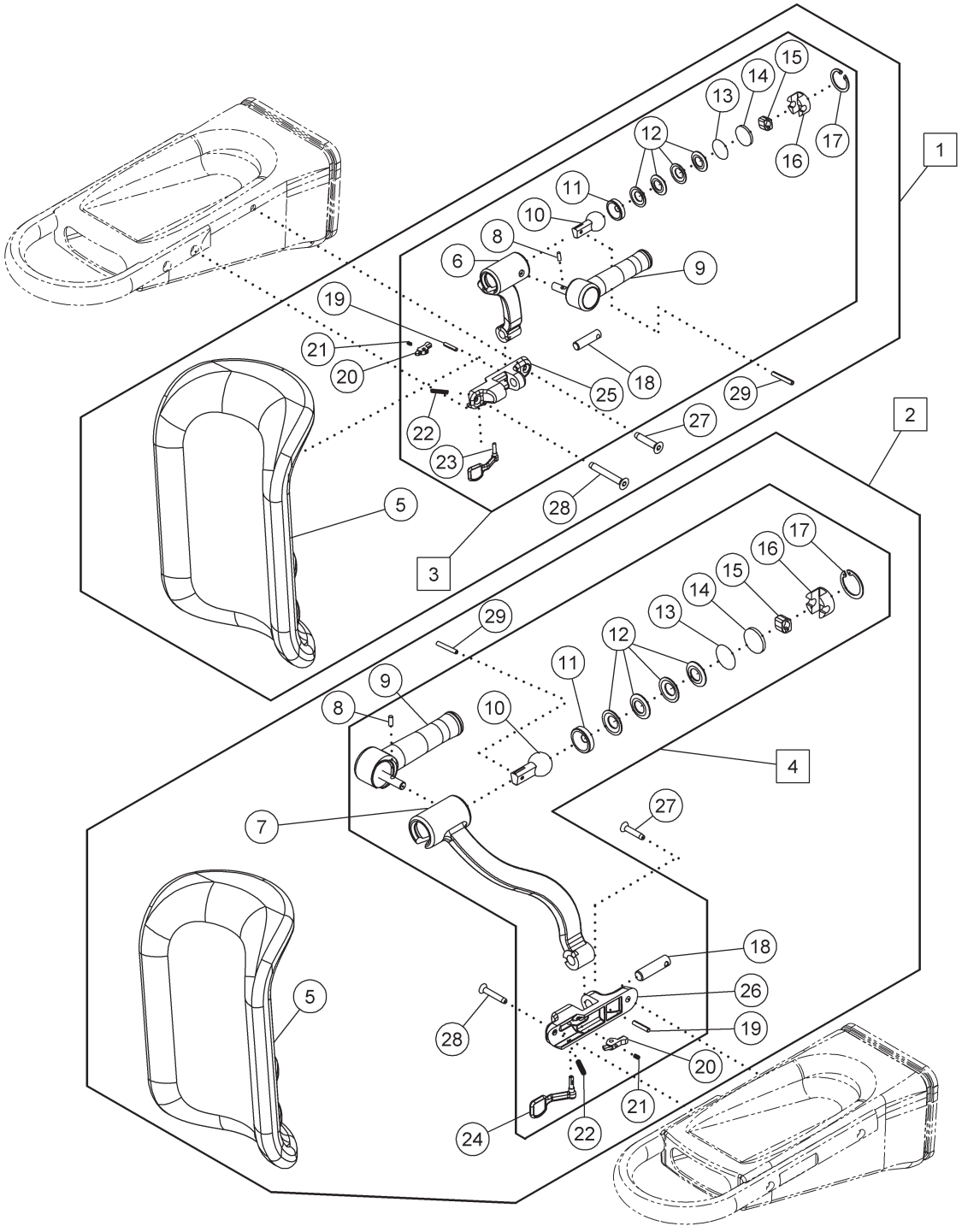


**Table 5-5. Calf Support Module**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 146628 | 1 | Calf support pad and arm assembly, rh |
| 2 | 146683 | 1 | Calf support pad and arm assembly, lh |
| 3 | 142621 | 1 | Calf support arm assembly, rh |
| 4 | 142620 | 1 | Calf support arm assembly, lh |
| 5 | 142388 | 2 | Calf support pad |
| 6 | 142619 | 1 | Calf support arm, rh |
| 7 | 142628 | 1 | Calf support arm, lh |
| 8 | 58910207000 | 2 | Pin, dowel, 3/16 x 1/2 |
| 9 | 143226 | 2 | Handle grip |
| 10 | 47598 | 2 | Ball and rod |
| 11 | 142615 | 2 | Ball seat |
| 12 | 142616 | 8 | Belleville spring |
| 13 | 143219 | 2-10<br>As Required | Shim |
| 14 | 166488 | 2 | Cam follower |
| 15 | 142612 | 2 | Cam lobe |
| 16 | 142613 | 2 | Cam base |
| 17 | 67258 | 2 | Internal retaining ring, 1-5/16 |
| 18 | 70537 | 2 | Pin, calf support |
| 19 | 142 | 2 | Pin, roll |
| 20 | 142397 | 2 | Calf support key |
| 21 | 9029104 | 2 | Setscrew, 8-32, 1/4, cup |
| 22 | 67259 | 2 | Spring |
| 23 | 144419 | 1 | Latch handle, rh |
| 24 | 144418 | 1 | Latch handle, lh |
| 25 | 6798002 | 1 | Mount, calf arm, rh |
| 26 | 6798001 | 1 | Mount, calf arm, lh |
| 27 | 69391 | 2 | Screw (short) |
| 28 | 138735 | 2 | Screw (long) |
| 29 | 3517 | 2 | Roll pin |
| Not shown | 167970S | 1 | Calf support kit |
| Not shown | SA3351 | 1 | Grease, lithium, tube |

## BASE MODULE (SHEET 1 OF 2)

**Figure 5-6. Base Module (Sheet 1 of 2)**

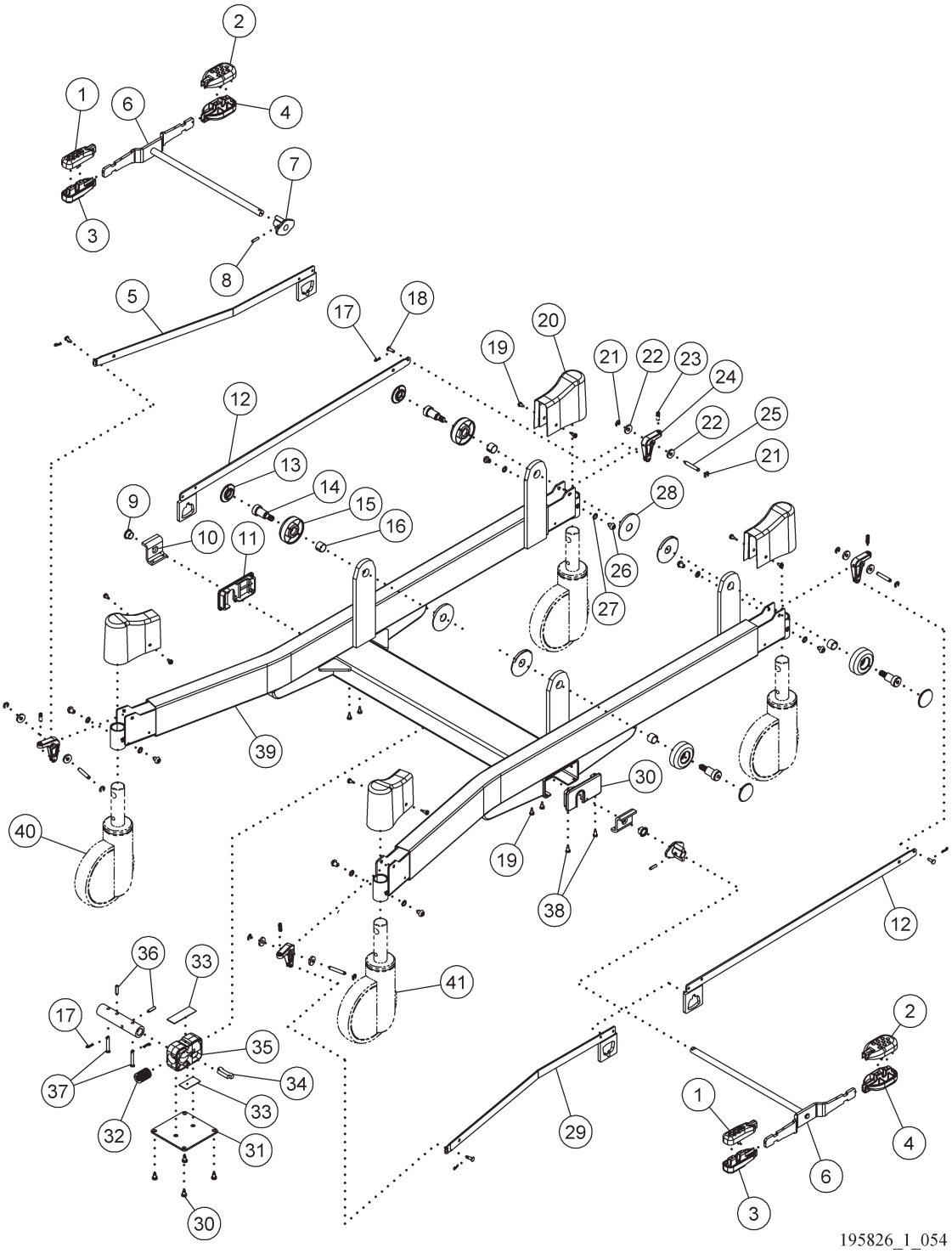


**Table 5-6. Base Module (Sheet 1 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 152317 | 2 | Top, orange pedal |
| 2 | 70781 | 2 | Top, green pedal |
| 3 | 152316 | 2 | Bottom, orange pedal |
| 4 | 70780 | 2 | Bottom, green pedal |
| 5 | 165566 | 1 | Brake link, foot, rh |
| 6 | 152893 | 2 | Pedal weldment |
| 7 | 142628 | 2 | Brake cam |
| 8 | 43951 | 4 | Pin |
| 9 | 142639 | 2 | Flanged bushing |
| 10 | 143966 | 2 | Brake pedal support |
| 11 | 434602 | 1 | End cap cross tube, rh |
| 12 | 165567 | 2 | Brake link, head |
| 13 | 41308 | 4 | End cap |
| 14 | 90477 | 4 | Shoulder bolt |
| 15 | 4708501 | 4 | Base boss cap |
| 16 | 9026312 | 4 | DU bushing |
| 17 | 44352 | 6 | Cotter pin |
| 18 | 757 | 4 | Clevis pin |
| 19 | 43878 | 16 | Screw |
| 20 | 4126948 | 4 | Leg cover |
| 21 | 158890 | 8 | Retaining ring |
| 22 | 165571 | 8 | Spacer, rocker arm |
| 23 | 32425 | 4 | Bolt |
| 24 | 34715 | 4 | Rover arm |
| 25 | 165568 | 4 | Groove pin, rocker arm |
| 26 | 32572 | 4 | Screw |
| 27 | 43030 | 4 | Washer |
| 28 | 40980301 | 4 | Washer |
| 29 | 165565 | 1 | Brake link, foot, lh |
| 30 | 4394601 | 1 | End cap cross tube, lh |
| 31 | 43957 | 1 | Detent housing place |
| 32 | 142638 | 1 | Spring |
| 33 | 40827 | 2 | Double sided tape |
| 34 | 43949 | 1 | Detent plunger |
| 35 | 152284 | 1 | Detent mechanism housing |
| | 152801S | 1 | Detent mechanism assembly |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 36 | 43951 | 4 | Pin, groove |
| 37 | 44350 | 2 | Clevis pin |
| 38 | 46260 | 4 | Screw |
| 39 | 16735348 | 1 | Weldment, base frame |
| 40 | 450846648 | 3 | Caster, 6" brake |
| 41 | 4508468 | 1 | Caster, 6" brake/steer |

**NOTES:**

## BASE MODULE (SHEET 2 OF 2)

**Figure 5-7. Base Module (Sheet 2 of 2)**

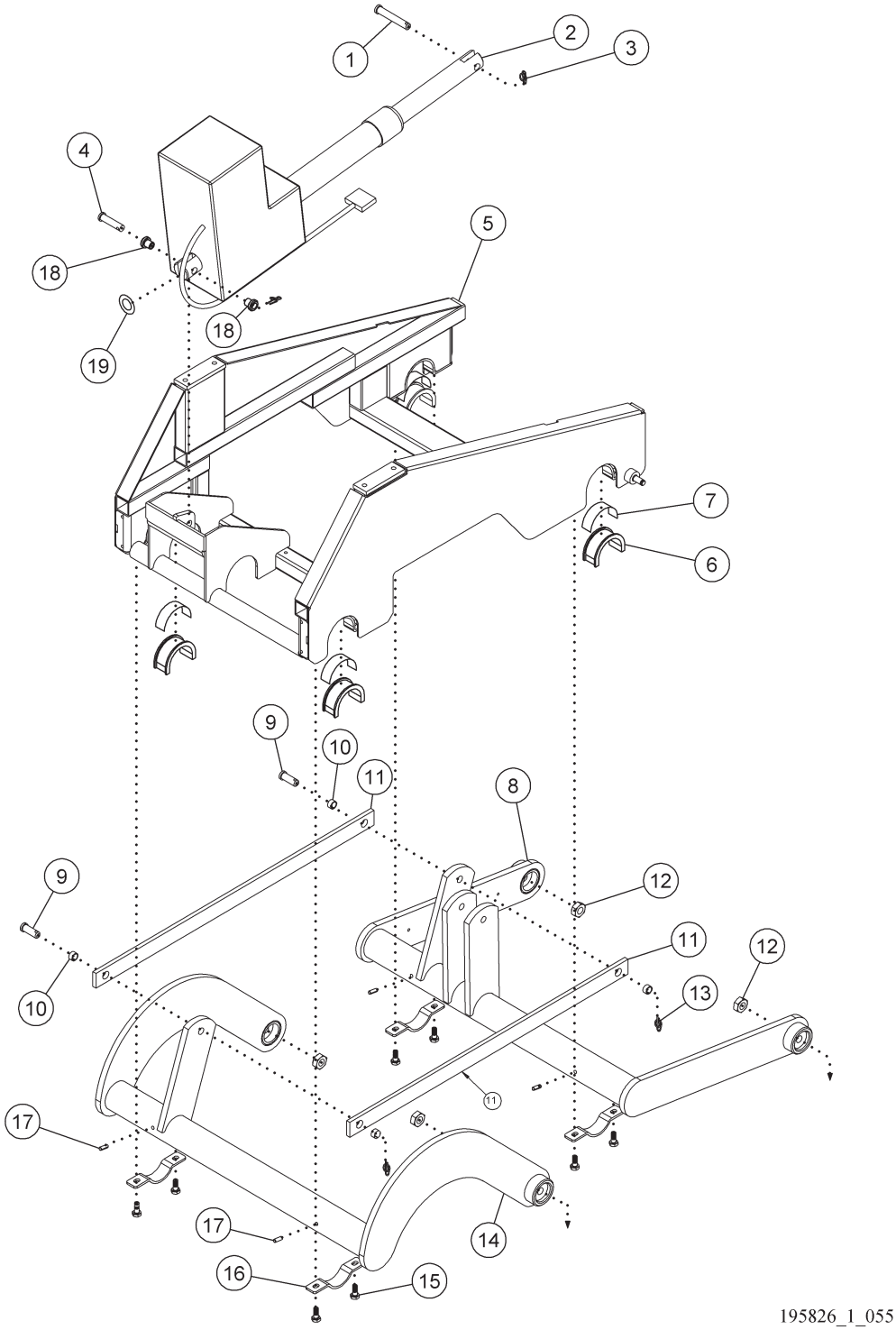


**Table 5-7. Base Module (Sheet 2 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 6314308 | 1 | Clevis pin |
| 2 | 191575 | 1 | Bed hilow drive |
| 3 | 44352 | 2 | Cotter pin |
| 4 | 179203 | 1 | Clevis pin |
| 5 | 179206 | 1 | Intermediate frame weldment |
| 6 | 68188 | 4 | Bushing |
| 7 | 40827 | 4 | Double sided tape |
| 8 | 67223 | 1 | Lift arm weldment |
| 9 | 6314304 | 2 | Clevis pin |
| 10 | 9026304 | 4 | DU bushing |
| 11 | 63962 | 2 | Link, hilow |
| 12 | 66039 | 4 | Nut |
| 13 | 61615 | 4 | Rue ring |
| 14 | 143032 | 1 | Lift arm follower |
| 15 | 127368 | 8 | Screw, cap |
| 16 | 6818948 | 4 | Retaining strap |
| 17 | 27509 | 4 | Roll pin |
| 18 | 179192 | 2 | Bushing, motor mount |
| 19 | 72360 | 1 | Bushing |

## SLEEP DECK MODULE

**Figure 5-8. Sleep Deck Module**

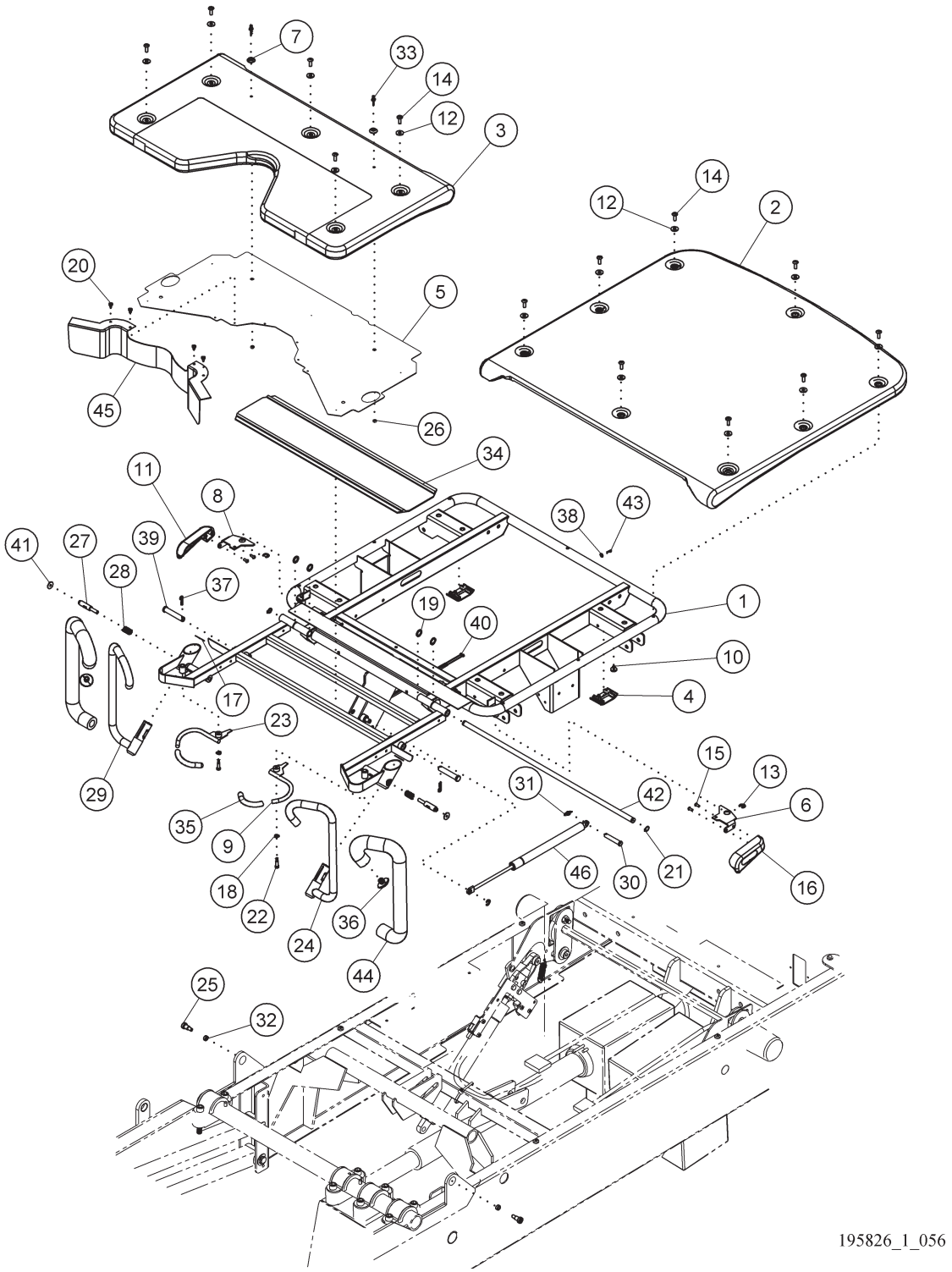


**Table 5-8. Sleep Deck Module**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 193051 | 1 | Weldment, head section |
| 2 | 4106148 | 1 | Deck, head |
| 3 | 4105948 | 1 | V seat panel |
| | 4106048 | 1 | U seat panel |
| 4 | 67088 | 2 | Slide |
| 5 | 6392148 | 1 | Weldment, seat section |
| 6 | 6393901PL | 1 | Weldment, CPR handle, lh |
| 7 | 35308 | 2 | Washer, finish, 0.203, 0.81, 0.19, nyl |
| 8 | 6393902 PL | 1 | Weldment, CPR handle, rh |
| 9 | 6394801PL | 1 | Weldment, lh handle, labor grip |
| 10 | 41344 | 2 | Rivet, barb, 0.250, 0.185, fl, nyl |
| 11 | 67393802 | 1 | CPR handle, right |
| 12 | 159215 | 13 | Washer, flat, 7.1, 19.3, 1.6 |
| 13 | 35326 | 3 | Retain, ering, 0.292, 0.035, ph |
| 14 | 65986 | 13 | Bolt, roll, trus, tx, 0.250-20,0.75 |
| 15 | 903390 | 4 | Screw, mach, rnd, ph, 10-24, 1.0 |
| 16 | 6393801 | 1 | CPR handle left |
| 17 | 40817 | 2 | Retain, ring, ext, 0.887, 0.042 |
| 18 | 42617 | 2 | Washer, lk, 1 wv, 0.265, 0.49, 0.008, SS |
| 19 | 41047 | 4 | Washer, fl, 0.530, 0.750, 0.062, nyl |
| 20 | 43878 | 8 | Screw, mach, pan, ph, 10-32, 0.422 |
| 21 | 43552 | 2 | Retain, ring, ext, 0.461, 0.035, ph |
| 22 | 9033810 | 2 | Screw, shldr, rnd, hxst, 10-24, 1.0 |
| 23 | 6394802P | 1 | Weldment, rh handle, labor grip |
| 24 | 659660148 | 1 | Weldment, labor grip, lh |
| 25 | 9026006 | 2 | Bolt, shldr, hxst, 0.375-16, 0.375 |
| 26 | 164284 | 2 | Nut, nyloc, 8-32, 0.2 |
| 27 | 40811 | 2 | Pin, lk, 0.500, 2.625, ss |
| 28 | 40812 | 2 | Spring |
| 29 | 659660248 | 1 | Weldment, labor grip, rh |
| 30 | 6314306 | 1 | Pin, clv, 0.371, 1.857, cs |
| 31 | 61615 | 1 | Retain, rue, 3/8, 0.054 |
| 32 | 9026307 | 2 | Bushing, brg, 0.593, 0.250, 0.500, stl |
| 33 | 409801 | 2 | Stud, snp, pin, 8-32, 0.28 |
| 34 | 4106848 | 1 | Splash channel |
| 35 | 62919 | 2 | Vinyl dipped cap release handle |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 36 | 4116363 | 2 | Trend handle plug, gray |
| 37 | 49257 | 2 | Pin, cot, 0.094, 1.125 |
| 38 | 61440 | 1 | Washer, fl, 0.180, 0.505, 0.050, stl |
| 39 | 65968 | 2 | Pin, clv, 0.500, 2.625, cds |
| 40 | 64007 | 2 | Release cable assembly |
| 41 | 150751 | 2 | Plug |
| 42 | 64006PL | 1 | Pin, dwl, 0.500, 24.625, cds |
| 43 | 44352 | 1 | Pin, cot/hrpn, 0.050, 0.625, spr/s |
| 44 | 430220263 | 2 | Foam tube, labor grip, gray |
| 45 | 4127148 | 1 | Front panel shroud V |
| | 4127048 | 1 | U-front shroud |
| 46 | 192620 | 1 | Gas spring damper |

**NOTES:**

## FOOT SECTION

**Figure 5-9. Foot Section**

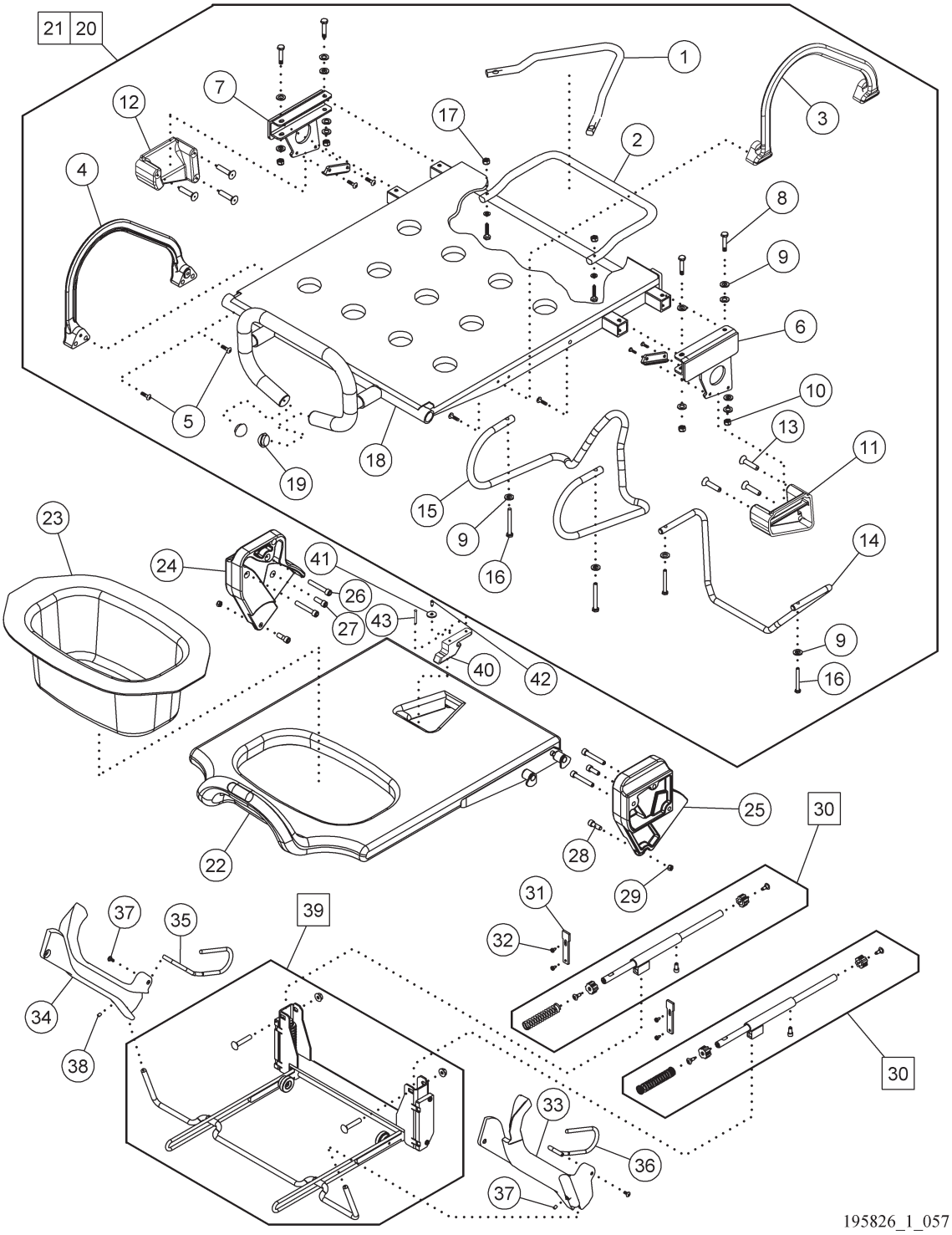


**Table 5-9. Foot Section**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 42575 | 1 | V-cut wireform |
| 2 | 42576 | 1 | U-cut wireform |
| 3 | 142631 | 1 | Lift handle, lh |
| 4 | 142632 | 1 | Lift handle, rh |
| 5 | 49521 | 4 | Screw, 1/4 - 20 x 5/8", K-25 |
| 6 | 185798 | 1 | Latch weldment, lh |
| 7 | 185799 | 1 | Latch weldment, rh |
| 8 | 9001828 | 4 | Screw |
| 9 | 1012 | 14 | Washer |
| 10 | 4435 | 4 | Locknut |
| 11 | 142642 | 1 | Foot latch, lh |
| 12 | 142641 | 1 | Foot latch, rh |
| 13 | 4257401 | 6 | Screw |
| 14 | 145159 | 1 | Perineal stand, U-cut |
| 15 | 144069 | 1 | Perineal stand, V-cut |
| 16 | 9001836 | 2 | Screw |
| 17 | 45823 | 2 | Nut, locking, 1/4-20 |
| 18 | 158840 | 1 | Foot section weldment |
| 19 | 46765 | 2 | Plug |
| 20 | 146075 | 1 | Lift-off V-cut foot section |
| 21 | 146076 | 1 | Lift-off U-cut foot section |
| 22 | 161329 | 1 | Foot section |
| 23 | 142772 | 1 | Placenta basin |
| 24 | 143183 | 1 | Lock block, rh |
| 25 | 142720 | 1 | Lock block, lh |
| 26 | 144184 | 4 | Screw (long) |
| 27 | 9016114 | 2 | Screw (short) |
| 28 | 9025908 | 2 | Shoulder screw |
| 29 | 60619 | 2 | Nut, nylock, 5/16 - 18 |
| 30 | 145105 | 2 | Slide guide assembly |
| 31 | 144106 | 2 | Spring retainer |
| 32 | 43878 | 4 | Machine screw, 10-32 |
| 33 | 160312 | 1 | Ramp, lh |
| 34 | 160323 | 1 | Ramp, rh |
| 35 | 145287 | 1 | Ramp guide, rh |
| 36 | 145275 | 1 | Ramp guide, lh |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 37 | 35072 | 2 | Shoulder screw, 10-32 x 0.312" |
| 38 | 4648501 | 2 | Setscrew |
| 39 | 143463 | 1 | Underframe mounting subassembly |
| 40 | 160721 | 1 | Mattress hook |
| 41 | 0010220012 | 1 | Flat washer |
| 42 | 0010040018 | 1 | Lock nut, nylon insert |
| 43 | 0010330032 | 1 | Screw, 10-32 x 5/8, truss head |
| Not shown | P3611FB03 | 1 | Mattress assembly, U-cut |
| Not shown | P3610FB03 | 1 | Mattress assembly, V-cut |

## CPR RELEASE

**Figure 5-10. CPR Release**

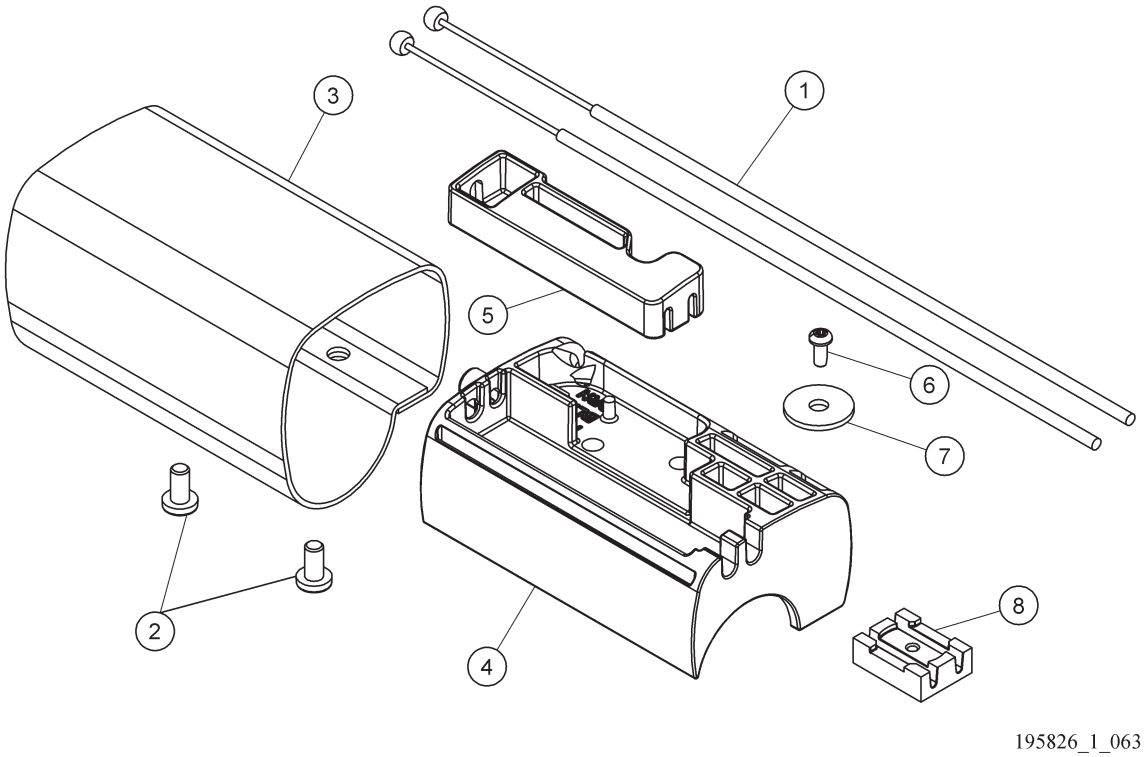



**Table 5-10. CPR Release**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 64007 | 2 | CPR cable |
| 2 | 70342 | 2 | Screw |
| 3 | 69698 | 1 | Cover |
| 4 | 69697 | 1 | Housing |
| 5 | 69696 | 1 | Cable attachment |
| 6 | 4214101 | 1 | Screw |
| 7 | 179638 | 1 | Washer |
| 8 | 179561 | 1 | Spacer |

## SIDERAIL MODULE

**Figure 5-11. Siderail Module**

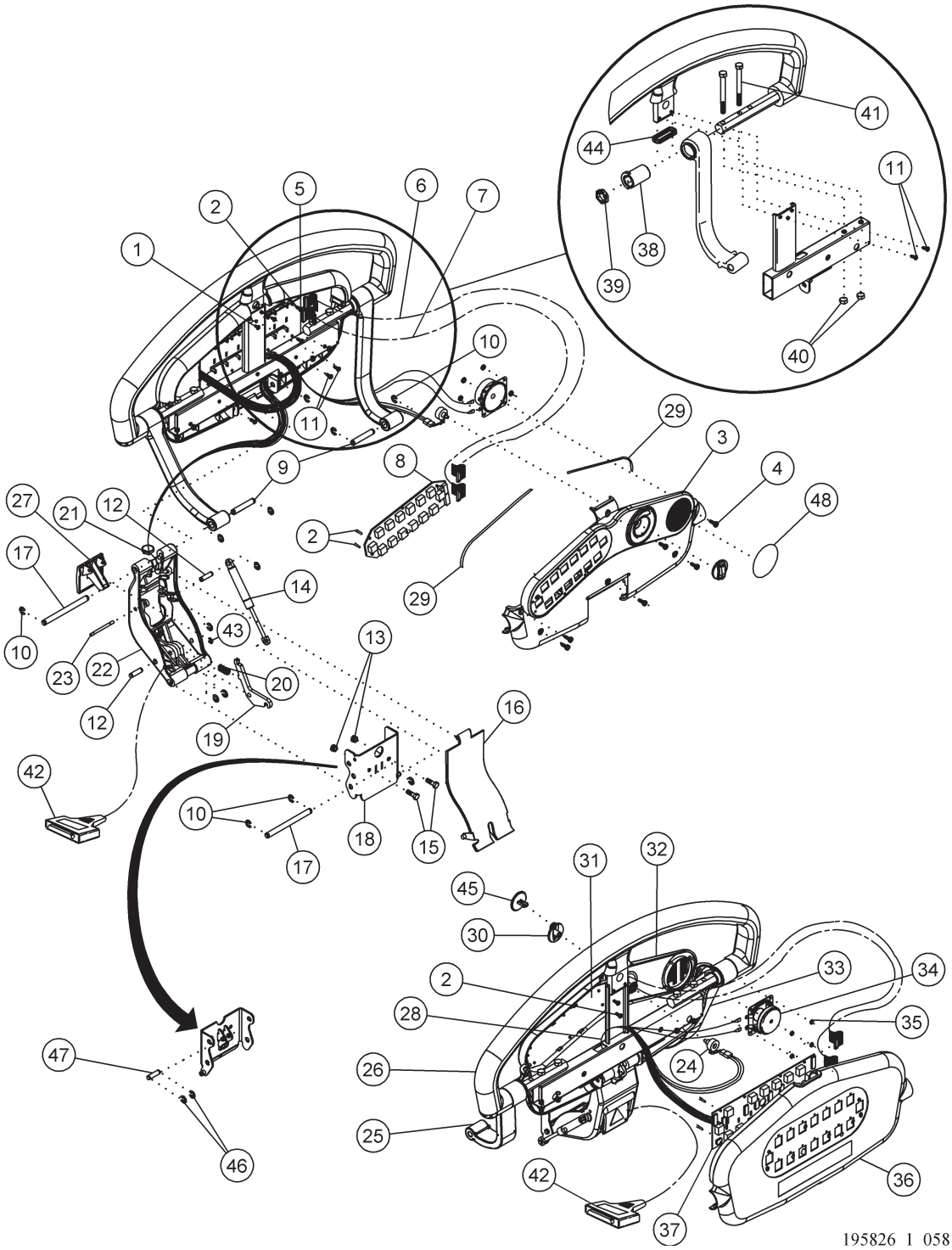


**Table 5-11. Siderail Module**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 62625 | 4 | Screw, pan hd, self-locking |
| 2 | 4214101 | 24 | Screw, pan hd Torx® hilow |
| 3 | 6860002 | 1 | Siderail cover, patient, rh |
| 4 | 472730448 | 16 | Screw, nylon |
| 5 | 17666704 | 1 | P.C. board assembly, caregiver siderail control, rh |
| 6 | 6401301 | 2 | Cable assembly, siderail jumper, 11 |
| 7 | 6401302 | 2 | Cable assembly, siderail jumper, 12 |
| 8 | 17666402 | 1 | P.C. board assembly, patient siderail control, rh |
| 9 | 4727110PL | 4 | D-pin |
| 10 | 35325 | 18 | E-ring |
| 11 | 42142 | 6 | Screw, pan hd Torx® hilow |
| 12 | 49192PL | 4 | Pin, latch pivot |
| 13 | 20802 | 4 | Nut, keps |
| 14 | 47323 | 2 | Dampener |
| 15 | 44408 | 4 | Screw, hex washer hd |
| 16 | 63250 | 2 | Cover, center arm |
| 17 | 4727102PL | 4 | D-pin |
| 18 | 6887248 | 2 | Siderail mounting bracket weldment |
| 19 | 47257PL | 2 | Latch, siderail |
| 20 | 49111 | 2 | Spring, latch bias |
| 21 | 19124 | 2 | Cable tie |
| 22 | 62753 | 2 | Center arm, siderail |
| 23 | 47144PL | 2 | Shaft, pivot, siderail release lever |
| 24 | 3005804 | 2 | Cable assembly, audio taper |
| 25 | 6397501 | 2 | Siderail arm, lh |
| 26 | 63977 | 2 | Upper rail |
| 27 | 47256 | 2 | Lever, siderail release |
| 28 | 6397648 | 2 | Siderail center weldment |
| 29 | 67060 | 2 | Seal, siderail |
| 30 | 4096301 | 2 | Knob, volume |
| 31 | 17666401 | 1 | P.C. board assembly, patient siderail control, lh |
| 32 | 6397901 | 1 | Siderail cover, patient, lh |
| 33 | 6397502 | 2 | Siderail arm, rh |
| 34 | 38873 | 2 | Speaker |
| 35 | 28562 | 8 | Palnut |
| 36 | 6860001 | 2 | Siderail cover, caregiver |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 37 | 17666703 | 1 | P.C. board assembly, caregiver siderail control, lh |
| 38 | 63969 | 4 | Bushing |
| 39 | 66861 | 4 | Hex gasket, top cane |
| 40 | 60619 | 8 | Nut, nylock |
| 41 | 9001656 | 8 | Cap screw, hex hd |
| 42 | 141689 | 2 | Cable assembly, siderail |
| 43 | 49193 | 2 | E-ring |
| 44 | 66860 | 2 | Gasket, top cane |
| 45 | 68537 | 2 | Plug, volume control |
| 46 | 35325 | 4 | E-ring |
| 47 | 49192PL | 2 | Pin, latch pivot |
| 48 | 6665801 | 2 | Blank label |

## HEADBOARD—WOOD STYLE

**Figure 5-12. Headboard—Wood Style**

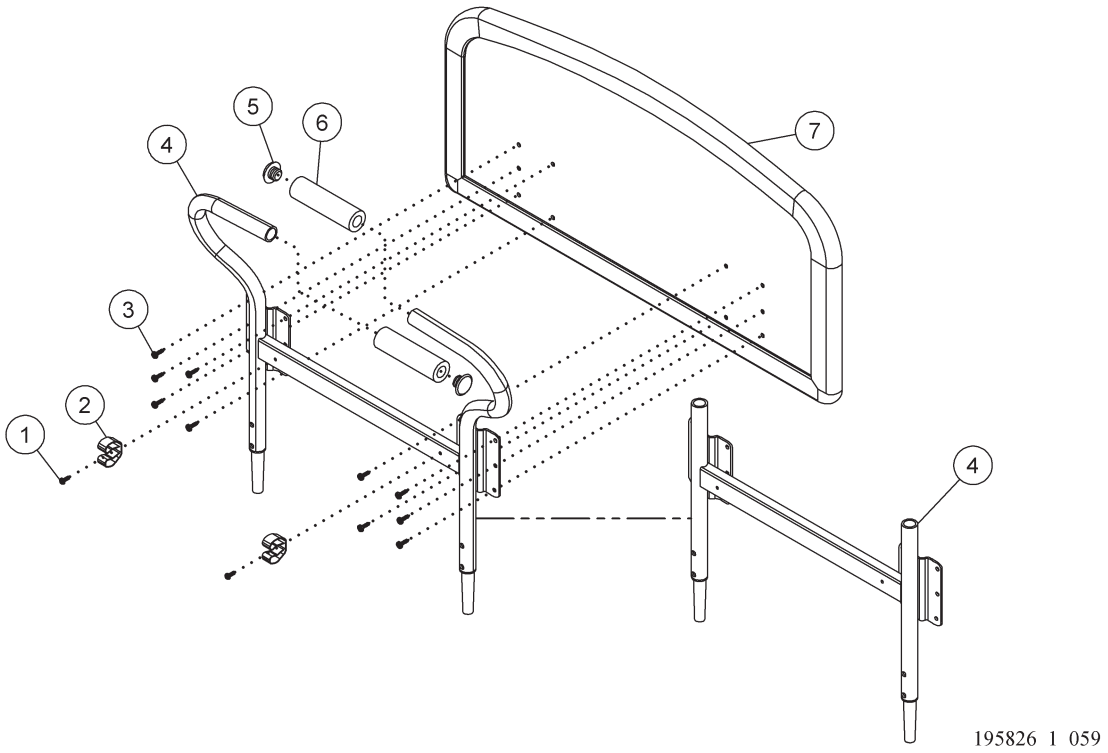



**Table 5-12. Headboard—Wood Style**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 43878 | 2 | Screw, button hd Torx® |
| 2 | 37664 | 2 | Clip, IV |
| 3 | 31773 | 10 | Screw |
| 4 | 40995 | 1 | Handle weldment, headboard |
| | 165456 | 1 | Weldment, headboard, w/o handles |
| 5 | 42600 | 2 | Plug |
| 6 | 42588 | 2 | Grip, handle, foam |
| 7 | 41114 | 1 | Headboard, wood |
| | 112769 | 1 | Headboard, wood—Liberty Hill™ |
| | 112770 | 1 | Headboard, wood—Freedom Hill™ |
| Not shown | 169548 | 1 | Label, Do not push, wood headboards w/o handles |

## PUSH HANDLES

**Figure 5-13. Push Handles**

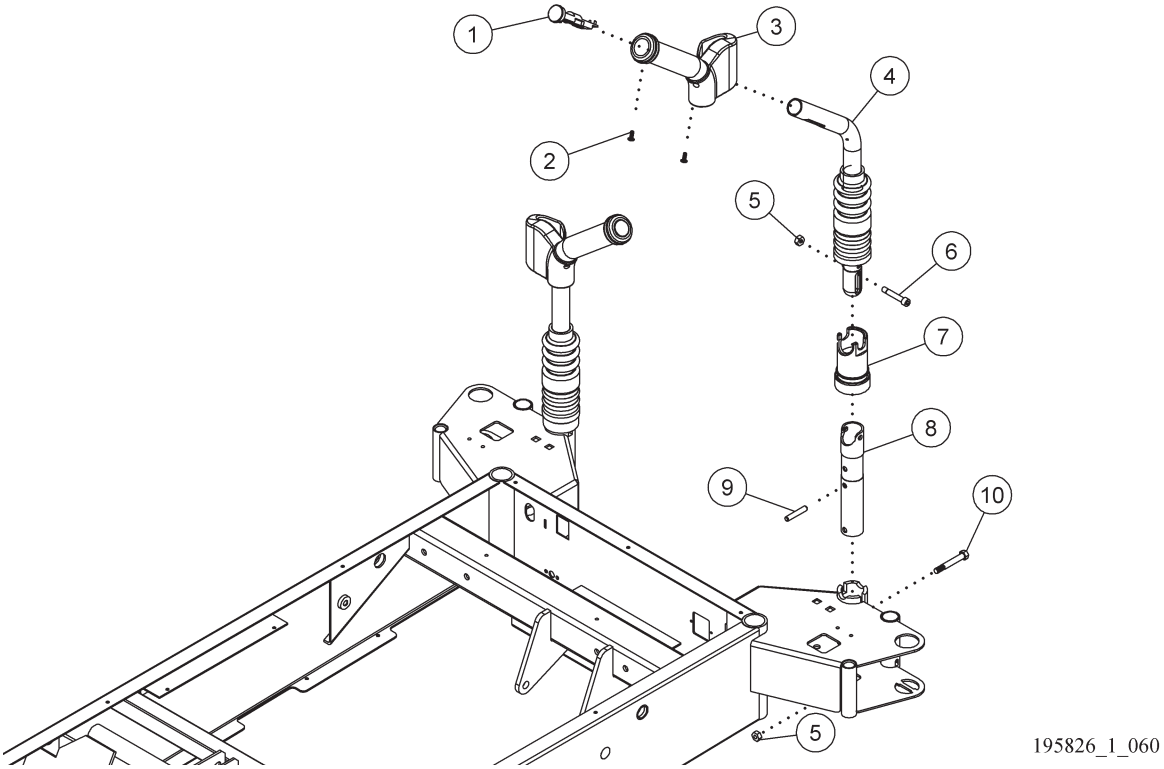



**Table 5-13. Push Handles**

| Item Number | Part Number | Quantity[a] | Description |
|---|---|---|---|
| 1 | 68351 | 1 | Switch housing |
| 2 | 163841 | 2 | Screw |
| 3 | 15909101 | 1 | Grip, lh |
| | 15909102 | 1 | Grip, lh |
| 4 | 16763401 | 1 | Handle assembly, lh |
| | 16763402 | 1 | Handle assembly, rh |
| 5 | 4435 | 2 | Nut |
| 6 | 68302 | 1 | Screw |
| 7 | 68301 | 1 | Coupler shield |
| 8 | 161567 | 1 | Tube, pivot |
| 9 | 62634 | 1 | Roll pin |
| 10 | 49521 | 1 | Screw |

a. Quantities shown are for each handle.

## LINE MANAGER

**Figure 5-14. Line Manager**

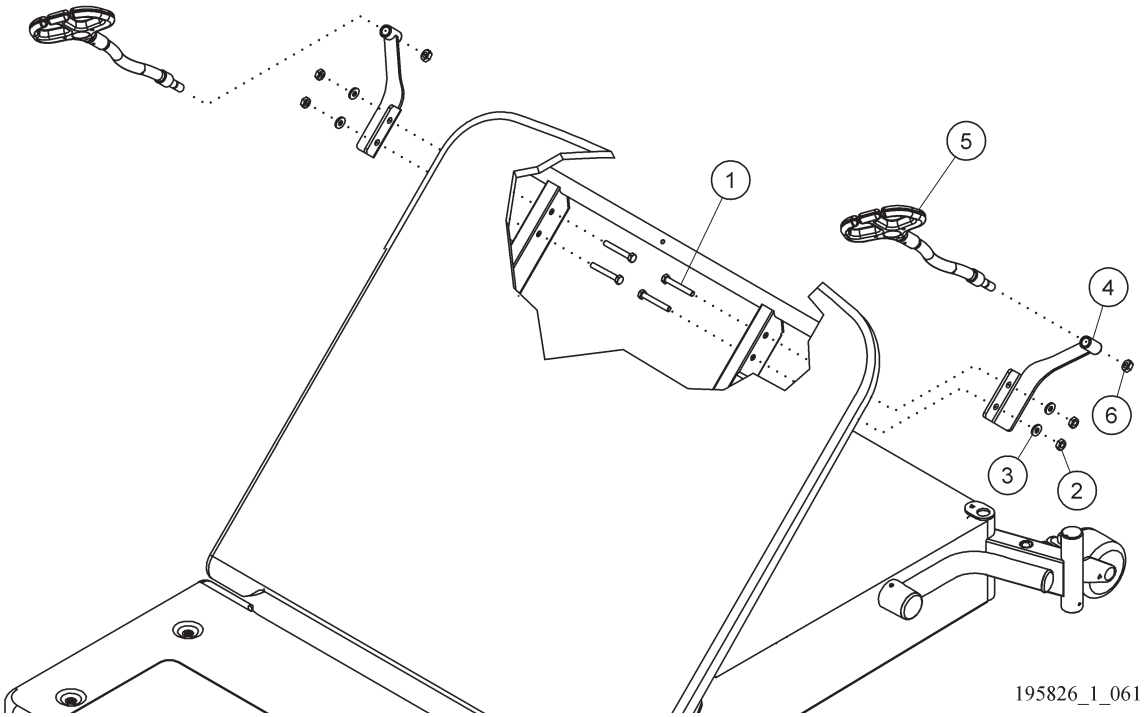



**Table 5-14. Line Manager**

| Item Number | Part Number | Quantity[a] | Description |
|---|---|---|---|
| 1 | 9001624H | 2 | Bolt |
| 2 | 831 | 2 | Nut |
| 3 | 127357 | 2 | Washer |
| 4 | 16527001 | 1 | Weldment, rh |
| | 16527002 | 1 | Weldment, lh |
| 5 | 146287 | 1 | Flex arm |
| 6 | 152908 | 1 | Nut |

a. Quantities shown are for each line manager.

## IV POLE—P3732A

**Figure 5-15. IV Pole—P3732A**

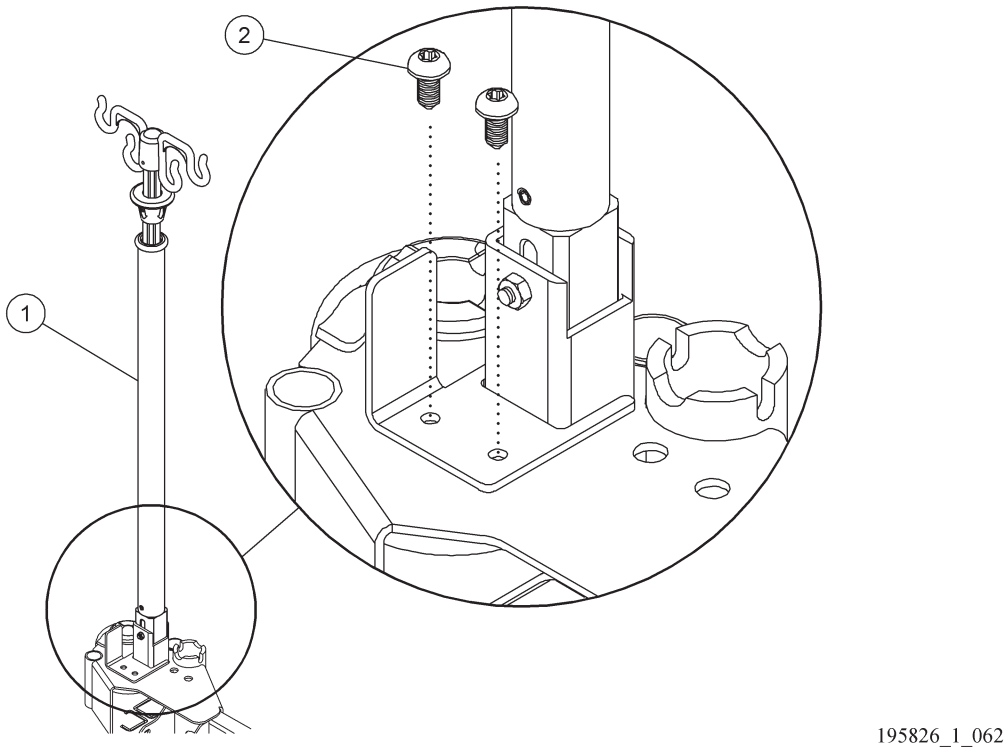



**Table 5-15. IV Pole—P3732A**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 165392 | 1 | IV Pole |
| 2 | 43878 | 2 | Screw |

**NOTES:**

## AIR MODULE

**Figure 5-16. Air Module**

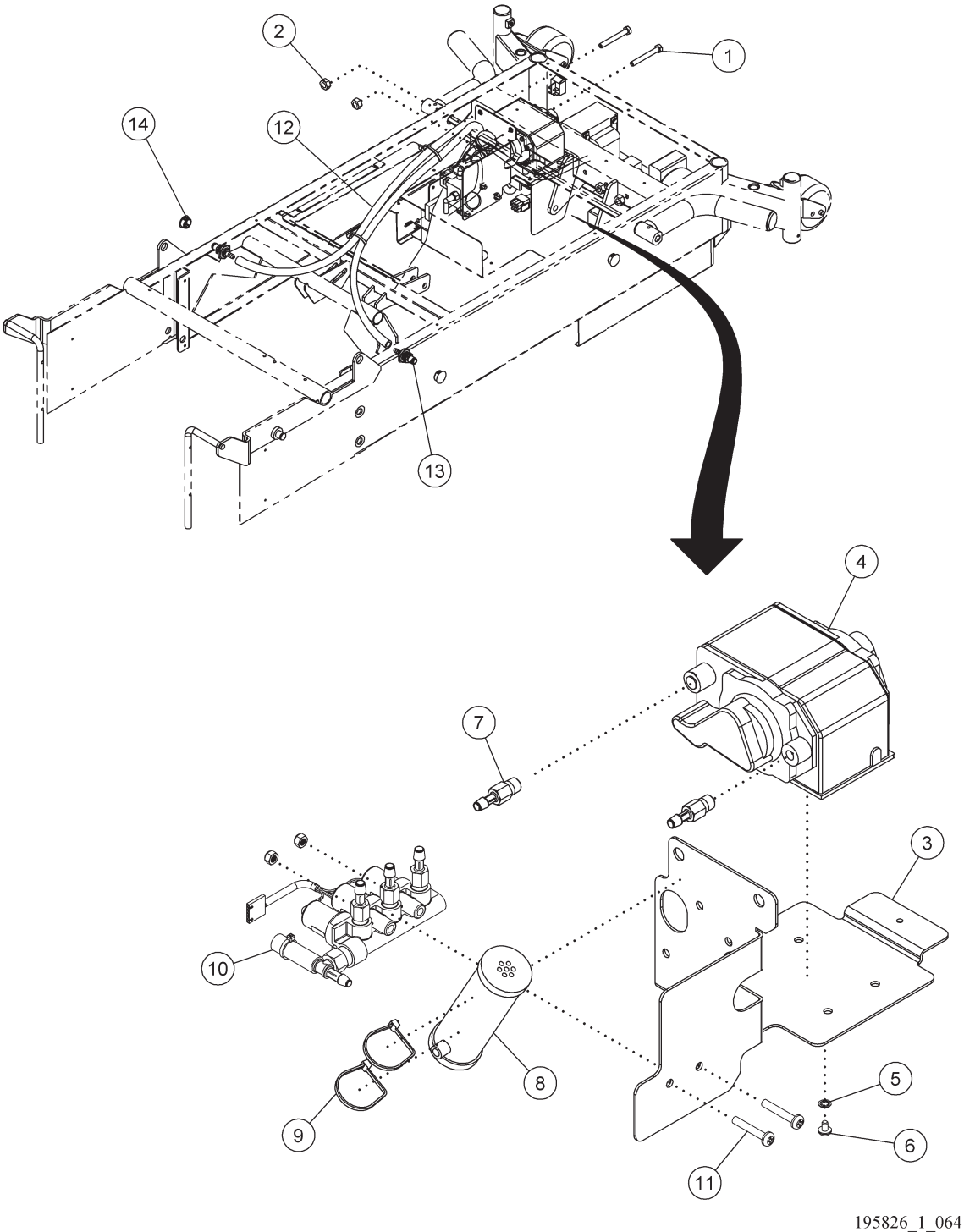


**Table 5-16. Air Module**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 9001640 | 2 | Hex bolt 5/16-18 |
| 2 | 60619 | 2 | Hex but, nylon lock, 5/16-18 |
| 3 | 192627 | 1 | Bracket, compressor mount |
| 4 | 16196501 | 1 | Linear air pump |
| 5 | 947 | 1 | Lockwasher, internal tooth |
| 6 | 987 | 1 | Machine screw |
| 7 | 69499 | 2 | Straight fitting, A2-4BN |
| 8 | 47103 | 1 | Muffler |
| 9 | 19124 | 2 | Cable tie |
| 10 | 191565 | 1 | Air manifold |
| 11 | 24570 | 2 | Machine screw |
| 12 | 4698031 | 1 | Air hose, manifold to LH |
| | 4698035 | 1 | Air hose, manifold to RH |
| 13 | 41466 | 2 | Quick coupler, male |
| 14 | 3185606 | 2 | Hole plug (for beds without air system) |
| Not shown | 4698008 | 1 | Air hose, pump to manifold |

## ELECTRONICS MODULE (SHEET 1 OF 2)

**Figure 5-17. Electronics Module (Sheet 1 of 2)**

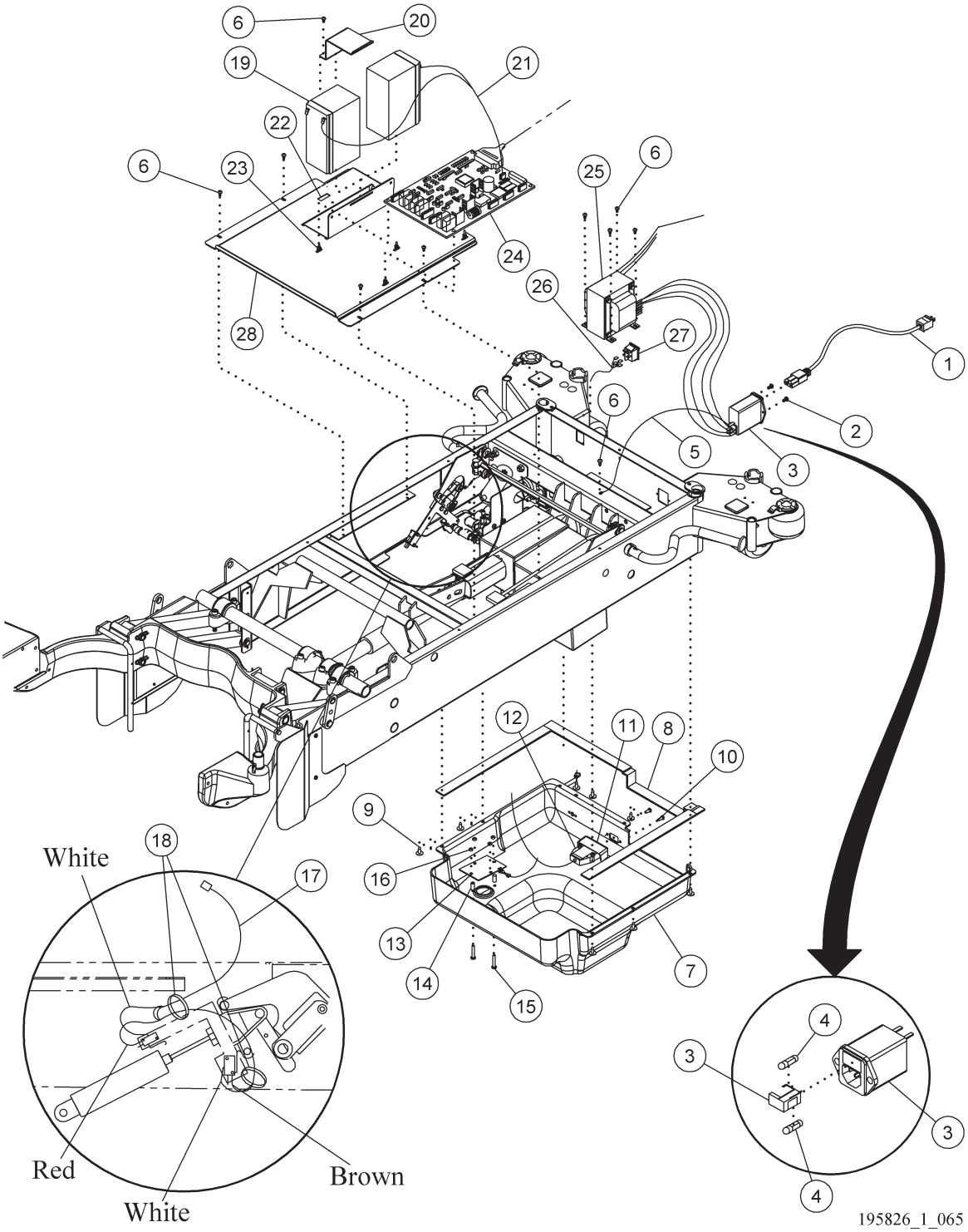


**Table 5-17. Electronics Module (Sheet 1 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 6342201 | 1 | Power cord, detachable 110V |
| | 6342202 | 1 | Power cord, detachable 220V, Australia/New Zealand |
| | 6342203 | 1 | Power cord, Continental Europe |
| | 6342204 | 1 | Power cord, UK/Ireland |
| | 6342205 | 1 | Power cord, Switzerland |
| | 6342206 | 1 | Power cord, Denmark |
| | 6342211 | 1 | Power cord, Japan |
| 2 | 46015 | 2 | Screw, bottom rail end cap |
| 3 | 154444 | 1 | Power entry module |
| 4 | 4314317 | 2 | Fuse, timelag, 4A, 125V AC, 5 mm x 20 mm<br>For use on beds with 120V AC wall power. |
| | 182100 | 2 | Fuse, timelag, 2A, 250V AC, 5 mm x 20 mm, high-breaking capacity<br>For use on beds with 230V AC wall power. |
| | 7061001 | 2 | Fuse, timelag, 5A, 125V AC 5 mm x 20 mm<br>For use on beds with 100V AC wall power. |
| 5 | 66230 | 1 | Cable assembly, ground |
| 6 | 49493 | 10 | Screw, button hd Torx® |
| 7 | 179083 | 1 | Bottom motor mover |
| 8 | 178294 | 1 | Gasket, bottom motor cover (front) |
| | 178295 | 2 | Gasket, bottom motor cover (side) |
| 9 | 71993 | 8 | Screw, bottom motor cover |
| 10 | 9493 | 2 | Screw, pendant bracket |
| 11 | 179237 | 1 | Pendant bracket |
| 12 | 4142501S | 1 | Cable assembly, pendant control |
| 13 | 183055 | 1 | Night light P.C. board |
| | 184896 | 1 | Night light cable |
| | 185346 | 1 | Night light lens |
| 14 | 186480 | 4 | Standoff, P.C. board, nylon |
| 15 | 4950816 | 2 | Screw, 6-32, 1.0, tx |
| 16 | 164284 | 2 | Nut |
| 17 | 4142301S | 1 | Cable assembly, Trendelenberg mechanical limits |
| 18 | 19124 | 2 | Cable tie |
| 19 | 4840501 | 2 | Battery, lead acid, sealed, 12V, 7.2A |
| 20 | 6583048 | 1 | Bracket, battery hold-down |
| 21 | 63945 | 1 | Cable assembly, battery |

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 22 | 166039 | 1 | Ferrite |
| 23 | 35663 | 5 | Standoff, P.C. board |
| 24 | 183093 | 1 | Logic control P.C. board |
| 25 | 190178 | 1 | Transformer |
| 26 | 6394401 | 1 | Cable assembly, lockout switch |
| 27 | 63981 | 1 | Lockout switch |
| 28 | 6395948 | 1 | Weldment, electronics pan |

**NOTES:**

## ELECTRONICS MODULE (SHEET 2 OF 2)

**Figure 5-18. Electronics Module (Sheet 2 of 2)**

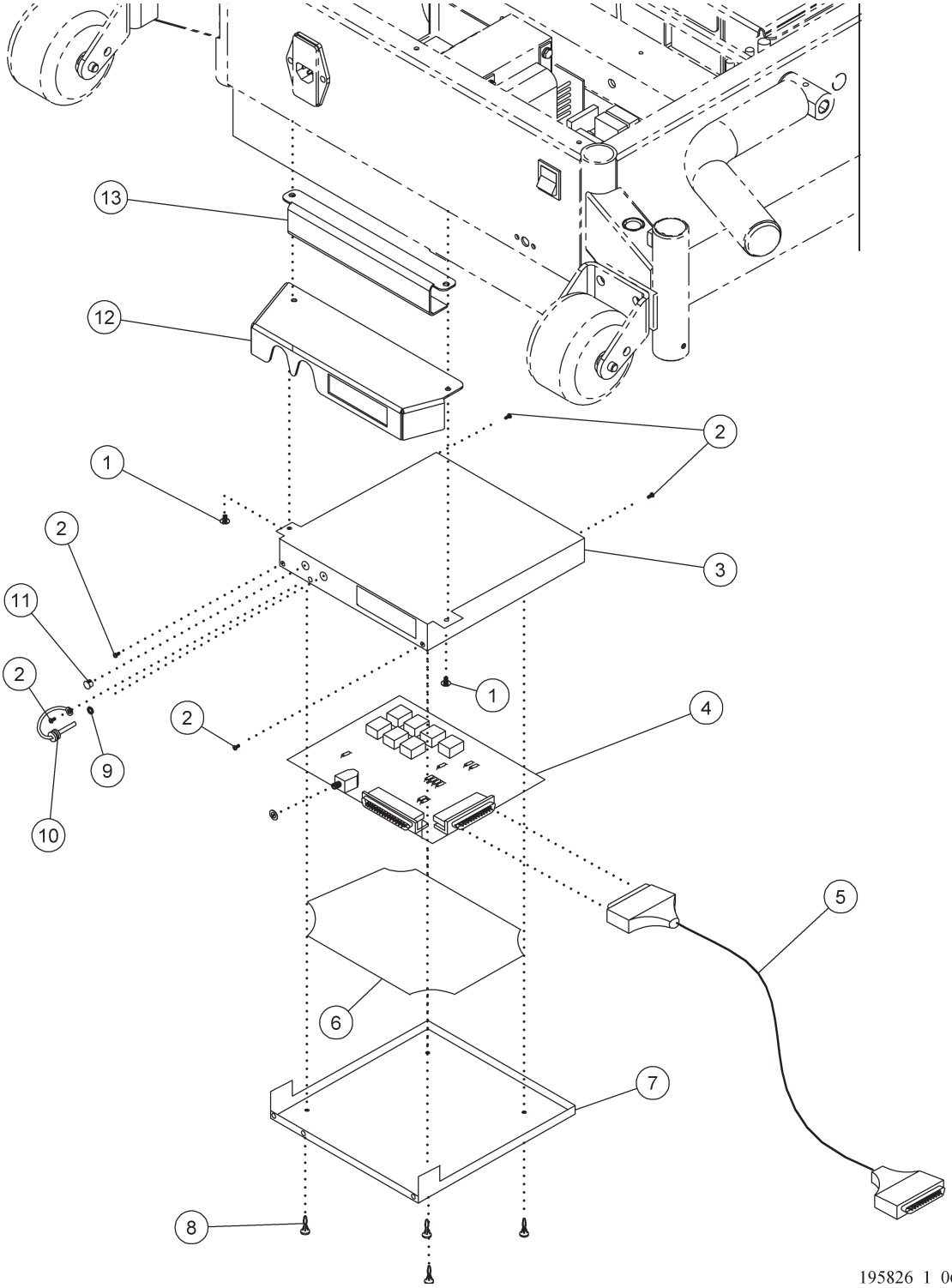


**Table 5-18. Electronics Module (Sheet 2 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 43878 | 2 | Screw, button hd Torx® |
| 2 | 4759 | 5 | Screw |
| 3 | 41226PL | 1 | Junction box top |
| 4 | 6454701 | 1 | PCB assembly, relay junction |
| | 6454702 | 1 | PCB assembly, relay junction with UTV |
| 5 | 66253 | 1 | Cable assembly, 36-conductor |
| 6 | 41455 | 1 | Insulator, junction box |
| 7 | 41306PL | 1 | Junction box bottom |
| 8 | 3976301 | 4 | Standoff |
| 9 | 41298 | 1 | Washer, nylon |
| 10 | 34512 | 1 | Dummy plug |
| 11 | 4128201 | 1 | Dome plug |
| 12 | 6702148 | 1 | Protector cover |
| 13 | 43031 | 1 | Bracket (non-SideCom beds only) |

## GROUNDING LOCATIONS (SHEET 1 OF 2)

**Figure 5-19. Grounding Locations (Sheet 1of 2)**

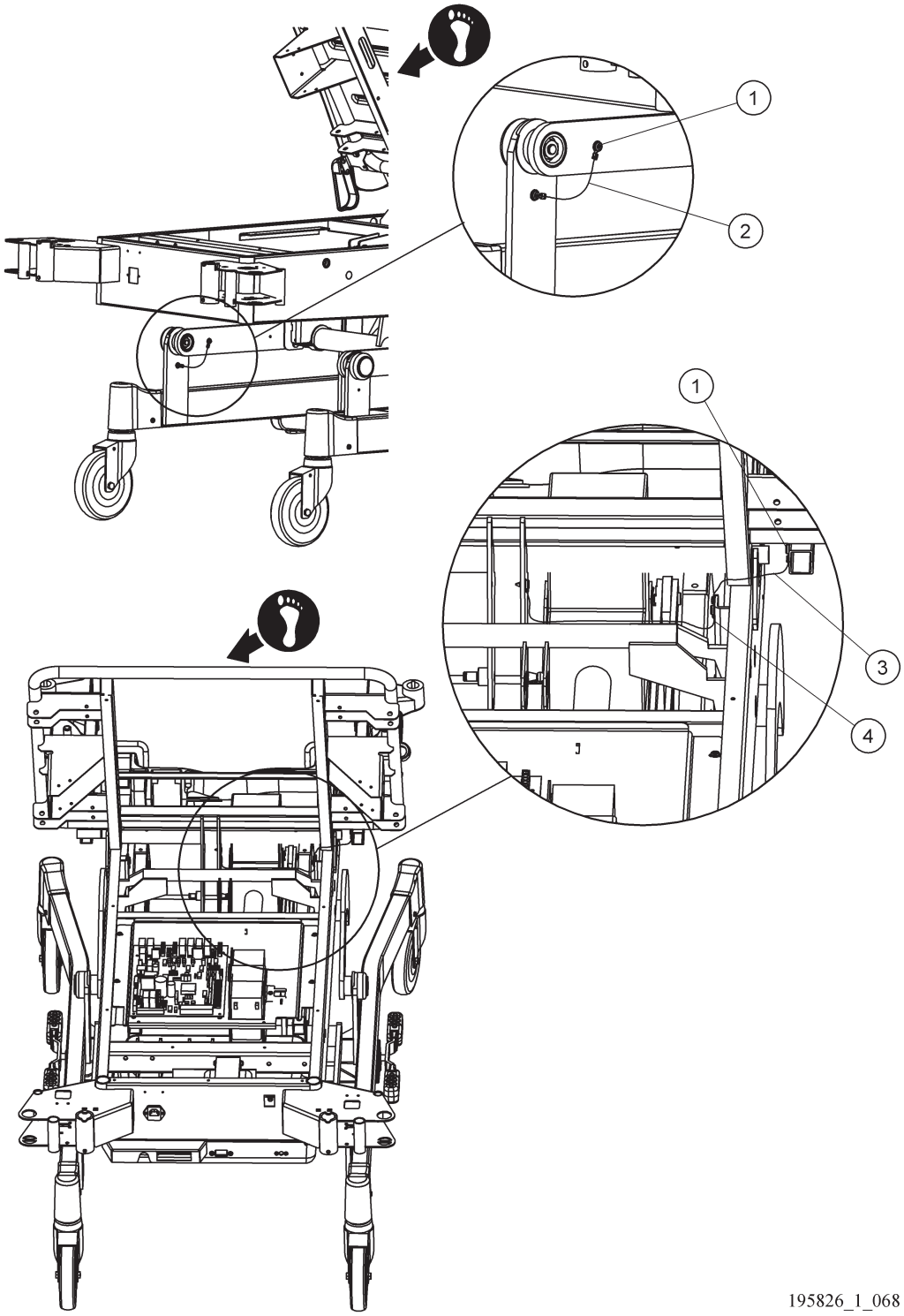


**Table 5-19. Grounding Locations (Sheet 1 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 43878 | 4 | Screw |
| 2 | 16940717 | 2 | Ground strap, 6" (15 cm) |
| 3 | 16940708 | 1 | Ground strap, 9" (23 cm) |
| 4 | 16940714 | 1 | Ground strap, 14" (35 cm) |

## GROUNDING LOCATIONS (SHEET 2 OF 2)

**Figure 5-20. Grounding Locations (Sheet 2 of 2)**

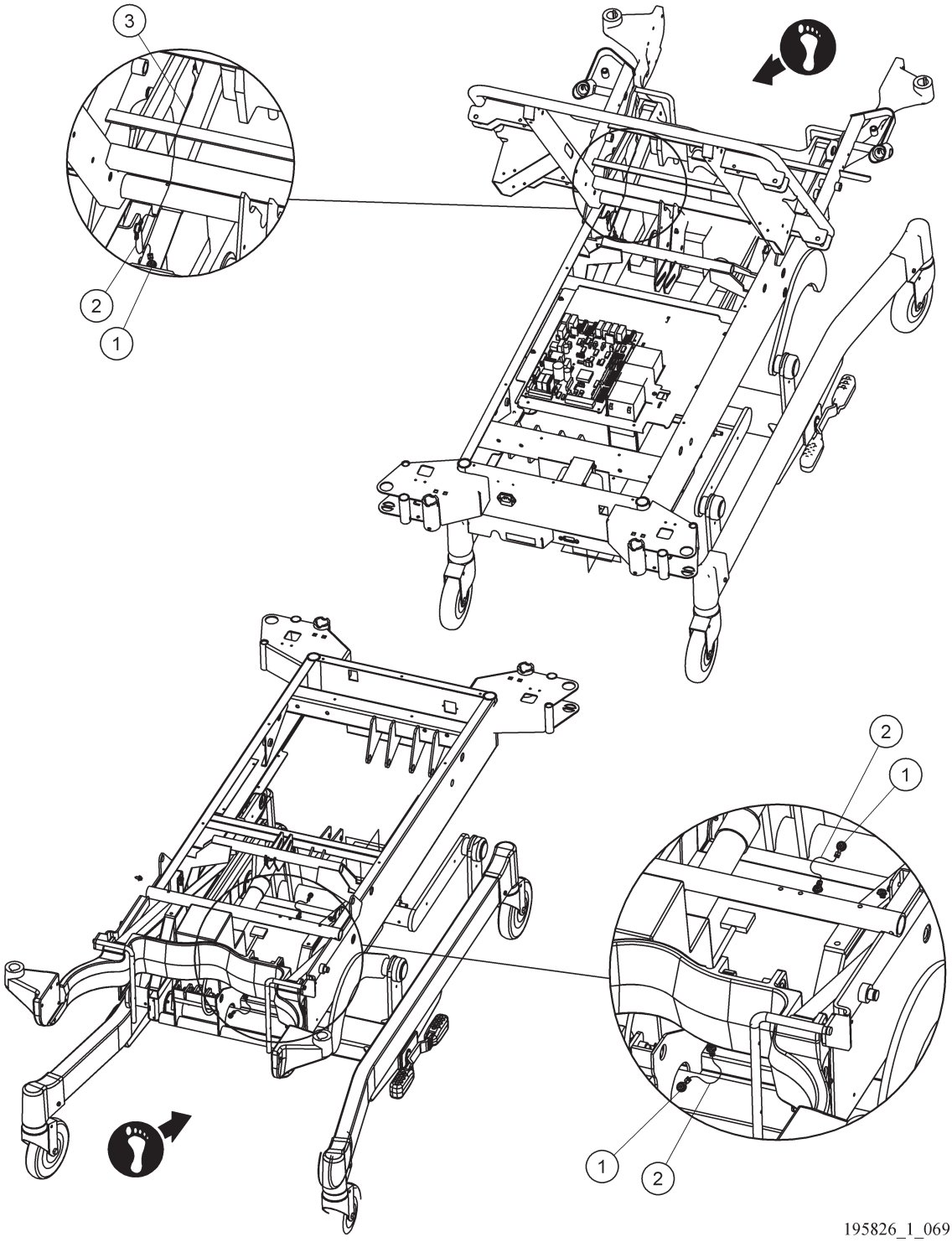


**Table 5-20. Grounding Locations (Sheet 2 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 43878 | 4 | Screw |
| 2 | 16940717 | 2 | Ground strap, 6" (15 cm) |
| 3 | 16940704 | 1 | Ground strap, 4" (10 cm) |

## ELECTRICAL CABLE ROUTING (SHEET 1 OF 2)

**Figure 5-21. Electrical Cable Routing (Sheet 1 of 2)**

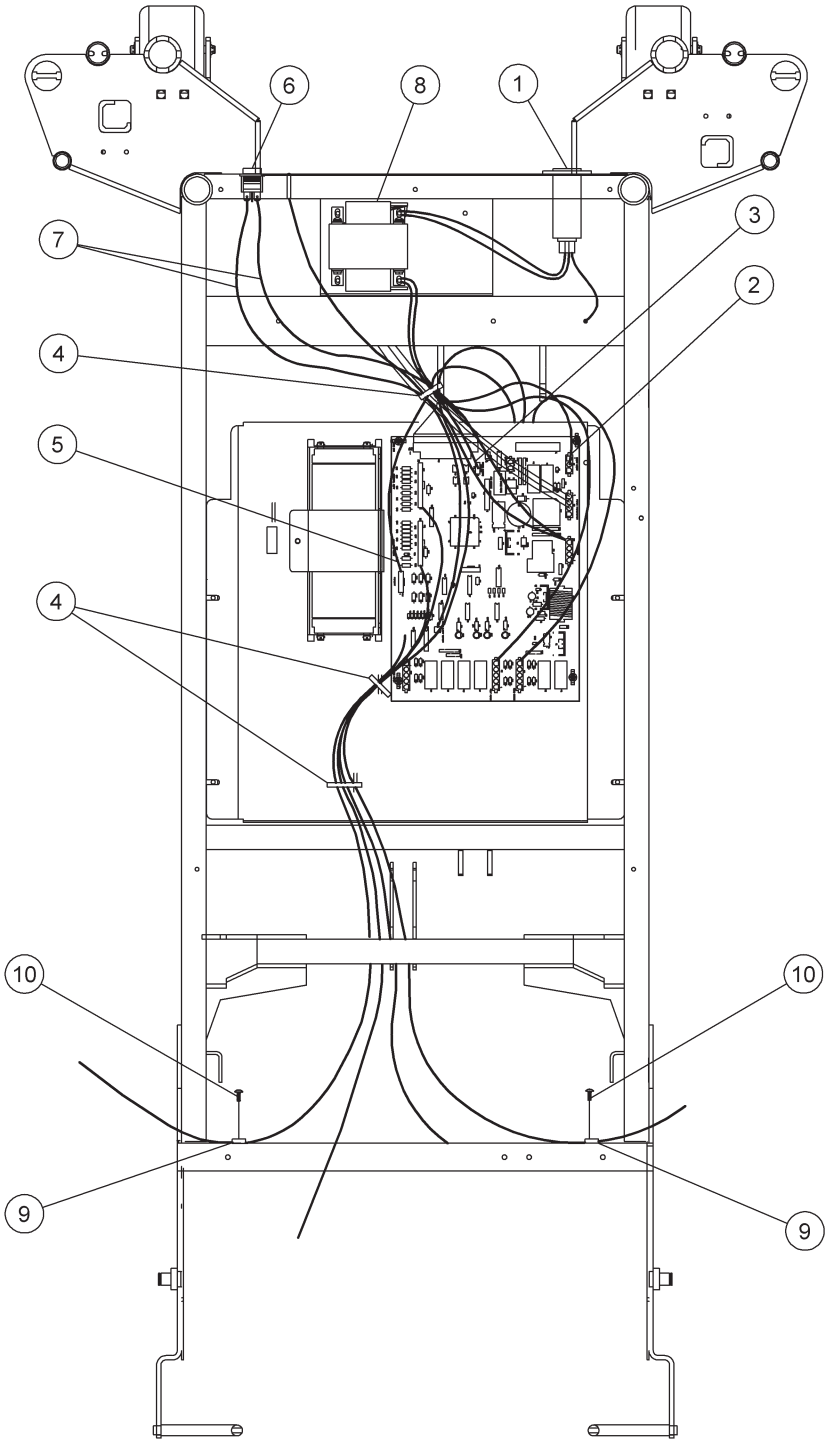


**Table 5-21. Electrical Cable Routing (Sheet 1 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 154444 | 1 | Power entry module |
| 2 | 183055 | 1 | PCB night light |
| 3 | 4142301S | 1 | Trendelenburg mechanical limits cable assembly |
| 4 | 19124 | 5 | Cable tie |
| 5 | 4142501S | 1 | Cable assembly, pendant control |
| 6 | 63981 | 1 | Switch, lockout |
| 7 | 63944 | 1 | Cable assembly, lockout |
| 8 | 190178 | 1 | Transformer assembly |
| 9 | 17292 | 2 | Cable clamp |
| 10 | 43878 | 2 | Screw, button hd Torx® |

## ELECTRICAL CABLE ROUTING (SHEET 2 OF 2)

**Figure 5-22. Electrical Cable Routing (Sheet 2 of 2)**

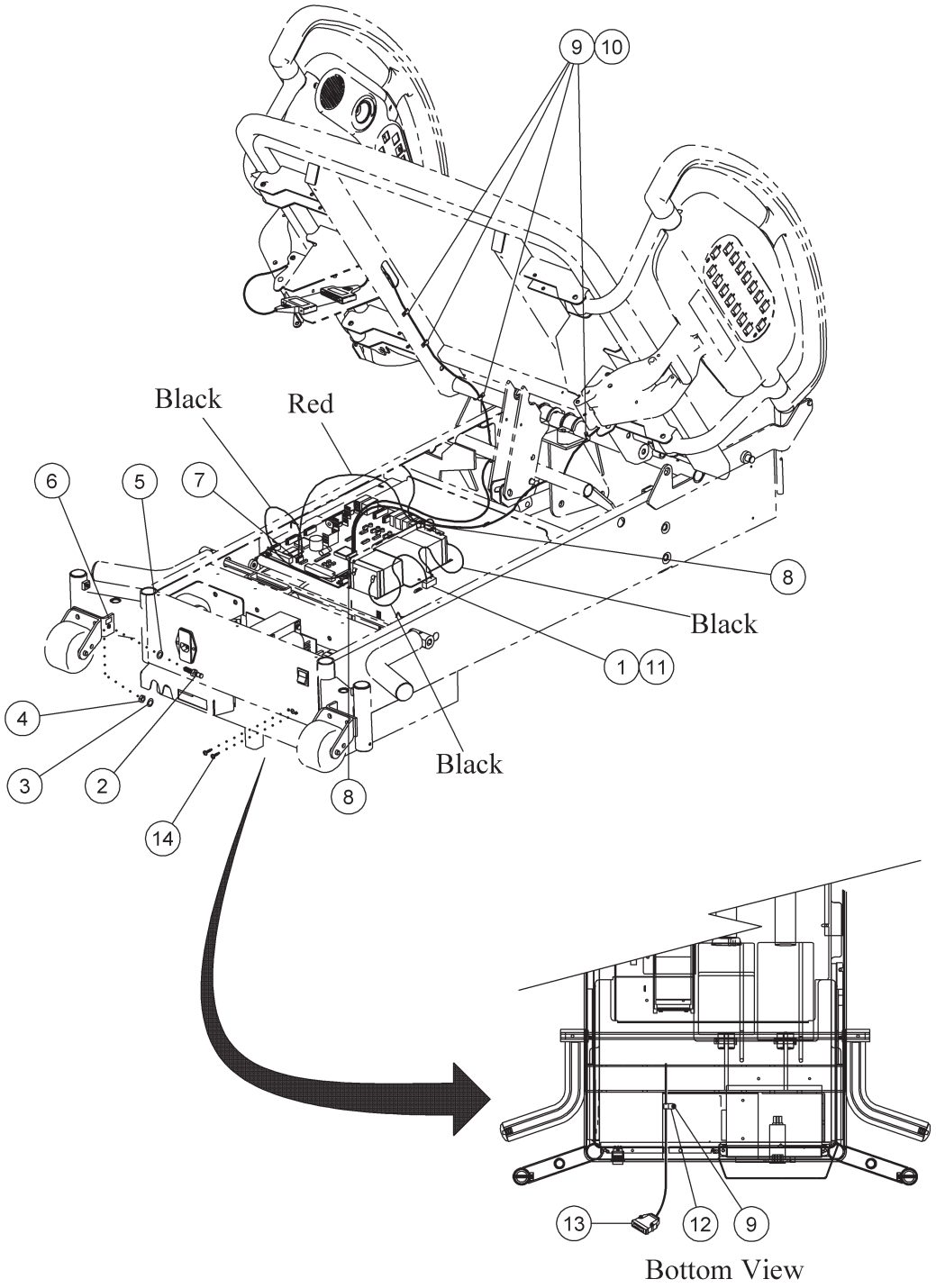


**Table 5-22. Electrical Cable Routing (Sheet 2 of 2)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 6394201 | 1 | Cable assembly, battery-to-battery |
| 2 | 44125 | 1 | Plug (used on 230V beds only) |
| 3 | 44128 | 1 | Lockwasher, serrated (used on 230V beds only) |
| 4 | 44126 | 1 | Nut (used on 230V beds only) |
| 5 | 44127 | 1 | Washer—color code green/yellow (used on 230V beds only) |
| 6 | 44464 | 1 | Label, potential equalization (used on 230V beds only) |
| 7 | 63945 | 1 | Cable assembly, battery |
| 8 | 19124 | 2 | Cable tie |
| 9 | 43878 | 7 | Screw, button hd Torx® |
| 10 | 17292 | 6 | Cable clamp |
| 11 | 6642910S | 1 | Fuse, 10A, 32 V DC, automotive style |
| 12 | 27873 | 1 | Cable clamp (used prior to panel-mounted pendant control cable connection only) |
| 13 | 4142501S | 1 | Cable assembly, pendant control |
| 14 | 10595 | 2 | Screw, pan hd |

## LABEL (SHEET 1 OF 7)

**Figure 5-23. Label (Sheet 1 of 7)**

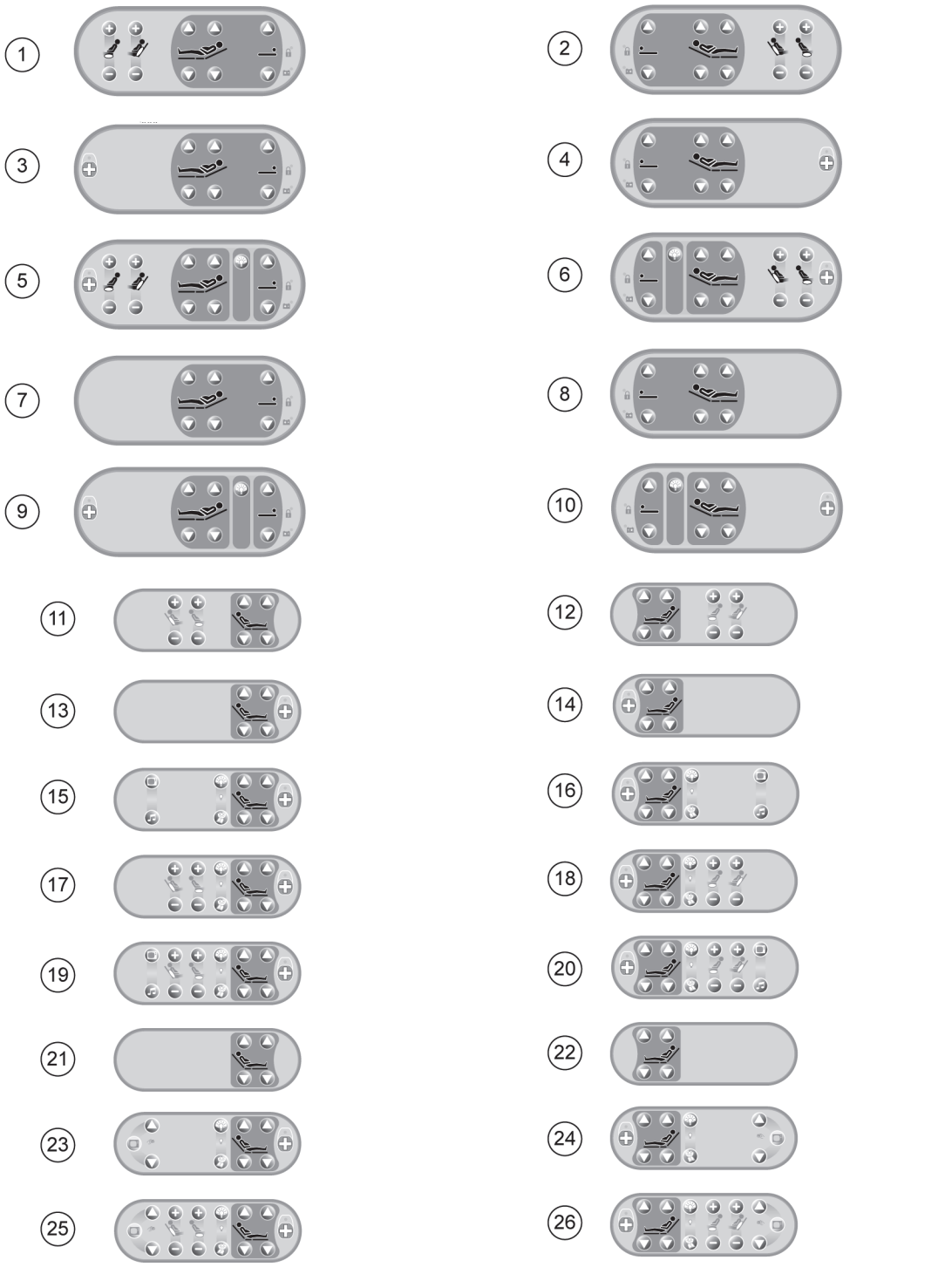


**Table 5-23. Label (Sheet 1 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 162310 | 1 | Caregiver, LH, BC, air |
| 2 | 162289 | 1 | Caregiver, RH, BC air |
| 3 | 162311 | 1 | Caregiver, LH, BC, NC, no air |
| 4 | 162290 | 1 | Caregiver, RH, BC, NC, no air |
| 5 | 162313 | 1 | Caregiver, LH, BC, NC, ENT, air |
| 6 | 162291 | 1 | Caregiver, RH, BC, NC, ENT, air |
| 7 | 162314 | 1 | Caregiver, LH, BC, no NC, no air |
| 8 | 162292 | 1 | Caregiver, RH, BC, no NC, no air |
| 9 | 162312 | 1 | Caregiver, LH, BC, NC, ENT, no air |
| 10 | 162293 | 1 | Caregiver, RH, BC, NC, ENT, no air |
| 11 | 162302 | 1 | Patient, LH, BC, air |
| 12 | 162294 | 1 | Patient, RH, BC, air |
| 13 | 162303 | 1 | Patient, LH, BC, NC, no air |
| 14 | 162295 | 1 | Patient, RH, BC, NC, no air |
| 15 | 162304 | 1 | Patient, LH, BC, NC, ENT, no air |
| 16 | 162296 | 1 | Patient, RH, BC, NC, ENT, no air |
| 17 | 162305 | 1 | Patient, LH, BC, NC, lighting, air |
| 18 | 192297 | 1 | Patient, RH, BC, NC, lighting, air |
| 19 | 162306 | 1 | Patient, LH, BC, NC, ENT, lighting, air |
| 20 | 162298 | 1 | Patient, RH, BC, NC, ENT, lighting, air |
| 21 | 162307 | 11 | Patient, LH, BC, non-air |
| 22 | 166299 | 11 | Patient, RH, BC, non-air |
| 23 | 162308 | 1 | Patient, LH, BC, lighting, Enhanced ENT |
| 24 | 162300 | 1 | Patient, RH, BC, lighting, Enhanced ENT |
| 25 | 162309 | 1 | Patient, LH, BC, NC, Enhanced ENT, lighting, air |
| 26 | 162301 | 1 | Patient, RH, BC, NC, Enhanced ENT, lighting, air |

## LABEL (SHEET 2 OF 7)

**Figure 5-24. Label (Sheet 2 of 7)**

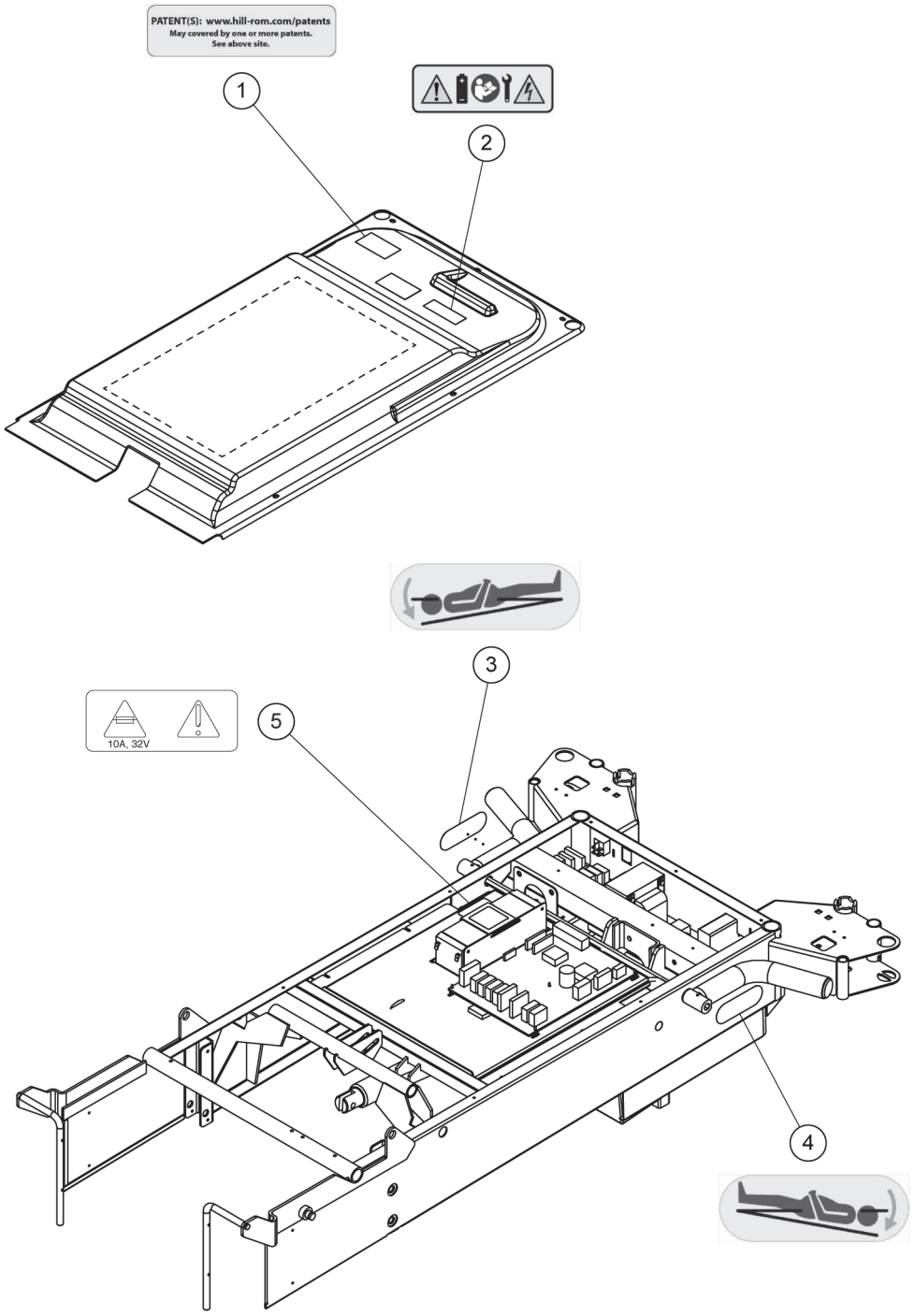


**Table 5-24. Label (Sheet 2 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 180426 | 1 | Patent label |
| 2 | 180429 | 1 | Electrical hazard, must consult accompanying documents |
| 3 | 18043301 | 1 | Trend-like control, lh |
| 4 | 18043302 | 1 | Trend-like control, rh |
| 5 | 18043501 | 1 | Fuse identification, 2A, 250V |
| | 18043502 | 1 | Fuse identification, 4A, 125V |
| | 18043503 | 1 | Fuse identification, 10A, 32V |
| | 18043504 | 1 | Fuse identification, 5A, 125V |

## LABEL (SHEET 3 OF 7)

**Figure 5-25. Label (Sheet 3 of 7)**

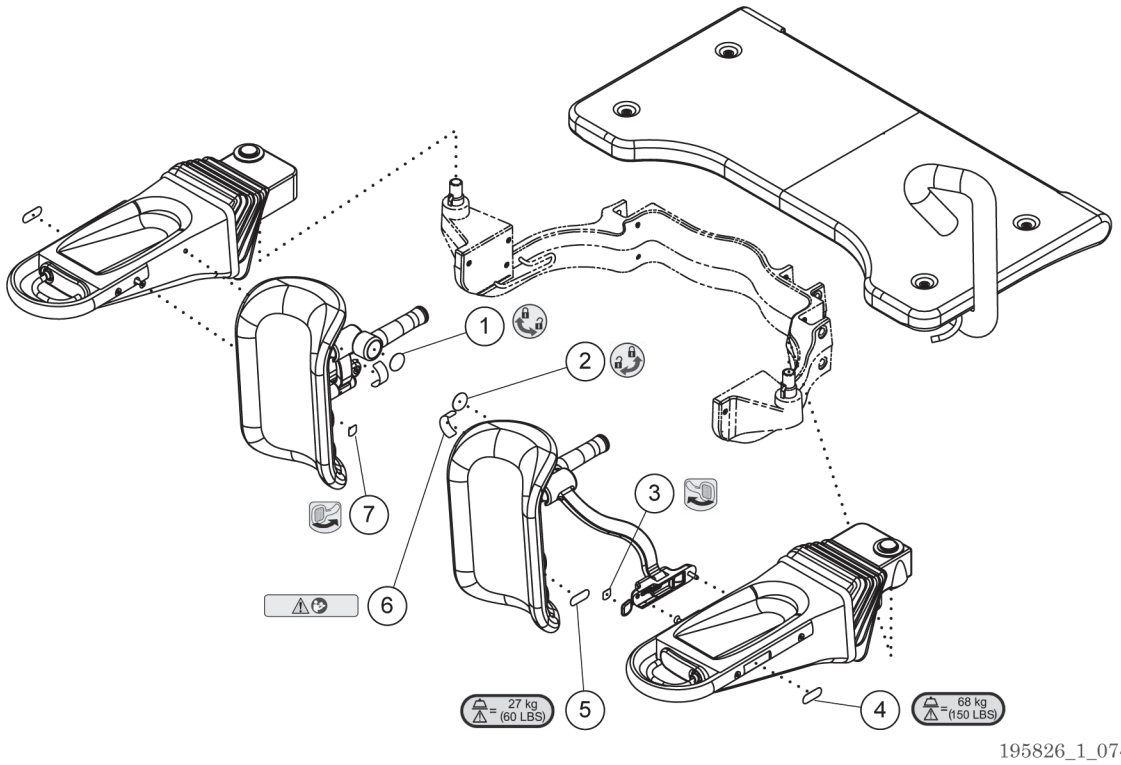



**Table 5-25. Label (Sheet 3 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 17658001 | 1 | Unlock, rh |
| 2 | 17658002 | 1 | Unlock, lh |
| 3 | 17658101 | 1 | Unlock, lh |
| 4 | 18043202 | 2 | Safe working load |
| 5 | 18042301 | 2 | Safe working load |
| 6 | 18042401 | 2 | Warning, must consult accompanying documents |
| 7 | 17658102 | 1 | Unlock, rh |

## LABEL (SHEET 4 OF 7)

**Figure 5-26. Label (Sheet 4 of 7)**

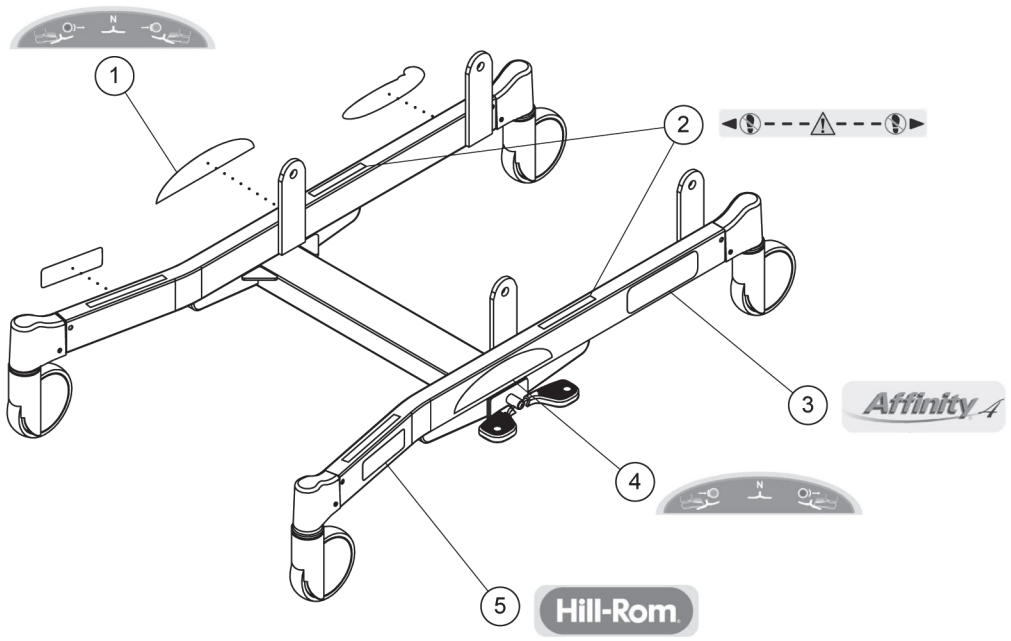



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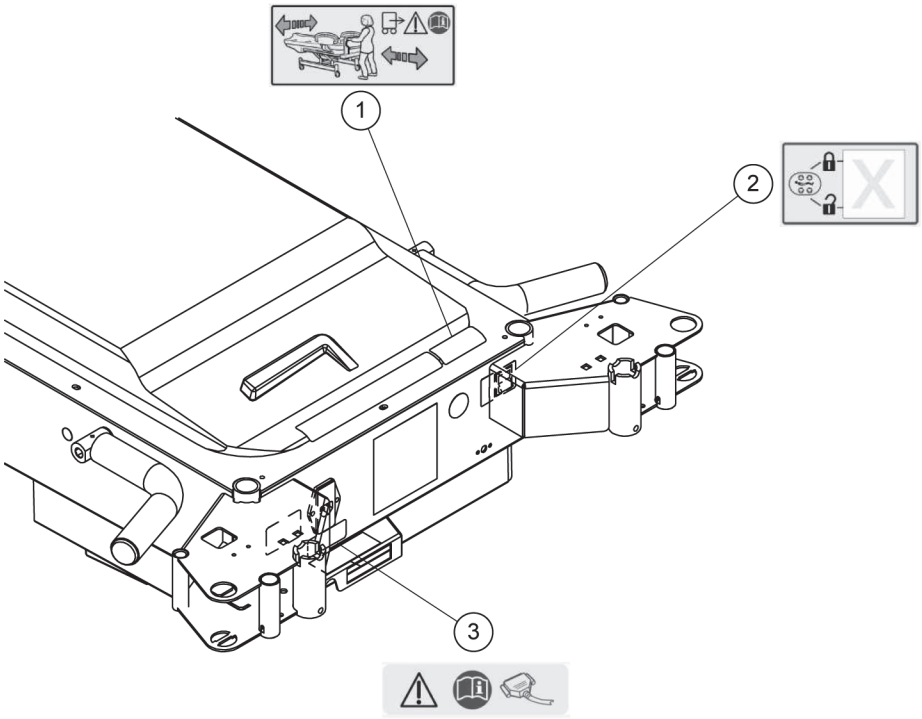
**Table 5-26. Label (Sheet 4 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 1804201 | 1 | Brake/Steer label, rh |
| 2 | 176576 | 2 | No step |
| 3 | 180422 | 2 | Affinity® 4 label |
| 4 | 1804202 | 1 | Brake/Steer label, lh |
| 5 | 180419 | 2 | Hill-Rom logo |

## LABEL (SHEET 5 OF 7)

**Figure 5-27. Label (Sheet 5 of 7)**




195826_1_076

**Table 5-27. Label (Sheet 5 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 180427 | 1 | Transport position label |
| 2 | 180430 | 1 | Lockout control |
| 3 | 180428 | 1 | Communication cable connection |

## LABEL (SHEET 6 OF 7)

**Figure 5-28. Label (Sheet 6 of 7)**

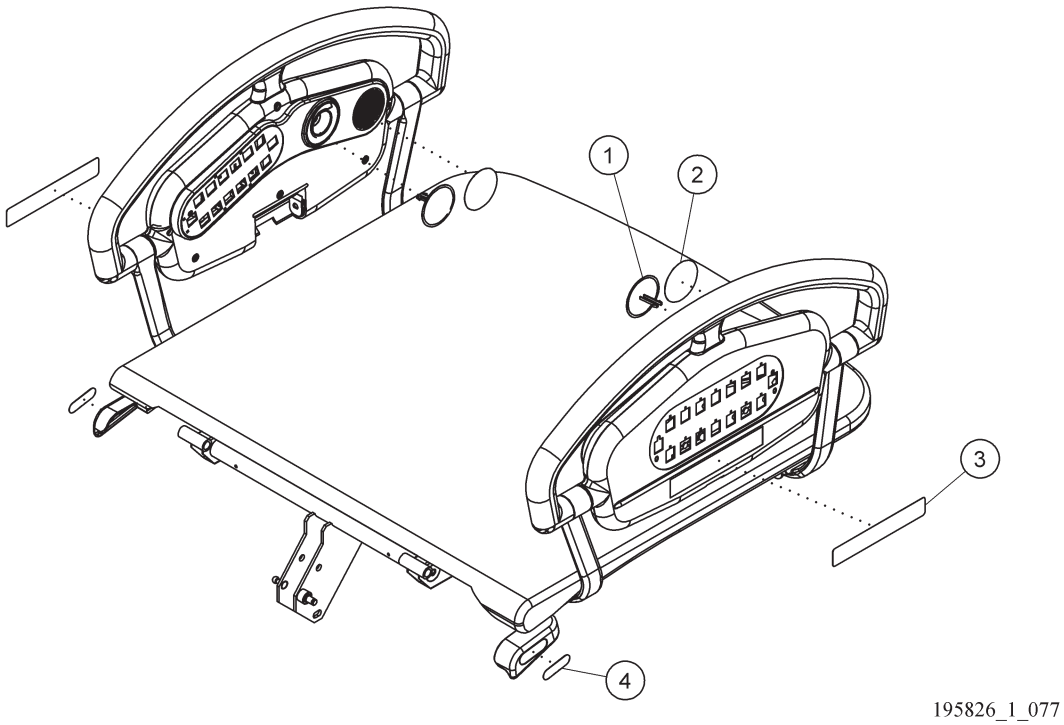



**Table 5-28. Label (Sheet 6 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 68537 | 2 | Blank label, volume control |
| 2 | 6665801 | 2 | Blank label, speaker |
| 3 | 176578 | 2 | Affinity® 4 label with safe working load |
| 4 | 176579 | 2 | CPR |

## LABEL (SHEET 7 OF 7)

**Figure 5-29. Label (Sheet 7 of 7)**

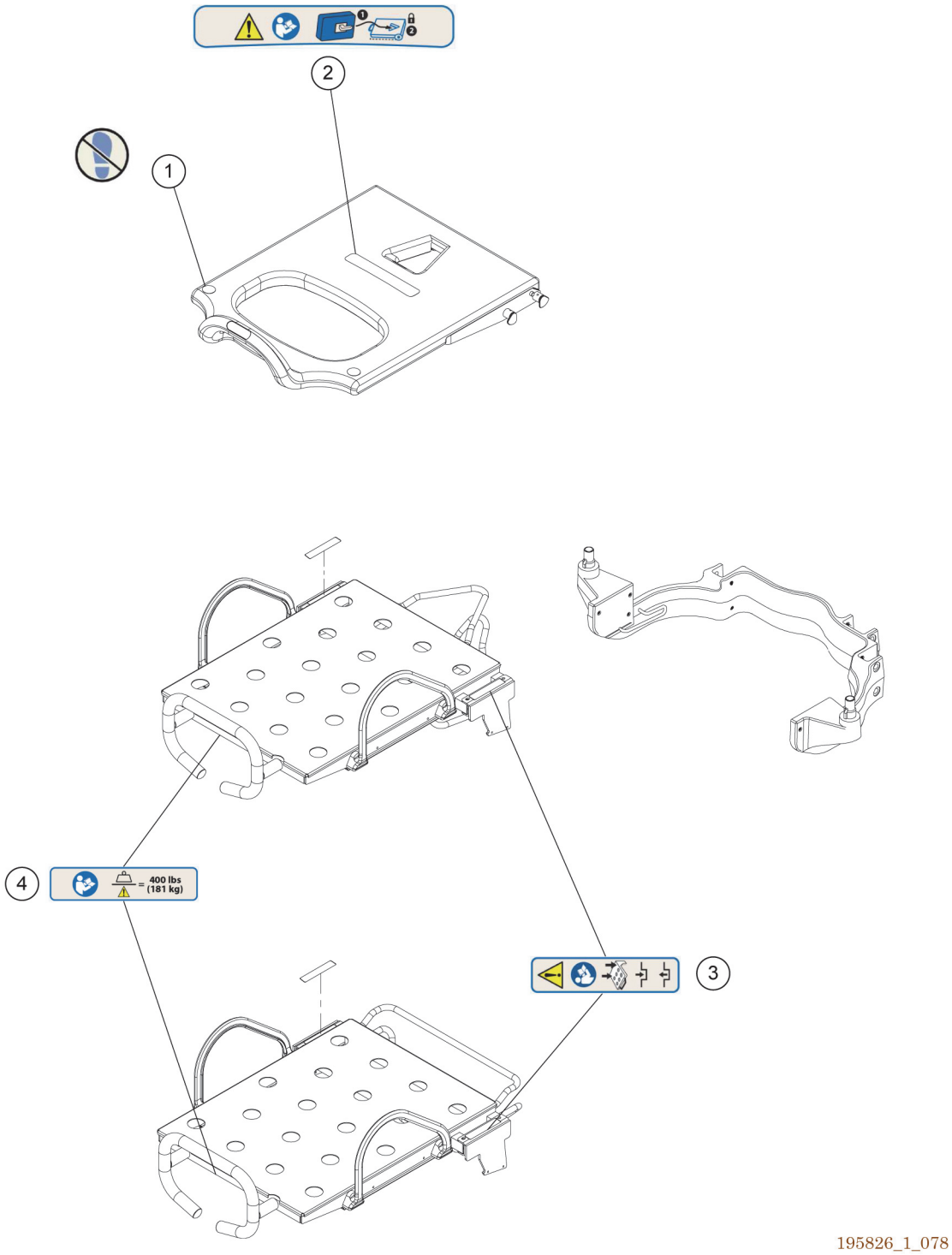


**Table 5-29. Label (Sheet 7 of 7)**

| Item Number | Part Number | Quantity | Description |
|---|---|---|---|
| 1 | 180434 | 2 | No step |
| 2 | 177011 | 1 | Lift-off mattress installation, must consult accompanying documents |
| 3 | 177870 | 2 | Lift-off foot section installation, must consult accompanying documents |
| 4 | 176575 | 1 | Foot section safe working load, must consult accompanying documents |

## NOTES:

# Chapter 6
# Cleaning and Preventive Maintenance

## CLEANING

**WARNING:**
Follow the product manufacturer's instructions. Failure to do so could cause personal injury or equipment damage.

**WARNING:**
Failure to unplug the bed could cause injury or equipment damage.

**WARNING:**
Do not expose the unit to excessive moisture which would allow liquid to pool. Personal injury or equipment damage could occur.

**CAUTION:**
Do not use harsh cleansers or detergents such as scouring pads and heavy-duty grease removers, or solvents such as toluene, xylene, and acetone. Equipment damage could occur.

**CAUTION:**
Make sure that the metal platform is dry before placing the mattress back onto the bed. Failure to do so could cause equipment damage.

If there is no visible soilage with possible body fluids, we recommend that you clean the unit with a mild detergent and warm water. If disinfection is desired, you may use a combination cleanser/disinfectant as explained in "Disinfecting" on page 6-2. In either case, make sure that the metal platform is dry before placing the mattress back onto the bed.

### Steam Cleaning

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

### Cleaning Hard to Clean Spots

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

### DISINFECTING

**WARNING:**

Follow all applicable Infection Control Policies and Procedures. Failure to do so could cause the spread of infection.

When there is visible soilage and also between patient use, we recommend that you disinfect the unit using an EPA registered (US only), tuberculocidal, disinfectant.

Dilute the disinfectant as specified on the manufacturer's label.

### DRAPING THE MATTRESS

**CAUTION:**

Mattress damage caused by improper draping and/or cleaning procedures is not covered by warranty.

Correct draping techniques are essential in helping to preserve the life of the mattress. Drapes must be fluid repellent. The full-size, B7831, labor and delivery drape effectively covers the lower three-quarters of the bedding throughout labor. Additional pads or towels put under the patient will keep fluid from reaching the edges of the drape. This keeps the sheets clean and dry while preventing fluid exposure to the mattress.

**CAUTION:**

Standard OB packs and paper drapes will not keep the sheets dry.

Repeated soaking and scrubbing of mattress materials will accelerate wear and eventually destroy mattress seals, causing fluids to leak into the cushions.

### CARING FOR THE WOOD COMPONENTS

Wood is selected for use on beds because of its beauty and warmth. All Hill-Rom wood products are treated with a resin-based sealer and finish that provide resistance to abrasion, staining, and fluids. Many disinfectant/cleansers have a softening effect on any painted or finished surface if used in high concentrations. Diluted ammonia or detergent, may be used.

The bed should be cleaned by wiping a soft dampened cloth over the surface, followed by wiping with a dry cloth. At no time should a wet cloth be allowed to lay on the surface. Any liquid spilled on the surface should be wiped up immediately. Any liquid allowed to lie on the surface unattended may damage the finish.

For protection of the finish, we recommend using a liquid furniture polish. Polish about once a month, and wipe off any excess with a soft dry cloth. Have any nicks or scrapes repaired to prevent water damage.

## SERVICING THE BED

**WARNING:**

Powered bed mechanisms can cause serious injury. Operate the bed only with persons clear of mechanisms. Failure to do so could cause personal injury or equipment damage.

**WARNING:**

Unplug the bed from its power source and put the lockout switch in the locked position during routine maintenance or cleaning. Refer to the *Affinity® Three Birthing Bed and Affinity® Four Birthing Bed User Manual* (USR025) and specific sections in this service manual for additional precautions. Failure to do so could cause personal injury or equipment damage.

**WARNING:**

Make sure all electrical/mechanical loads are removed prior to maintenance/repair of the bed's drive system or other mechanical assemblies. Failure to do so could cause personal injury or equipment damage.

When you work with the bed in the high position, set the brakes and put jack stands between the base frame and lift arms. This will help prevent injury in case someone accidentally actuates the bed down switch.

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

## COMPONENT HANDLING

**CAUTION:**

To prevent component damage, make sure that your hands are clean, and **only** handle a P.C. board by its edges. Failure to do so could cause equipment damage.

**CAUTION:**

When handling electronic components, wear an antistatic strap. Failure to do so could cause component damage.

**CAUTION:**

For shipping and storage, put the removed P.C. board in an antistatic protective bag. Equipment damage can occur.

### P.C. Boards

When servicing P.C. boards, follow good handling practices. Mishandling a P.C. board can cause the following:

- P.C. board damage
- Shortened P.C. board life
- Unit malfunctions

Observe the following P.C. board handling rules:

- Make sure that hands are clean and free of moisture, oily liquids, etc.
- **Only** handle a P.C. board by its outer edges.
- Do not touch the P.C. board components. Finger contact with the board surface and/or with its components can leave a deposit that will cause board (and component) deterioration.
- When working with electronics, wear an appropriate antistatic strap, and Make sure that it is correctly grounded.
- Service the removed P.C. board at a static-free workstation that is correctly grounded.
- For shipping and storage, put the removed P.C. board in an antistatic protective bag.

## LUBRICATION REQUIREMENTS

**WARNING:**
Follow the product manufacturer's instructions. Failure to do so could cause personal injury or equipment damage.

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

Hill-Rom uses maintenance-free DU bushings at major load and pivot points throughout the bed. These bushings are designed to run dry **without lubrication**. If the bushing squeaks during operation, apply anti-seize compound to its bearing surface.

**WARNING:**
Visually examine the bushings annually. If wear is apparent, replace them. Failure to do so could cause personal injury or equipment damage.

The following lubricants can be safely used on the DU bushings:

- P/N SA4269 anti-seize lube (aerosol can)
- P/N 37929 anti-seize lube (brush top lid)

## PREVENTIVE MAINTENANCE

**WARNING:**
Only facility-authorized persons should service the Affinity® Four Birthing Bed. Service by unauthorized persons could cause injury or equipment damage.

It is necessary for the Affinity® Four Birthing Bed to have an effective maintenance program. We recommend that you do annual preventive maintenance (PM) for Joint Commission certification. PM not only meets Joint Commission requirements but can help make sure of a long, operative life for the Affinity® Four Birthing Bed. Two effective ways to reduce downtime and make sure the patient remains comfortable are to keep accurate records and maintain the Affinity® Four Birthing Bed.

The PM Checklist on page 6-11 and page 6-12 is designed to keep a maintenance history for one Affinity® Four Birthing Bed. The PM Checklist is to be used along with the "Specified Checks" on page 6-

8. The Specified Checks include specific items to examine as you complete the PM Checklist. (Your facility can change this checklist or design another to fit your needs.)

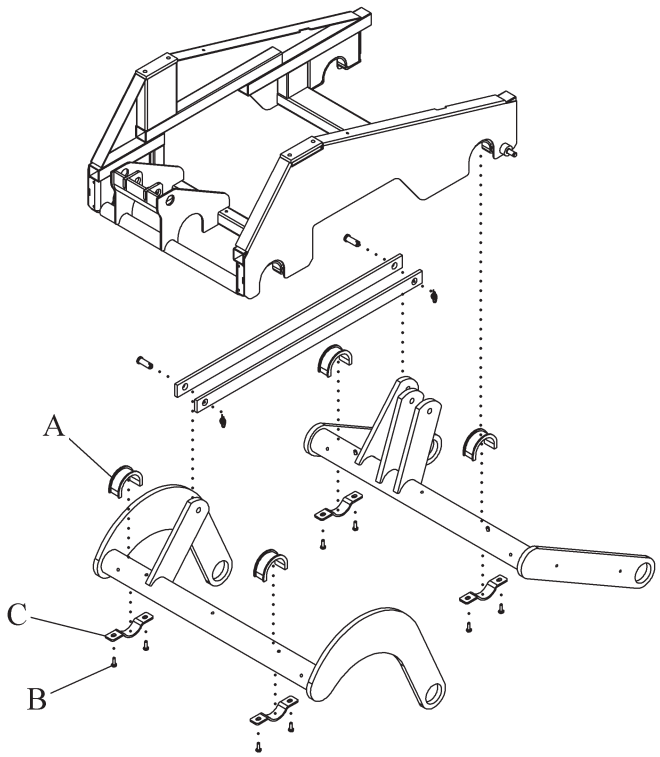
### EXAMINE THE PIVOT POINT FASTENERS

**WARNING:**

Examine the pivot point fasteners semi-annually. Failure to do so could cause injury or damage.

1. Examine the pivot point fasteners (see Figure 6-1 on page 6-5).
2. If the pivot point fasteners (A) are finger-loose, or a gap is visible between the head of the bolt (B) and the pivot block plate (C), do as follows:
   a. Remove the bolt (B).
   b. Apply Loctite® adhesive to the bolt threads.
   c. Install and tighten the bolts to 45-55 in-lb (5.1-6.2 Nm).

**Figure 6-1. Pivot Point Location (Intermediate Frame)**

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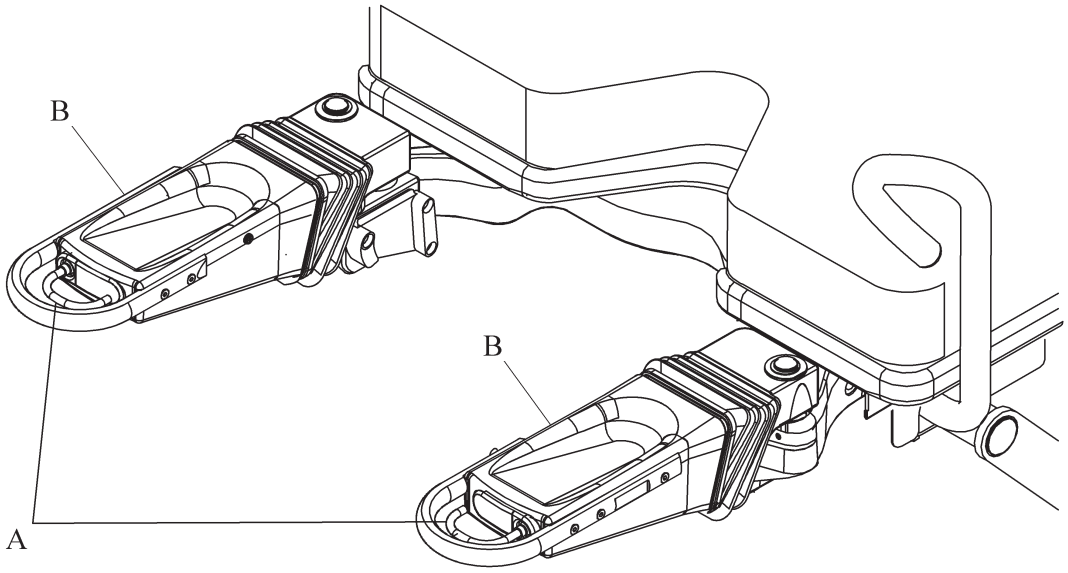
## EXAMINE THE FOOT SUPPORTS

Tools: Tape measure

The foot support assembly requires periodic inspection and lubrication. Do as follows to examine the foot support assembly:

1. Pull the release latch (A) to release the foot support (B) (see Figure 6-2 on page 6-6), and raise and lower the foot support.
2. Make sure the release latch (A) operates smoothly and engages the foot support (B) when released at any time.

**Figure 6-2. Foot Support Assembly**

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3. Pull the release latch (A) to move the foot support (B) outward.
4. To make sure the release latch (A) operated correctly, release the latch two to three times during the outward motion.
5. Return the foot support (B) to its original position.
6. Examine the foot support (B) for any missing, loose, incorrectly located, or incorrect parts.
7. Make sure all foot support (B) functions operate correctly after you complete the inspection.

### EXAMINE FOR THE LABOR GRIP PLUGS

Tools: None

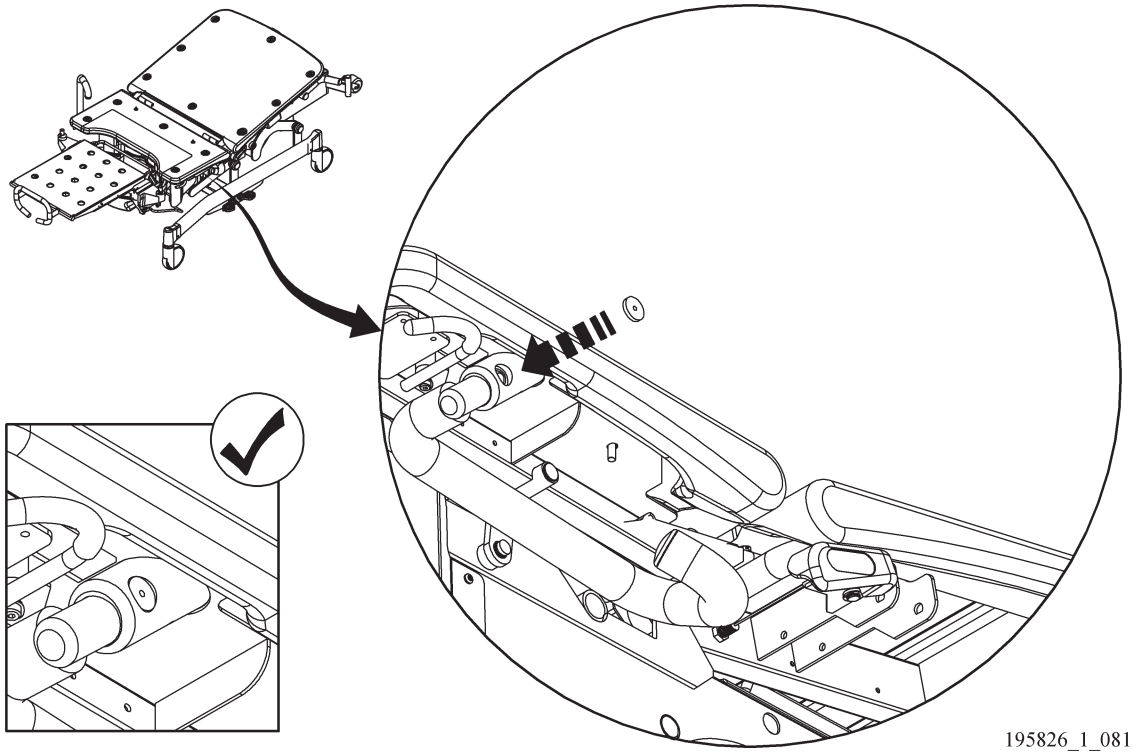
1. Look on both sides of the bed and make sure that there is a plug in the holes on the outside of the labor grip arms (see Figure 6-3 on page 6-7).

**WARNING:**

Make sure the labor grip plugs are installed. If they are not, personal injury could occur.

2. If either hole does not have a plug, remove the bed from service and call Hill-Rom Technical support for a replacement.

**Figure 6-3. Labor Grip Plugs**



## SPECIFIED CHECKS

If any of these checks fail, repair or replace the part as applicable. If the repair or replacement does not correct the problem, remove the unit from service and contact Hill-Rom technical support.

**Table 6-1. Specified Checks**

| Function | Procedure |
|---|---|
| Siderail controls | Check the switches in the siderails to make sure they operate correctly. Also check for intermittent operation. Replace parts as necessary. For replacement instructions, see Procedure 4.25 on page 4-42. |
| Siderail frame | Check the siderail frame to make sure that it latches and stores correctly. Repair as necessary (see Procedure 4.24 on page 4-41). |
| Caster tires and central brake and steer | Check the tires for cuts, wear, tread life, etc. Replace parts as necessary.<br>Apply the brake, and make sure that the bed will not move. If the bed moves, examine the caster for wear, and adjust if required. See Procedure 4.30 on page 4-51. If the bed moves after adjusting the caster, replace parts as necessary.<br>Apply the steering pedal and check the steering to make sure proper locking action when activated. Replace parts as necessary. See Procedure 4.30 on page 4-51. |
| Communications | Test all SideCom® Communication System features (radio, TV, light, entertainment, and nurse call functions) for proper operation. Replace parts as necessary.<br>Examine the communication cable for cuts, nicks, or breaks. Replace parts as necessary.<br>Examine the male pins and female receptacle in the connecting plug. Replace parts as necessary. |
| CPR release | Test the CPR release for proper operation and reset of the head drive system. When the CPR release is pulled, the bed should lower from any position into a flat position within 7 seconds with at least 50 lb (23 kg) of weight on the head section. |
| Electrical test | Test the bed for electrical leakage. Ground resistance must be less than 0.20Ω. Leakage current must be **less than** 100μA for 120V models, and **less than** 150μA for 230V models. |
| Battery test | Test the battery voltage at connector P5 on the control P.C. board. Voltage should be 25 V DC to 30 V DC. |
| Trend-Like function limits | Make sure that the Trend-Like function handles are accessible on both sides of the bed, and check for proper handle functions as follows:<br>a. Push down on the Trend-Like function handle. The head end lowers from the level position to 8°, relative to the foot end.<br>b. Pull up on the Trend-Like function handle. The head rises from the Trend-Like position to the level position.<br>c. Repeat the steps using the Trend-Like function handle on the other side of the bed. |

| Function | Procedure |
|---|---|
| Hilow limits | Operate the hilow section to the full upper and lower limits. See Procedure 4.5 on page 4-9. Check that the position sensors operate correctly. Replace parts as necessary. |
| Head limits | Operate the head section to the full upper and lower limits. Check that the position sensors function correctly. Replace parts as necessary. |
| Foot limits | Operate the foot section to the full upper and lower limits. See Procedure 4.10 on page 4-19. Check that the position sensors function correctly. Replace parts as necessary. |
| LED indicators | Check all LED indicators on the caregiver control panel for proper operation. Replace parts as necessary. |
| Night light | Check the night light for proper functioning. The night light will turn on after the bed is connected to AC power. The night light is always on when the bed is connected to AC power, turns off when the bed is disconnected from AC power, and is on for approximately 4 minutes in battery backup mode. Replace parts as necessary. |
| Pendant control | Check the pendant control for proper operation. Visually examine the cord to make sure it has no cuts, nicks, or breaks. Replace parts as necessary. |
| Pivot points | Examine the shoulder bolts through the pivot blocks on the frame (see Figure 6-1 on page 6-5). Apply Loctite® adhesive, and tighten if necessary. Replace parts as necessary.<br><br>Examine pivot points for wear, and lubricate if noisy. Replace parts as necessary. |
| Power cord and plug | Examine the power cord and plug for cuts, nicks, or breaks.<br>Replace the power cord and plug assembly as necessary. See Table 5-17 on page 5-45 for the applicable power cord part number. |
| Lockout switch | Test the switch for proper function. Make sure that the switch is not loose. Replace the lockout switch as necessary. |
| Foot section | Examine for proper slide engagement of the foot section to the foot yoke casting assembly.<br>Examine the Stow and Go® Foot Section (to include the wireforms, casters, rollers, ramps, lock blocks, and mattress deck) for damage, wear, missing parts, proper function. Repair or replace parts as needed. |
| Air system | Test the air system functions (air bladders) for proper inflation and deflation. Also examine the mattress for punctures, cuts or tears.<br>Check the air compressor assembly, hose connections, and "O" rings for signs of leakage.<br>Replace parts as necessary. |
| Electrical compartment covers | Examine the covers for signs of fluid leakage into the electrical compartment. Replace parts as necessary. |
| Foot supports | Check the latch/release mechanism for proper operation. Make sure that the foot support rotates freely to make sure there is no binding. Make sure the foot support rotates up to a 85° position. Examine the foot supports (see "Examine the Foot Supports" on page 6-6). Repair or replace as necessary. |

| **Function** | **Procedure** |
|---|---|
| Calf supports | Check the latch/release mechanism for proper operation. Make sure that the calf support rotates freely to make sure there is no binding. When the release handle is rotated to the right (clockwise), the ball joint should tighten; when rotated to the left (counterclockwise), the ball joint should loosen. Repair or replace as necessary. |
| Labor grips | Check that the labor grips latch correctly and are functional.<br>Make sure that plugs are installed in the holes on the outside of the labor grip arms. Replace parts as necessary. |
| Headboard | Check the headboard appearance and functionality. Replace parts as necessary. |
| Mattress inspection | Examine the ticking for punctures or any other type of compromise.<br>Examine the interior of the mattress for any contaminates.<br>Examine air bladders (if present) for leaks, and make sure proper air supply connection.<br>Replace mattress parts such as ticking, bladders, air hose connections, etc. as necessary. |
| Overall appearance | Touch up the paint where necessary.<br>Examine the labels, and replace if necessary.<br>Examine the general appearance of the bed.<br>Examine all visible surfaces for cosmetic damage. Repair or replace parts as necessary.<br>Observe the symmetry of the bed by viewing it from each corner while looking toward the opposite corner (i.e., view from left side, foot end looking toward right side head end). Make sure that the foot and head are not bent out of alignment.<br>Examine for worn or damaged components. Replace parts as necessary. |

## PM CHECKLIST

| Date | | | | | | | | | | | | | | | | | | | | | | **Function** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hill-Rom | **Manufacturer** | | | | | | | | | | | | | | | | | | | | | Siderail controls |
| | | | | | | | | | | | | | | | | | | | | | | Siderail frame |
| | | | | | | | | | | | | | | | | | | | | | | Casters |
| | | | | | | | | | | | | | | | | | | | | | | Central brake and steer |
| | | | | | | | | | | | | | | | | | | | | | | Communications |
| | | | | | | | | | | | | | | | | | | | | | | CPR release |
| | | | | | | | | | | | | | | | | | | | | | | Electrical test |
| | **Model Number** | | | | | | | | | | | | | | | | | | | | | Battery test |
| | | | | | | | | | | | | | | | | | | | | | | Trend-Like function limits |
| | | | | | | | | | | | | | | | | | | | | | | Hilow limits |
| | | | | | | | | | | | | | | | | | | | | | | Head limits |
| | | | | | | | | | | | | | | | | | | | | | | Foot limits |
| | | | | | | | | | | | | | | | | | | | | | | LED indicators |
| | | | | | | | | | | | | | | | | | | | | | | Night light |
| | **Serial Number** | | | | | | | | | | | | | | | | | | | | | Pendant control |
| | | | | | | | | | | | | | | | | | | | | | | Pivot points |
| | | | | | | | | | | | | | | | | | | | | | | Power cord and plug |
| | | | | | | | | | | | | | | | | | | | | | | Lockout switches |
| | | | | | | | | | | | | | | | | | | | | | | Foot section |
| | | | | | | | | | | | | | | | | | | | | | | Air system |
| | | | | | | | | | | | | | | | | | | | | | | Electrical compartment covers |
| Total Cost for this Page | | | | | | | | | | | | | | | | | | | | | | Labor Time: |
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| | | | | | | | | | | | | | | | | | | | | | | Repair Cost: |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | Inspected by: |
| | | | | | | | | | | | | | | | | | | | | | | Legend<br>L=Lube<br>C=Clean<br>A=Adjust<br>R=Repair or Replace<br>O=Okay<br>N=Not Applicable |

| Date | | | | | | | | | | | | | | | | | | | | | | | **Function** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hill-Rom | **Manufacturer** | | | | | | | | | | | | | | | | | | | | | | Foot supports |
| | | | | | | | | | | | | | | | | | | | | | | | Calf supports |
| | | | | | | | | | | | | | | | | | | | | | | | Labor grips |
| | | | | | | | | | | | | | | | | | | | | | | | Headboard |
| | | | | | | | | | | | | | | | | | | | | | | | Mattress inspection |
| | | | | | | | | | | | | | | | | | | | | | | | Overall appearance |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | **Model Number** | | | | | | | | | | | | | | | | | | | | | | |
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| | **Serial Number** | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | Inspected by: |
| | | | | | | | | | | | | | | | | | | | | | | | Legend<br>L=Lube<br>C=Clean<br>A=Adjust<br>R=Repair or Replace<br>O=Okay<br>N=Not Applicable |


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