stryker®

MAINTENANCE MANUAL

ELECTRIC ACUTE CARE BED

FL20E Model

GOBED+™

TECHNICAL ASSISTANCE AND PARTS

Canada: 1 888 233-6888
United States: 1 800 327-0770
Outside Canada and the United States: Contact your local representative

72-0440 REV A
F15-44-E-A

January 2006
Printed in Canada

TABLE OF CONTENTS

1. INTRODUCTION

This manual is designed to assist in the servicing of Stryker's *GO*BED^{+} Acute Care bed. Read it thoroughly before beginning any service on the bed. Qualified maintenance personnel should be able to refer to this manual at all time when servicing the bed.

The Maintenance Manual is an integral part of the bed and should be included if the bed is sold or transferred.

1.1 SPECIFICATIONS *

Safe Working Load	579 lb (263 kg)
Weigh System Capacity	Patients weighing up to 500 lb (227 kg)
Weigh System Accuracy	± 2 % of patient weight from 100 lb (45.3 kg) to 500 lb (227 kg) ± 2 lb of patient weight under 100 lb (45.3 kg)
Overall Bed Length/Width	92 7/8 x 42 9/16" (235 x 108.1 cm) - siderails up 92 7/8 x 38 3/4" (235 x 98.4 cm) - siderails down
Weight w/Boards	417 lb (189 kg)
Patient Sleep Surface	35 x 80" (89 x 203 cm) extendable to 82" (208 cm) & 84" (213 cm)
Minimum/Maximum Bed Height	14.5 to 28.9" (36.8 to 73.4 cm)
Mattress Size Recommended Maximum Thickness	35 x 80" (89 x 203 cm); 35 x 82" (89 x 208 cm); 35 x 84" (89 x 213 cm) 6.25" (15.9 cm)
Fowler Angle w/CPR Mechanism Fowler Angle w/o CPR Mechanism	0 to 60° 0 to 65°
Knee Gatch Angle w/o Auto Contour Knee Gatch Angle w/Auto Contour	0 to 32° 0 to 24°
Trendelenburg/Reverse Trendelenburg	+14 to -14°
Environmental Conditions - Transport and storage - Ambient Temperature - Relative humidity - Atmospheric Pressure - Operating ** - Ambient Temperature - Relative humidity - Atmospheric Pressure	 -40 to 70°C (-40 to 158°F) 10 to 100% 500 to 1060 hPa 18.3 to 26.7°C (65 to 80°F) 20 to 80% without **condensation** 700 to 1060 hPa
*** Electrical Requirements - all electrical requirements meet CSA C22.2 No. 601.1-M90, UL 2601 and IEC 60601-1, 60601-2-38 specifications.	100V~, 50-60Hz, 7.5A -Two 250V, 10A Fast Acting Fuses 120V~, 50-60Hz, 4.0A (9.8A w/Auxiliary Outlet) -Two 250V, 10A Fast Acting Fuses 200V~, 50-60Hz, 3.2A -Two 250V, 6.3A Slow Blow Fuses 220V~, 50-60Hz, 2.9A -Two 250V, 6.3A Slow Blow Fuses 240V~, 50-60Hz, 2.7A -Two 250V, 6.3A Slow Blow Fuses

*** Stryker pays special attention to product improvement and reserves the right to change specifications without notice.**

****Operating environment recommended to ensure the scale precision.**

***** The device has a 10% duty cycle.**

1.2 TECHNICAL SUPPORT

For questions regarding this product, contact the Technical Service department or your local representative:

In Canada
Stryker Canada
1 888 233-6888
45, Innovation Drive
Hamilton, Ontario, L9H 7L8
Canada

In the United States
Stryker Medical
1 800 327-0770
3800, East Centre Avenue
Portage, MI 49002
USA

1.3 WARNING, CAUTION, NOTE DEFINITION

The words WARNING, CAUTION and NOTE carry special meanings and should be carefully reviewed.

WARNING

The personal safety of the patient or user may be involved. Disregarding this information could result in injury to the patient or user.

CAUTION

These instructions point out special procedures or precautions that must be followed to avoid damaging the equipment.

NOTE

Notes provide special information to make maintenance easier or important instruction clearer.

1.4 STATIC DISCHARGE PRECAUTIONS

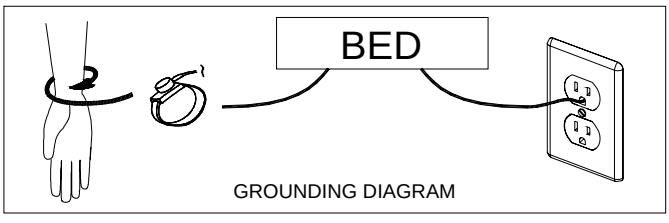
The electronic circuits of the bed are protected from static electricity damage only while the bed is assembled. It is extremely important that all service personnel always use adequate static protection when servicing the electronic components of the bed.

Static Protection Equipment

The necessary equipment for a proper static protection is:

- 1 static wrist strap
- 1 grounding plug
- 1 test lead with a banana plug on one end and an alligator clip on the other.

Static Protection Procedure



GROUNDING DIAGRAM

1. Unplug the bed power cord from the wall receptacle.
2. Insert the grounding plug into a properly grounded hospital grade wall receptacle. Plug the banana plug of the test lead into the receptacle on the grounding plug. Connect the alligator clip on the other end of the test lead to a ground point on the bed.
3. Place the static wrist strap on your wrist. Connect the clip at the other end of the wrist strap cord to a ground point on the bed.

1.5 WARRANTY

LIMITED WARRANTY

All Stryker products are guaranteed against material or manufacturing defects, improper operation of mechanisms, and premature wear of bed components under normal use conditions.

For questions regarding warranty, please contact the Technical Service department (see section 1.2) or your local representative.

TO OBTAIN SERVICE AND/OR PARTS

- **To Require Service**

For an on-site diagnosis of a malfunction by one of our Field Service Representative, contact our Technical Service department (see section 1.2) or your local representative.

- **To Order Parts**

In order to correctly identify and order parts to be replaced, proceed as follow:

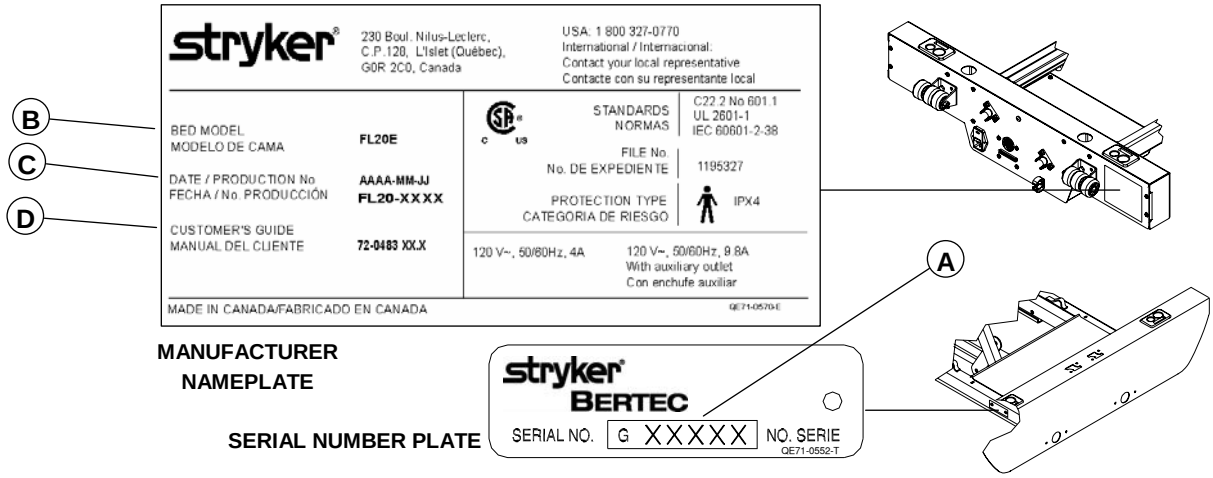


Figure 1.5

- Locate the serial number plate and the manufacturer's nameplate affixed respectively to the right side of the mobile frame at the foot end of the bed, and to the right side of the head end casing cover.
- From the serial plate, write down the serial number (A).
- From the manufacturer's nameplate, write down the bed model (B), the production number (C), ex. FL20-XXXX, and the Customer's Guide number (D).
- Consult the parts lists and the drawings contained in the Parts List Manual included in the Customer's Guide to identify the defective part. Write down the name of the part and its part number, and the problem encountered while using the equipment.

NOTE
It is very important that you refer to the parts lists and drawings of the Parts Lists specific to the bed needing repair.

- Contact our Technical Service department (see section1.2) or your local representative and provide all the previously noted information.
  - Bed model
  - Serial number and production number
  - Name and part number of the defective parts
  - Problem encountered

NOTE
Our Technical Service Representative will do his best to help you identify the parts to be replaced. However, if an error occurs when ordering, the user remains responsible for identifying the parts to change.
Stryker will take back wrong parts ordered but will not assume shipping charges, and restocking fees will be charged to the user, unless a Technical Service Representative has been requested for an on-site diagnosis of the malfunction.

RETURN AUTHORIZATION
Merchandise cannot be returned without approval from the Technical Service department. An authorization number will be provided, which must be clearly printed on the returned merchandise. Stryker reserves the right to charge shipping and restocking fees on returned items.

DAMAGED MERCHANDISE

Claims for damaged merchandise must be made with the carrier within fifteen (15) days of receipt of merchandise. DO NOT ACCEPT DAMAGED SHIPMENTS UNLESS SUCH DAMAGE IS NOTED ON THE DELIVERY RECEIPT AT THE TIME OF RECEIPT. Upon prompt notification, Stryker will file a freight claim with the appropriate carrier for damages incurred. Claims will be limited in amount to the actual replacement cost. In the event that this information is not received by Stryker within the fifteen (15) day period following the delivery of the merchandise, or the damage was not noted on the delivery notice at the time of receipt, the customer will be responsible for payment of the original invoice in full.

Claims for any short shipment must be made within 5 days of invoice.

1.6 SYMBOLS


Warning, consult accompanying documents

Fuse rating for beds with the 100V~ and 120V~ electric systems

Fuse rating for beds with 200V~, 220V~ and 240V~ electric systems


Protective earth (ground)

~ Alternating Current


Type B Equipment

IPX4 Protection from liquid splash

2. PREVENTATIVE MAINTENANCE

2.1 BED CLEANING AND MATTRESS CARE

WARNING
Always unplug the bed power cord from the wall outlet when cleaning or servicing the bed.

CAUTION

Do not use harsh cleaners, solvents or detergents. Equipment damage could occur. Do not steam clean, hose off or ultrasonically clean the bed. Do not immerse any part of the bed. The bed electrical parts may be damaged by exposure to water.

Germicidal disinfectant, used as directed, and/or Chlorine Bleach products are not considered mild detergents. These products are corrosive in nature and may cause damage to your bed if used improperly. If these types of products are used, ensure the beds are wiped with clean water and thoroughly dried following cleaning. Failure to properly rinse and dry the beds will leave a corrosive residue on the surface of the bed, possibly causing premature corrosion of critical components. Failure to follow the above directions when using these types of cleaners may void this product warranty.

CLEANING BEDS

Hand wash all surfaces of the bed with a soft cloth moistened with a solution of lukewarm water and a mild detergent.

Wipe the bed clean and dry thoroughly to avoid build up of cleaning solution.

NOTE
Do not use cleaning solutions containing a degreaser near the siderail pivots (see figure 2.2B, page 11) to avoid deteriorating the properties of the grease used to ensure a smooth movement of the siderails.

MATTRESS CARE

WARNING
Inspect the mattress after each use. Discontinue use if any cracks or rips that may allow fluid to enter the mattress are found in the mattress cover. Failure to properly clean the mattress, or dispose of it if defective, may increase the risk of exposure to pathogenic substances and may bring about diseases to the patient and/or user.

- **Inspection**

Implement local policies to address regular care, maintenance, and cleaning of mattresses and covers. The cover cleaning procedure can be found below and on the bed label.

Inspect mattress cover surface (also zip fasteners and cover inner surface if mattresses have zip fasteners) regularly for signs of damage. If the mattress cover is heavily stained or soiled, or is torn, remove the mattress from service.

- **Cleaning**

Stains: Wash with lukewarm water using a mild detergent. Rinse with water and let dry. For tough stains use bleach diluted with ten parts of water.

2.2 LUBRICATION REQUIREMENTS

Listed below are the lubrication points and their recommended time interval check. When needed, lubricate these points with OG2 grease.

WARNING

The use of types of grease other than the one recommended (OG2 grease) could lead to deterioration of critical parts and to mechanism failure, resulting in injury to the patient and/or user and damage to the bed.

CAUTION

The *GO*BED+ uses oil-impregnated shoulder spacers at hinge points. **Do not** lubricate the shoulder spacers; replace if found worn.

ANNUAL CHECKLIST:

____ The Hi-Lo lever nylon sliders and their shaft (see fig. 2.2A, page 11). Check that grease is still present along the course of the sliders (inner bottom and side surfaces of the rail).

____ The lower mounting points (see fig. 2.2A, page 11) of the Hi-Lo system stabilizer.

____ The siderail plungers and plunger springs (see fig. 2.2B, page 11).

____ The siderail arm glide rods (see fig. 2.2B, page 11).

TWO YEAR INTERVAL CHECKLIST:

____ The two Hi-Lo and the head section actuator tubes (see fig. 2.2C, page 11) to facilitate their sliding into their support tubes. Raise the bed and the head section fully up and apply grease on the actuator tubes.

____ The four actuator screws (see fig. 2.2C, page 11). Refer to section 4.11.

____ The clevis pins and nylon washers linking the four actuator tubes to their anchor points: the head and thigh section lever arms and the two Hi-Lo lever arms (see fig. 2.2C, page 11).

____ The four actuator bolts holding them to their brackets as well as the inner sides of the brackets, including the pivot pin (see fig. 2.2C, page 11).

____ The micro switch activator (see fig. 2.2E, page 11) of the Auto Contour positioning mechanism.

FIVE YEAR INTERVAL CHECKLIST:

____ The siderail shafts and transfer plate sleeves (see fig. 2.2B, page 11).

____ The inside of the Hi-Lo lever molded bearings (see fig. 2.2A, page 11).

____ The damper spacer sleeves and the fixed and mobile levers (see fig. 2.2D, page 11) from the CPR positioning mechanism.

Serial Number:_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Completed by:_____ **Date:**_____

LUBRICATION POINTS ILLUSTRATED

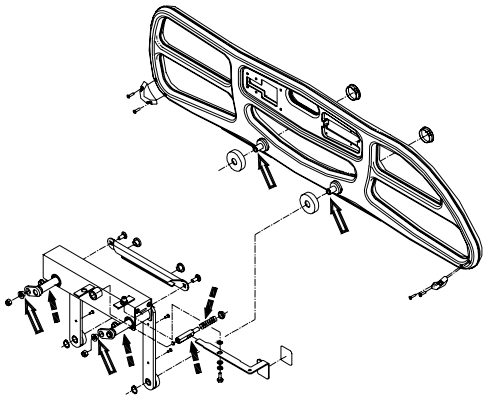
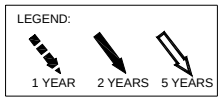


Figure 2.2B



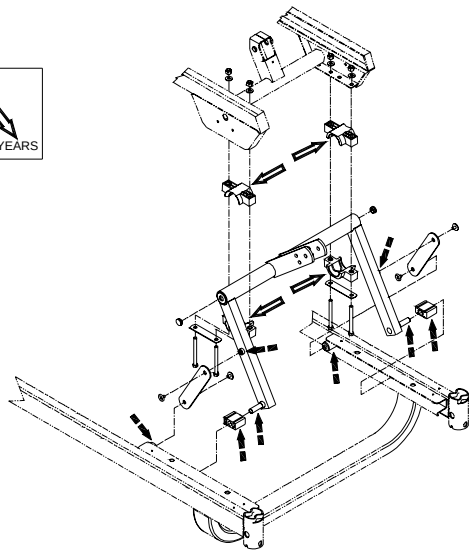


Figure 2.2A

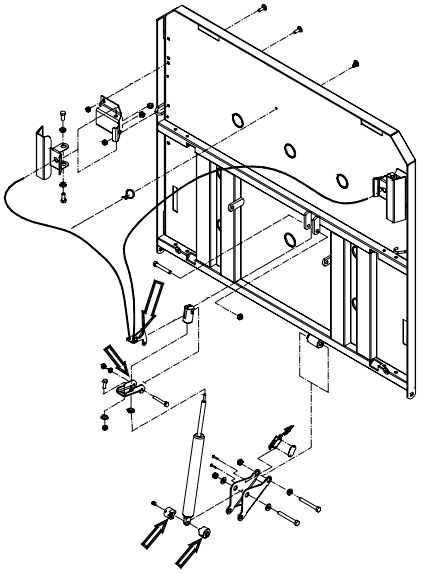


Figure 2.2D

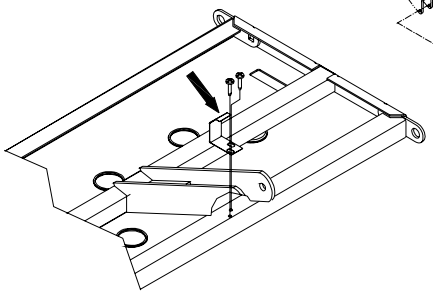


Figure 2.2E

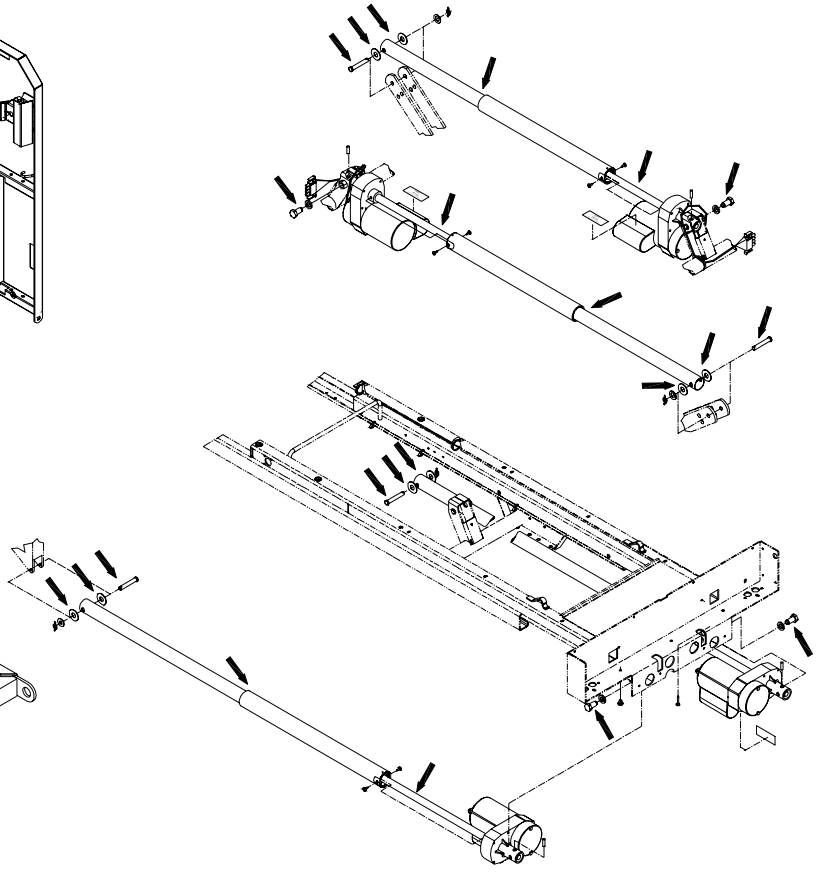


Figure 2.2C

Figure 2.2

2.3 PREVENTATIVE MAINTENANCE PROGRAM

WARNING
When servicing use only identical replacement parts provided by Stryker.

ANNUAL CHECKLIST

____ All fasteners secure.
____ Inspect for excessive wear the oil-impregnated bronze shoulder spacers found at the bed hinge points. **Do not** lubricate these spacers; replace if found worn.
____ Engage the "TOTAL BRAKE" pedal at both sides of the bed and ensure the brakes are applied. Toggle the pedal to neutral and ensure the brakes are removed.
____ Engage the "Axial Steer" pedal at both side of the bed and ensure the 5th steer wheel engages properly. Toggle the pedal to neutral and ensure the 5th wheel disengages.
____ Siderails move, lock in high position and stow properly.
____ All functions on the foot board working properly (including LEDs).
____ All siderail functions working properly. Verify the nurse call function; does the alarm sound in the nurse station?
____ Calibrate the optional scale system (see section 4.6). If the weight reading following the calibration is not correct, check the four load cells (see section 4.7).
____ Fowler and Knee Gatch (if raised) flatten and the Fowler control motor resets itself automatically when hold-to-run CPR release handles (optional) are pulled until Fowler is flattened.
    ____ Wait about 30 seconds, the time for the Fowler motor to reset itself, and then raise the Fowler to ensure that the resetting of the motor has indeed occurred.
____ Verify the Fowler and Knee Gatch movements to ensure that their motor course is properly adjusted. Refer to Caution following step 10 of the Thigh and Head Actuator Replacement procedures, page 51 and 52.
____ 120V auxiliary outlet (optional only with 120V electric system beds) working properly.
____ Optional photoelectric night light working properly.
____ Automatic foot prop rod working properly with the Knee Gatch or Auto Contour activated.
____ No cracks or splits in the boards and siderails.
____ Head end bumpers tightly secured to frame and working properly.
____ No rips or cracks in mattress cover.
____ Power cord not frayed, no cables worn or pinched, all electrical connections tight, all grounds secure to the frame.
____ All casters roll properly. Check caster tire for cuts, wear, etc.
____ Ground chain intact and in place.
____ Inspect and lubricate, if needed, the bed lubrication points described in section 2.2 of the maintenance manual.
____ Measure current leakage and grounding continuity of the bed and the optional auxiliary outlet (check with our Technical Service department for the acceptable values).

NOTE
Preventative maintenance may need to be performed more frequently based on the usage level of the bed.

Serial Number: _____ _____ _____

_____ _____ _____

_____ _____ _____

Completed By:_____ **Date:**_____

RECOMMENDED ON-HAND SPARE PARTS

The following is a list of recommended on-hand spare parts for the *GO*BED^{+} .

	Part Number	Parts Lists
ELECTRONIC/ELECTRICAL ASSEMBLY PARTS		
S. A. Motor control board	80-4029	OL200016
Optional scale control board, English language	QDF20-0117	OL200016
Optional display control board	QDF20-0119	OP200031/35
Optional nurse call control board	QDF20-0126	OL200010
Optional GEN lll control board	QDF20-0121	OL200011
Load cell (short cable)	QDF25-0218	L20-001
Load cell (long cable)	QDF14-1367	L20-001
Control board stand-off pins	QDF8011	OL200016
Female screw lock (for scale ctrl board)	QDF2047	
Strain relief bushing	QPNC0604	OL200016
Removable 120V power cord	QDF8066	OL200014
S. A. Power connector	80-4020	OL200016
10 A, 250V Fast acting fuse	QDF8078	OL200016
6.3A, 250V Slow blow fuse	QDF8067	OL200017-20
Micro switch	1325P003	L20-005 OL200001
Optional night light	QDF9539	OL200002
Optional 120V~ auxiliary outlet	QDF8024	OL170014
S. A. Hi-Lo actuator	80-0039	OL200016
S. A. Knee Gatch actuator	80-0041	OL200016
S. A. Head actuator	80-0040	OL200016
CONTROL PANEL ASSEMBLY PARTS		
Foot Board Control Membrane		
Scale / mounting plate	QDF20-0035/ QP20-0043-07	OP200031
Bed Exit / mounting plate	QDF20-0034/ QP20-0043-07	OP200032
Bed Exit w/zone ctrl / mounting plate	QDF20-0045/ QP20-0043-07	OP200034
Scale and Bed Exit w/zone ctrl / mounting plate	QDF20-0044/ QP20-0043-07	OP200035
Siderail Control Membrane w/o Nurse Call (not backlighted)		
S. A. Left rail membrane	80-4025	OL200074
S. A. Right rail membrane	80-4026	OL200074
Siderail Control Membrane w/Nurse Call (not backlighted)		
S. A. Left rail membrane	80-4027	OL200075
S. A. Right rail membrane	80-4028	OL200075
Backlit Siderail Control Membrane w/o Nurse Call		
S. A. Left rail membrane	80-4021	OL200008

S. A. Right rail membrane	80-4022	OL200008
Backlit Siderail Control Membrane w/Nurse Call		
S. A. Left rail membrane	80-4023	OL200075
S. A. Right rail membrane	80-4024	OL200075
SIDERAIL ASSEMBLY PARTS		
Space reducer	QP20-0036-07	OL200068
S. A. Right release lever	90-1114	OL200067-68
S. A. Left release lever	90-1113	OL200067-68
Shaft plug	QP17-0364-07	OL200067-68
Protective cap	QP18748-07	OL200067-68
MATTRESS SUPPORT ASSEMBLY		
Mattress retainer	QP14034-07	L20-003
CPR release cables: normal and short	QDF19-0354/QDF19-0815	OL200001
CPR pneumatic cylinder	QDF5090	OL200001
BASE ASSEMBLY PARTS		
Caster with locking system	RT6IC	L17-013
Caster without locking system	RT6ICSW	L17-013
Steer wheel caster	RL5	L17-005
S. A. Right brake/steer pedal	80-3078	L17-014
S. A. Left brake/steer pedal	80-3079	L17-014
MISCELLANEOUS		
OG2 grease	M0027	
Thread locker - medium strength (blue)	M008	
Sand gray aerosol spray paint	DDCAP-GSP	
Shoulder spacer	QDF17-0020	L20-003
Rue ring cotter	QDF7878	OL200016-20
Elastomer sleeves	QP20-0037-00	L20-001

3. TROUBLESHOOTING

Please consult the following troubleshooting checklist before calling the Technical Service department (see section 1.2).

3.1 TROUBLESHOOTING GUIDE

Definition:

DMM = Digital Multi-Meter

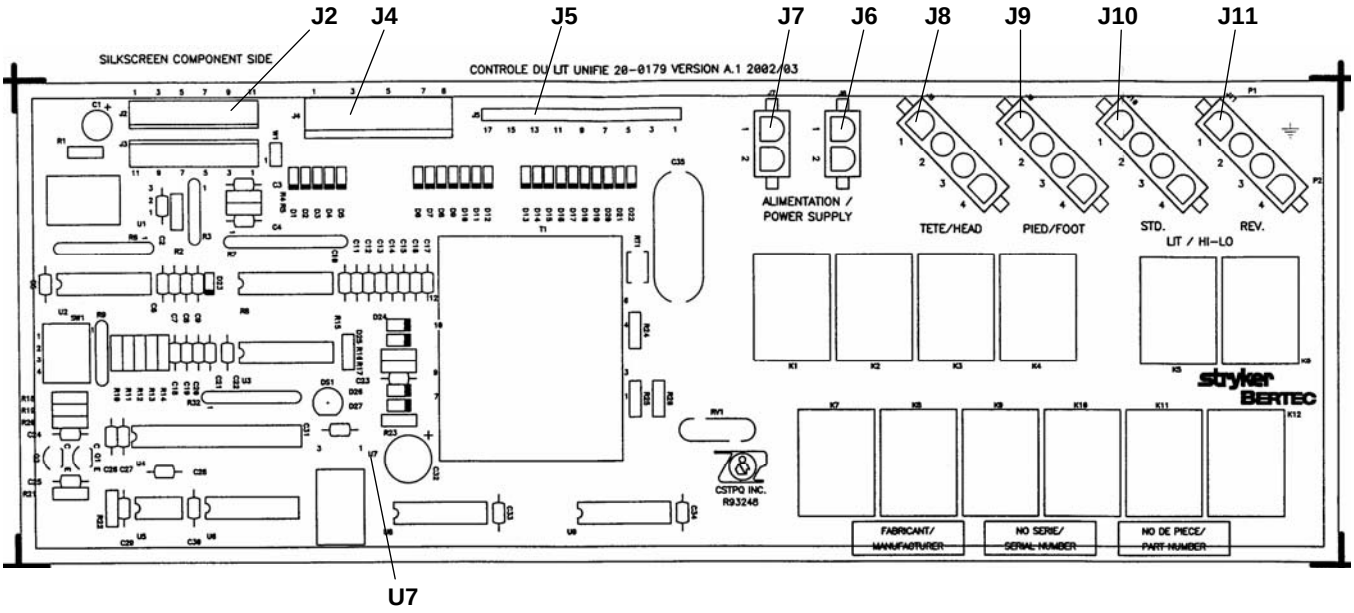
PROBLEM/FAILURE	WHAT TO CHECK
No power to bed	**A**. Is the bed power switch turned on? **B**. Is the power cord connected to the power connector and plugged into the wall outlet? **C**. Is the power cord severed? Replace if needed. **D**. Are the two fuses inside the power connector still operational (see section 4.5)? **E**. Verify power at wall outlet. **F**. Is DS1 on motor control board 20-0180 flashing? If not, replace the board. **G**. Check for 120Vac at J6 and J7 on motor control board 20-0180 (see page 19). **H**. Check for 5 Vdc and 12 Vdc at U7 on motor control board 20-0180 (see page 19).
No bed up or down motion when: - the foot board command is used - the siderail command is used	**A**. Is the Hi-Lo lockout control activated in the foot board control panel? Deactivate it. **B**. Is the cable of the siderail control panel properly connected to the bed receptacle under the mattress support? **C**. Check points A to E of the “No power to bed” problem/failure above. **D**. Check voltage at the motor control board connector mounted on the bed frame (see page 25). **E**. Run the conductivity test at the motor control board connector mounted on the foot board (see page 24). **F**. Check voltage at the bed receptacle for the siderail cable plug (see page 23). **G**. Run the conductivity test on the siderail cable plug (see page 22). **H**. Check points F to H of the “No power to bed” problem/failure above. **I**. Check voltage test points at J10 and J11 on motor control board 20-0180 (see page 19).
No Fowler up or down motion when: - the foot board command is used - the siderail command is used	**A**. Is the Fowler lockout control activated in the foot board control panel? Deactivate it. **B**. Is the cable of the siderail control panel properly connected to the bed connector under the mattress support?

	C. Check points A to E of the “No power to bed” problem/failure (see page 15). **D**. Check voltage at the motor ctrl board connector mounted on the bed frame (see page 25). **E**. Run the conductivity test at the motor ctrl board connector mounted on the foot board (see page 24). **F**. Check voltage at the bed receptacle for the siderail cable plug (see page 23). **G**. Run the conductivity test on the siderail cable plug (see page 22). **H**. Check points F to H of the “No power to bed” problem/failure (see page 15). **I**. Check voltage test points at J8 on motor control board 20-0180 (see page 19).
Fowler does not **fully** raise	**A.** This situation arises when the CPR handle is used as a mean to partially lower the Fowler. The use of the CPR mechanism for this purpose creates a situation where the Fowler motor is out of sync with the actual position of the Fowler. To correct the situation: Lower the Fowler completely using a CPR handle or the Fowler electric control to enable the Fowler motor to reset itself and thus synchronize its course with the actual position (flatten) of the Fowler.
No Knee Gatch up or down motion when: - the foot board command is used - the siderail command is used	**A**. Is the Knee Gatch lockout control activated in the foot board control panel? Deactivate it. **B**. Is the cable of the siderail control panel properly connected to the bed connector under the mattress support? **C**. Check points A to E of the “No power to bed” problem/failure (see page 15). **D**. Check voltage at the motor ctrl board connector mounted on the bed frame (see page 25). **E**. Run the conductivity test at the motor control connector mounted on the foot board (see page 24). **F**. Check voltage at the bed receptacle for the siderail cable plug (see page 23). **G**. Run the conductivity test on the siderail cable plug (see page 22). **H**. Check points F to H of the “No power to bed” problem/failure (see page 15). **I**. Check voltage test points at J9 on motor control board 20-0180 (see page 19).

No Auto Contour motion	**A**. Is Auto Contour activated (LED off) on the foot board? **B**. Check points A to E of the “No power to bed” problem/failure (see page 15). **C**. Check the two Auto Contour limit switches. **D**. Check voltage at the motor control connector mounted on the bed frame (see page 25) **E**. Run the conductivity test at the motor control connector mounted on the foot board (see page 24) **F**. Check points F to H of the “No power to bed” problem/failure (see page 15).
Improper operation of the CPR positioning: Knee Gatch does not lower and/or the Fowler actuator does not reset.	**A**. Check the two CPR limit switches.
The weight shown on the scale system display is incorrect.	**A**. Zero the bed without the patient in it (see section 2.16 of the Operations Manual). **B**. Calibrate the bed (see page 41).
Display reads OVERLOAD or shows incorrect weight.	**A**. One or more load cell cables not properly connected or disconnected from the scale ctrl board (see figure 4.4A, page 38 for the connecting positions of the load cell cable). **B**. Run the load cell verification mode to detect a possible load cell failure (see page 42).
Angle shown on the scale system display is incorrect	**A**. Calibrate the bed (see page 41).
Scale display does not turn on when the scale system is activated.	**A**. Press ENTER key twice. **B**. Turn the main power switch off and turn it on. **C**. Lift the foot board and gently replace it into position taking care to completely push it down so that the connectors match correctly. **D**. Check points A to E of the “No power to bed” problem/failure (see page 15). **E**. Check voltage at the scale ctrl board connector mounted on the bed frame (see page 25). **F**. Run the conductivity test at the scale control connector mounted on the foot board (see page 24). **G**. Check points F to H of the “No power to bed” problem/failure (see page 15). **H**. Is DS1 on scale control board 20-0117 or 20-0221 flashing? If not, replace the board. **I**. Check for 120 Vac at J4 on scale control board 20-0117 or 20-0221 (see page 20).

	J. Check for 5 Vdc and 12 Vdc at U9 on scale control board 20-0117 or 20-0221 (see page 20). **K**. Scale user interface cable not properly connected or completely disconnected from the scale control board (see figure 4.4A, page 38 for the illustration of the cable connecting position). **L**. Check for 5Vdc at J2 of the scale display interface board 20-0119 (see page 21).
Bed Exit system does not operate properly.	**A**. Verify that the load cell cables are properly connected to the scale control board (see figure 4.4A, page 38 for the illustration of the load cell cable connecting positions).
Bed Exit system does not work at all or alarm goes off when Bed Exit is activated.	**A**. Check points A to E of the "No power to bed" problem/failure (see page 15). **B**. Check voltage at the scale control connector mounted on the bed frame (see page 25) **C**. Run the conductivity test at the scale control connector mounted on the foot board (see page 24) **D**. Check points F to H of the "No power to bed" problem/failure (see page 15). **E**. One or more load cell cables are not properly connected or are completely disconnected from the scale control board (see figure 4.4A, page 38 for the load cell cable connecting positions). **F**. Is DS1 on scale control board 20-0117 or 20-0221 flashing? If not, replace the board. **G**. Check for 5 Vdc and 12 Vdc at U9 on scale control board 20-0117 or 20-0221 (see page 20). **H**. Check for 120 Vac at J4 on scale control board 20-0117 or 20-0221 (see page 20). **I**. Run the load cell verification mode to detect a possible load cell failure (see page 42).
Nurse call or Bed Exit signal does not reach the nurse station.	**A**. Check connection to nurse call wall outlet using the nurse call board (20-0121or 20-0126) 37 pin connector and the bed communication tester (see instructions on page 26).

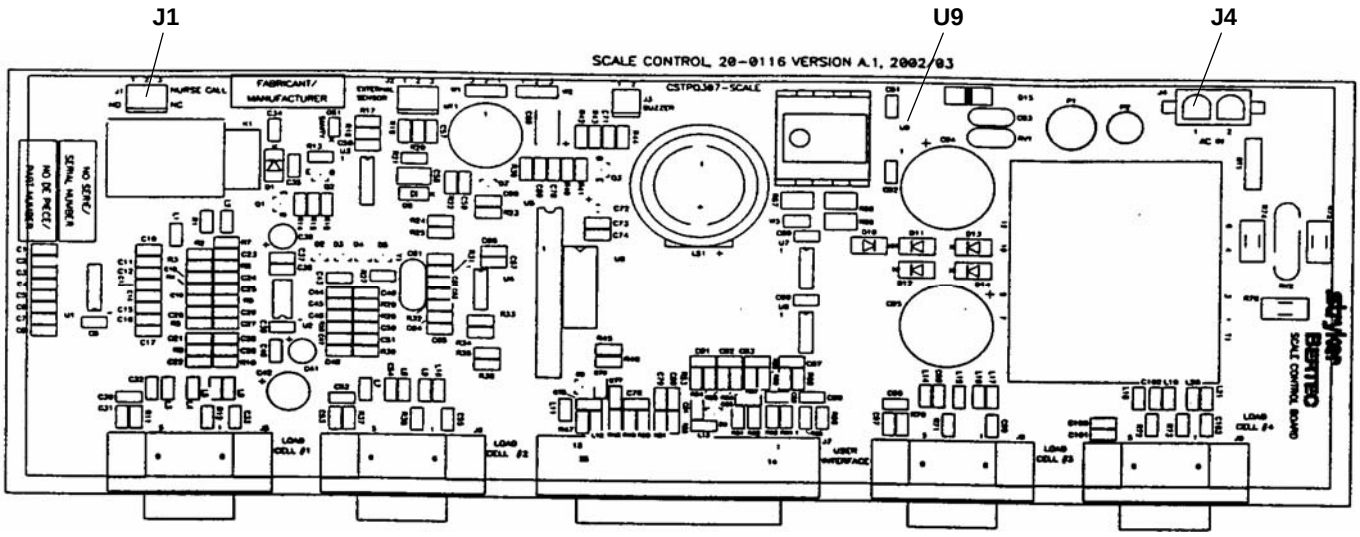
20-0180 - Motor Control Board



Connector Location	Voltage	Positive Lead	Negative Lead	Description
J6	120 Vac	Pin 1	Pin 2	
J7	120 Vac	Pin 1	Pin 2	
U7	12 Vdc	Pin 1	Heat Sink	
U7	5 Vdc	Pin 3	Heat Sink	
J2 and J5	5 Vdc	J5 pin 17	J2 pin 1	
	2 to 5 Vdc	J5 pin 1	J2 pin 1	
J2 and J4	2 to 5 Vdc	J4 pin 8	J2 pin 1	
J8	0 Vac w/o Head Up Command	Pin 4	Pin 3	Head Up
	120 Vac w/Head Up	Pin 4	Pin 3	
J8	0 Vac w/o Head Down Command	Pin 2	Pin 3	Head Down
	120 Vac w/Head Down	Pin 2	Pin 3	
J9	0 Vac w/o Knee Gatch Up Command	Pin 2	Pin 3	Knee Gatch Up
	120 Vac w/ Knee Gatch Up	Pin 2	Pin 3	
J9	0 Vac w/o Knee Gatch Down Command	Pin 4	Pin 3	Knee Gatch Down
	120 Vac w/ Knee Gatch Down	Pin 4	Pin 3	
J10 and J11	0 Vac w/o Hi-Lo Up Command	Pin 4	Pin 3	Hi-Lo Up
	120 Vac w/Hi-Lo Up	Pin 4	Pin 3	
J10 and J11	0 Vac w/o Hi-Lo Down Command	Pin 2	Pin 3	Hi-Lo Down
	120 Vac with Hi-Lo Down	Pin 2	Pin 3	

NOTE:
Be careful not to damage connector when probing in.
U7 pins may be difficult to check. Scratch the coating with the DMM probe.

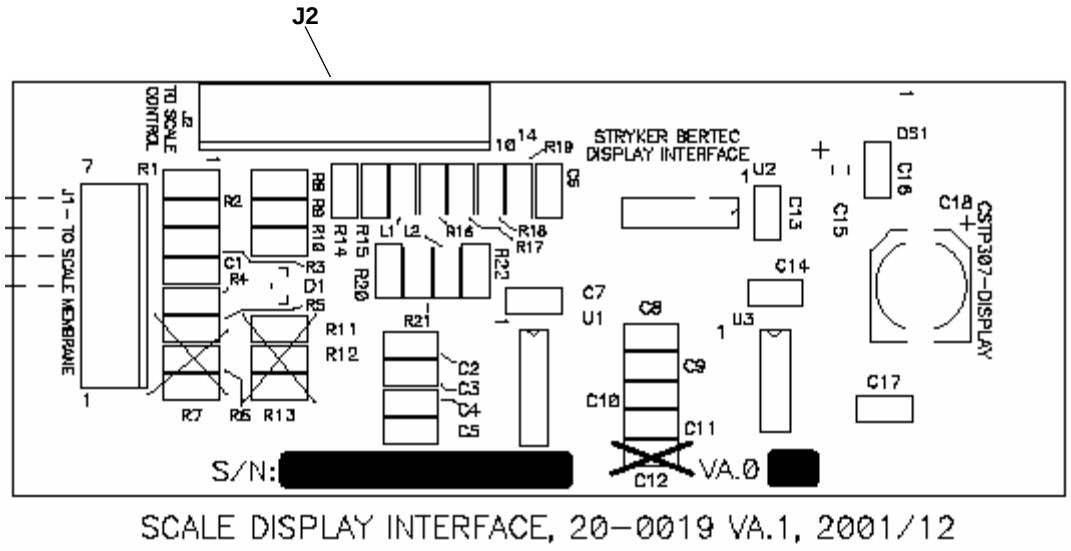
20-0117 or 20-0221 - Scale Control Board



Connector Location	Voltage	Positive Lead	Negative Lead	Description
U9	12 Vdc	Pin 1	Heat Sink	
U9	5 Vdc	Pin 3	Heat Sink	
J4	120 Vac	Pin 1	Pin 2	
J1	0 ohm	Pin 2	Pin 1	Bed Exit OFF
J1	Inf ohm	Pin 2	Pin 3	Bed Exit OFF
J1	Inf ohm	Pin 2	Pin 1	Bed Exit ON
J1	0 ohm	Pin 2	Pin 3	Bed Exit ON

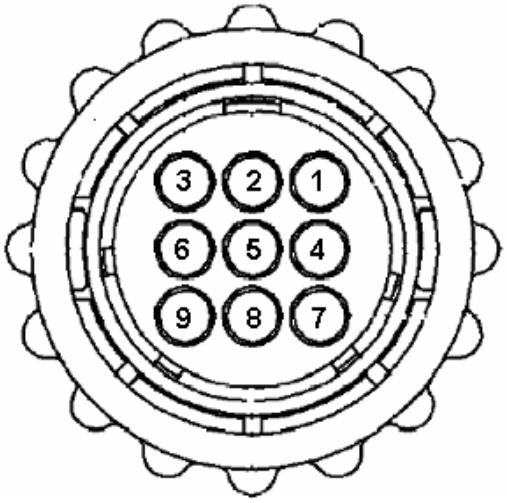
NOTE
Disconnect docker cable.
Disconnect pendant control.
U9 pins may be difficult to check. Scratch the coating with the DMM probe.

20-0119 - Scale Display Interface Board



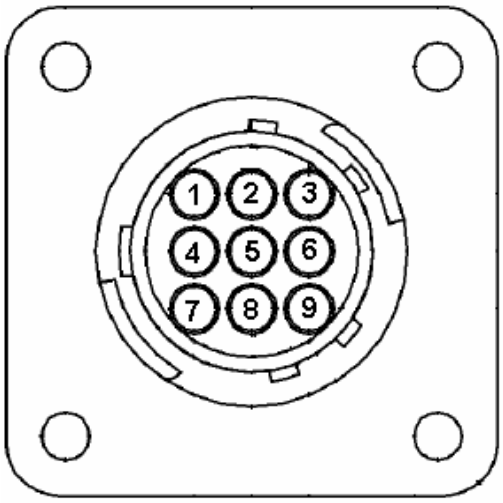
Connector Location	Voltage	Positive Lead	Negative Lead	Description
J2	5 Vdc	Pin 5 or 9	Pin 2 or 7	

Conductivity Test on the Siderail Cable Plug



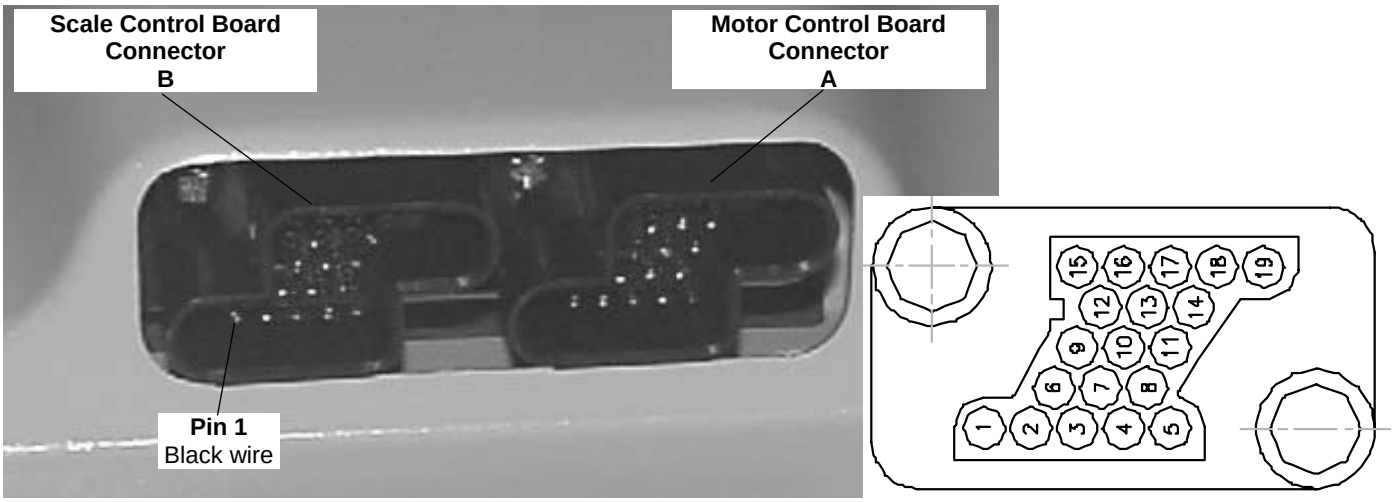
Connector Location	Ohms	Positive Lead	Negative Lead	Description
Siderail Cable Plug	0 Ohm	Pin 3	Pin 8	Head up activated
Siderail Cable Plug	0 Ohm	Pin 1	Pin 8	Head down activated
Siderail Cable Plug	0 Ohm	Pin 6	Pin 8	Hi-Lo up activated
Siderail Cable Plug	0 Ohm	Pin 4	Pin 8	Hi-Lo down activated
Siderail Cable Plug	0 Ohm	Pin 9	Pin 8	Knee Gatch up activated
Siderail Cable Plug	0 Ohm	Pin 7	Pin 8	Knee Gatch down activated

Voltage Test on the Bed Siderail Cable Receptacle (located on the frame under the seat section of the mattress support)



Connector Location	Voltage	Positive Lead	Negative Lead	Description
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 3	Pin 8	
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 1	Pin 8	
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 6	Pin 8	
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 4	Pin 8	
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 9	Pin 8	
Bed Siderail Cable Receptacle	2.5 to 5 V	Pin 7	Pin 8	

Conductivity Test on the Foot Board Connectors

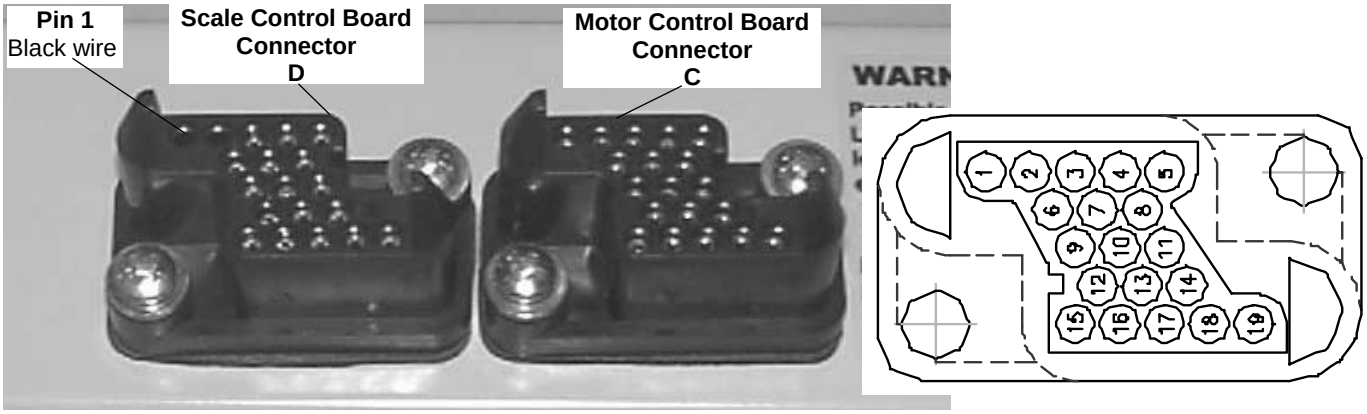


View facing foot end of the bed

Connector Location	Ohms	Positive Lead	Negative Lead	Description
Connector A	0 ohm	Pin 2	Pin 1	Head up activated.
Connector A	0 ohm	Pin 3	Pin 1	Head down activated.
Connector A	0 ohm	Pin 4	Pin 1	Knee Gatch up activated.
Connector A	0 ohm	Pin 5	Pin 1	Knee Gatch down activated.
Connector A	0 ohm	Pin 6	Pin 1	Hi-Lo up activated.
Connector A	0 ohm	Pin 7	Pin 1	Hi-Lo down activated.
Connector A	0 ohm	Pin 8	Pin 1	Trend activated.
Connector A	0 ohm	Pin 9	Pin 1	Knee Gatch lockout activated.
Connector A	0 ohm	Pin 10	Pin 1	Hi-Lo lockout activated.
Connector A	0 ohm	Pin 11	Pin 1	Head lockout activated.
Connector A	0 ohm	Pin 12	Pin 1	Reverse trend activated.

Connector B	0 ohm	Pin 17	Pin 10	Zone select activated.
Connector B	0 ohm	Pin 16	Pin 10	Zone Arm/disarm activated.

Voltage Test on the Bed Connectors

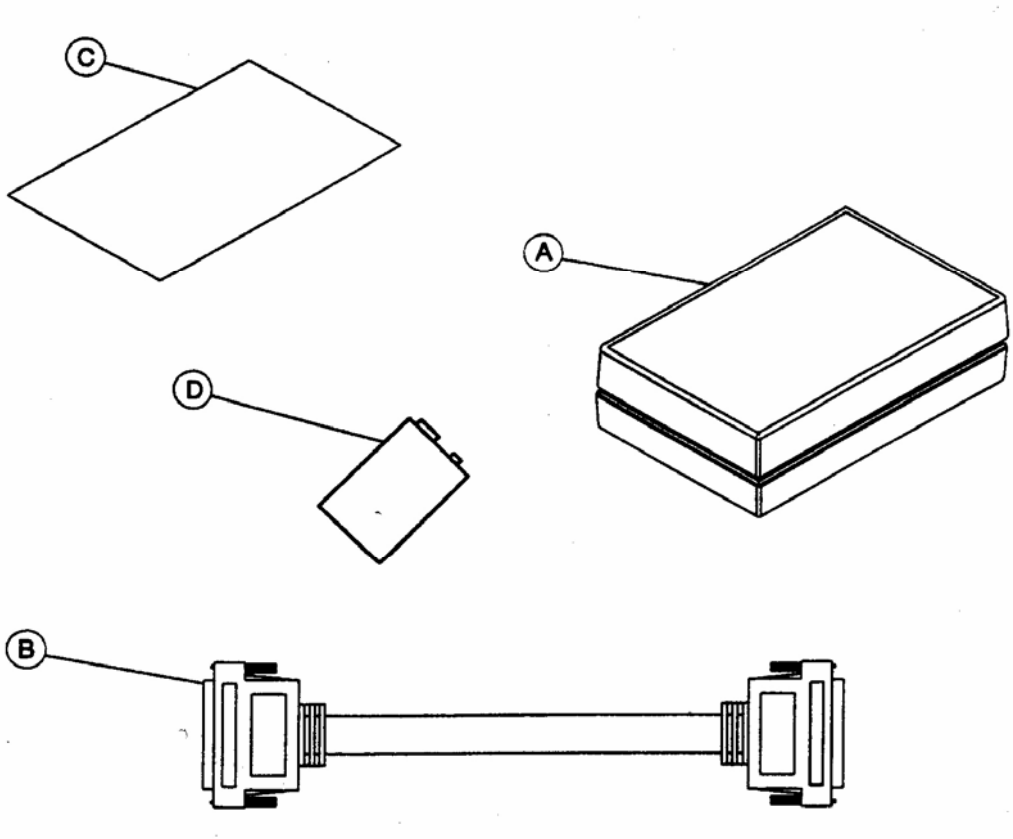


View facing foot end of the bed

Connector Location	Voltage	Positive Lead	Negative lead	Description
Connector C	2.5 to 5 Volt	Pin 2	Pin 1	
Connector C	2.5 to 5 Volt	Pin 3	Pin 1	
Connector C	2.5 to 5 Volt	Pin 4	Pin 1	
Connector C	2.5 to 5 Volt	Pin 5	Pin 1	
Connector C	2.5 to 5 Volt	Pin 6	Pin 1	
Connector C	2.5 to 5 Volt	Pin 7	Pin 1	
Connector C	2.5 to 5 Volt	Pin 8	Pin 1	
Connector C	2.5 to 5 Volt	Pin 9	Pin 1	
Connector C	2.5 to 5 Volt	Pin 10	Pin 1	
Connector C	2.5 to 5 Volt	Pin 11	Pin 1	
Connector C	2.5 to 5 Volt	Pin 12	Pin 1	

Connector D	2.5 to 5 Volt	Pin 17	Pin 10	
Connector D	2.5 to 5 Volt	Pin 16	Pin 10	

Nurse Call Board (20-0121 or 20-0126) 37-Pin Connector



Item	Part No.	Part Name	Qty.
A	3001-303-160	BCT Unit	1
B	3001-303-825	37-pin cable	1
C	3001-303-162	Instructions	1
D	3001-303-871	9V Battery	1

1. Connect the optional pillow speaker pendant cable to the GEN lll receptacle (nurse call board 20-0121).
2. Connect the bed communication tester (A) to the bed 37-pin receptacle (nurse call board 20-1021or 20-0126) using the 37 pin cable (B).

Option "READ LIGHTS" , "ROOM LIGHTS" and "TV" Test (Pillow Speaker Pendant Only):

1. Select TV SELECT to "Traditional" by pressing TV-SELECT button.
2. Press TV on-off button on the pillow speaker pendant. The "Traditional" LED turns on when the TV on-off button on the pillow speaker pendant is pressed.
3. Press the ROOM LIGHTS button on the pillow speaker pendant. The Room Lights LED turns on when the ROOM LIGHTS button on the pillow speaker pendant is pressed.
4. Press the READ LIGHTS button on the pillow speaker pendant. The Read Lights LED turns on when the READ LIGHTS button on the pillow speaker pendant is pressed.

Speaker Test (Pillow Speaker Pendant Only):

1. The sound level will vary when the pillow speaker volume control is modified.

Nurse Call Test:

NO Mode

1. The Nurse Call LED turns on when the Nurse Call button is pressed either on the pillow speaker pendant and/or on the bed siderails.

NC Mode

1. The Nurse Call LED turns off when the Nurse Call button is pressed either on the pillow speaker pendant and/or on the bed siderails.

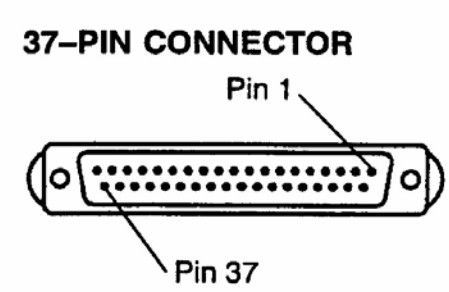
Bed Exit Test:

NO Mode

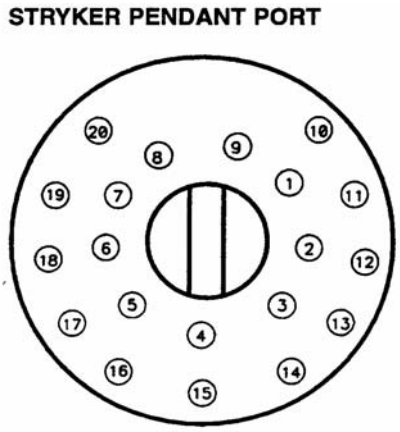
1. The Bed Exit LED turns on when the Bed Exit system is turned on, thus the signal reaches the nurse call wall outlet.
2. If the nurse call wall outlet is not equipped with a priority signal, both Bed Exit and Nurse Call LEDs will light on the tester during the Bed Exit test.

NC Mode

1. The Bed Exit LED turns on when the Bed Exit system is turned on, thus the signal reaches the nurse call wall outlet.



Nurse Call Board 20-0121 or 20-0126 37 Pin Connector



Nurse Call Board 20-0126 only

Pin 1 Option 2 Common
Pin 2 Read light
Pin 3 Room light
Pin 4 Speaker high
Pin 5 Pot wiper
Pin 6 Radio Common
Pin 7 Nurse call interlock
Pin 8 Audio Transfer-
Pin 9 Audio Transfer+
Pin 10 Interlock+
Pin 11 Interlock-
Pin 12 Spare
Pin 13 Options 3 Common
Pin 14 Pot low common
Pin 15 Pot high common
Pin 16 Nurse answer light+
Pin 17 Option 1 NO/NC
Pin 18 Option 1 common
Pin 19 Nurse call light+
Pin 20 Option 2 NO/NC
Pin 21 Option 3 NO/NC
Pin 22 Option 3A NO/NC
Pin 23 Option 2A common
Pin 24 Option 2A NO/NC
Pin 25 Nurse call +
Pin 26 Nurse call NO/NC
Pin 27 Room/Read light common
Pin 28 Nurse call light –
Pin 29 Nurse call light +
Pin 30 Priority common
Pin 31 Priority common
Pin 32 Option 3A common
Pin 33 TV-
Pin 34 TV+
Pin 35 Speaker low common
Pin 36 Audio shield
Pin 37 Radio NO/NC

Pin 1 TV, Room light, Reading light common
Pin 2 Audio –
Pin 3 Nurse call common
Pin 4 +5 VDC
Pin 5 Scan Line
Pin 6 Scan Line
Pin 7 Nurse Call NO
Pin 8 TV Channel Up
Pin 9 Nurse Call NC
Pin 10 Audio+
Pin 11 Gatch Up/Fowler In/Foot Up/DMS Firm
Pin 12 Gatch Down/Fowler Out/Foot Out/DMS soft
Pin 13 Fowler Up/Trend In
Pin 14 Fowler Down/Trend Out
Pin 15 Pot wiper
Pin 16 Not Used – Socket filled
Pin 17 Bed Up
Pin 18 Ground
Pin 19 Read light/Bed Down
Pin 20 Room light

Note: Not all pins are used on the GOBED+.

4. MAINTENANCE PROCEDURES

WARNING

Only field technicians from Stryker or service personnel trained by Stryker should perform the procedures detailed in this Maintenance Manual, especially those related to the Scale and Bed Exit systems. Failure to observe this restriction can result in serious damage to material and/or severe injury to people.

When working under the bed with the bed in the high position, always place blocks under the mattress support frame and apply the brakes to prevent injury in case the bed down switch is accidentally pressed.

Always unplug the bed power cord from the wall outlet when servicing or cleaning the bed.

NOTE

Throughout this maintenance manual, the words “right” and “left” refer to the right and left sides of a patient lying face up on the bed.

4.1 SIDERAIL ASSEMBLY COMPONENT REPLACEMENT

FOOT SIDERAIL ASSEMBLY (Attached to Support Frame)

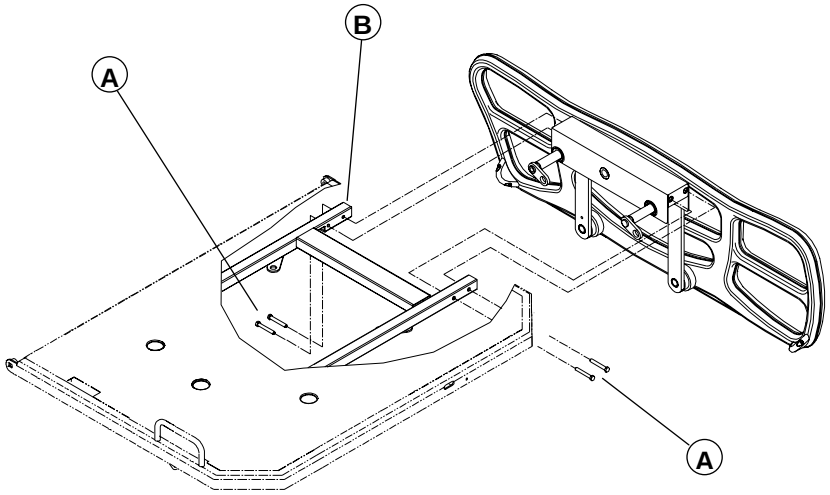


Figure 4.1A

Required Tools:

5/32" Allen Key

Replacement procedure:

1. Run the bed fully up and apply the brakes. Lower the foot siderail needing repair.
2. Run the Knee Gatch fully up and unplug the power cord from the wall receptacle.
3. Manually fold the foot section back toward the bed head end (see Appendix F, fig. 4.1)
4. Using a 5/32" Allen key, remove the four bolts (A) holding the siderail assembly to the support frame (B). Support the assembly before removing the last bolt on each side.

WARNING

The four bolts (A) used to mount the siderail assembly cannot be used more than once because their Scotch-Grip coating is less efficient once they have been tightened and removed thereafter. They **must** be replaced with new identical bolts.

5. Lift up and remove the siderail assembly.
6. Reverse the above steps to install the replacement foot siderail assembly.
7. Verify the foot siderail for proper operation before returning the bed to service.

FOOT SIDERAIL ASSEMBLY (Attached to Foot Section)

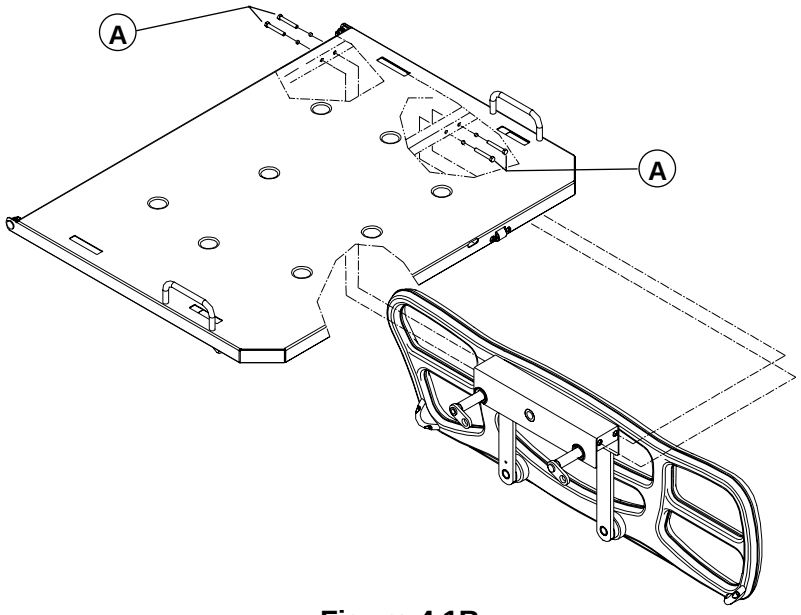


Figure 4.1B

Required Tools:

5/32" Allen Key

Replacement procedure:

1. Run the bed fully up and apply the brakes. Lower the foot siderail needing repair.
2. Run the Knee Gatch fully up and unplug the power cord from the wall receptacle.
3. Manually fold the foot section back toward the head end of the bed (see figure 4.1, Appendix F).
4. Using a 5/32" Allen key, remove the four bolts (A) holding the siderail assembly to the foot section.

WARNING

The four bolts (A) used to mount the siderail assembly cannot be used more than once because their Scotch-Grip coating is less efficient once they have been tightened and removed thereafter. They **must** be replaced with new identical bolts.

5. Lift up the siderail assembly to disengage it from the anchor point (not illustrated) and remove the assembly.
6. Reverse the above steps to install the replacement foot siderail assembly.
7. Verify the foot siderail for proper operation before returning the bed to service.

HEAD SIDERAIL ASSEMBLY

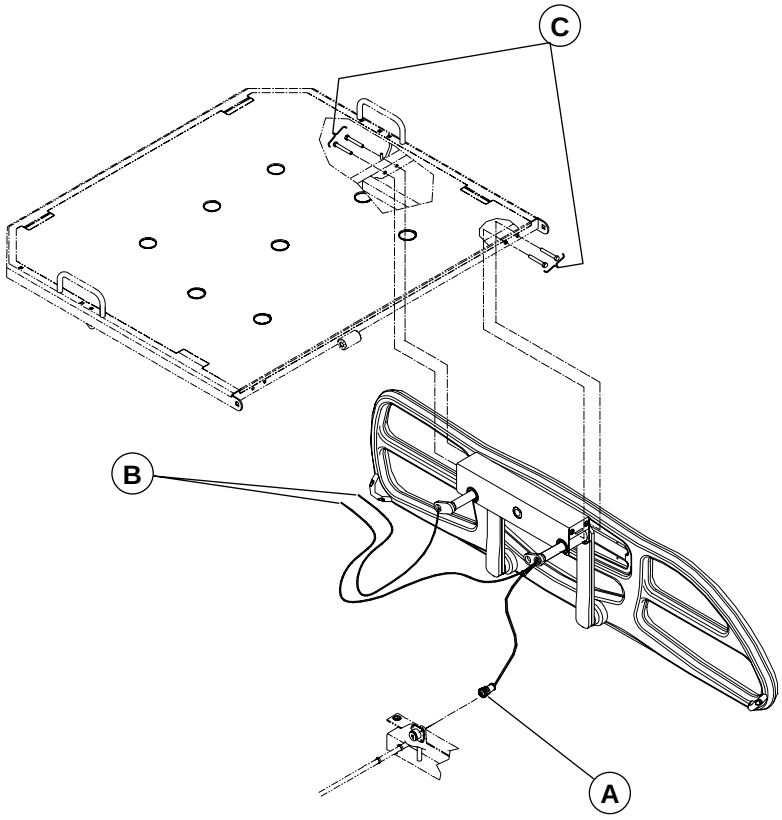


Figure 4.1C

Required Tools:

5/32" Allen Key Cutters

Replacement Procedure:

1. Run the bed and the Fowler fully up and apply the brakes.
2. Raise the head siderail needing repair and unplug the power cord from the wall receptacle.
3. Loosen the lock ring and disconnect the siderail control cable plug (A).
4. If the bed is equipped with the optional nurse call w/speakerphone function, proceed with step 5 through the end of the procedure to disengage the two nurse call cables (B).

   Otherwise proceed with step 8.
5. Identify the path of the two nurse call cables toward the head end casing and remove the cable ties holding them to the frame using cutters.
6. Remove the head end casing cover (see step 1 to 4 of the “Nurse Call Control Board” replacement procedure, page 39).
7. Disconnect the two nurse call cable connectors from the nurse call control board and pull the cables out of the head end casing.

NOTE

The speakerphone cable connector is too large to be pulled out from the head end casing, it will have to be severed from the cable. Make sure you get this connector when ordering the head siderail assembly. The connector will have to be mounted to the speakerphone cable before closing the head end casing.

8. Using a 5/32" Allen key, remove the four bolts (C) holding the siderail assembly to the head section. Begin with the two bolts located near the release lever followed by the two others. Support the assembly when removing the two last bolts.

WARNING

The four bolts (C) used to mount the siderail assembly cannot be used more than once because their Scotch-Grip coating is less efficient once they have been tightened and removed thereafter. They **must** be replaced with new identical bolts.

9. Lift up the assembly to disengage from the anchor pin (not shown) and remove it.
10. Reverse the above steps to install the replacement head siderail assembly.
11. Verify the siderail motion and all the siderail controls, including the optional nurse call function, for proper operation before returning the bed to service.

FOOT RAIL

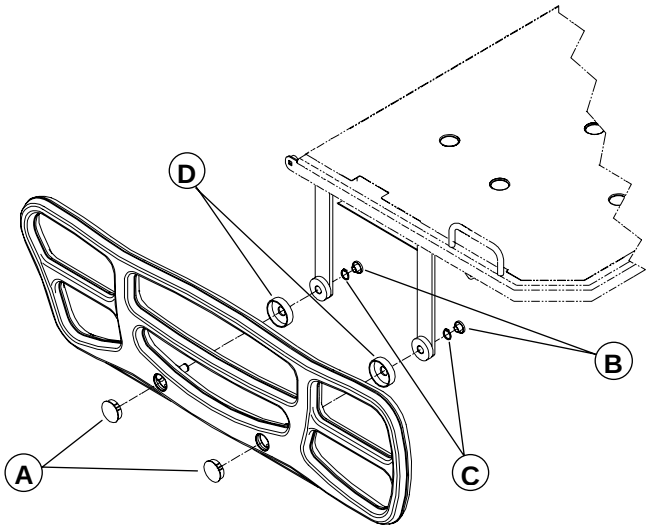


Figure 4.1D

Required Tools:

Small Screwdriver Hammer Blunt-Ended Tool OG2 Grease

Replacement Procedure:

1. Run the bed fully up and apply the brakes. Raise the foot siderail needing a rail replacement.
2. Unplug the power cord from the wall receptacle.
3. Using a small screwdriver, remove the plastic shaft plug (A) sealing the front part of the two rail shafts.

NOTE

We recommend that you have some of these dome caps (P/N QP17-0364-07) on hand because they can hardly be removed without damaging them.

4. Using a hammer and a blunt-ended tool, remove the nylon protective caps (B) from the rear part of the two rail shafts.
5. Remove the lock ring (C) from each shaft and remove the defective rail. Keep the nylon siderail spacer (D).

NOTE

Apply grease on the rail shafts before installing the rail.

6. Reverse the above steps to install the replacement rail.
7. Verify the rail for proper operation before returning the bed to service.

HEAD RAIL

Replacing the rail of a head siderail is a complex task requiring technical knowledge of the product. We recommend that you contact our Technical Service department (see section 1.2) before attempting to do so.

4.2 FOOT BOARD CONTROL PANEL COMPONENT REPLACEMENT

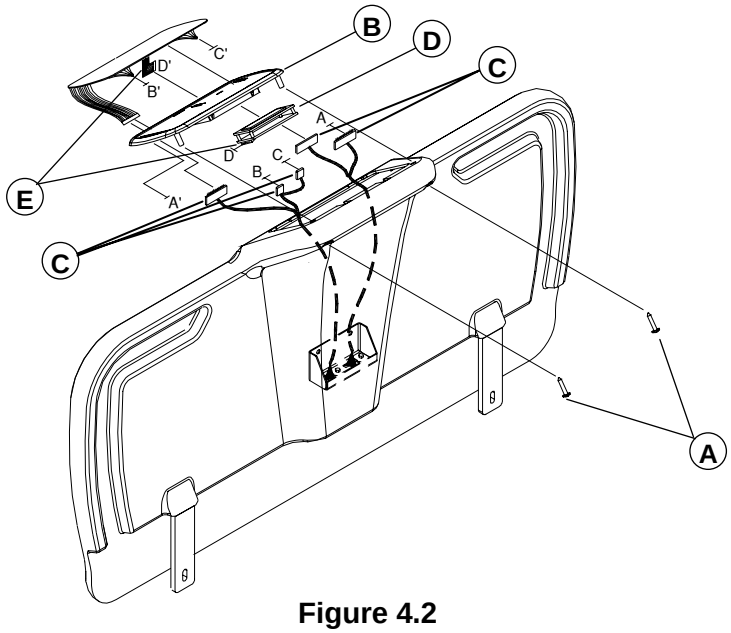


Figure 4.2

NOTE
Unless otherwise stated, all reference points contained in section 4.2 procedures refer to figure 4.2 above.

CONTROL PANEL MEMBRANE

NOTE
A foot board control panel membrane ordered as a replacement part will be shipped with its support, already affixed to it. Different models of membrane are available depending on the equipment present on the bed. The Technical Service representative will help in determining the right membrane for your bed.

Required Tools:

Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Unplug the power cord from the wall receptacle.
3. Remove the foot board and lay it on a workbench.
4. Using a Phillips screwdriver, loosen five to six turns the two screws (A) holding in place the membrane support (B).
5. Push on the two screws to snap out the membrane support from its location.
6. Remove completely the two screws and, while holding the membrane support, remove all the cables (C) connected to the membrane. Carefully note the locations of the cables so they will be connected properly to the replacement membrane. Remove the defective membrane and its support.
7. If the bed is equipped with the optional Weigh system (scale), pull the scale display (D) out of its housing by pulling on the left mounting clip while pressing under the display to disengage it. Remove the cable (E) connected to the display. Keep the display.
8. Reverse the above steps to install the replacement membrane and its support.
9. Verify all the foot board control panel functions for proper operation before returning the bed to service.

SCALE DISPLAY (Optional Equipment)

Required Tools:

Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Unplug the power cord from the wall receptacle.
3. Remove the foot board and lay it on a workbench.
4. Using a Phillips screwdriver, loosen five to six turns the two screws (A) holding in place the membrane support (B).
5. Push on the two screws to snap out the membrane support from its location.
6. Remove completely the two screws and, while holding the membrane support, remove all the cables (C) connected to the membrane. Carefully note the locations of the cables so they will be replaced properly to the membrane. Remove the membrane and its support.
7. Remove the display control board (D) from its housing by pulling on the left mounting clip while pressing under the display. Remove the cable (E) connected to it.
8. Remove the defective display.
9. Reverse the above steps to install the replacement display.
10. Verify the scale display for proper operation before returning the bed to service.

4.3 SIDERAIL CONTROL PANEL COMPONENT REPLACEMENT

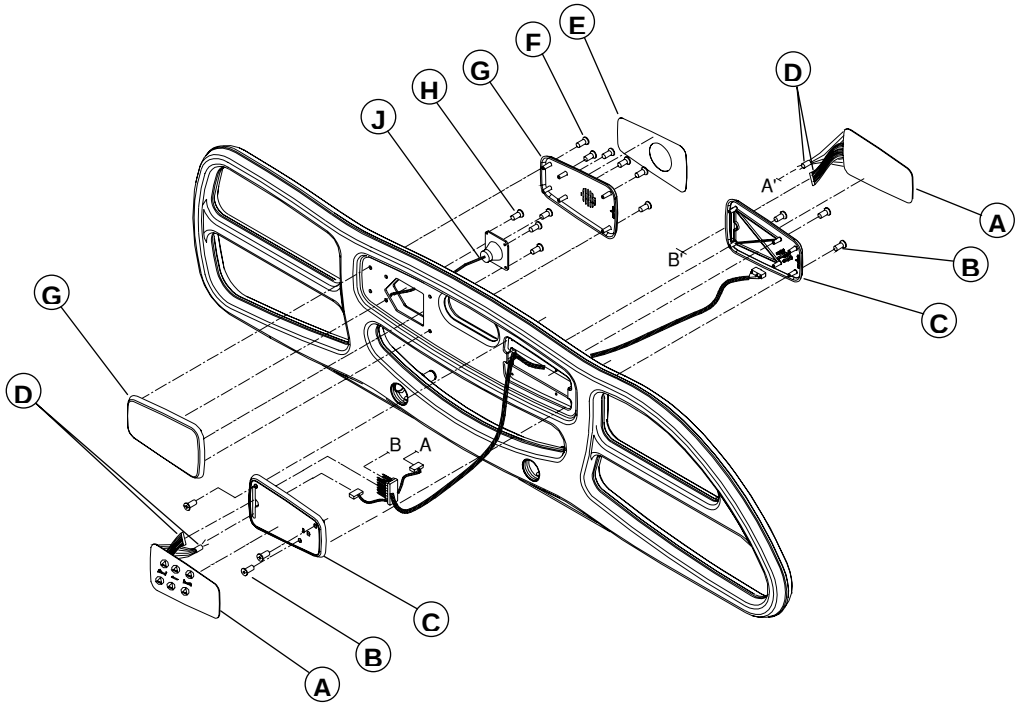


Figure 4.3

NOTE
Unless otherwise stated, all reference points contained in section 4.3 procedures refer to figure 4.3 above.

CONTROL PANEL MEMBRANE

NOTE

Different siderail membranes may equip a *GO*BED^{+}. Our Technical Service representative (see section 1.2) will help you order the correct membranes. The replacement of a membrane implies that the one facing it on the inner or outer control panel also has to be replaced. Service kits (80-xxxx) that includes both membranes are available (see page 13).

Required Tools:

Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up and apply the brakes. Raise the head siderail needing repair.
2. Unplug the power cord from the wall receptacle.
3. Detach the two membranes (A) from their mounting plates and let them hang down.
4. Using a Phillips screwdriver, remove the six screws (B) holding together the two membrane mounting plates (C).
5. Disconnect the membranes cables (D) and remove the membranes.
6. Reverse the above steps to install the replacement control panel membranes.

NOTE
Make sure to connect the membrane cables before fastening together the two membrane mounting plates. Affix the membrane to the support at the end of the replacement procedure. Do not remove the membrane peel-off protector before then.

7. Verify all the siderail functions (inner and outer panels) for proper operation before returning the bed to service.

OPTIONAL NURSE CALL SPEAKERPHONE

NOTE
The membrane affixed to the nurse call speakerphone panel will have to be replaced. It must be ordered along with the replacement speakerphone.

Required Tools:

Phillips Screwdriver Soldering Iron and Welding Wire

Replacement Procedure:

1. Run the bed fully up and apply the brakes. Raise the head siderail needing repair.
2. Unplug the power cord from the wall receptacle.
3. Detach the speakerphone membrane (E) from its mounting plate (G).
4. Using a Phillips screwdriver, remove the six screws (F) holding together the two speakerphone housing parts (G).
5. Using a Phillips screwdriver, remove the four screws (H) holding the speakerphone to the rail.
6. Using a soldering iron, unsolder the two cable wires (J) connected to the speakerphone.

NOTE
Use soft solder (alloy of lead and tin) to fix the wires to the replacement speakerphone

7. Reverse the above steps to install the replacement speakerphone.
8. Verify the nurse call speakerphone for proper operation before returning the bed to service.

.

4.4 CONTROL BOARD REPLACEMENT

MOTOR CONTROL BOARD

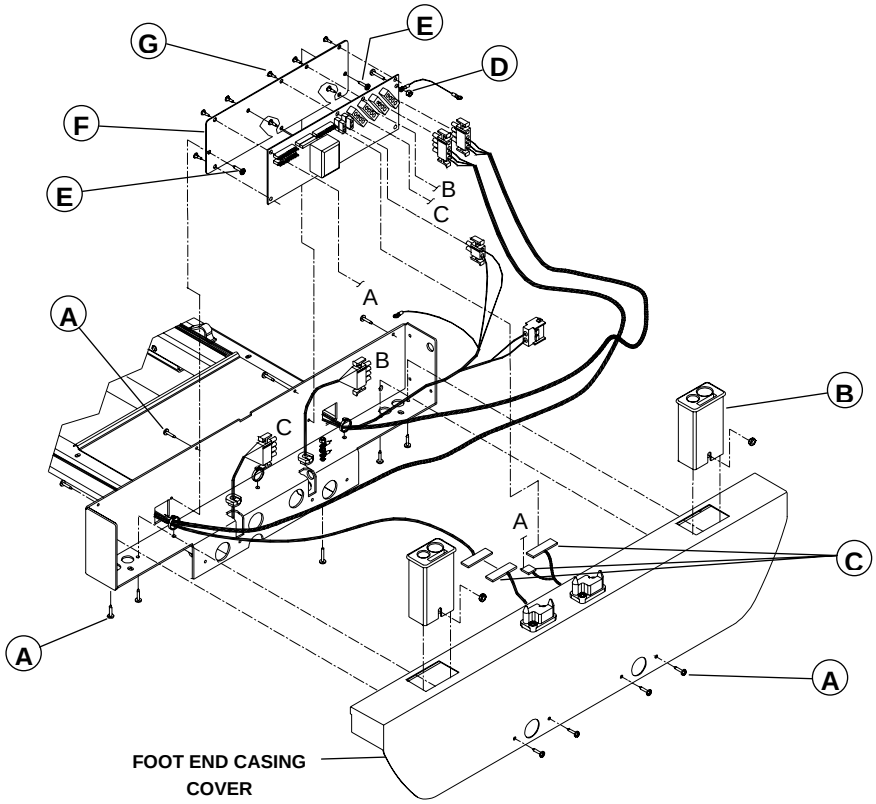


Figure 4.4

Required Tools:

Phillips Screwdriver 3/8" Wrench Needle Nose Pliers

Replacement Procedure:

1. Run the bed fully up and apply the brakes. Unplug the power cord from the wall receptacle and remove the foot board.
2. Properly ground yourself (see “Static Discharge Precautions”, page 6).
3. Using a Phillips screwdriver, remove the 12 screws (A) holding the cover and the two IV pole holders (B) to the foot end casing.
4. Support the cover while disconnecting from the control board and the scale cable extension the three connectors (C). Carefully note the locations of the connectors so they will be reconnected properly. Lay the cover aside.
5. Disconnect all the cables from the control board. Carefully note the locations of the cables so they will be connected properly to the replacement control board.
6. Using a 3/8" wrench, remove the locknut (D) holding the control board ground wire and remove the ground wire.
7. Using a Phillips screwdriver, remove the two screws (E) holding the control board support (F) to the frame and remove the control board support.
8. Using needle nose pliers, compress the stand-off pins (G) to remove the control board.
9. Reverse the above steps to install the replacement motor control board.
10. Test all the bed functions for proper operation before returning bed to service.

SCALE CONTROL BOARD (OPTIONAL)

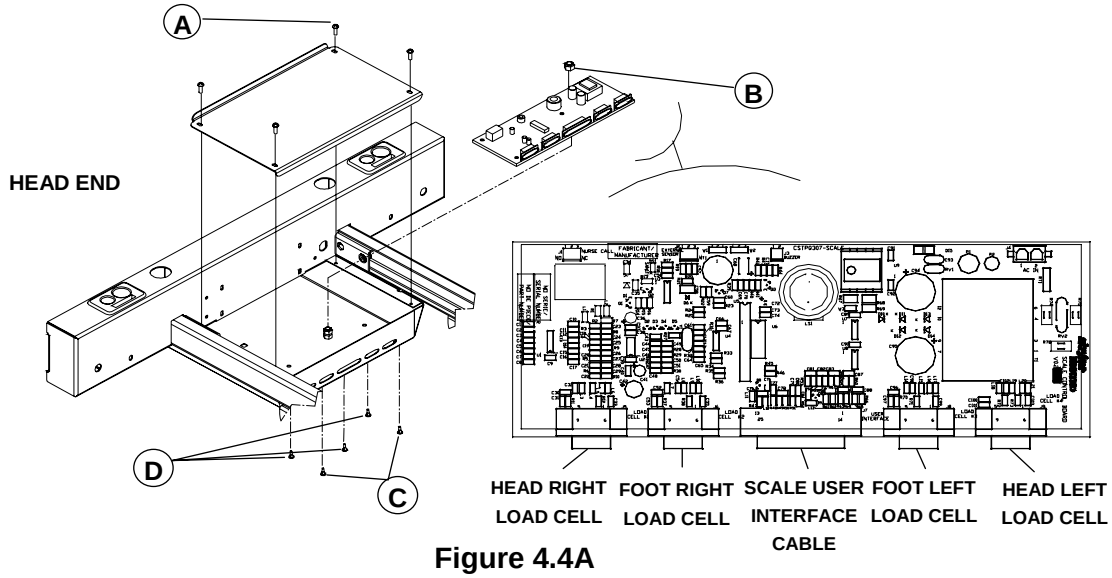


Figure 4.4A

NOTE
When ordering, be sure to mention the PC Board software language.

Required Tools:

Phillips Screwdriver 3/8" Wrench Needle Nose Pliers Side Cutters

Replacement Procedure:

1. Run the bed and the Fowler fully up and apply the brakes. Remove the head board. Unplug the power cord from the wall receptacle and properly ground yourself (see section 1.4).
2. Using a Phillips Screwdriver, remove the four screws (A) holding the cover to the scale control board casing. Using side cutters, remove the two cable ties holding cables to the frame above the cover and remove the cover.
3. Disconnect all the cables from the scale control board. Carefully note the locations of the cables so they will be connected properly to the replacement scale control board.
4. If the bed if equipped with a toroidal transformer (only on bed with an electrical system other than 120 V~, FL20E International series), remove the carriage bolt/washer/locknut (see D, appendix E) holding it to the casing using a 1/2" wrench. Gently push the transformer to have more working room for the removal of the scale board.
5. Using a 3/8" wrench, remove the ground locknut (B).
8. To remove the PC Board from its location, proceed as follows:
   - Using side cutters, cut the tip of the two front stand-off pins (C).
   - Using needle nose pliers, compress the retaining clip of the three remaining stand-off pins (D) to disengage the board from the pins.
   - Finally, pull the board backward to disengage the connectors from the housing slots.
   - Once the board is removed, remove what's left of the two front stand off pins by cutting them, using side cutters, either inside or under the board housing. Ensure nothing is left of these pins before installing the replacement board.
9. To install the replacement scale PC Board, proceed as follows:
   - Insert the connectors into their appropriate slots on the housing front panel.
   - Clip the board on the three remaining stand-off pins (D).
   - Replace and tighten the ground locknut (B).

- Insert two new stand-off pins through the holes under the housing bottom and the PC Board. Pull up the protruding end of the pins to ensure that their retaining clips are completely inserted through the housing bottom and the PC Board.

10. Replace the scale board casing cover.
11. Connect the load cell cables to the PC Board connectors. See figure 4.4A on page 38 for the cables proper connecting position.
12. Replace the head board.
11. Calibrate the scale system. Refer to the “Scale System Calibration” procedure, section 4.6.
12. Ensure the scale system works properly once the calibration procedure is done before returning the bed to service.

NURSE CALL CONTROL BOARD (OPTIONAL)

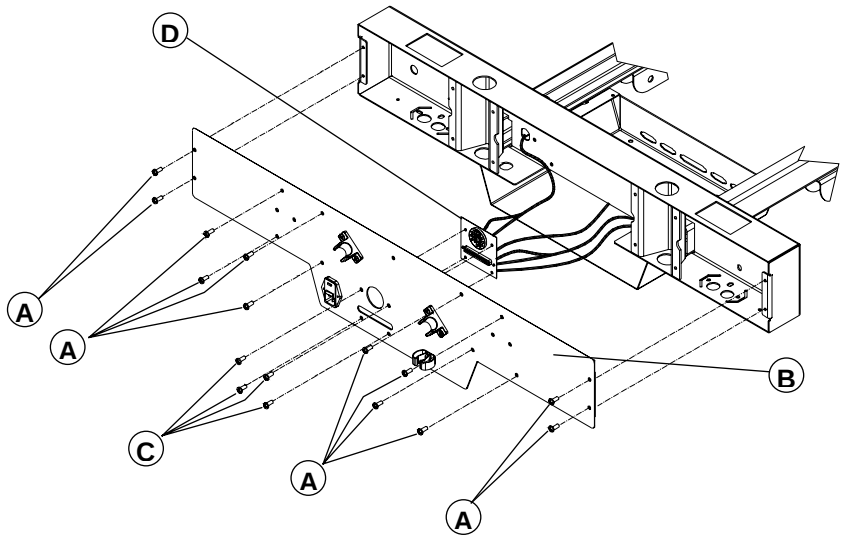


Figure 4.4B

NOTE

Two types of nurse call control boards are available for the *GO*BED^{+}. Our Technical service representative (see section 1.2) will help you order the appropriate control board.

Required Tools:

Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Unplug the power cord from the wall receptacle and remove the head board.
3. Using a Phillips screwdriver, remove the 12 screws (A) holding the cover (B) to the head end casing.
4. Hold the cover while disconnecting from the nurse call control board all the cables. Carefully note the locations of the cables so they will be connected properly to the replacement nurse call control board. Lay the cover on a workbench.
5. Using a Phillips screwdriver, remove the four screws (C) holding the nurse call control board (D) to the casing cover.
6. Reverse the above steps to install the replacement nurse call control board.
7. Verify the nurse call and, if present, the optional pendant control for proper operation before returning the bed to service.

4.5 POWER CONNECTOR FUSE REPLACEMENT

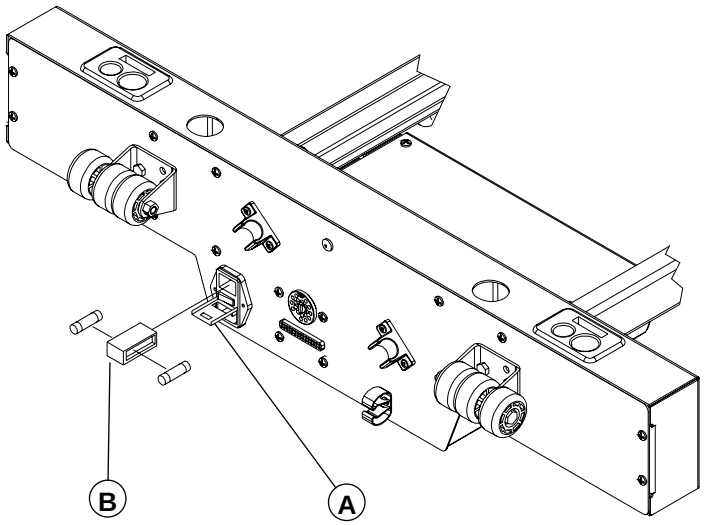


Figure 4.5

Required Tools:
Small Slotted Screwdriver

Replacement Procedure:

1. Using a small slotted screwdriver, open and slide down the power connector door (A).
2. Still using the small screwdriver, remove the fuse holder (B).
3. Remove the defective fuse and replace it by a new one.

NOTE
Fuse used in the GOBED+ powered by the 100V or 120V electrical systems are of the fast acting type and their rating is 250V, 10A. For beds powered by other electrical systems, see section 1.1 "Specifications" for fuse ratings.

4. Replace the fuse holder in its housing and close the door.
5. Verify the power switch for proper operation before returning the bed to service.

4.6 SCALE SYSTEM CALIBRATION

VERIFYING SCALE ACCURACY:

1. Zero the empty bed (refer to section 2.16 of the Operations manual, “Operating (Zeroing) the Scale Before Putting New Patient in the Bed”).
2. Place a known weight on the centre of the bed. The displayed weight should be within ±2 % if weight is equal or over 100 lb or ± 2 lb if less than 100 lb.
3. If the displayed weight is not accurate, **remove the weight from the bed** and calibrate the scale.

SCALE CALIBRATION:

Required Tool:
Angle Indicator

NOTE
Two people are required to activate the Calibration mode.

1. To enter the Calibration mode, unplug the power cord from the wall receptacle.
2. Verify that the load cell cables are properly connected to the scale control board (see figure 4.8, page 43 for the cable connecting positions).
3. Press and hold down the two MENU Up/Down keys (refer to section 2.16 of the Operations manual for the scale system key identification).
4. While still holding both MENU keys, plug the bed power cord into the wall receptacle. The display will read TO EXIT PRESS ENTER.

NOTE
Pressing the ENTER key now would simply cancel this mode and bring the scale back into operation in the Scale mode.
Leaving this scale mode inactive for one minute (not pressing any keys) will cancel the active mode and turn the display off. Pressing the ⏻ key will bring the scale display back in the Scale mode.

5. Press the MENU Up key, the display will read CELL CALIB. PRESS ENTER.
6. Press the ENTER key, the display will read PUT BED AT 0° PRESS ENTER.
7. Place an angle indicator on the seat section of the mattress support and bring the mattress support to complete horizontal position (o°). Press the ENTER key. The display will read DO NOT TOUCH BED for a few seconds, followed by PUT BED A +12° PRESS ENTER.
8. Using the angle indicator, incline the bed 12° in the Trendelenburg position (head down, foot up) using the foot board control panel functions. Press the ENTER key. The DO NOT TOUCH BED message will then appear on the display for a few seconds.

NOTE
If the bed is inclined in a negative angle, i.e. -12° (reverse Trendelenburg position (foot down, head up)), the message PUT BED AT +12° PRESS ENTER will reappear to signal the incorrect position of the bed. Adjust the bed as instructed.

9. The display will then read TO EXIT PRESS ENTER, which means that the scale system is now calibrated.
10. Press the ENTER key to return to the Scale mode, the display will then show a weight of 0 lb (± 0,5 lb) and an angle of 12° (± 1°).
11. Bring the bed back to the horizontal position.
12. Check the scale accuracy with the weight used previously before returning the bed to service. Verify the weight and angle values displayed, if they are not within the acceptable ranges (weight: ± 2% if equal or over 100 lb or ± 2 lb if less than 100 lb, angle: ± 1°) proceed with the load cell verification (see next section 4.7).

4.7 LOAD CELL VERIFICATION

NOTE
Two people are required to activate the Cell Verification mode.

1. Bring the mattress support to the horizontal position.
2. To enter the Cell Verification mode, unplug the power cord from the wall receptacle.
3. Verify that the load cell cables are properly connected to the scale control board (see figure 4.8, page 43 for the cable connecting positions).
4. Press and hold down the two MENU Up/Down keys (refer to section 2.16 of the Operations manual for the scale system key identification).
5. While still holding both MENU keys, plug the bed power cord into the wall receptacle. The scale display should read TO EXIT PRESS ENTER.

NOTE
Pressing the ENTER key now would simply cancel this mode and bring the scale back into operation in the Scale mode.
Leaving this scale mode inactive for one minute (not pressing any keys) will cancel the active mode and turn the display off. Pressing the ⏻ key will bring the scale display back in the Scale mode.

6. Press the MENU Down key, the display will read CELL VERIF. PRESS ENTER.
7. Press the ENTER key, the cell No. 1 weight data will be displayed. Applying weight on the bed corner related to the selected cell should bring the cell weight displayed to change.

NOTE
Load cell No. 1: Foot end, patient's right side
Load cell No. 2: Head end, patient's right side.
Load cell No. 3: Foot end, patient's left side
Load cell No. 4: Head end, patient's left side.

8. Proceed with the three other load cells simply by pressing the MENU Up or Down key to access to following cell weight data and apply weight on the corner of the bed corner related to the selected cell.
9. Once done with the cell verification, press the ENTER key to bring back the TO EXIT PRESS ENTER message.
10. End the procedure by pressing the ENTER key again to bring back the Scale mode.
11. A reading that does not change when weight is applied to that corner of the bed indicates a problem with the selected load cell assembly or load cell cable. Refer to section 4.8 of this manual to replace a load cell.
12. If the load cell verification does not detect any load cell failure and the weight and angle values displayed are not within the acceptable range (weight: ± 2% if equal or over 100 lb or ± 2 lb if less than 100 lb, angle ± 1°) remove the bed from service and contact our Technical Service (see section 1.2).

4.8 LOAD CELL REPLACEMENT

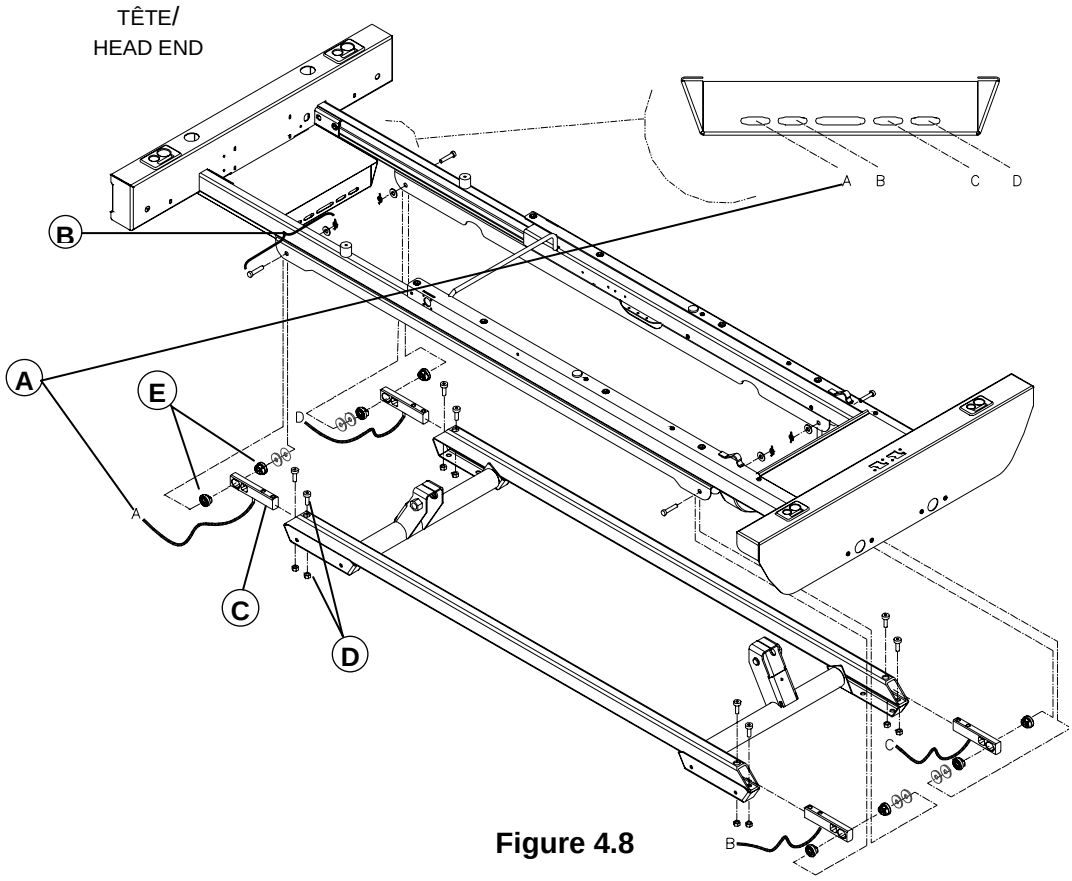


Figure 4.8

Required Tools:

Jack Stands (2) Needle Nose Pliers 5/16" Allen Key 1/2" Wrench

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Remove the head or foot board and place jack stands under the head or foot end of the bed (see figure 4.13A, Appendix F) depending on the load cell to be replaced.
3. Disconnect the defective load cell cable (A) from the scale control board (see figure 4.8 above to identify the right cable).
4. Lower the bed on the jacks until the clevis pin (B) holding the two parts of the fixed frame is free from stress and easy to remove.
5. Using needle nose pliers, remove the Rue ring/washers(3)/clevis pin (B).
6. Continue to lower the bed until the load cells (C) are easily accessible.
7. Using a 5/16" Allen key and a 1/2" wrench, remove the two bolts/locknuts (D) holding the load cell to the bed frame.
8. Remove the defective load cell. Inspect the elastomer sleeves (E) to ensure that the circular hole has not become elliptic. Replace if needed.
9. Reverse the above steps to install the replacement load cell.
10. Calibrate the scale (refer to the “Scale System Calibration” procedure, section 4.6).
11. If the weight or the angle values displayed are incorrect following the load cell replacement and the calibration procedure, remove the bed from service and contact our Technical Service (see section 1.2).

4.9 MATTRESS SUPPORT SECTION REPLACEMENT

FOOT SECTION

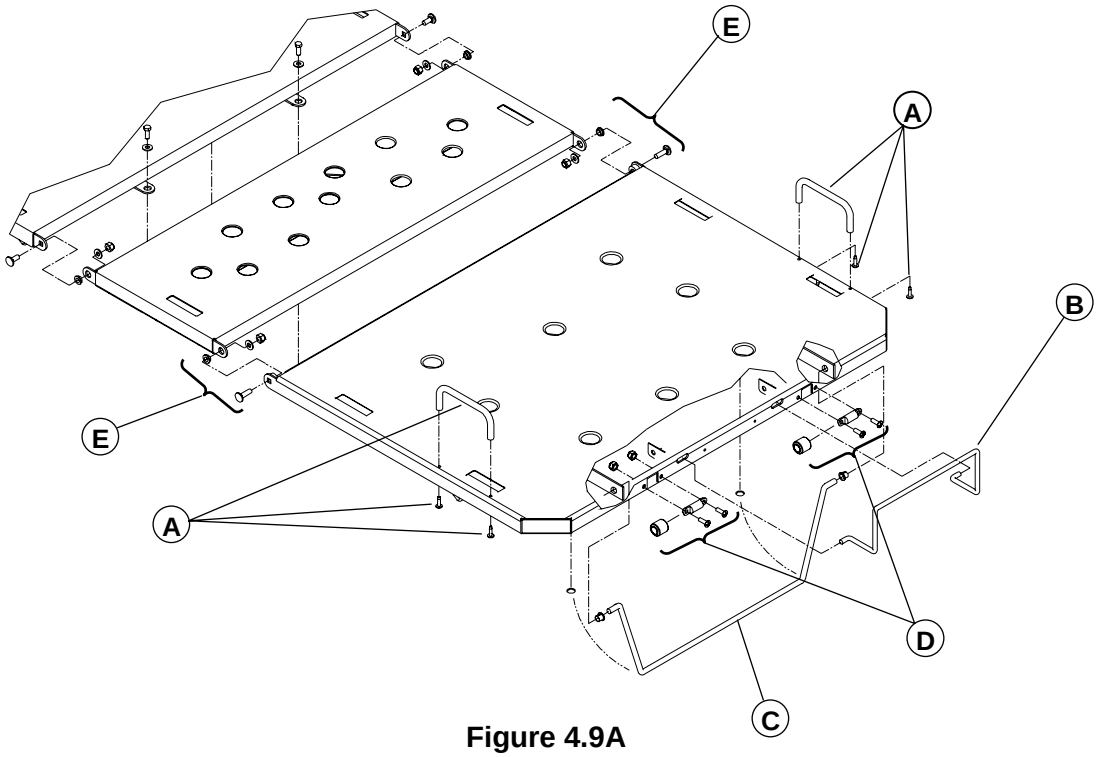


Figure 4.9A

Required Tools:

7/16" Wrench 1/2" Wrench Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Lower the head siderails and raise the foot siderails.
3. Run the Knee Gatch fully up.
4. Unplug the power cord from the wall receptacle and remove the foot board.
5. Manually fold the foot section back toward the head end of the bed (see figure 4.1, Appendix F).
6. If needed, remove the foot siderail assemblies attached to the foot section. Refer to page 30, “Foot Siderail Assembly (Attached to Foot Section)”.
7. Remove from the defective foot section the parts that will be transferred to the replacement foot section, i.e. foot mattress retainer (B), prop rod (C), the side mattress retainers (two) (A) using a Phillips screwdriver and both roller assemblies (D) using a 7/16" wrench.
8. Manually bring the foot section back to its normal position. Plug the bed power cord and run the Knee Gatch to flat. Unplug the power cord.
9. Using a 1/2" wrench, remove the two locknuts/flat washers/shoulder spacers/bolts (E) linking the foot section to the thigh section and remove the defective foot section. Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
10. Reverse the above steps to install the replacement foot section.
11. Verify the foot section mobility for proper operation before returning the bed to service.

THIGH SECTION

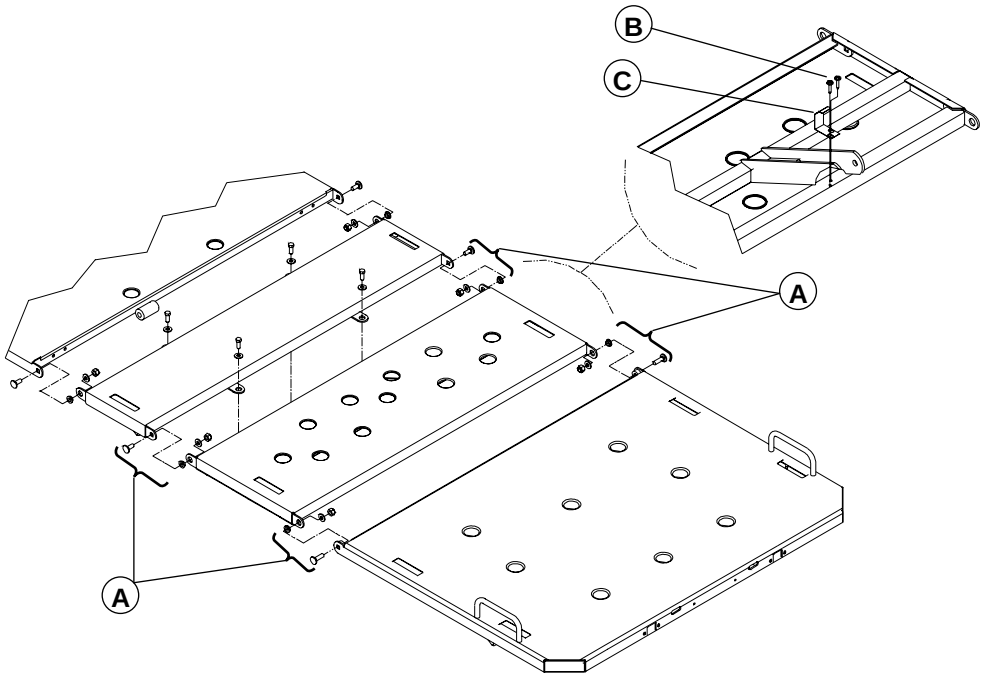


Figure 4.9B

Required Tools:

Needle Nose Pliers 1/2" Wrench Phillips Screwdriver

Replacement Procedure:

1. Run the bed fully up, apply the brakes and bring the sleep surface to horizontal position.
2. Unplug the power cord from the wall receptacle.
3. Lower the four siderails without pushing them against the bed.
4. Using needle nose pliers, remove the Rue ring/nylon washers(2)/clevis pin (C, fig. 4.10, page 50) hooking up the thigh actuator tube (U, fig. 4.10, page 50) to the thigh section lever arm.

NOTE
Apply grease on the clevis pin and the nylon washers before hooking back the thigh section to the actuator tube.

5. Using a 1/2" wrench, remove the four bolts/shoulder spacers/flat washers/locknuts (A) linking the thigh section to the foot and seat sections. Remove the defective thigh section. Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
6. Using a Phillips screwdriver, remove the two screws (B) holding the micro switch activator (C) underneath the thigh section and save the activator for the replacement thigh section.

NOTE
Apply grease on the activator after having replaced it on the replacement thigh section.

7. Reverse the above steps to install the replacement thigh section. Before hooking up the actuator tube to the thigh section lever arms, carefully read the caution following step 10 of the Knee Gatch actuator replacement procedure, page 51.
8. Verify the Knee Gatch mobility for proper operation before returning bed to service.

SEAT SECTION

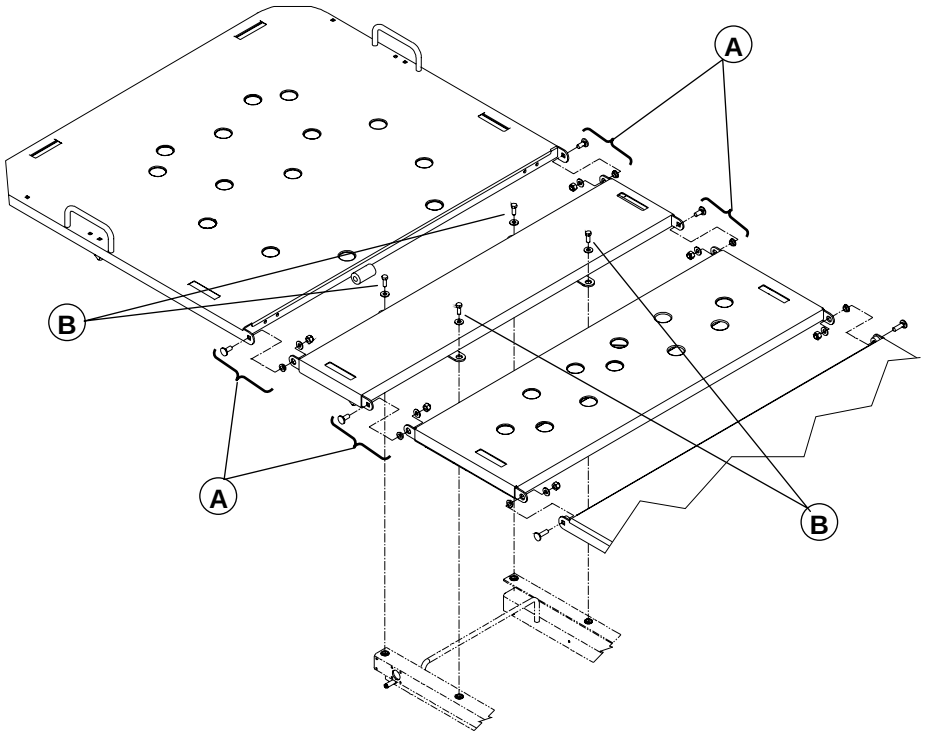


Figure 4.9C

Required Tools:

1/2" Wrench 1/2" Socket and Ratchet

Replacement Procedure:

1. Run the bed fully up, apply the brakes and bring the sleep surface to horizontal position.
2. Unplug the power cord from the wall receptacle.
3. Lower the four siderails without pushing them against the bed.
4. Using a 1/2" wrench, remove the four bolts/shoulder spacers/flat washers/locknuts (A) linking the seat section to the thigh and head sections. Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
5. Using a 1/2" socket and ratchet, remove the four bolts/washers (B) holding the seat section to the retractable frame and remove the defective section.

WARNING

The four bolts (B) used to fasten the seat section to the frame cannot be used more than once because their Scotch-Grip coating is less efficient once they have been tightened and removed thereafter. They **must** be replaced with new identical bolts.

6. Reverse the above steps to install replacement seat section.
7. Verify the Fowler and Knee Gatch mobility for proper operation before returning the bed to service.

HEAD SECTION

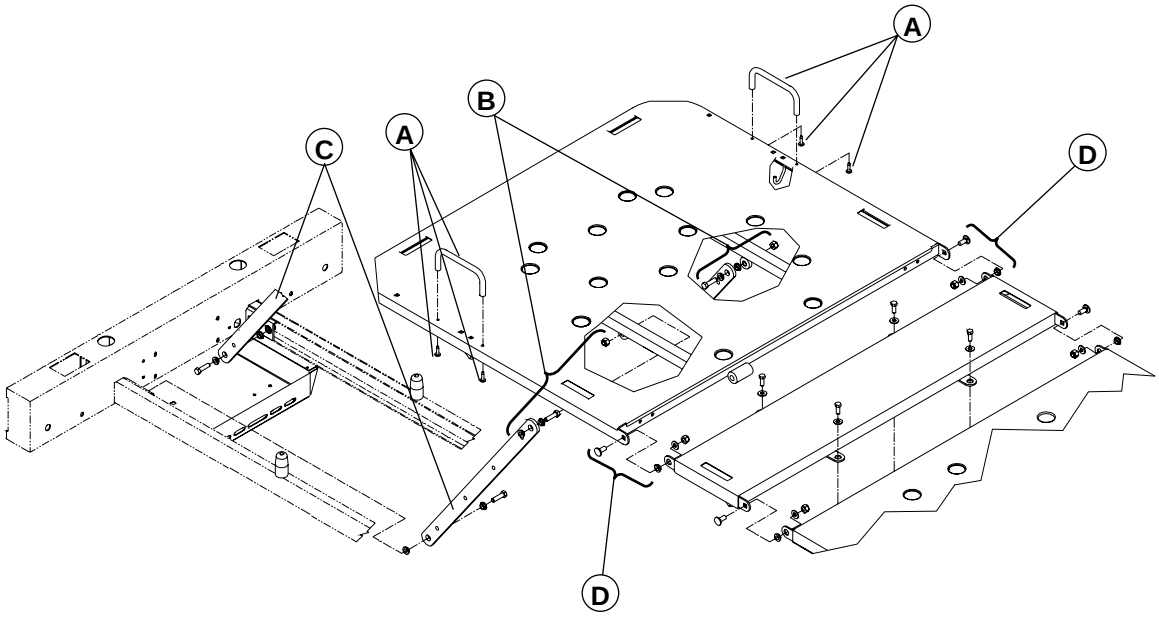


Figure 4.9D

Required Tools:

1/2" Wrench Phillips Screwdriver Tie-Down Ratchet Strap 7/16" Wrench
Needle Nose Pliers

Replacement Procedure:

1. Run the bed fully up, apply the brakes and bring the sleep surface to horizontal position.
2. Remove the head board. Run the Fowler fully up and unplug the power cord from the wall receptacle.
3. Remove both head siderails from the head section. Refer to page 31 “Head Siderail Assembly” replacement procedure.
4. Using a Phillips screwdriver, remove the two lateral mattress retainers (A) and save them for the replacement head section.
5. Plug the bed power cord and run the Fowler to flat position.
6. Using needle nose pliers, remove the Rue ring/nylon washers(3/clevis pin (K, fig. 4.10, page 50) hooking up the head actuator tube (T, fig. 4.10, page 50) to the head section lever arms.

NOTE
Apply grease on the clevis pin and the nylon washers before hooking up the actuator tube to the head section.

7. Manually lift the head section completely and secure its position using a tie-down ratchet strap.
8. Using a 1/2" wrench, remove the two locknuts/shoulder spacers(4)/bolts (B) holding the upper part of the two head arms (C) to the head section. Lay them down. Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
9. For beds **not equipped** with the optional CPR emergency release, proceed with step 10 to 15 and end the procedure.

   For beds **equipped** with the optional CPR emergency release, proceed with step 16 through the end.

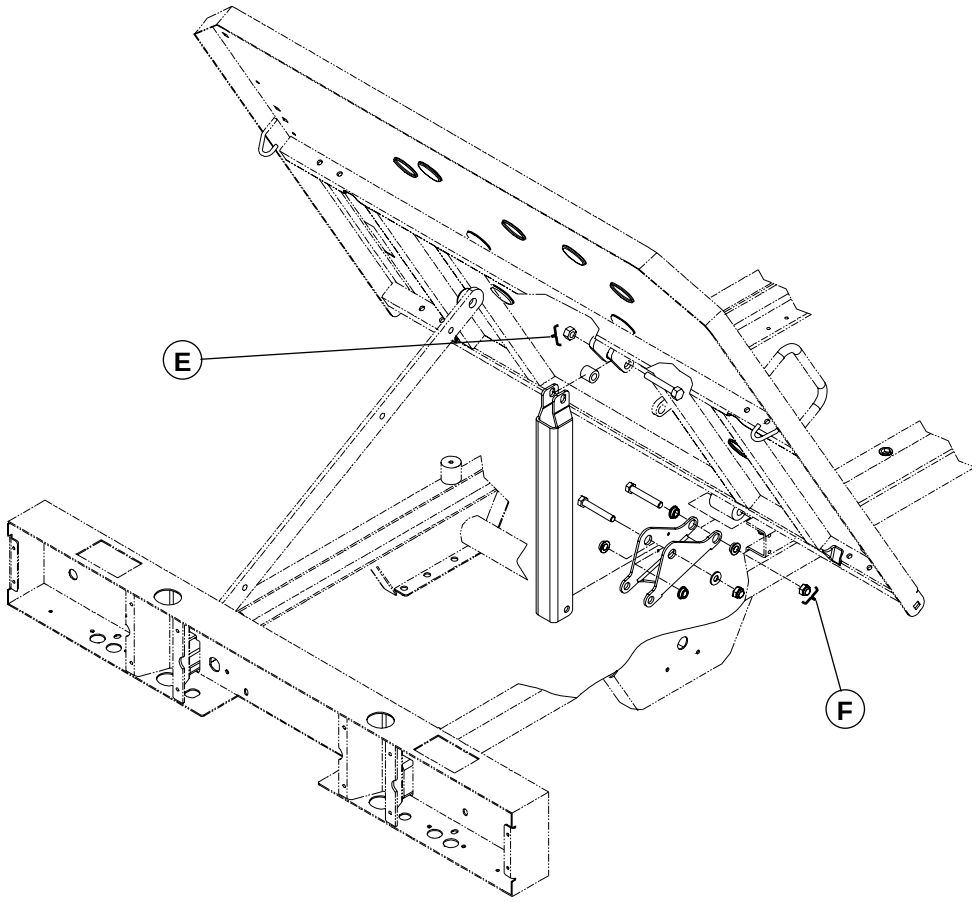


Figure 4.9E

10. Using a 1/2" wrench, remove the locknut/spacer/bolt (E) holding the upper part of the compression bar to the head section and lay it down.
11. Using a 1/2" wrench, remove the locknut/shoulder spacers/bolt (F) linking the mattress support lever to the head section and remove the compression bar.
12. Remove the tie-down ratchet strap and bring the head section back to horizontal position.
13. Using a 1/2" wrench, remove the two locknuts/flat washers/shoulder spacers/bolts (D, fig. 4.9D, page 47) linking the head section to the seat section. Remove the defective head section.
14. Reverse the above steps to install the replacement head section. Before hooking up the actuator tube to the head section lever arms, carefully read the caution following step 10 of the head actuator replacement procedure, page 52.
15. Verify the Fowler mobility for proper operation before returning the bed to service.

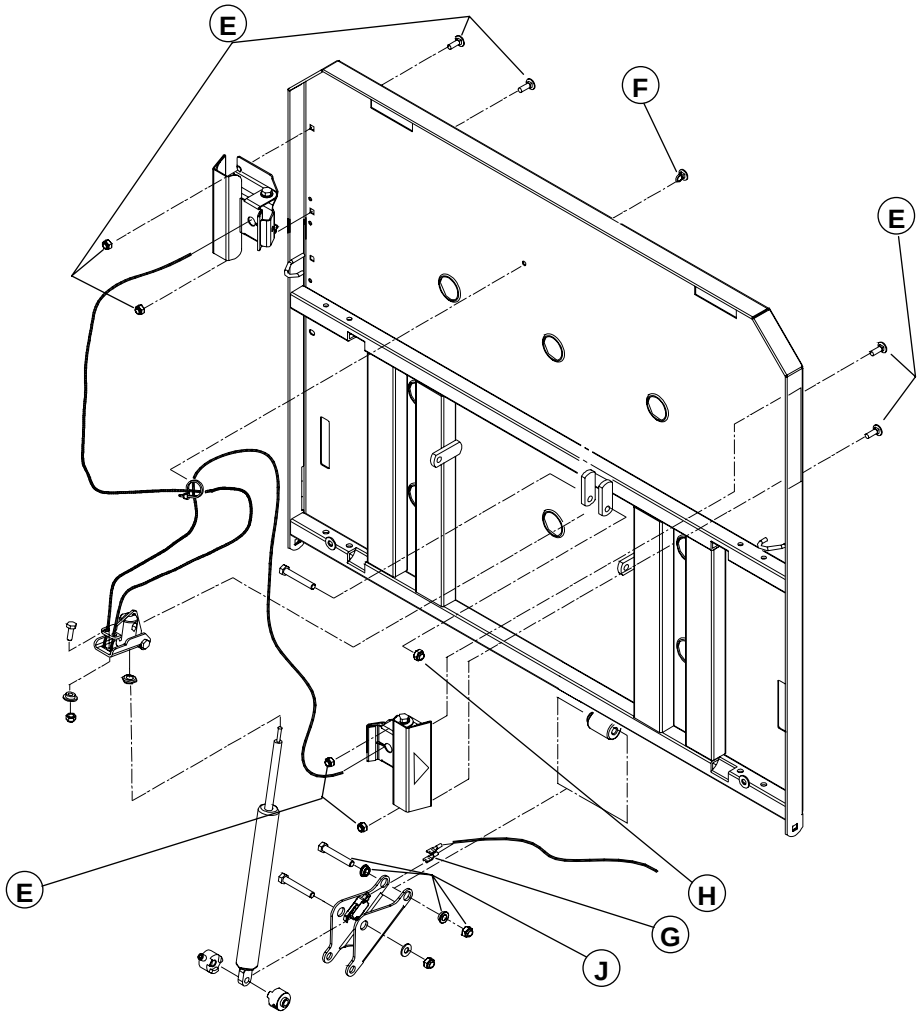


Figure 4.9F

16. Using a 7/16" wrench, remove two locknuts/bolts (E) holding both release handles to the head section.
17. Remove the pressure cable clip (F) from the head section.
18. Disconnect the two wires (G) from the micro switch. Note the wire connecting positions.
19. Using a 1/2" wrench, remove the locknut/bolt (H) holding the upper part of the pneumatic cylinder activation mechanism.
20. Using a 1/2" wrench, remove the locknut/shoulder spacers/bolts (J) linking the mattress support lever to the head section.
21. Remove the tie-down ratchet strap and bring the head section back to horizontal position.
22. Using a 1/2" wrench, remove the two locknuts/flat washers/shoulder spacers/bolts (D, fig. 4.9D, page 47) linking the head section to the seat section. Remove the defective head section.
23. Reverse the above steps to install the replacement head section. Before hooking up the actuator tube to the head section lever arms, carefully read the caution following step 10 of the head actuator replacement procedure, page 52.
24. Verify the Fowler mobility and the CPR emergency release for proper operation before returning the bed to service.

4.10 ACTUATOR REPLACEMENT

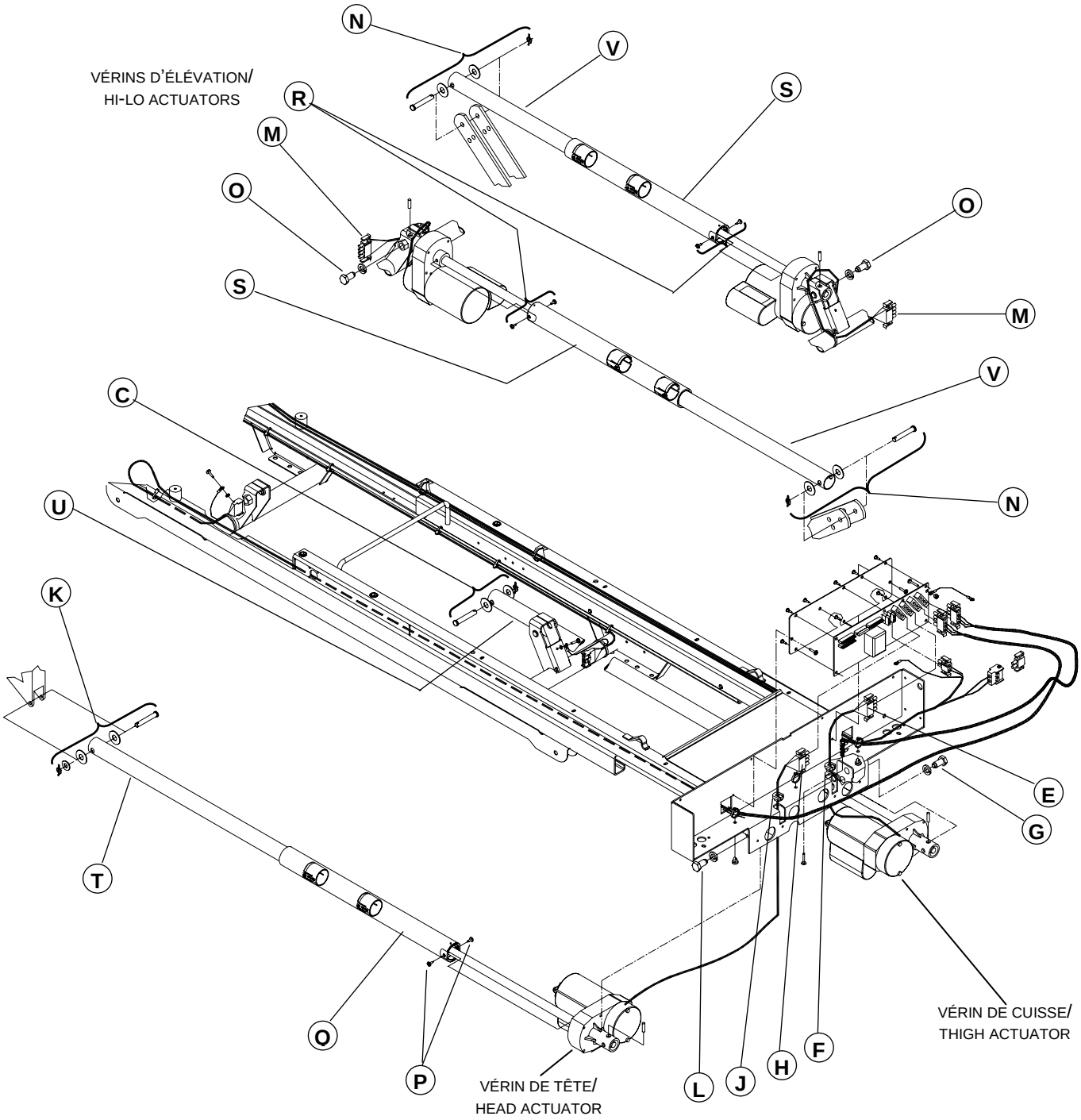


Figure 4.10

NOTE
Unless otherwise stated, all reference points contained in section 4.10 procedures refer to figure 4.10 above.

THIGH ACTUATOR

Required Tools:

Needle Nose Pliers Phillips Screwdriver 3/4" Wrench OG2 Grease

Replacement Procedure:

1. Run the bed fully up, apply the brakes and flatten the sleep surface.
2. Lower the head siderails and raise the foot siderails.
3. Unplug the power cord from the wall receptacle. Remove the foot board.
4. Using needle nose pliers, remove the Rue ring/nylon washers(2)/clevis pin (C) holding the thigh actuator tube (U) to the thigh section lever arms.

NOTE

Apply grease on the clevis pin and the nylon washers before hooking up the actuator tube to the thigh section.

5. Manually fold the foot and thigh sections back toward the head end of the bed until they come to rest on the head section.
6. Using a Phillips screwdriver, remove the 12 screws (A, fig. 4.4, page 37) holding the cover and the two IV pole holders (B, fig. 4.4, page 37) to the foot end casing.
7. Lift up and hold the cover while disconnecting from the motor control board and the scale cable extension the three connectors (C, fig. 4.4, page 37). Carefully note the locations of the connectors so they will be reconnected properly. Lay the cover aside.
8. Disconnect the thigh actuator cable (E) from the motor control board and disengage it from the strain relief bushing (F).
9. Using a 3/4" wrench, loosen the bolt (G) holding the thigh actuator to the bracket until the actuator can be rotated downward and removed from its location.

NOTE

Apply grease on the bolt, the spring washer and the inner sides of the bracket, including the pivot pin, when reassembling the actuator.

10. Reverse the above steps to install the replacement thigh actuator. **Read the following caution before hooking up the actuator tube to the thigh section lever arms.**

CAUTION

It is of utmost importance that the replacement thigh actuator be adjusted before hooking up its tube to the thigh section. An improper adjustment can damage the thigh section structure.

10.1 To adjust the course of the replacement thigh actuator, proceed as follows:

A. Raise the four siderails and plug the bed power cord. Ensure the actuator cable is connected to the PC Board.

B. Grab the new actuator tube and position its holes horizontally. While holding the tube firmly to prevent it from rotating, press the Knee Gatch up control for a few seconds, then press the down control until the actuator stops. This will be the lower limit of the actuator course.

C. Gently turn the tube in either direction to align the tube holes with those of the thigh section lever arms. Then raise again the Knee Gatch a few inches while holding firmly the tube and lower it completely.

D. Check the alignment of the holes. If the tube holes are not aligned anymore with those of the lever arms, repeat steps **B** and **C** until they are. Once the holes are aligned, install the washers and the clevis pin. Slightly raise the thigh section manually to ease the insertion of the clevis pin.

E. Before installing the rue ring cotter to finalize the actuator replacement, raise and lower completely the Knee Gatch. Check that the actuator stops working as soon as the thigh section reaches the frame.

HEAD ACTUATOR

Required Tools:

Phillips Screwdriver 3/4" Wrench OG2 Grease Needle Nose Pliers

Replacement Procedure:

1. Run the bed fully up, apply the brakes and flatten the sleep surface.
2. Run the Knee Gatch fully up and unplug the power cord from the wall receptacle.
3. Remove the foot board.
4. Manually fold the foot section back toward the head of the bed (see figure 4.1, Appendix F).
5. Using a Phillips screwdriver, remove the 12 screws (A, fig. 4.4, page 37) holding the cover and the two IV pole holders (B, fig. 4.4, page 37) to the foot end casing.
6. Lift up and hold the cover while disconnecting from the motor control board and the scale cable extension the three connectors (C, fig. 4.4, page 37). Carefully note the locations of the connectors so they will be reconnected properly. Lay the cover aside.
7. Disconnect the head actuator cable (H) from the control board and disengage it from the strain relief bushing (J).
8. Using needle nose pliers, remove the Rue ring/nylon washers(2)/clevis pin (K) holding the head actuator tube (T) to the head section lever arms.

NOTE

Apply grease on the clevis pin and the nylon washers before hooking up the actuator tube to the head section.

9. Using a 3/4" wrench, loosen the bolt (L) holding the head actuator to the bracket until the actuator can be rotated downward and removed from its location.

NOTE

Apply grease on the bolt, the spring washer and the inner sides of the bracket, including the pivot pin, when reassembling the actuator.

10. Reverse the above steps to install the replacement head actuator. Read the following caution before hooking up the actuator tube to the head section lever arms.

⚠ **CAUTION**

It is of utmost importance that the course of the replacement head actuator be adjusted before hooking up its tube to the head section. An improper adjustment can damage the head section structure.

10.1 To adjust the course of the replacement head actuator, proceed as follows:

A. Plug the bed power cord. Ensure the actuator cable is connected to the control board.

B. Grab the new actuator tube and position its holes horizontally. While holding the tube firmly to prevent it from rotating, press the Fowler up control for a few seconds, then press the down control until the actuator stops. This will be the lower limit of the actuator course.

C. Gently turn the tube in either direction to align the tube holes with those of the head section lever arms. Then raise again the Fowler a few inches while holding firmly the tube and lower it completely.

D. Check the alignment of the holes. If the tube holes are not aligned anymore with those of the lever arms, repeat steps **B** and **C** until they are. Once the holes are aligned, install the washers and the clevis pin. Slightly raise the head section manually to ease the insertion of the clevis pin.

E. Before installing the Rue ring cotter to finalize the head actuator replacement, fully raise and completely lower the Fowler, and verify that the actuator stops working as soon as the head section reaches the frame.

HI-LO ACTUATOR

NOTE

In order to preserve the adjustment of the bed lowest position when replacing a Hi-lo actuator, a special tool kit designed for that purpose must be used.
To obtain this kit, contact our Service department (see section 1.2) and order part number KR0090.

Required Tools:

Alignment Jigs and 1/2" special socket (P/N KR0090)		Cutters	3/4" Wrench
OG2 Grease	Angle indicator	3/8" Drive Ratchet	

Replacement Procedure:

1. Lower the head siderails and raise the foot siderails.
2. Using an angle indicator, raise the head section by approximately 50°, so that the bolt (O) holding the Hi-lo actuator to its support becomes accessible. Run the Knee Gatch fully up.
3. Manually fold the foot section back towards the head end of the bed (see figure 4.1, Appendix F).
4. Lower the bed until enough room is left to install the two alignment jigs under the Hi-Lo levers, exactly under the four black moulded bearings.
5. Lower the bed until the four black moulded bearings rest on the two jigs (see Appendix F, figure 4.10A). If a Hi-Lo actuator is defective, use a 3/8" drive ratchet and the special 1/2" socket included in the tool kit to manually lower the bed onto the jigs. See documentation accompanying KR0090 for explanations on rotating a defective Hi-Lo actuator.
6. Unplug the power cord from the wall receptacle.
7. Disconnect the actuator cable (M), and using cutters, cut the cable ties holding the cable to the frame.
8. Remove the Rue ring/nylon washers(2)/clevis pin (N) holding the Hi-Lo actuator tube (V) to the Hi-lo lever arms.

NOTE

Apply grease on the clevis pin and the nylon washers before hooking back the actuator tube to the Hi-lo lever arms.

9. Using a 3/4" wrench, loosen the bolt (O) holding the Hi-Lo actuator to the bracket until the actuator can be rotated downward and removed from its location.

NOTE

Apply grease on the bolt, the spring washer and the inner sides of the bracket, including the pivot pin, when reassembling the actuator.

10. Reverse the above steps to install the replacement Hi-Lo actuator. Read the following caution before hooking up the actuator tube to the Hi-Lo lever arms.

CAUTION

It is of utmost importance that the replacement Hi-Lo actuator be properly adjusted before hooking its tube to the Hi-Lo lever arms. An improper adjustment can damage the bed mechanisms.

10.1 To adjust the course of the replacement Hi-Lo actuator, proceed as follows:

A. Once the new actuator cable is connected, plug the bed power cord and press the bed down control until the actuator stops. This will be the lower limit of the actuator course.

B. Link the actuator to the Hi-Lo lever.

C. The alignment jigs still in position, raise and lower completely the bed to ensure that the bed lower limit has been preserved (the bed lowering movement must stop at the alignment jig level).

4.11 ACTUATOR SCREW LUBRICATION PROCEDURE

NOTE
All reference points contained in this procedure refer to fig. 4.10 on page 50.

Required Tools:

Slotted Screwdriver 5/16" Wrench Bungee Cords OG2 Grease and Brush

Lubrication Procedure for the Head and Knee Gatch Actuator Screws:

1. Run the bed fully up. Apply the brakes. Lower the head siderails and raise the foot siderails.
2. Run the Fowler fully up (in this position, the head actuator will reach its maximum extension) and lower the Knee Gatch to flat (in this position, the Knee Gatch actuator will reach its maximum extension).
3. Unplug the power cord from the wall receptacle.
4. Manually fold the foot section back toward the head end of the bed. Secure the position using bungee cords.
5. Using a slotted screwdriver and a 5/16" wrench, remove the two screws (P) holding the plastic dust tube of the Knee Gatch actuator and the head actuator tube support (Q) (the two screws and the dust tube of the Knee Gatch actuator are not illustrated on fig. 4.10) and slide back the dust cover and the actuator tube support to uncover the actuator screws and the beginning of the actuator tubes.
6. Apply grease all over the screw threads and on the beginning of the actuator tube (cover a couple of inches of the tube) with a brush making sure the grease reaches the bottom of the threads and replace the dust cover and the tube support.
7. Remove the bungee cords and replace the foot section to flat position. Run both Fowler and Knee Gatch up and down completely a few times to spread grease evenly and to verify the Knee Gatch and Fowler operation before returning the bed to service.

Lubrication Procedure for the Hi-Lo actuator screws:

1. Run the bed fully up (in this position, the two Hi-lo actuators will reach their maximum extension) and apply the brakes.
2. Run the Fowler and Knee Gatch fully up.
3. Unplug the power cord from the wall receptacle.
4. Lower the head siderails and raise the foot siderails.
5. Manually fold the foot section back toward the head end of the bed (see figure 4.1, Appendix F). Secure the position using bungee cords.
6. Using a slotted screwdriver and a 5/16" wrench, remove the four screws (R) holding the two actuator tube supports (S) and slide back the actuator tube supports to uncover the actuator screws and the beginning of the actuator tubes.
7. Apply grease all over the screw threads and on the beginning of the actuator tube (cover a couple of inches of the tube) with a brush making sure the grease reaches the bottom of the threads and replace the tube supports.
8. Remove the bungee cords and replace the foot section to flat position. Run the Hi-Lo up and down completely a few times to spread grease evenly and to verify the Hi-Lo operation before returning the bed to service.

4.12 5th STEER WHEEL COMPONENT REPLACEMENT

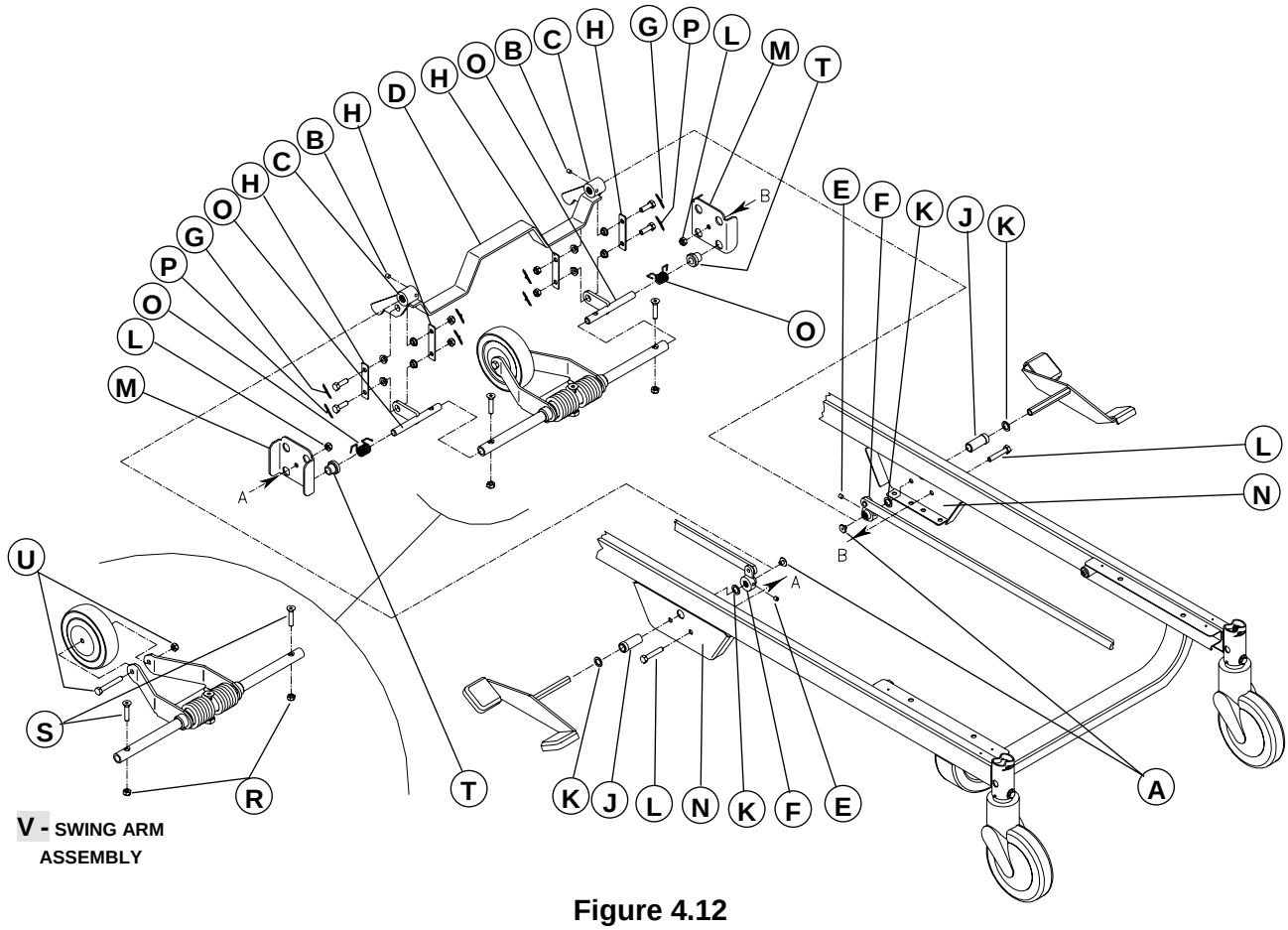


Figure 4.12

NOTE
Unless otherwise stated, all reference points contained in section 4.12 procedures refer to figure 4.12 above.

ACTIVATION LEVER (D, fig. 4.12)

Required Tools:

Phillips Screwdriver 1/8" Allen Key 1/2" Wrench 3/16" Allen key

Replacement Procedure:

1. Run the bed fully up.
2. Unplug the power cord from the wall receptacle.
3. Bring the pedal to the neutral position (horizontal).
4. Using a Phillips screwdriver, remove the two machine screws (A) located at the end of the right and left pedal shafts.

NOTE
Before replacing the machine screws (A), apply medium strength thread locker (blue) on the screw threads.

When reassembling, the machine screws (A) must first be inserted and tightened **before** tightening the set screws mentioned in steps 5 and 6.

5. Using a 1/8" Allen key, remove the set screws (B) located on the right and left sockets (C) of the activation lever (D).

NOTE
Before replacing the set screws, apply medium strength thread locker (blue) on the screw threads.

6. Using a 1/8" Allen key, remove the set screws (E) located on the head and foot locking levers (F).

NOTE
Before replacing the set screws, apply medium strength thread locker (blue) on the screw threads.

7. Gradually pull out each brake/steer pedal until the pedal shafts disengage from the activation lever sockets (C), then stop.
8. Using a 1/2" wrench, remove the two locknuts/shoulder spacers(4)/bolts (G) holding both extremities of the activation lever to the upper part of the counter levers (H). Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
9. Remove the activation lever (D).
10. Reverse the above steps to install the replacement activation lever.

NOTE
Be sure to position the activation lever horizontally before inserting each pedal shaft into the corresponding sockets. To do so, position the top flat part of the lever parallel to the floor (bring the steer wheel to the floor by pressing on it to facilitate this operation).

11. Verify the steer wheel for proper operation before returning the bed to service.

SWING ARM ASSEMBLY (V, fig. 4.12)

NOTE
The swing arm assembly is sold as an assembly (P/N 80-0042), caster not included.

Required Tools:

Phillips Screwdriver 1/8" Allen Key 3/16" Allen Key 1/2" Wrench (2)

Replacement Procedure:

1. Run the bed fully up.
2. Unplug the power cord from the wall receptacle.
3. Bring the pedal to the neutral position (horizontal).
4. Using a Phillips screwdriver, remove the two screws (A) located at the end of the right and left pedal shafts.

NOTE
Before replacing the screws (A), apply medium strength thread locker (blue) on the screw threads.
When reassembling, the screws (A) must first be inserted and tightened **before** tightening the set screws mentioned in steps 5 and 6.

5. Using a 1/8" Allen key, remove the set screws (B) located on the right and left sockets (C) of the activation lever (D).

NOTE
Before replacing the set screws, apply medium strength thread locker (blue) on the screw threads.

6. Using a 1/8" Allen key, remove the set screws (E) located on the head and foot locking levers (F).
7. Remove both pedals completely. Remove the two pedal sleeves (J) and keep them with the four nylon washers (K).

NOTE
Apply grease on the pedal shafts before replacing them.

8. Using a 1/2" wrench, remove the locknut/bolt (L) holding both steer wheel mechanism supports (M) to the retaining plates (N).

NOTE

When reassembling, tighten definitely the bolts/locknuts (L) holding the supports to the retaining plates only after the pedal shafts are inserted into the lever sockets. Do not tighten too tight, the supports could buckle.

9. Remove the steer wheel mechanism from the retaining plates by doing the following:

- Slide both supports (M) inside the retaining plate (N) toward the head of the bed and rotate them downwards through the opening provided at the bottom of the retaining plates. The supports will then be partially disengaged.
    - Seize both supports (M) and position them diagonally to completely remove them from the retaining plates (N).

NOTE

Note the position of the torsion spring (O) and the two supports (M) before removing these parts from the retaining plates; mark their position to help their reassembly.

10. Remove the supports (M) from the steer wheel mechanism. Keep the torsion springs (O).
11. Using a 1/2" wrench, remove the locknuts/shoulder spacers(4)/bolts (P) holding the torsion levers (Q) to the lower part of the two counter-levers (H). Inspect the shoulder spacers for wear and replace if needed. **Do not** lubricate the shoulder spacers.
12. Remove the two torsion levers (Q) from both ends of the torque shaft by first removing the two locknuts (R) using a 1/2" wrench and then the two screws (S) using a 3/16" Allen key.

NOTE

Apply grease on the portion of the torsion levers that inserts into the nylon bushings (T) before reinstalling them.

When reassembling, screw down tightly the two screws (S) holding the torsion levers to the torque shaft before tightening the two locknuts (R).

13. Using two 1/2" wrenches, remove the bolt/nut (U) holding the steer caster to the wheel arm and remove the caster.
14. Reverse the above steps to install the replacement swing arm assembly. Read carefully the following note to properly reinstall the pedals.

NOTE

Be sure to position the pedal horizontally (neutral) when inserting its shaft into the sockets of the locking levers (F) and the activation lever (D).

When inserting the pedal shaft into the sockets, make sure that the locking lever (F) is vertically positioned and that the upper flat part of the activation lever (D) is parallel to the floor (bring the steer wheel to the floor by exerting a pressure on it to facilitate this operation).

15. Activate the steer wheel pedal on both sides of the bed to ensure proper operation of the steer wheel before returning the bed to service.

4.13 CASTER REPLACEMENT

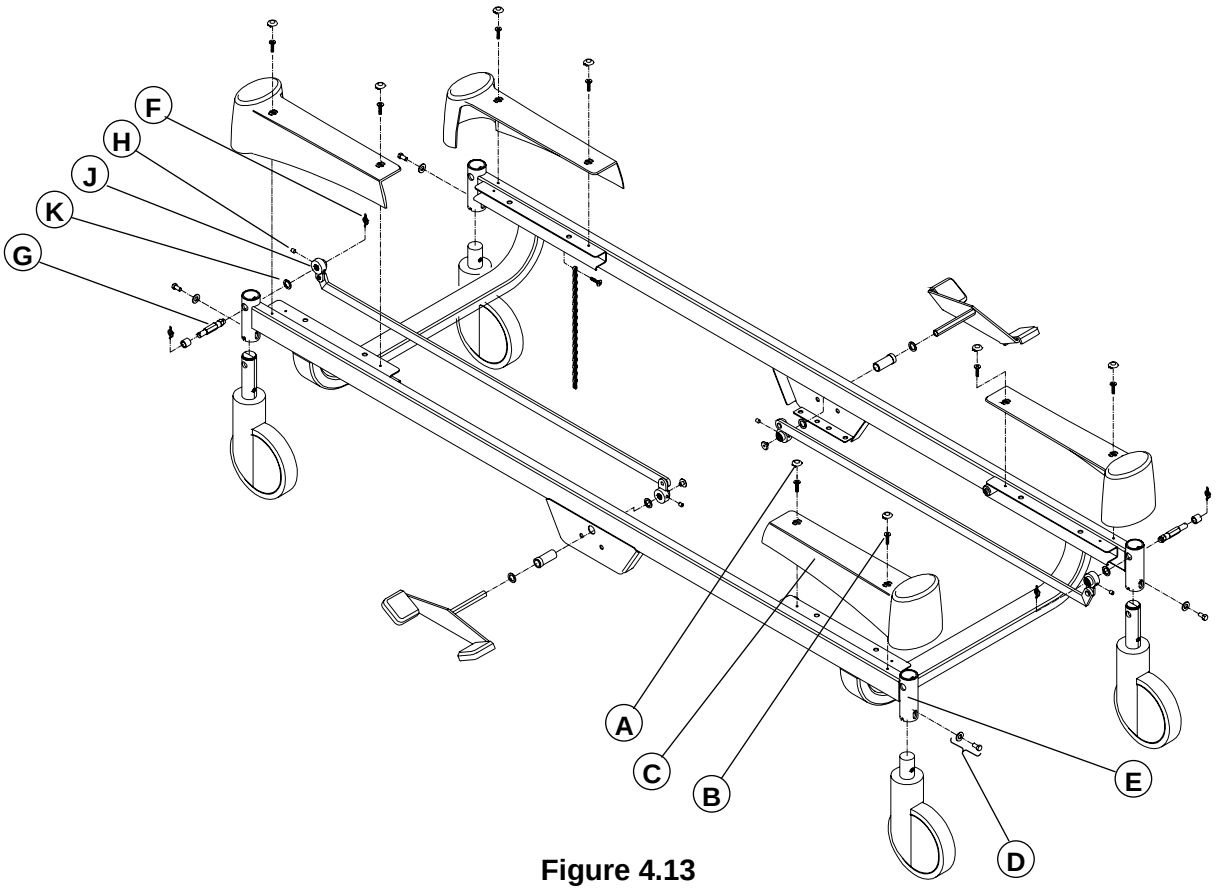


Figure 4.13

Required Tools:

Jack Stands (2) Phillips Screwdriver 1/2" Wrench 7/16" Wrench

1/8" Allen key

Replacement Procedure:

1. Raise the bed enough to place under the frame at the head or foot end of the bed (depending on the caster to be changed) two jack stands adjusted to 20" (see figure 4.13A, Appendix F).
2. Lower the bed on the jack stands until the caster lower part is at least five inches off the ground.
3. Unplug the power cord from the wall receptacle.
4. Remove the two pop-on screw covers (A).
5. Using a Phillips screwdriver, remove the two screws (B) holding the caster cover (C) to the base. Remove the caster cover.
6. For a caster **without a locking mechanism**, proceed with step 7 through 9 and end the procedure.

   For a caster **with a locking mechanism**, proceed with step 10 through the end.
7. Support the caster while using a 1/2" wrench to remove the bolt/washer (D) holding the caster shaft to the mounting socket (E). Remove the defective caster.

NOTE

Before replacing the bolt, apply medium strength thread locker (blue) on the bolt threads.

8. Reverse the above steps to install the replacement caster.
9. Move the bed to verify the replacement caster before returning the bed to service.

End of procedure for caster without locking mechanism.

10. Remove the Rue ring (F) at the inner end of the locking axle (G).
11. Using a 1/8" Allen key, remove the set screw (H) located on the locking lever (J) (for ease of access to the set screw, depress the steer/brake pedal on the side opposite to the caster needing replacement) and remove the locking lever from the locking axle (G). Keep the nylon washer (K).

NOTE
Before replacing the set screw, apply medium strength thread locker (blue) on the screw threads.

12. Using a 1/2" wrench, remove the bolt/washer (D) holding the caster shaft to the mounting socket (E).

NOTE
Before replacing the bolt, apply medium strength thread locker (blue) on the bolt threads.

13. Support the caster while pulling the locking axle (G) out its location. Note the nearly vertical position of the Rue ring hole to correctly replace the locking axle later on. Remove the defective caster.

NOTE
Ensure the pedal is in the horizontal position before inserting the locking axle into the replacement caster shaft orifice.

14. Reverse the above steps to install the replacement caster. Read the following caution carefully before completing the installation of the replacement caster.

CAUTION

The shaft of a caster which is part of the locking mechanism must be oriented correctly before attaching it to the mounting socket, otherwise the caster will not lock when the brake pedal is activated. For a proper installation of the caster, proceed as follows:

15. Ensure the new caster shaft mechanism is in the neutral position. To do so, insert the locking axle (G) in the shaft orifice of the replacement caster and rotate the locking axle using a 7/16" open key. Identify the three positions of the shaft mechanism: steer wheel engaged, neutral, brake engaged. Set the mechanism to the neutral position (middle position). Once done, remove the locking axle from the caster shaft orifice.
16. Insert the caster shaft into the mounting socket (E) and insert the locking axle (G) completely (reverse the pulled out move with the Rue ring hole nearly vertical). Replace the locking lever (J) on the locking axle (make sure the pedal is in the neutral position before doing so), but not completely so as to leave enough room between the mounting socket and the locking lever to insert a 7/16" wrench.
17. Using the 7/16" wrench, rotate the locking axle (G) while observing the pedal movements created by the rotation of the axle, it will occupy three positions:
    - Green side of the pedal depressed: steer wheel engaged.
    - Pedal in horizontal position: neutral position.
    - Red side of the pedal depressed: locking system engaged.
18. When the pedal red side is depressed, check if the caster locks. If the caster does not lock, the shaft is incorrectly oriented.
19. Remove the locking lever (J) and the locking axle (G) while supporting the caster. Remove caster and rotate its shaft 180°. Replace caster shaft into the mounting socket and replace locking axle and locking lever as previously described. Rotate again the axle while observing the pedals movement created by the rotation of the axle.
20. The caster should now lock when the pedal red side depresses. The caster shaft is now correctly oriented and its installation can now be finalized.
21. Verify the caster and the locking system for proper operation before returning bed to service.

4.14 HI-LO LEVER REPLACEMENT

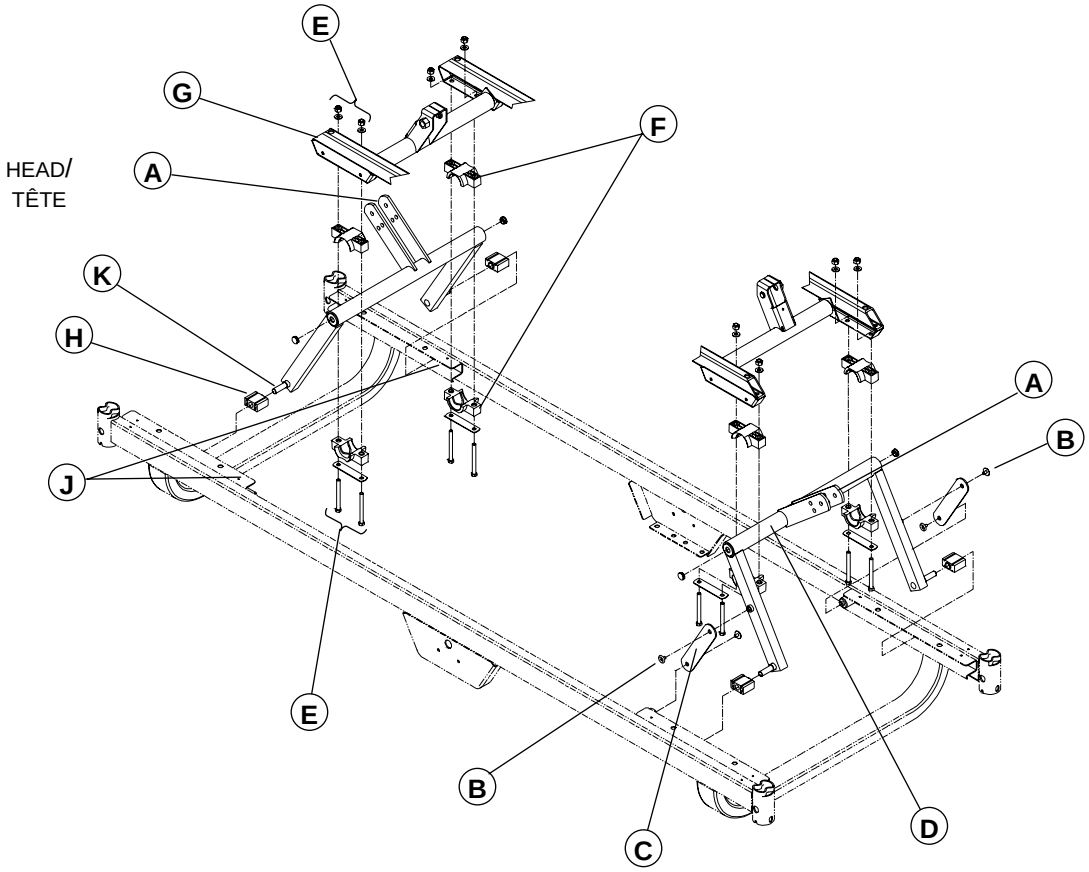


Figure 4.14

Required Tools:

Jack Stands (2) Long Nose Pliers Phillips Screwdriver Two 1/2" Wrenches

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Adjust the mattress support depending on the Hi-Lo lever to be replaced:
   Hi-Lo lever located at the head end of the bed
   Run Fowler fully up.
   Hi-Lo lever located at the foot end of the bed
   Lower the head siderails and raise the foot siderails. Run the Knee Gatch fully up. Manually fold the foot section back towards the head end of the bed (see figure 4.1, Appendix F).
3. Place two jack stands, adjusted to 20", under the frame, at the head end or foot end of the bed (see fig. 4.13A, Appendix F).
4. Lower the bed on the stands until the clevis pin holding the Hi-Lo actuator tube to the Hi-Lo lever arms (N, fig. 4.10, page 50) is free from stress and easy to remove.
5. Unplug the power cord from the wall receptacle.
6. Using long nose pliers, remove the Rue ring/nylon washers(2)/clevis pin (N, fig. 4.10, page 50) holding the Hi-Lo actuator tube to the Hi-Lo lever arms (A). Avoid rotating the Hi-Lo actuator tube.

NOTE
Apply grease on the clevis pin and the nylon washers before hooking up the Hi-Lo actuator tube to the Hi-Lo lever arms.

7. If you are replacing the Hi-Lo lever located at the foot end of the bed, use a Phillips screwdriver to remove the two machine screws (B) holding the upper part of the right and left stabilizers (C) to the Hi-Lo lever (D).

NOTE
Before replacing the machine screws, apply medium strength thread locker (blue) on the screw threads.

8. Using two 1/2" wrenches, remove the four locknuts/washers/reinforcement plates (two)/bolts (E) holding the Hi-Lo lever and the molded bearings (F) to the mobile frame (G).

NOTE
Apply grease inside the molded bearings before replacing them.

9. Remove the Hi-lo lever from its location by rotating it horizontally on one side to disengage the nylon sliders (H) from the rails (J).

NOTE
Apply grease on the nylon slider shafts (K) and under the sliders (H) before replacing the Hi-Lo lever. Ensure the rails are greased on their inner lower and side surfaces.

10. Reverse the above steps to install the replacement Hi-Lo lever.
11. Verify the Hi-Lo operation before returning the bed to service.

4.15 CPR EMERGENCY RELEASE COMPONENT REPLACEMENT (OPTIONAL)

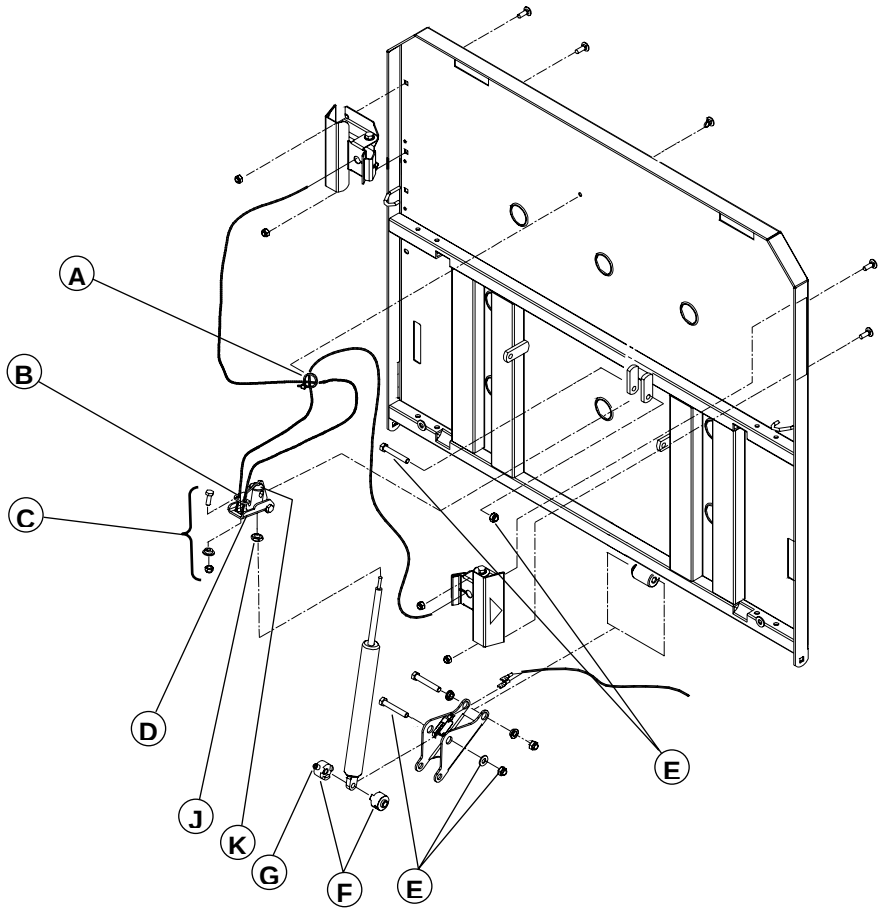


Figure 4.15

NOTE
Unless otherwise stated, all reference points contained in section 4.15 procedures refer to figure 4.15 above.

CPR HANDLE CABLE

Required Tools:

Bungee Cords 7/16" Wrench Side Cutters

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Run the Fowler fully up. Beware of inadvertently lowering the Fowler through the CPR handle while working under the Fowler.
3. Using side cutters, cut the cable tie (A) holding together the two handle cables.
4. Using a 7/16" wrench, loosen the nuts at both ends of the two cables.
5. Remove the cable nut that holds the defective cable to the mobile lever (B)
6. Using a 7/16" wrench, remove the locknut/nylon washer/bolt (C) from the fixed lever (D).

NOTE
Do not over tighten the locknut as the nylon washer may break.

7. Remove the defective cable.
8. Reverse the above steps to install the replacement cable.

CAUTION

The CPR handle cables must be adjusted for the CPR mechanism to operate properly.

9. Tighten the cable nuts at the handle end first, then at the fixed lever (D) end, making sure that there is a slight play in the CPR handle and that the Fowler drops at the slightest activation of the CPR handle and stops when the handle is released.
10. Verify for proper operation the instant CPR emergency release by activating both CPR handles, before retuning the bed to service.

CPR PNEUMATIC CYLINDER

Required Tools:

Needle Nose Pliers Bungee Cords 7/16" Wrench 1/2" Wrench
17 mm Wrench

Replacement Procedure:

1. Run the bed fully up, apply the brakes and bring the Fowler to flat position.
2. Unplug the power cord from the wall outlet and remove the head board.
3. Using needle nose pliers, remove the Rue ring/washer/nylon washers(2)/clevis pin (K, fig. 4.10, page 50) hooking up the head actuator tube to the head section lever arms.

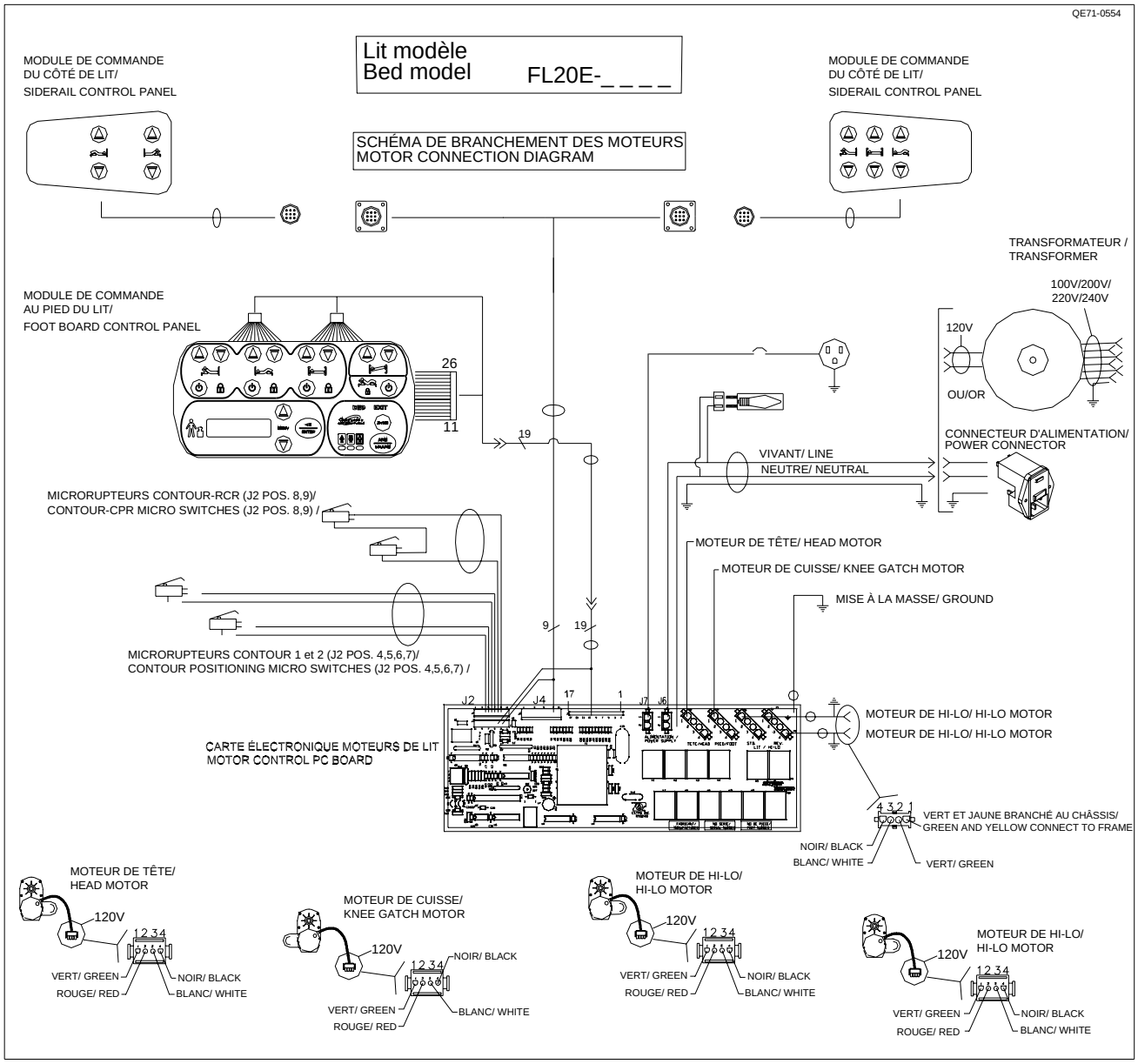
NOTE
Apply grease on the clevis pin and the nylon washers before hooking up the actuator tube to the head section.

4. Manually lift the head section completely and secure its position using bungee cords.
5. Using a 7/16" wrench, remove the locknut/washer/bolt (E) holding the bottom part of the cylinder to the lever. Save the two spacer sleeves (F). Be sure to replace the left spacer sleeve with the set screw (G) in the proper position to activate the micro switch.
6. Using a 1/2" key, remove the locknut/bolt (H) holding the activation mechanism to the head section.
7. Using a 17 mm wrench, loosen the cylinder locknut (J).
8. Unscrew the cylinder upper threaded end from the activation mechanism socket (K).
9. Reverse the above steps to install the replacement pneumatic cylinder.

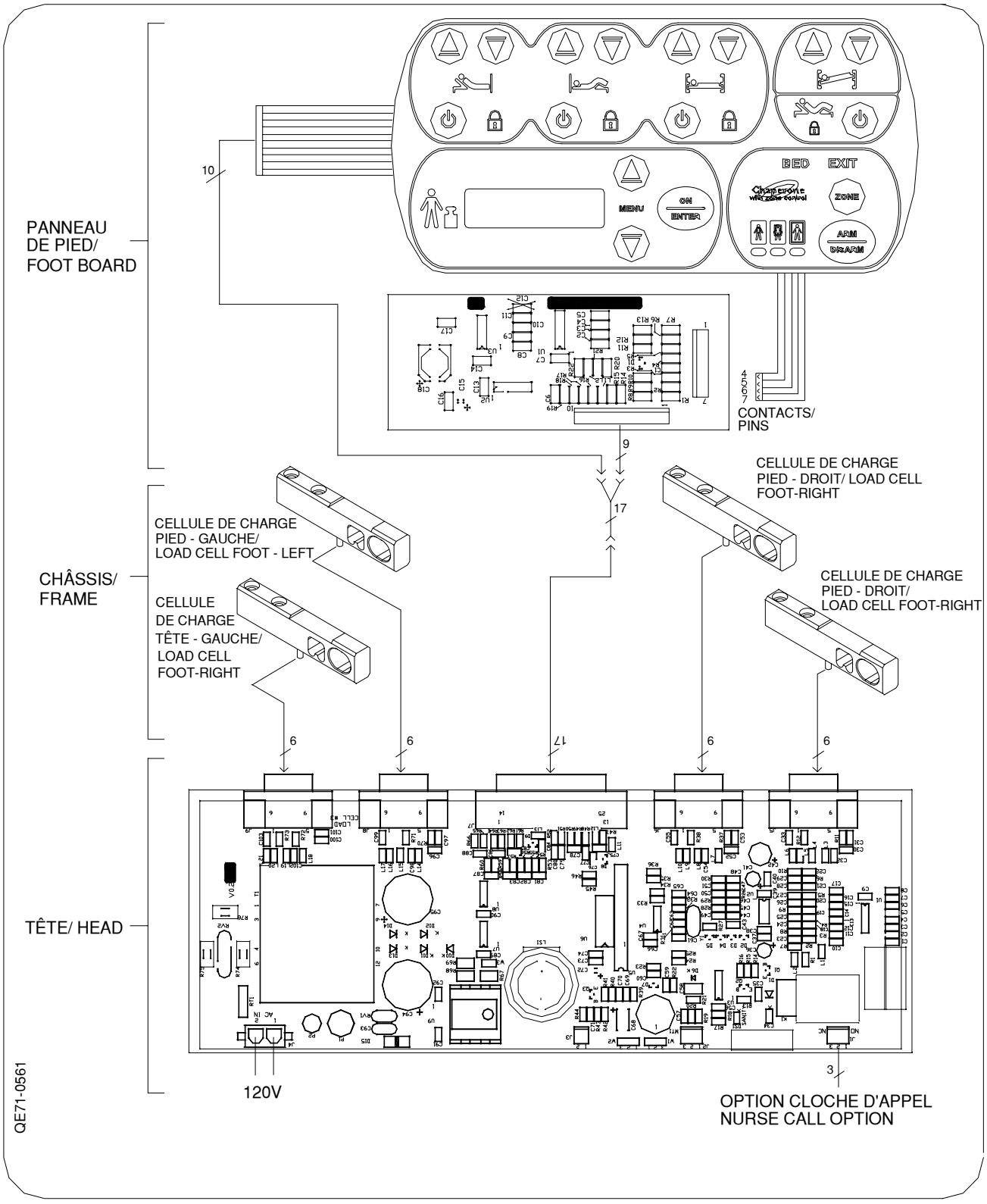
NOTE
When screwing the pneumatic cylinder upper end in the activation mechanism socket, make sure the locknut has been inserted before and leave enough cylinder threads to enable the tightening of the locknut.

10. Verify the CPR emergency release and the micro switch (which triggers the head actuator reset and the Knee Gatch lowering) for proper operation before returning the bed to service.

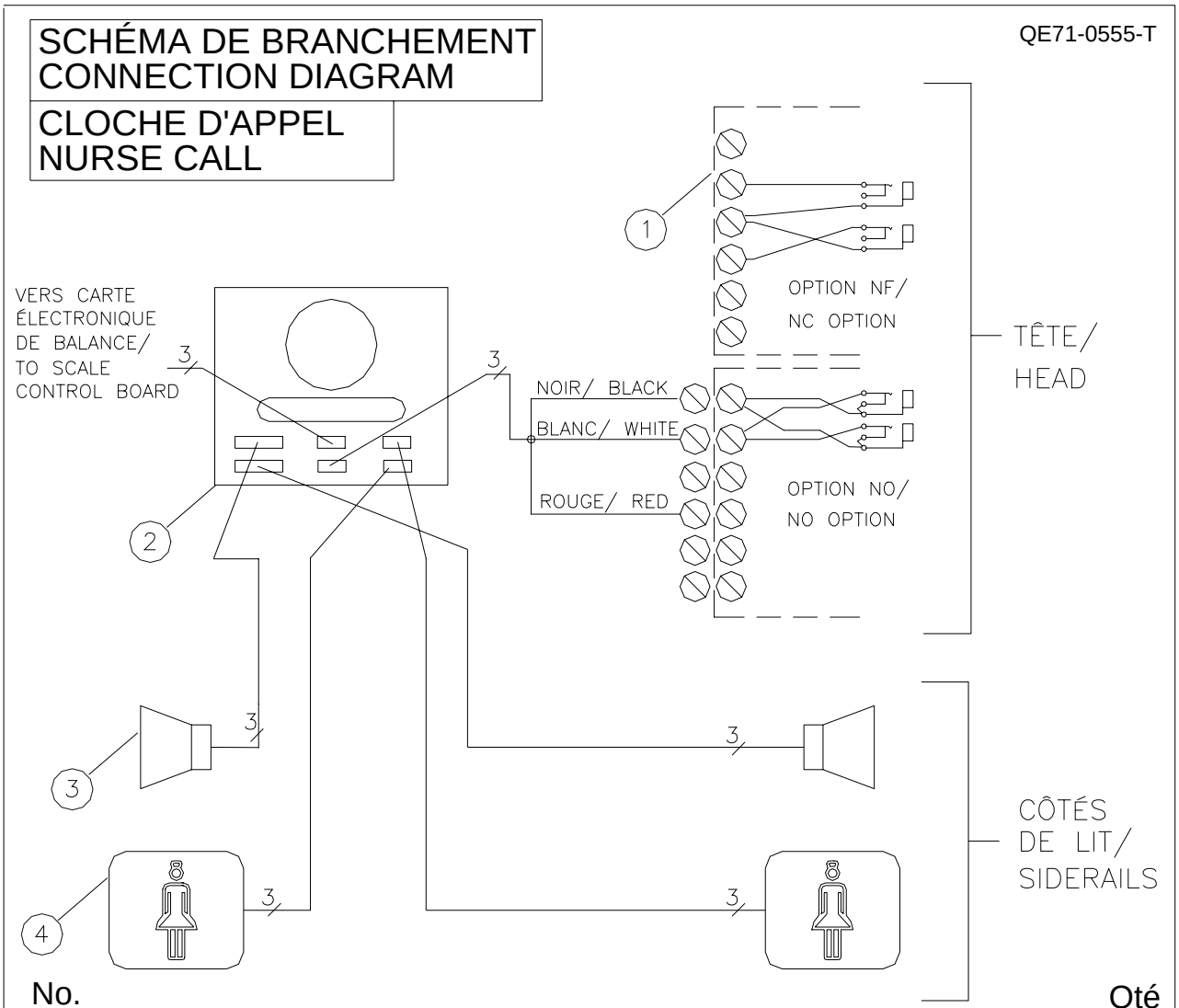
Appendix A: Motor Connection Diagram



Appendix B: Scale Connection Diagram



Appendix C: Nurse Call Connection Diagram



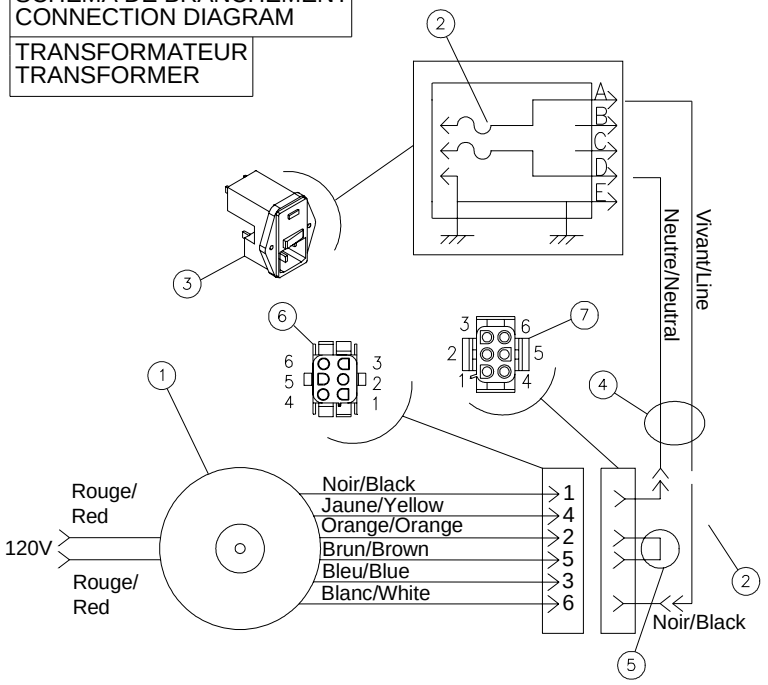
No.		Qté
1	BORNE DE CONNEXION (6x2) / CONNECTION TERMINAL (6X2)	1
2	CIRCUIT ÉLECTRONIQUE CLOCHE D'APPEL / NURSE CALL CONTROL BOARD	1
3	MICROPHONES - HAUT PARLEURS / SPEAKERPHONES	2
4	BOUTON CLOCHE D'APPEL / NURSE CALL BUTTON	2

Appendix D: Toroidal Transformer Connection Diagram (FL20E International Series)

QE71-0559-T

SCHÉMA DE BRANCHEMENT
CONNECTION DIAGRAM

TRANSFORMATEUR
TRANSFORMER



No.		Qté
1	Transformateur/Transformer	1
2	Fusible/Fuse (200-220-240V, 6.3A)(100V, 10A)	2
3	Connecteur d'alimentation/Power connector	1
4	Fil d'alimentation/Power cable	1
5	Cavalier/Jumper(200-220-240V)	1
6	Connecteur mâle/Pin connector	1
7	Connecteur femelle/Socket connector	1

TABLEAUX DE CONFIGURATION
CONFIGURATION TABLES

Version 240VAC/Versíon 240VAC	
⑥	⑦
1	Noir/Black (1)
2	Rouge/Red (2)
3	-
4	-
5	Rouge/Red (5)
6	Blanc/White (6)

Version 220VAC/Versíon 220VAC	
⑥	⑦
1	Noir/Black (1)
2	-
3	-
4	Rouge/Red (4)
5	Rouge/Red (5)
6	Blanc/White (6)

Version 200VAC/Versíon 200VAC	
⑥	⑦
1	Noir/Black (1)
2	-
3	Blanc/White (3)
4	Rouge/Red (4)
5	Rouge/Red (5)
6	-

Version 100VAC/Versíon 100VAC	
⑥	⑦
1	Noir/Black (1)
2	-
3	Blanc/White (3)
4	Vert/Green (4)
5	Rouge/Red (5)
6	-

Appendix E: Toroidal Transformer Replacement (FL20E International Series)

Required Tools:

Phillips Screwdriver Cutting Pliers 1/2" Wrench

Nylon Cable Ties (2)

Replacement Procedure:

1. Run the bed fully up and apply the brakes.
2. Raise the head section fully up.
3. Unplug the power cord from the wall receptacle, remove it from the bed connector and remove the head board.

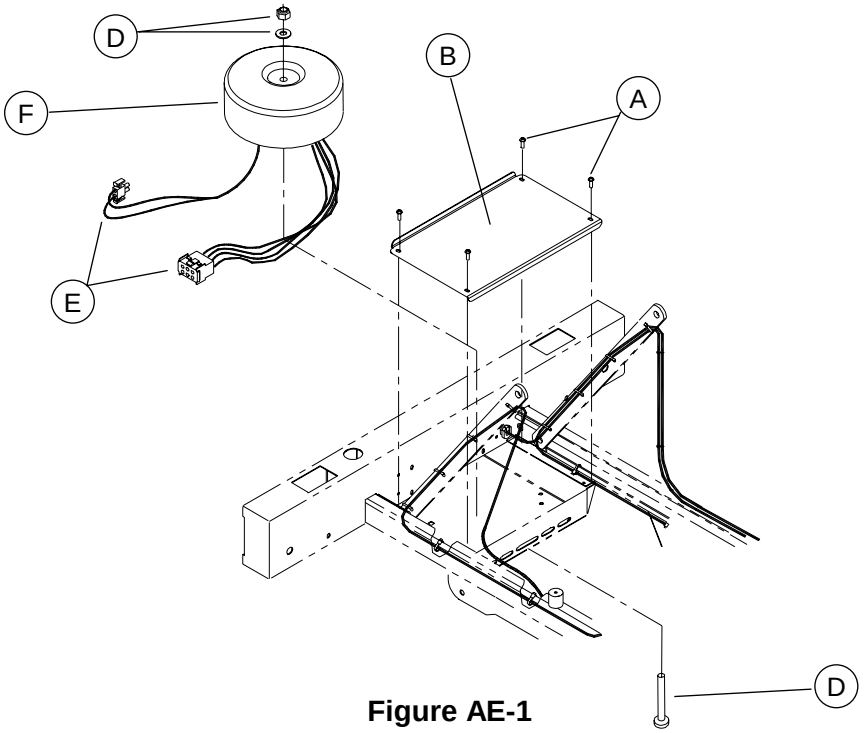


Figure AE-1

4. Using a Phillips screwdriver, remove the 4 screws (A) holding the cover (B) to the scale control board casing.
5. Using cutting pliers, remove the two nylon cable ties (C) holding cables to the frame above both sides of the cover.
6. Remove the casing cover.
7. Properly ground yourself (see section 1.4).
8. Using a 1/2" wrench, remove the locknut/washer/carriage bolt (D) holding the transformer to the board casing.

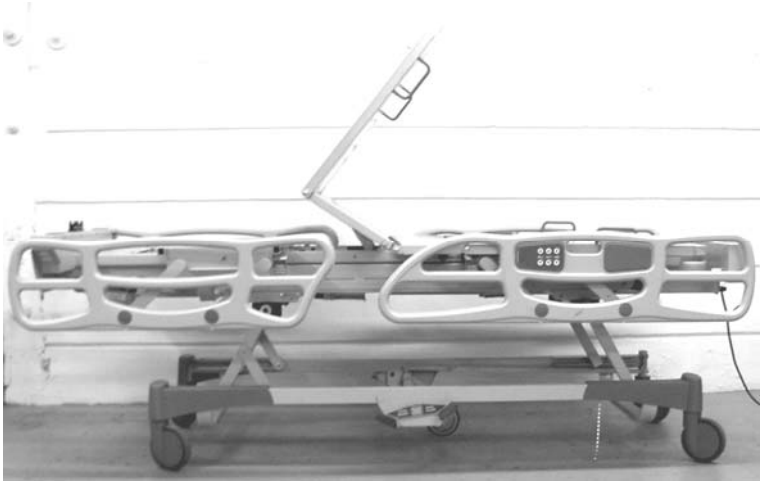
NOTE

A light tightening is enough for the locknut.

9. Gently pull the transformer (F) until all cables are accessible. Cut the cable tie to free them.
10. Disconnect the transformer connectors (E) and remove the defective transformer.
11. Reverse the above steps to install the replacement transformer.
12. If the bed is equipped with the Weigh and the Bed Exit systems, calibrate the scale (refer to "Scale system Calibration" procedure, section 4.6). If only equipped with the Bed Exit system, zero the Bed Exit (see the Bed Exit section in the Operations manual).
13. Check all the bed electric functions before returning it to service.

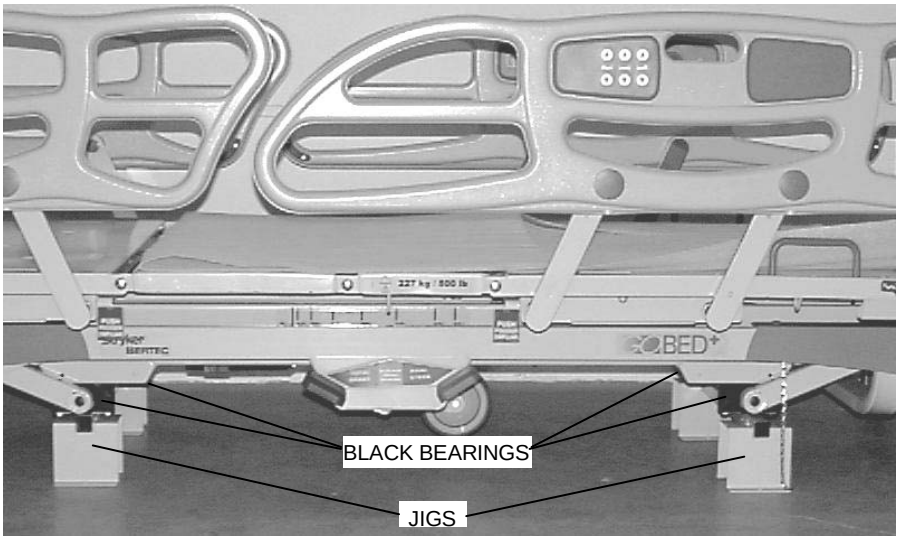
Appendix F: Bed Positions for Maintenance Purposes

Figure 4.1



KNEE GATCH AND FOOT SECTIONS FOLDED BACK TOWARD HEAD END OF THE BED

Figure 4.10A



ALIGNMENT JIGS POSITIONED UNDER THE FOUR BLACK BEARINGS FOR A HI-LO ACTUATOR REPLACEMENT

JACK STANDS POSITIONED UNDER THE FOOT END OF THE BED

JACK STANDS POSITIONED UNDER THE HEAD END OF THE BED

Figure 4.13A