stryker®
BERTEC

MAINTENANCE MANUAL

Cub™

GENERAL PEDIATRIC CARE STRETCHER

Model FL19F / FL19H

Product number for the United States: 0190

Technical Assistance and Parts

1 800 428-5025 (Canada)
E-mail (Canada only): service@bertec.strykercorp.com
1 800 327-0770 (United States)

Manufactured by Stryker Bertec Medical Inc

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1. INTRODUCTION

This manual is designed to assist you with the servicing of the Cub pediatric stretcher. It is extremely important for the patient's safety to read and understand all information in this manual before servicing the stretcher. Service personnel should be able to refer to this manual at all time.

This Maintenance Manual is an integral part of the stretcher and should be included if the unit is sold or transferred.

1.1 SPECIFICATIONS *

Safe Working Load (Hydraulic Base)	100 lb (45 kg)
Maximum Static Weight Capacity	400 lb (181 kg)
Scale (Optional) - Capacity - Precision - Power System - Electrical Rating ** - Environmental Conditions - Transportation and Storage - Ambient Temperature - Relative Humidity - Atmospheric Pressure - Operating *** - Ambient Temperature - Relative Humidity - Atmospheric Pressure	 Patients weighing 4 lb (1.8 kg) to 120 lb (54.4 kg) ± 0.5 lb (0.22 kg) 4 Alkaline C Type Batteries (1.5 Vcc) 6 Vcc, 0.15 A -30 to 50°C (-22 to 122°F) 0 to 95% 500 to 1060 hPa 15.5 to 29.1°C (60 to 85°F) 0 to 95% 700 to 1060 hPa
Overall Length/Width - w/Accessory Brackets	 72 3/8" x 37 1/2" (184 cm x 95 cm)
Overall Weight - Hydraulic Base (w/o Options) - Fixed Height Base (w/o Options)	 375 lb (170 kg) 310 lb (140.6 kg)
Fowler Articulation Angle - Manually Activated - Pneumatically Assisted	 0°, 25°, 40°, 55° 0 to 50°
Height Range (to Litter Top) - Low - High	 Hydraulic: 33" (84 cm) / Fixed Base: 33" (84 cm) Hydraulic: 40" (102 cm) / Fixed Base: 33" (84 cm)
Foot Section Angle	0°, 6°, 12°
Brake System - Hydraulic Base - Fixed Height Base	 Four Wheel Ring Brake System Four Locking Casters
Trendelenburg / Reverse Trendelenburg	+ 9.5° / - 9.5°

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

**** Conforming to the following standards: CSA C22.2, No. 60601.1; UL2601-1; IEC/EN 60601-1.**

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

1.2 TECHNICAL SUPPORT

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

In Canada:

Stryker Bertec Medical Inc
1 800 428-5025
E-mail (in Canada): service@bertec.strykercorp.com
70, 5th Avenue, P.O. Box 128
L'Islet (Quebec), G0R 2C0, Canada

In the United States:

Stryker Medical Inc
1 800 327-0770
6300 South Sprinkle Road
Kalamazoo, MI 49001-9799
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 SAFETY PRECAUTIONS

The following is a list of safety precautions that must be observed when operating or servicing the Cub pediatric stretcher. For the patient's safety, carefully read and strictly follow them before operating or servicing this unit.

WARNING

- Hospital staff should ensure a safe environment to the patient by verifying that the stretcher components (rails, access doors, accessories, etc.) are in good condition and properly secured before placing a patient on the stretcher.
- The scale weighing zone is made up of all the upper part of the stretcher, including the safety end/siderails, the accessory brackets, the drainage bag hooks, and the chart holder (optional) located under the mattress support. Ensure no external object is in contact with the stretcher during a weighing or when zeroing the scale.
- Always apply the brakes when a patient is removed from or placed on the stretcher. Always engage the brakes unless the stretcher is being moved. Push on the stretcher to ensure the brakes are securely locked. Injury could result if a stretcher moves while a patient is placed or removed from the stretcher.
- When brakes are applied on a fixed height stretcher, be sure all four casters are locked to ensure a complete immobilization of the stretcher.
- To reduce risk of injury, ensure the litter is horizontal and in the lowest position with the rails fully raised when moving the pediatric stretcher with a patient on it.

- The rails must always remain in the highest position and the litter in the lowest position unless the patient is being tended. Never leave a patient unattended when the rails are lowered.
- Make sure that proper policies are applied to ensure the patient's safety when an I.V. pole and/or an oxygen bottle are used. The patient should not be able to reach nor manipulate them.
- 
To prevent possible fire hazard when using an oxygen tent on a stretcher equipped with the scale system (optional), **do not** activate the scale. Also ensure that the rails are outside the tent.
- To avoid injury to patient and/or user or damage to the unit, ensure the rails are in their highest position before lowering the litter, and verify that all equipment and persons are removed from the area below and around the litter.
- To avoid falls and injury, verify the rails and access doors are properly locked into position before leaving a patient unattended or after having moved a rail or an access door.
- To avoid injury to the patient, ensure the patient’s extremities are clear of all moving parts before operating a rail. Always ensure the rail is securely locked after moving it.
- To avoid falls and injury, ensure that **both** access door open/close indicators (located on both lock release knobs) show green when the door is closed and locked into position.
- Avoid using an access door or a rail handle as push/pull devices or damage to the unit or injury to the patient and/or user may occur.
- To avoid injury to the patient and/or user, do not attempt to move the stretcher directly sideways with the steer mode engaged. The fifth steer wheel cannot pivot.
- To avoid injury to the patient, verify the patient is safely positioned on the litter before lowering the siderail or operating the Fowler or foot section.
- To avoid injury to the patient when raising or lowering the manual Fowler or the foot section, verify the support arm is securely engaged in the catches before releasing the Fowler or the foot section.
- When patient is able to climb out of the stretcher or reaches the height of 35 in. (90 cm), the stretcher shall no longer be used.
- Do not place cords, straps or similar items that could become wound around the patient's neck in or near the stretcher.
- Do not leave objects or toys in the stretcher.
- Do not use a water mattress with this stretcher.
- To avoid injury to the patient, any mattress used on this stretcher must be at least 57 1/2” (146.05 cm) long by 29 3/8” (74.6 cm) wide and not less than 3” (7.6 cm) or more than 6” (15.3 cm) thick.
- To avoid damage to the scale electronic components, do not lean on the accessory bracket housing the scale module.
- Do not install a two or three stage fixed I.V. pole at the foot end of a stretcher equipped with the scale.
- 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 the user.
- Do not use the stretcher if any components are missing or broken. Contact your dealer or Stryker Bertec for replacement parts. Use only replacement parts provided by Stryker Bertec.
- Maximum static weight capacity = 400 lb (181.4 kg).

NOTE

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

1.5 WARRANTY

LIMITED WARRANTY

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

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

TO OBTAIN SERVICE AND/OR REPLACEMENT PARTS

- ***To Require Service***

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

- ***To Order Replacement Parts***

To order replacement parts, contact our Technical Service department or your local representative and provide the following information:

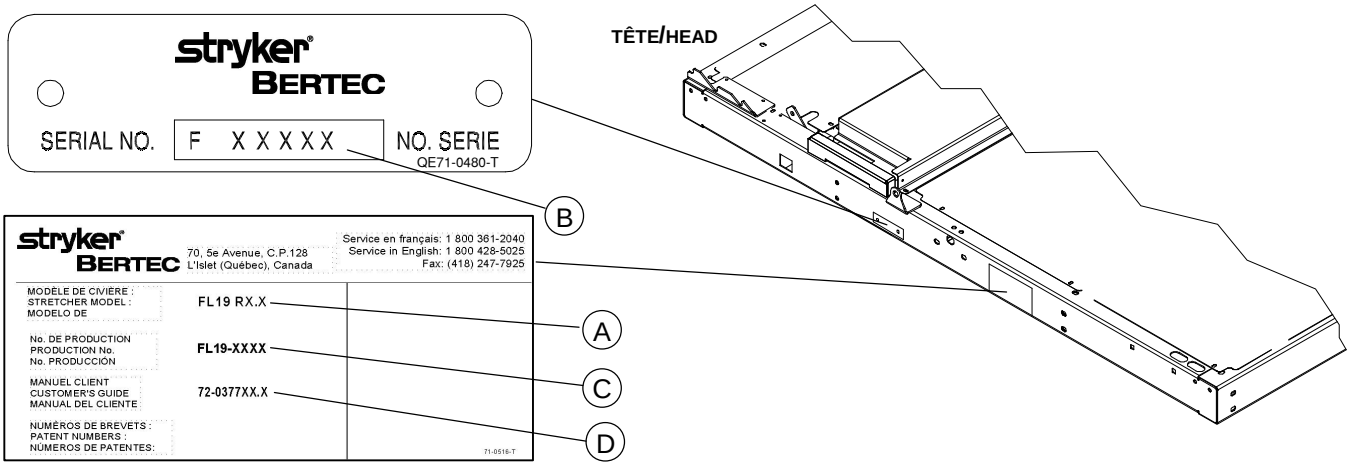


Figure 1.5

- Model number (**A**)
- Serial number (**B**)
- Production number (**C**)
- Name and part number of the defective part, which can be found in the parts lists included in the Customer's Guide, whose code number (**D**) is printed on the manufacturer's nameplate.

NOTE
It is very important that you refer to the Customer's Guide drawings and parts lists specific to the stretcher being repaired.

- Description of the problem encountered.

NOTE
We will do our 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 needed.
Stryker Bertec Medical 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.

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 Bertec 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 Bertec 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 Bertec within the fifteen (15) days 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, refer to accompanying documents


Type BF device

Battery-powered device with internal electrical source

IPX4 Protection from liquid splash

⎓ Direct current

1.7 STATIC DISCHARGE PRECAUTIONS

It is extremely important that all service personnel always use adequate static protection when servicing the electronic components of the stretcher.

Before manipulating an electronic component, place a static wrist strap on your wrist and connect the clip at the other end of the strap to a ground point of the stretcher.

2. CLEANING AND PREVENTIVE MAINTENANCE

2.1 STRETCHER CLEANING AND MATTRESS CARE

CAUTION

Do not use harsh cleaners, solvents or detergents. Do not steam clean, hose off or ultrasonically clean the stretcher.

Germicidal disinfectants, 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 stretcher if used improperly. If these types of products are used, ensure the stretchers are rinsed with clean water and thoroughly dried following cleaning. Failure to properly rinse and dry the stretchers will leave a corrosive residue on the surface of the stretcher, 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 STRETCHER

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

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

MATTRESS CARE

WARNING

Inspect the mattress after each use. Discontinue use if any cracks or rips are found in the mattress cover which may allow fluid to enter the mattress. 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 mattress 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 chlorine bleach diluted with ten parts of water.

2.2 PREVENTATIVE MAINTENANCE PROGRAM

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 optional scale system. Failure to observe this restriction can result in serious damage to material and/or severe injury to patient or operator.

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

When servicing, use only identical replacement parts provided by Stryker Bertec

CAUTION

The pediatric stretcher uses oil-impregnated shoulder spacers at hinge points. **Do not** lubricate these shoulder spacers. When shoulder spacers are found worn, they must be replaced.

This preventative maintenance program should be performed at least **twice** a year.

____ All fasteners secure.

____ All plastic covers (including the base hood) intact. Replace if broken. Patient's safety could be at stake if any plastic cover is cracked, as sharp edges may be present.

____ Lubricate where required (see figure 2.2, next page).

____ Calibrate the optional scale system **once a year** (see section 3.7, "Scale Calibration").

____ Review, **semi annually**, each function of the optional scale system. Refer to the verification of the scale in the Set-Up Procedures section of the Operations Manual. Should the weight reading precision be out of the acceptable range, i.e. ± 0.5 lb (0.22 kg) for weights between 4 to 120 lb, do not wait for the next annual scale calibration scheduled; proceed immediately to its calibration (see section 3.7, "Scale Calibration").

____ Side/endrail handles trigger and rotating movement operates properly.

____ Side/endrails raise and lower smoothly, and lock in the 9", 14" and upper position. If a siderail moves with difficulty, remove the brake shoe cover and adjust the position of the stop catches. Refer to step 11 of the "Central Column Assembly" replacement procedure, section 3.15 of the Cub Maintenance Manual).

____ Side/endrails automatically stop at the 9" position when lowered without interruption (handle kept rotated to the left or right while lowering the rail) from upper positions. Rotating the handle to the left or right further lowers the rail from the 9" position to its lowest position under the mattress surface.

NOTE

On some stretchers, the 9" double safety lock may not be present.

____ Optional access doors open, close and lock properly. Release knobs operate properly.

____ Check the optional access door open/close color indicators for proper operation. Green should appear when the door is closed and locked, and yellow when the door is open. Verify the access doors are closed and locked when both open/close indicators show green.

____ Optional assisted or manual Fowler operates properly.

____ Foot section support arm operates properly.

____ Optional brake pedal operates properly. All casters lock with the brake pedal engaged.

____ Optional steer pedal operates properly. Fifth steer wheel operational with the steer pedal engaged.

____ Optional lift pedal operates properly. Litter raises when the pedal is pumped.

____ Optional uni-lower pedal operates properly. Trendelenburg positions and litter descent are operational when uni-lower pedal is depressed.

____ All casters secure and swivel properly.

____ Ground chain intact and secure.

____ Fixed height stretcher four casters lock and unlock properly using the brake lever.

____ No oil leak on optional hydraulic jacks.

____ Optional hydraulic jacks holding properly.

____ Optional hydraulic jack oil level sufficient (see Maintenance Manual, section 3.2).

____ No rips or cracks in the mattress cover.

____ Optional retracting protective top secure and working properly.

____ Optional IV Caddy secure and working properly.

____ Standard or optional premium accessory brackets secure.

Serial No. _____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Completed By: _____ Date: _____

BASE LUBRICATION

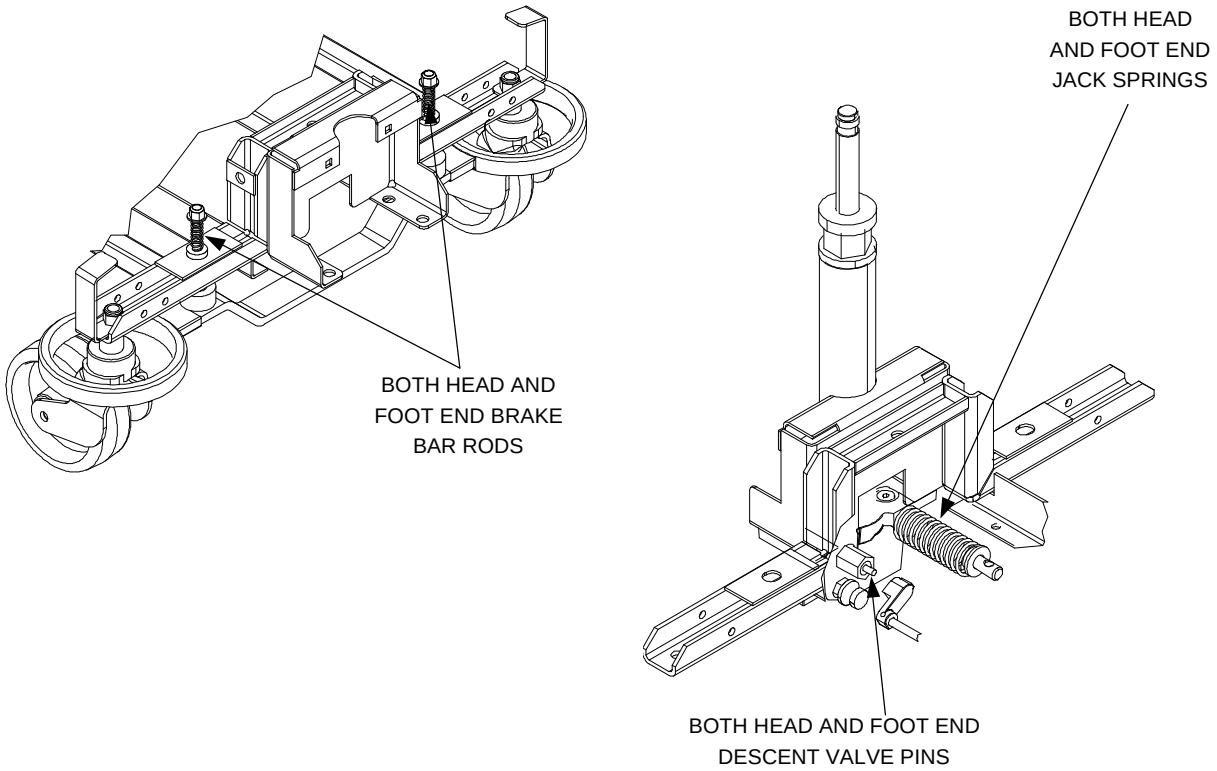


Figure 2.2

RECOMMENDED SPARE PARTS

The following is a list of recommended on hand spare parts for the Cub.

Base Assembly Parts	**P/N**	**Parts List No.**
Fifth Wheel Caster	RL5	OL190006
5" Lock Caster (Fixed Height Stretcher)	RT5TF	OL190190
6" White Caster (Hydraulic Stretcher)	19-0718	OL190008
Brake Bar	19-0382S	OL190008
Neutral Guide Plate	QR19-0812	OL190008
Hydraulic Raising Pedal	QDF5056	OL190189
Hydraulic Lowering Pedal	QDF5061	OL190189
Butterfly Brake/Steer Pedal	QDF5059	OL190008
Base Hood	QP19-0359	OL190189
O_2 Bottle Retaining Collar (Optional)	QDF5071	OL190045
Black Bellow	QDF5053	OL190189
Constant Descent Hydraulic Jack	QDF5060	OL190189
Litter Assembly Parts		
Head Section	19-0052P	OL190024
Foot Section	19-0053P	OL190024
Velcro Mattress Fastener	19-0135	OL190024
Foot Section Support Arm	19-0749	OL190043
Manual Fowler Support Arm	19-0761	OL190025
Assisted Fowler Cable	QDF190354	OL190024
Assisted Fowler Gas Cylinder 600N	QDF5087	OL190024
Assisted Fowler Activation Lever	QP19-0210	OL190024
Rail and Access Door Assembly Parts		
Rolling Bearing Support	19-0305	OL190014
Handle Assembly	See with Tech. Serv.	OL190026
Central Locking Column Assembly	See with Tech. Serv.	OL190026
Rail Assist Cable	19-0381	OL190019
Siderail Upper Cover	QP19-0465-10	OL190010
Endrail Upper Cover	QP19-0466-10	OL190015
Access Door Release Knobs - Outer Part	QP19-0545	OL190016
Access Door Release Knobs - Inner Part	QP19-0546	OL190016
Access Door Hinge - Outer	19-0402Z	OL190016
Access Door Hinge - Inner	19-0403Z	OL190016
Left Access Door Upper Cover	QP19-0553-10	OL190016
Right Access Door Upper Cover	QP19-0637-10	OL190017
Assist Mechanism Cable	19-0381	OL190019-20
Scale System Parts (optional)		
Membrane	QDF19-0867	OL190143
PC Board	QDF19-0888	OL190143

Load Cell	QDF19-0865	OL190143
Cover for the Accessory Bracket w/ Scale	80-5000	OL190143
Angle Sensor Assembly	80-5001	OL190145
Angle Sensor Only	QDF21-1036	OL190145

Miscellaneous Parts

Shoulder Spacers	QDF17-0020
White Touch-Up Spray Paint	HS412W117
OG2 Grease	M0027

3. MAINTENANCE

3.1 HYDRAULIC JACK REPLACEMENT / LITTER REMOVAL

Required Tools:

Phillips Screwdriver	Supports (2)	1/2" Wrench
Rubber Hammer	Spring Compression Tool	1/2" Socket and Ratchet
9/16" Wrench	9/16" Socket and Ratchet	OG2 Grease
Thread Locker (Medium Strength)		

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the litter and all rails.

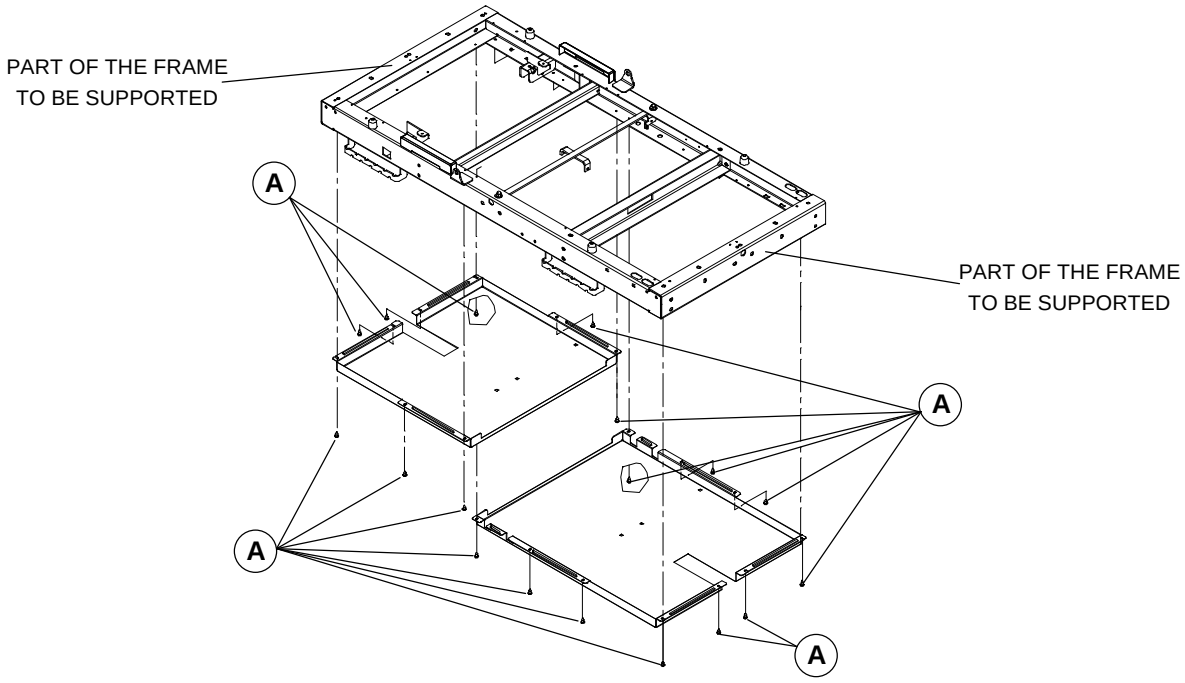


Figure 3.1A

2. Using a Phillips screwdriver, remove the 18 screws (A, fig. 3.1A) holding the lower head and foot cover plates. Remove the two cover plates.
3. Place under both ends of the stretcher frame appropriate supports (each must be capable of supporting at least 200 lb (91 kg).

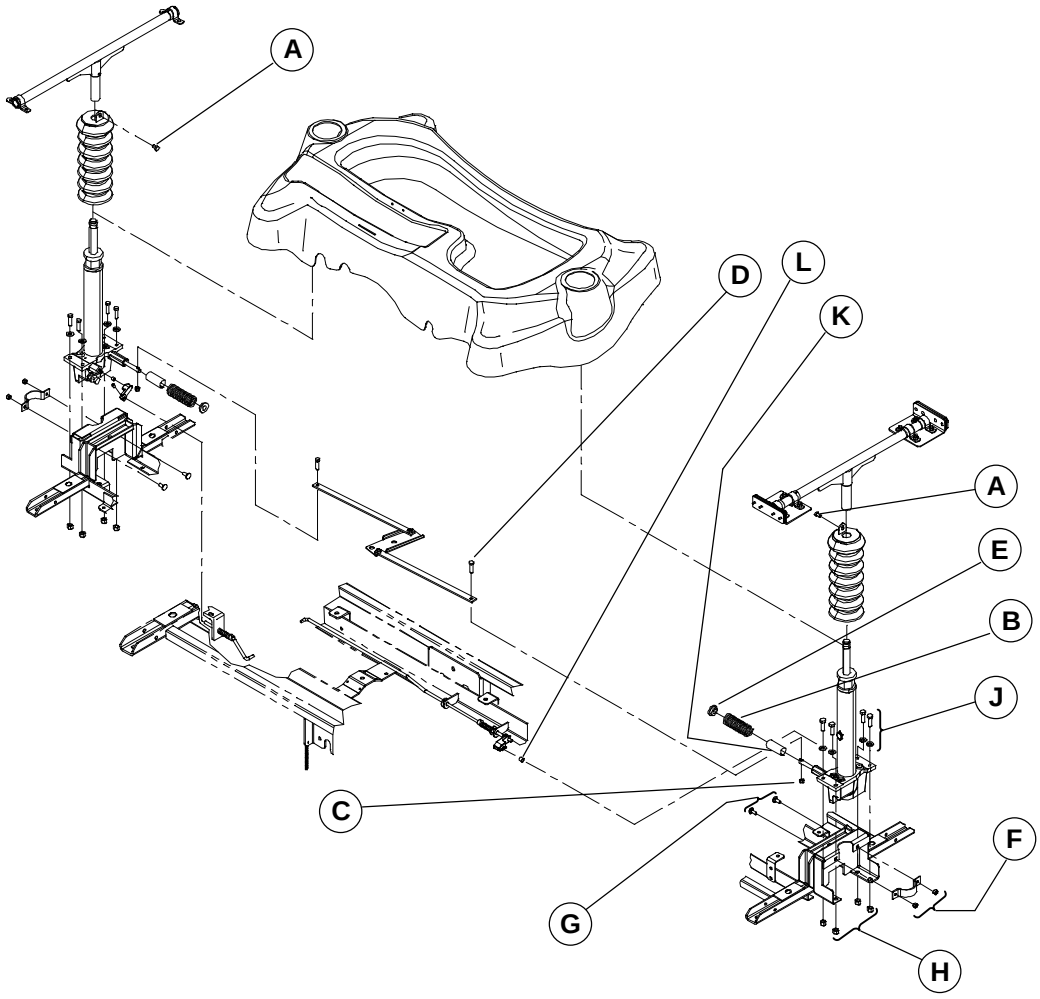


Figure 3.1B

4. Using a 1/2" wrench, remove the bolt (A) holding the litter support to the jack actuator rod on both ends. The bolt also holds the upper part of the black bellow.

NOTE

You may need to hammer the litter support to remove the actuator rod out of it. Use a rubber hammer.

Apply medium-strength thread locker on the bolt threads before re-assembly.

5. Fully lower the jacks using the appropriate release pedal.
6. Remove the two black bellows.
7. Move the base from under the supported stretcher litter to an appropriate working area.
8. Lift off the plastic base hood, separating the Velcro fasteners holding it to the base frame.
9. Using a spring compression tool, compress the pump spring (B) of the jack needing replacement.
10. Using a 1/2" wrench and a 1/2" socket and ratchet, remove the locknut (C) and bolt (D) linking the activation bar to the pump piston.
11. Remove the spring (B) and shoulder socket (E) from the pump piston.

NOTE

Apply grease on the spring before reassembly.

12. Using a 1/2" wrench and 1/2" socket and ratchet, remove the two locknuts (F) and bolts (G) holding the jack clamp to the frame.

13. Using a 9/16" wrench and a 9/16" socket and ratchet, remove the four locknuts (H), washers and bolts (J) holding the jack base to the base frame. Support the jack base before removing the fasteners.
14. Pull the jack out. Proceed carefully as the release valve pin is still engaged in the descent lever. Keep the spring holder (K) and the safety stop (L) for the replacement jack.
15. Reverse steps 12-14 to install the replacement jack.
16. Replace the pump spring and activation bar using the spring compression tool.
17. Reinstall the base hood, the bellows, the stretcher litter and the cover plates.
18. Check the jack for proper operation and adjust the jack descent rate (see the "Jack Descent Rate Adjustment", procedure 3.3).

3.2 CHECKING HYDRAULIC FLUID LEVEL

Required Tools:

3/4" Wrench Bungee Cords Mobil Aero HFA Hydraulic Fluid

Verification Procedure:

ITEM	PART NO.	PART NAME
A	45–966	O–Ring
B	45–967	O–Ring
C	390–2–134	Conical Comp. Spring
D	715–1–301	Base Plug
E	715–1–309	Valve Plug
F	715–1–341	Poppet
H	715–100–325	Pump Replacement Ass'y
J	926–20–153	Check Valve
K	926–20–154	Seal
L	926–20–156	Seal
M	1210–70–9	Valve Assembly
N	5050–70–50	P.C. Valve

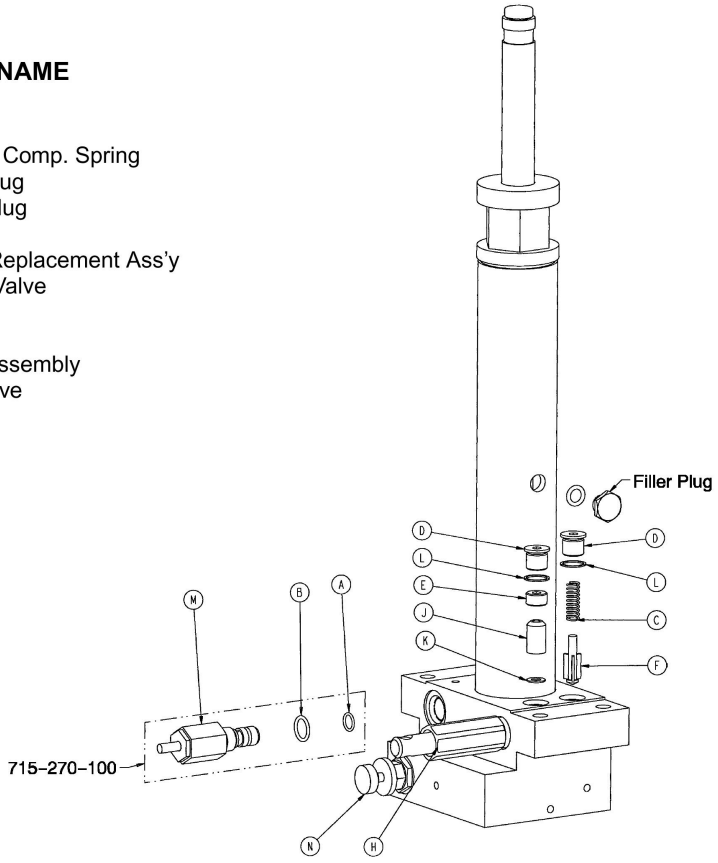


Figure 3.2

1. Apply the stretcher brake. Fully lower the litter and fully raise all rails.
2. Be sure there are no hydraulic leaks. If there are, jack replacement will be necessary (see section 3.1).
3. Remove the bottom part of the bellows from the base hood, lift and support them using bungee cords to clear access to the filler plug.
4. Using a 3/4" wrench, slowly turn the filler plug located on the side of the reservoir counter clockwise to allow excess system pressure to vent. Remove the fill plug.

5. The hydraulic fluid should be visible at the bottom of the hole. If not, add Mobil Aero HFA hydraulic fluid (Stryker part number 2020-70-475) until the fluid is visible at the bottom of the fill hole. Replace the fill plug.

NOTE

Use of types of oil other than the one recommended may damage hydraulic units.

6. Verify the jack operation before reinstalling the bellows.

3.3 CONSTANT FLOW JACK DESCENT RATE ADJUSTMENT

Required Tools:

Bungee Cords

Adjustment Procedure:

NOTE

Unless otherwise stated, reference letters in the following procedure refer to figure 3.2, page 17.

The jack descent rate was preset at the factory to lower the foot slightly faster than the head. It is recommended to have the foot end lower faster to avoid patient disorientation.

1. Apply the stretcher brake. Fully raise litter and all rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the base frame, and support it using bungee cords.
3. The adjustable descent valve is located on the base of the jack, and has a blue knob on the end (N). To adjust, loosen the silver locking ring by turning it counter clockwise. Turning the blue knob (N) clockwise will increase the rate of litter descent. Turning it counter clockwise will decrease the rate of descent.
4. Adjust the valves so that the jack at the foot end of the stretcher descends slightly faster than the jack at the head end.
5. Remove the bungee cords and replace the base hood.

3.4 REMOVING EXCESS AIR FROM THE HYDRAULIC SYSTEM

1. Verify all hydraulic linkages are secure and operate properly.
2. Using the pump pedal, actuate system several times. This will force the air through the system and allow the jack to work properly.

3.5 HYDRAULIC VALVE REPLACEMENT

POPPET VALVE

Required Tools:

Bungee Cords 1/4" Allen Key Small Needle Nose Pliers
Torque Wrench

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.2, page 17.

1. Apply the stretcher brake. Fully lower the litter and fully raise all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.

NOTE
Jack must be lowered completely to relieve the pressure on the pump piston side of the jack.

3. Using a 1/4" Allen key, remove the base plug (D) and the seal (L).
4. Remove the compression spring (C).
5. Using a small needle nose pliers, remove the poppet valve (F).
6. Install the new poppet valve (F).
7. Reinstall the compression spring (C).
8. Reinstall the seal (L) and the base plug (D) and tighten to 10 lbf-ft (13.5 N-m) torque.
9. Pump up the jack to the maximum height. Apply weight and ensure the jack holds its position and there are no hydraulic leaks before reinstalling the base hood.
10. Remove the bungee cords and reinstall the base hood.

CHECK VALVE

Required Tools:

Bungee Cords 1/4" Allen Key Small Needle Nose Pliers
Stiff Wire (with bent, pointed end) 1/2" Diameter Rod Torque Wrench

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.2, page 17.

1. Apply the stretcher brake. Fully lower litter and fully raise all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.

NOTE
Jack must be lowered completely to relieve the pressure on the pump piston side of the jack.

3. Using a 1/4" Allen key, remove the base plug (D) and the seal (L).
4. Using a 1/4" Allen key, remove the valve plug (E).
5. Using a stiff wire with a bent, pointed end, remove the check valve (J) and the seal (K).
6. Reinstall the seal (K) flat in the bottom of its hole with a 1/2" diameter rod.
7. Install the new check valve (J) with the beveled end up (as shown in illustration 3.2).
8. Install the valve plug (E) and tighten to a 10 lbf-ft (13.5 N-m) torque.
9. Install the seal (L) with the base plug (D) and tighten to a 10 lbf-ft (13.5 N-m) torque.

10. Pump up the jack to maximum height. Apply weight and ensure the jack holds its position and there are no hydraulic leaks before reinstalling the base hood.
11. Remove the bungee cords and reinstall the base hood.

3.6 ADJUSTABLE PRESSURE COMPENSATED (P.C.) VALVE REPLACEMENT

Required Tools:

13/16" Wrench Bungee Cords

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.2, page 17.

1. Apply the stretcher brake. Fully lower the litter and fully raise all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.

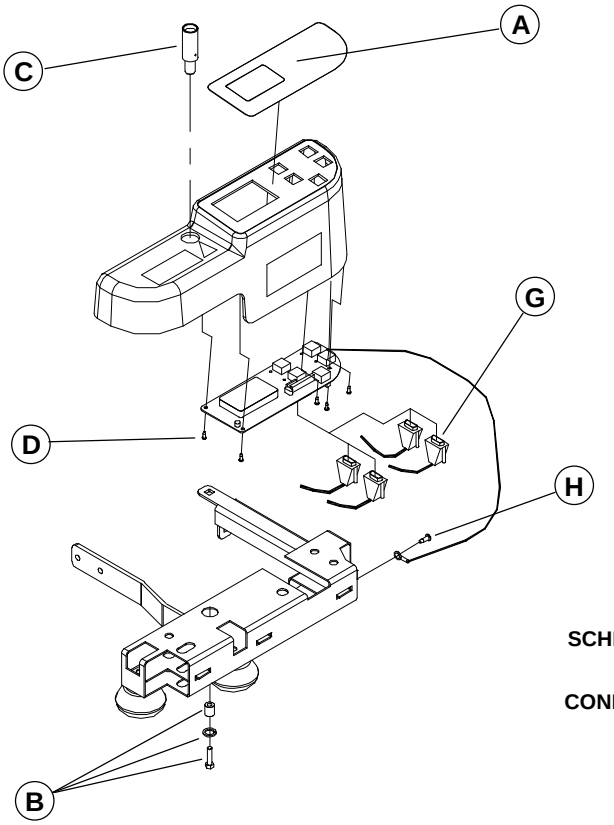
NOTE
Jack must be completely lowered to relieve the pressure on the pump piston side of the jack.

3. Using a 13/16" wrench, remove the adjustable P.C. valve (N).
4. Check for any contaminants in the valve as well as in the jack base.
5. Install the replacement P.C. valve (N). Moisten the O-ring seal with hydraulic fluid to ensure a tight seal.
6. Tighten the valve manually and then add an additional 1/8-1/4 turn with a 13/16" wrench. **Do not over-tighten** or damage may occur to the O-ring seal.
7. Pump up the jack to the maximum height and fully lower it to verify proper operation.
8. Check for any hydraulic fluid leaks before reinstalling the base hood.
9. Remove the bungee cords and reinstall the base hood.

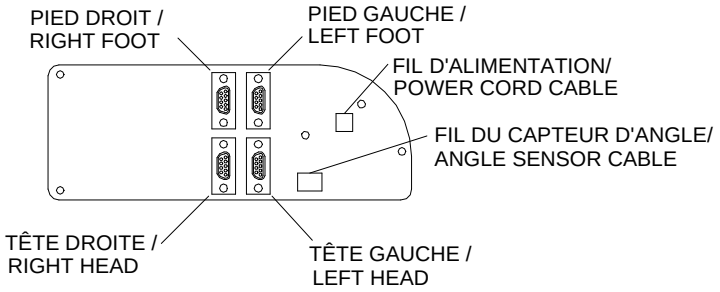
3.7 SCALE (OPTIONAL) COMPONENT REPLACEMENT

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 optional scale system. Failure to observe this restriction can result in serious damage to material and/or severe injury to patient or operator.



SCHEMA DE CONNEXION DES CABLES DES CELLULES DE CHARGE SUR LA CARTE ELECTRONIQUE/
CONNECTION DIAGRAM OF THE LOAD CELL CABLES TO THE PC BOARD



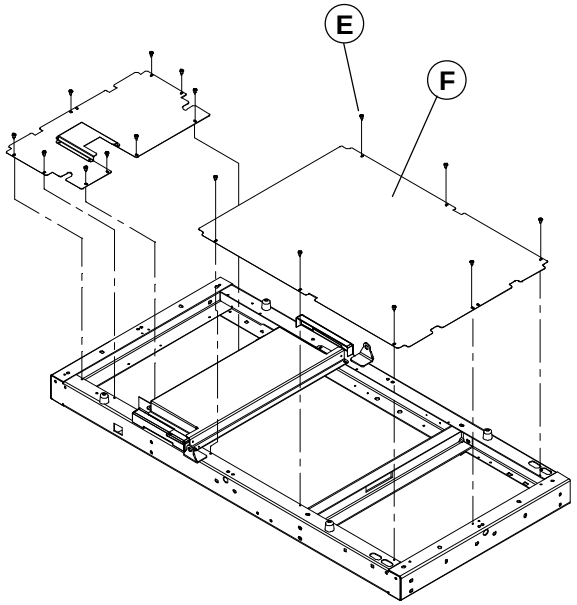


Figure 3.7A

SCALE MEMBRANE

Tools needed:

Small Flat-Blade Screwdriver Isopropyl Alcohol

Replacement Procedure:

NOTE

Unless otherwise indicated, all reference letters in this procedure refer to figure 3.7A on page 21.

1. Slide the screwdriver under the membrane (A) and lift it until a firm grip is possible. Proceed carefully to avoid damaging the cover.
2. Pull on the membrane to completely remove it.
3. Clean any glue residue with isopropyl alcohol.
4. Remove the protective film behind the replacement membrane and stick the membrane on the cover. Make sure to properly position the membrane before sticking it permanently.
5. Check each function of the scale control panel for proper operation before returning the stretcher to service.

ACCESSORY BRACKET COVER

Tools needed:

Phillips Screwdriver 9/16" Wrench Cutting Pliers

Replacement Procedure:

NOTE

Unless otherwise indicated, all reference letters in this procedure refer to figure 3.7A on page 21.

1. Fully lower foot rail. Refer to Appendix A of this Maintenance Manual to temporarily lower this rail in the case of a fixed endrail.
2. Fully raise both siderails.
3. Using a Phillips screwdriver, remove the screws (E) holding the foot cover plate (F) to the frame. Remove the plate.
4. Using a 9/16" wrench, remove the bolt, washer and spacer (B) holding the protective top socket (C) to the accessory bracket.
5. Use appropriate static protection (see section 1.7).
6. Using cutting pliers, cut a few nylon Ty-raps holding the cables to the lower cover plate and the accessory bracket to free the cables for the next step.
7. Lift the cover while slowly pulling on the cables and turn it toward you until you can access the cover inner side.
8. Using a Phillips screwdriver, remove the five screws (D) holding the PC Board to the cover and remove the PC Board from the cover.
9. Reverse the above steps to install the replacement cover.

NOTE

The replacement cover is equipped with the membrane and all necessary labels.

10. Check each function of the scale control panel for proper operation before returning the stretcher to service.

SCALE PC BOARD

Tools needed:

Phillips Screwdriver 9/16" Wrench Cutting Pliers
Small Flat-Blade Screwdriver

Replacement Procedure:

NOTE
Unless otherwise indicated, all reference letters in this procedure refer to figure 3.7A on page 21.

1. Fully lower the foot rail. Refer to Appendix A of this Maintenance Manual to temporarily lower this rail in the case of a fixed endrail.
2. Fully raise both siderails.
3. Manually lift the foot section and fold it toward the head end of the stretcher.
4. Using a Phillips screwdriver, remove the screws (E) holding the foot cover plate (F) to the frame. Remove the plate.
5. Using a 9/16" wrench, remove the bolt, washer and spacer (B) holding the protective top socket (C) to the accessory bracket.
6. Use appropriate static protection (see section 1.7).
7. Using cutting pliers, cut a few nylon Ty-raps holding the cables to the lower cover plate and the accessory bracket to free the cables for the next step.
8. Lift the cover while slowly pulling on the cables and turn it toward you until you can access the cover inner side.
9. Using a small flat-blade screwdriver, remove the load cell cable connectors (G) from the PC Board. Carefully note their connecting position so that they are properly reconnected to the replacement PC Board. You can also refer to figure 3.7A on page 21 for the connecting position of each load cell cables to the PC Board.
10. Disconnect the other cables connected to the PC Board. Carefully note their connecting position so that they are properly reconnected to the replacement PC Board.
11. Using a Phillips screwdriver, remove the screw (H) holding the PC Board grounding wire to the accessory bracket.
12. Using a Phillips screwdriver, remove the five screws (D) holding the PC Board to the cover and remove the PC Board from the cover. Lay the cover down.
13. Reverse the above steps to install the replacement PC Board.

NOTE
Do not forget to remove the protective film from the board LCD screen.

14. Calibrate the scale system. Refer to the "Scale Calibration" procedure on page 27.
15. Check each function of the scale control panel for proper operation before returning the stretcher to service.

LOAD CELL

Tools needed:

Phillips Screwdriver	9/16" Socket and Ratchet	9/16" Wrench
Torque Wrench	Cutting Pliers	Jack Stands (2)
Small Flat-Blade Screwdriver	0.036" Shim	1/2" Wrench

Replacement Procedure:

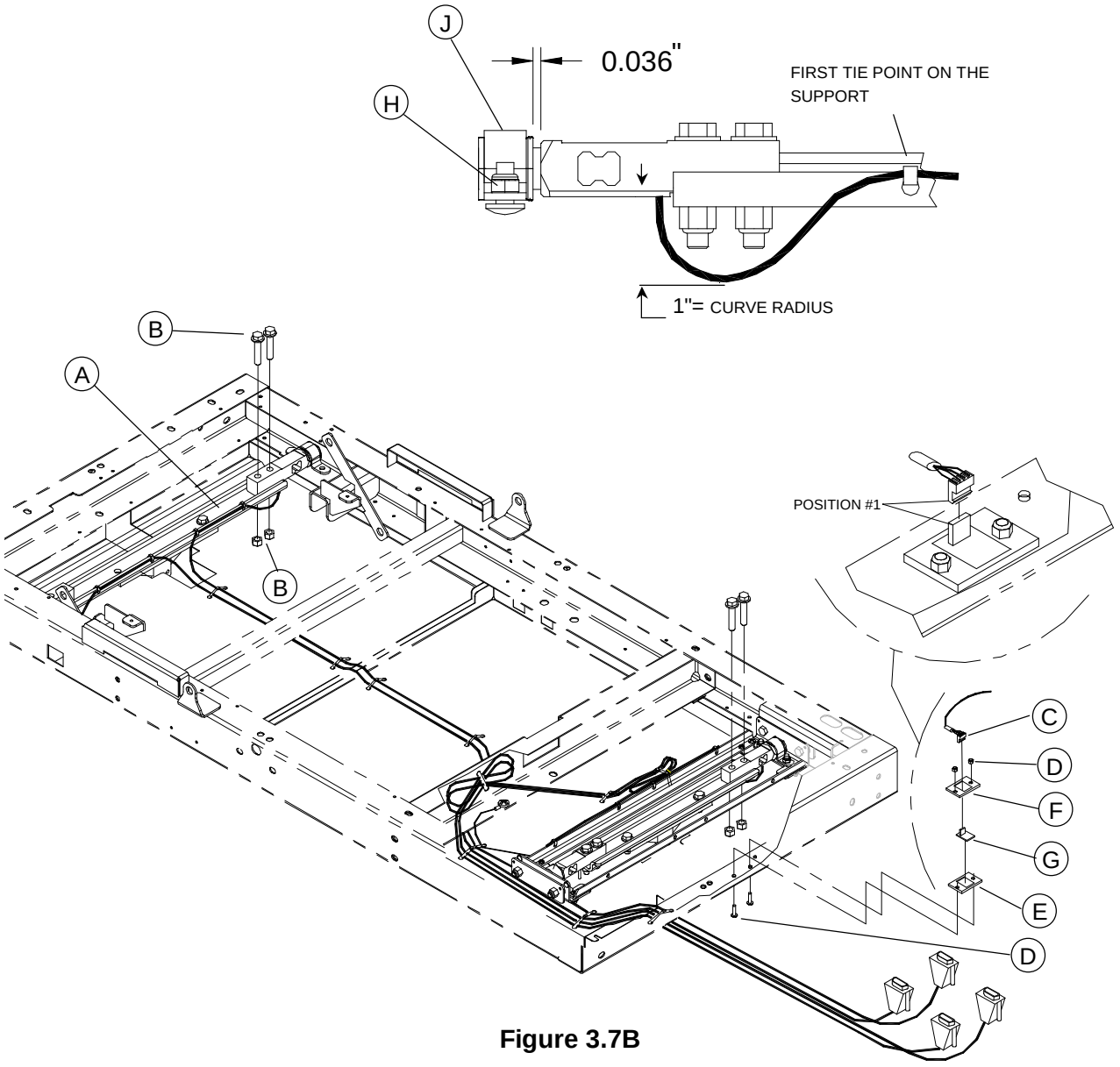


Figure 3.7B

1. Fully raise the stretcher and the siderails, and lower the head or foot rail, according to the position of the cell to be replaced.
2. Manually lift the foot section and fold it toward the head end of the stretcher.
3. Using a Phillips screwdriver, remove the screws (E, fig. 3.7A, page 21) holding the foot cover plate (F, fig. 3.7A, page 21) to the frame. Remove the plate.
4. Place two jack stands under the head or foot end of the frame, according to the position of the load cell to be replaced. The jack stands must be placed so that they not interfere with the descent of the stretcher at the next step.

5. Lower the stretcher until it rests on the jack stands. The frame support (A) is now free of any tension.
6. Using a 9/16" wrench and a 9/16" socket and ratchet, remove the two bolts/locknuts (B) holding the load cell to the frame support.

NOTE

A torque wrench must be used when definitely tightening the two bolts to apply a 450 lbf-in torque.

7. Half-turn the load cell in order to disengage its cable and slide the load cell out of its location.
8. Using cutting pliers, cut the Ty-raps holding the defective load cell cable all along its path to the PC Board. Note the position of these Ty-raps but most of all, note the loose given to the cables between each tie point. This loose must absolutely be respected so that the stretcher movements do not tense the cables.

NOTE

When tying the cable to the first tie point, ensure the cell cable has a 1" radius curve before tying it to the support (see figure 3.7B on page 24).

Moreover, **do not tense** the cell cable when attaching it along its path to the PC Board. Some play is necessary between the first and the second tie points to take into account the stretcher movements. Look at the cable of the adjacent load cell as a reference.

9. Using a 9/16" wrench, remove the bolt, washer and spacer (B, fig. 3.7A, page 21) holding the protective top mounting socket (C, fig. 3.7A, page 21) to the accessory bracket.
10. Using a small flat-blade screwdriver, remove from the PC Board the connector of the defective load cell cable.
11. Pass the connector through the opening in the lower cover plate and remove the defective load cell.
12. Reverse the above steps to install the replacement load cell.

NOTE

Before definitively tightening the two bolts holding the replacement load cell, it is important to make sure that the replacement load cell is perfectly centered with the load cell located on the other end of the frame support and that a .036 in (.914 mm) distance separates the load cell from the adjacent nylon support (see figure 3.7B on page 24). To do so:

- Place the two bolts and install the two locknuts. Tighten them, but not too much so that the load cell can still be moved.
- Then, place a perfectly straight rule on the frame support against the two load cells and lean the replacement load cell on the rule to properly align it.
- While taking care not to move the load cell, tighten the two bolts/locknuts using a 9/16" wrench and a 9/16" socket and ratchet. Finish tightening the bolts using a torque wrench to apply a 450 lbf-in torque to each bolt.
- Using a 1/2" wrench, loosen lightly the two locknuts (H, fig. 3.7B, page 24)) holding the clamp (J, fig. 3.7B, page 24) to the frame and move the nylon bearing until a 0.036" shim can be inserted between the load cell and the nylon bearing (see figure 3.7B on page 24). Tighten the two locknuts.

13. Calibrate the scale system. Refer to the "Scale Calibration" procedure on page 27.
14. Check each function of the scale control panel for proper operation before returning the stretcher to service.

ANGLE SENSOR (Hydraulic Base Stretcher Only)

Tools needed:

Philips Screwdriver 3/8" Wrench

Replacement Procedure:

NOTE

Unless otherwise indicated, all reference letters in this procedure refer to figure 3.7B on page 24.

1. Fully raise the foot rail and fully lower both siderails.
2. Lift and fold the foot section back toward the head end of the stretcher.
3. Using a Phillips screwdriver, remove the screws (F, fig. 3.7A, page 21) holding the foot cover plate (G, fig. 3.7A, page 21) to the frame.
4. Disconnect from the angle sensor (G) the cable (C) linking the angle sensor to the scale PC Board.

NOTE

Be sure to properly reconnect the cable to the angle sensor. Pin one (red wire) of the cable connector must face pin one of the angle sensor connector (see illustration 3.7B on page 24). The red wire of the cable connector should be facing the right side of the stretcher (see note at the end of the safety precaution list, page 7)

5. Using a Phillips screwdriver and a 3/8" wrench, remove the two screws/nylon nuts (D) holding the angle sensor support (E) and the retaining plate (F) to the frame.
6. Remove the defective angle sensor.

NOTE

On some stretcher, the angle sensor is glued to its support and the retaining plate. It should then be ordered as P/N 80-5001: Angle Sensor Assembly.

Note the position of the angle sensor before removing it to properly install the replacement sensor (see illustration 3.7B on page 24).

7. Reverse the above steps to install the replacement angle sensor.
8. Calibrate the scale system. Refer to the "Scale Calibration" procedure on page 27.
9. Check each function of the scale control panel for proper operation before returning the stretcher to service.

SCALE CALIBRATION

Tools needed:

Proof mass of about 100 lb (45 kg), calibrated to ±0.05 lb (0.02 kg).

NOTE
We recommend that you use a weight of about 100 lb (45 kg) to calibrate the scale (you may use two calibrated 50 lb (22.6 kg) masses). It is very important that the weight of the mass used be determined with a precision of ±0.05 lb (0.02 kg).

If the weight of the masses used does not have the required precision, a controlled weighing of these masses must be made in order to determine their respective weight with a 0.05 lb precision.

1. Perform the following steps to access the technician mode menu:
   - Simultaneously press on the *lb / kg*, *Change Equipment* and *Weigh/On* keys during at least two seconds and release them.
   - Successively press on the *lb / kg, lb / kg, Weigh/On, Change Equipment* and *lb / kg* keys. "**Cbr?**" will then be displayed on the screen.
2. Press the *Weigh/On* key. **H** or **F** will appear on screen.
3. Use the *lb / kg* key to access **F** for a fixed base stretcher or **H** for an hydraulic base stretcher.
4. Press the *Weigh/On* key to validate the choice.

NOTE
When **F** (fixed base stretcher) is chosen, only the four load cell calibration will be done (step 5 to 11 of the procedure). Once the *Weigh/On* key is pressed at step 11, « **Cbr?** » will appear on screen. Pressing the *Zero* key then will return the scale module to its normal operation mode.

5. A weight - the one of the proof mass used during the previous calibration - will appear on the screen. Enter the new proof mass weight using the *lb / kg* key to increase the weight by 0.1 lb or the *Change Equipment* key to decrease it by 0.1 lb. Pressing either keys during two seconds will quickly increase or decrease the weight. For example, if the calibrated proof mass weighs 100.58 lb, enter 100.6 lb; if it weighs 100.54 lb, enter 100.5 lb.
6. Once done, press the *Weigh/On* key. "**FrEE**" will then be displayed on the screen.
7. Bring the stretcher to horizontal position (0° ±0.5°) and ensure there is no mass (0 lb) on the stretcher. Wait five seconds and press the *Weigh/On* key. The analog-to-digital converter (ADC) is now calibrated.

NOTE
The icons "Movement" or "Error" may appear on the screen during the readings made for the calibration, indicating that the stretcher moves too much or the reading is in error. If so, the reading will have to be taken again.

8. "**F-L**" will then be displayed on the screen. Place the proof mass on the foot left corner and wait five seconds. Press next the *Weigh/On* key.
9. "**F-r**" will then be displayed on the screen. Place the proof mass on the foot right corner and wait five seconds. Press next the *Weigh/On* key.
10. "**H-r**" will then be displayed on the screen. Place the proof mass on the head right corner and wait five seconds. Press next the *Weigh/On* key.
11. "**H-L**" will then be displayed on the screen». Place the proof mass on the head left corner and wait five seconds. Press next the *Weigh/On* key. "**FrEE**" is then displayed on the screen.

    If calibrating a **fixed base** stretcher, the procedure stops here and "**Cbr?**" will appear on screen. See note following step four above.
12. Bring the stretcher to horizontal position (0° ±0.5°) and ensure there is no mass (0 lb) on the stretcher. Wait five seconds and press the W*eigh/On* key.

13. "**10° 0 lb**" is then displayed on the screen. Place the stretcher in maximum Trendelenburg position (+10°, head down, foot up), with no weight on it (0 lb) and wait five seconds. Press next the *Weigh/On* key.
14. "**10°**" with the "**Weight**" icon are then displayed on the screen. The stretcher being still in maximum Trendelenburg position, lay the proof mass at the **foot end of the litter (in the centre)** and wait five seconds. Press next the *Weigh/On* key.
15. "**-10°**" with the "**Weight**" icon are then displayed on the screen. Place the stretcher in maximum reverse Trendelenburg position (-10°, foot down, head up) with the proof mass still at the **foot end of the litter (in the centre)** and wait five seconds. Press next the *Weigh/On* key.
16. "**-10° 0 lb**" is then displayed on the screen. The stretcher being still in maximum reverse Trendelenburg position, **remove the proof mass** and wait five seconds. Press next the *Weigh/On* key.
17. "**Cbr?**" is then displayed on the screen. Press the *Zero* key during at least two seconds to return to the normal scale operating mode.
18. Check now the scale calibration.
    - Place a mass of approximately 50 lb (22.7 kg) calibrated to ±0.05 lb (0.02 kg) on the centre of the sleep surface.
    - Take readings at -10° (head up, foot down), 0° and +10° (head down, foot up).
    - Ensure the readings have a ±0.5 lb (0.2 kg) precision.

ERROR CODE LIST AND EXPLANATIONS

NOTE

When an abnormal situation occurs during the operation or maintenance of the scale system, the icon "*Error"* appears with the error code to guide in the troubleshooting of the error. If it happens during the calibration of the scale, correct the error and take the reading again. If happening during the normal course of operation of the scale, the scale system will be reset as soon as the error is corrected and the *Weigh/On* key is pressed.

Error - E01 **May happen during the individual load cell calibration.**

The load cell cables are not connected in the proper order on the PC Board and/or the load was not laid on the proper corner. Refer to figure 3.7 for the connecting position of each load cell to the PC Board.

Error - E02 **May happen during the individual load cell calibration.**

At least one load cell is assembled up side down. It is the load cell in the corner on which is placed the load.

Error - E03 **May happen during the normal course of operation of the scale.**

At least one load cell gives an impossible reading. Possibly due to the load cell cable being severed or disconnected from the PC Board.

Error - E05 **May happen during the normal course of operation of the scale.**

Overload, the patient's weight exceeds 120 lb (54.4 kg). The scale weighing capacity is limited to 120 lb (54.4 kg). The scale system should not be used when the patient's weight exceeds the scale maximum weighing capacity.

Error - E10 **May happen during the normal course of operation of the scale.**

Defective or absent (cable severed or disconnected from the PC Board) angle sensor.

Error - E11 **May happen during the calibration of the scale in relation to the angle.**

During the calibration of the scale in relation to the angle, the angle readings have values too far from the targeted values. An improper manipulation is to be considered. The calibration process should be started over.

Error - E12 **May happen during the normal course of operation of the scale.**

The angle value displayed is impossible. The value displayed is twice the value read during the calibration in relation to the angle. The angle sensor may not be calibrated anymore. This situation results in a wrong angle reading, which causes an improper correction of the weight in relation to the angle. The scale should be calibrated in relation to the angle.

Error - E13 **May happen during the calibration of the scale in relation to the angle.**

The angle has the wrong sign. The angle value must be positive in the Trendelenburg position and negative in the reverse Trendelenburg position. The cause may either be an improper assembly (angle sensor assembled on the wrong side or cable improperly connected) or an improper manipulation (head down instead of foot down or vice versa).

Error - E15 **May happen during the calibration of the analog-to-digital convertor.**

Problem with the analog-to-digital convertor (ADC) (step 7 of the calibration procedure): the response time of the ADC is too long. Repeat the calibration procedure from the beginning. If the error happens again, check the PC Board.

Error - E16 **May happen during the normal course of operation of the scale.**

Problem with the analog-to-digital convertor (ADC) during the load cell reading: the response time of the ADC is too long or the reading exceeds the capacity of the ADC. If error 03 did not appear, then a defective load cell or PC Board may be the cause of this error

Error - E17 **May happen during the normal course of operation of the scale.**

The value to be displayed exceeds 999.9. A defective load cell or PC Board may be the cause of this error.

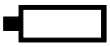
BATTERY REPLACEMENT

Tools needed:

Phillips Screwdriver

Replacement Procedure:

NOTE



The opposite icon will appear to indicate that the batteries must be replaced.

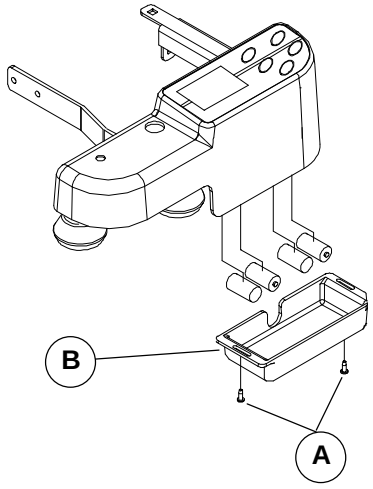


Figure 3.7C

1. Using a Phillips screwdriver, remove the two screws (A) holding the battery casing cover (B).
2. Remove the four batteries and replaced them with four new alkaline C type batteries (1.5V). Make sure the battery polarity is respected when installing them in the enclosure.
3. Reinstall the cover.
4. Reset the scale (see section 2.9, Scale Operation, of the Operations Manual) before returning it to service.

CAUTION

Use only 1.5 V alkaline batteries. The use of batteries other than the one recommended may damage the scale electronic components.

Remove the batteries if the scale module or the stretcher will not be used for long periods.

3.8 FIFTH STEER WHEEL COMPONENT REPLACEMENT

NOTE
Depending on the repair equipment available, the litter assembly removal of a fixed height stretcher may be necessary to reach the fifth steer wheel mechanism. To do so, perform the "Litter Assembly Removal" procedure below.

Access to the fifth wheel mechanism of an hydraulic stretcher is easier but if more working room is needed, the litter assembly may also be removed. Refer to step one through seven (inclusive) of procedure 3.1, page 15 to remove the litter assembly of an hydraulic stretcher.

When available repair equipment allows easy access to the fifth wheel mechanism on either stretcher model, ignore the "Litter Removal" procedure and proceed directly with the appropriate replacement procedure.

LITTER ASSEMBLY REMOVAL - FIXED HEIGHT STRETCHER

Required Tools:

Phillips Screwdriver	Bungee Cords	1/2" Wrench (2)
Trestles (2)	Supports (2)	

Removal Procedure:

NOTE
At least two people are required to safely perform this procedure. The litter frame assembly may weigh up to 200 lb (91 kg).

1. Apply the brake on all four casters. Raise all four rails.
2. Using a Phillips screwdriver, remove the 18 screws (A, fig. 3.1A, page 15) holding the two lower cover plates to the litter frame. Remove cover plates.
3. Lift the black bellows and support them using bungee cords.
4. Support both ends of the stretcher with appropriate supports (each must be capable of supporting at least 200 lb (91 kg)).

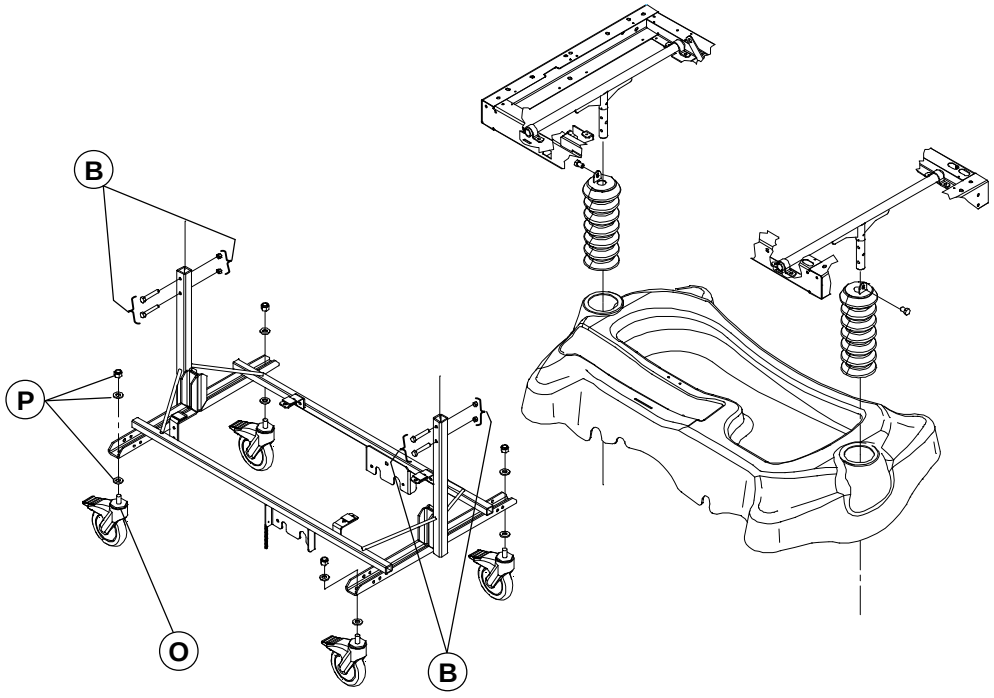


Figure 3.8

5. Using two 1/2" wrenches, remove the four bolts and locknuts (B) holding the litter support tubes to the two base posts. If the bolts are stuck, slightly raise the litter end to ease their removal.
6. With the help of another person, lift off the litter and set it aside on trestles. Each trestle should be capable of supporting at least 200 lb (91 kg).
7. Remove the base hood, separating the Velcro fasteners holding it to the base frame.
8. You are now ready to work on the fifth wheel mechanism.

WHEEL ARM ASSEMBLY

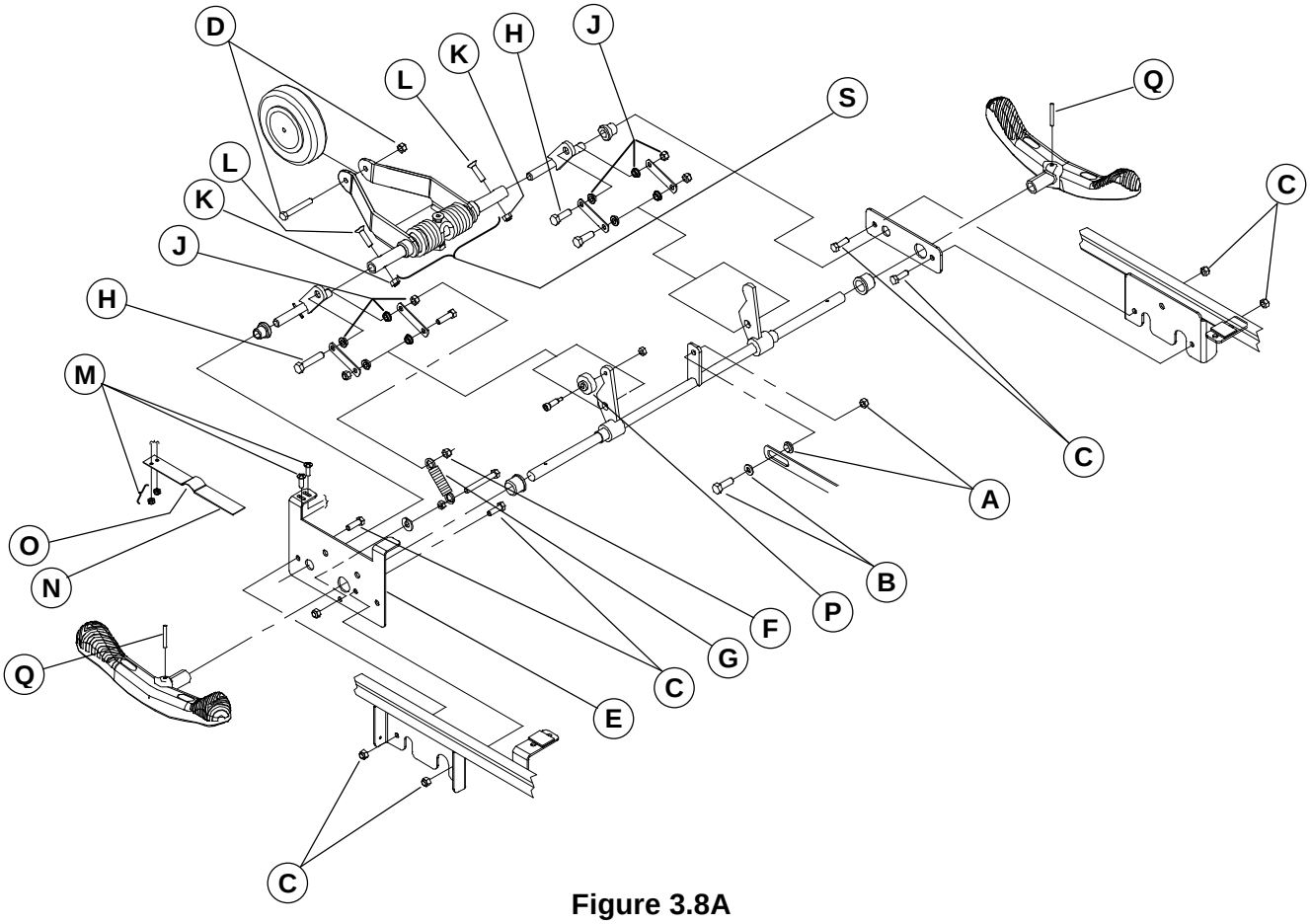


Figure 3.8A

Required Tools:

Bungee Cords 1/2" Wrench (2) 3/16" Allen Key

1/2" Socket and Ratchet

Replacement Procedure:

1. Fully raise the litter and all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.

NOTE

If the stretcher needing repair has an hydraulic base, continue with step three, otherwise (fixed height base) ignore step three and resume procedure with step four.

3. Using two 1/2" wrenches, remove the locknut/nylon shoulder washer (A) and the flat washer/bolt (B) holding the connecting rod to the brake pedal shaft.

4. Using a 1/2" wrench and a 1/2" socket and ratchet, remove the four locknuts/bolts (C) holding the fifth wheel assembly to the support plates. Lower the assembly to the ground and remove it from under the base frame. Lay assembly on a workbench.
5. Using two 1/2" wrenches, remove the locknut and bolt (D) holding the caster to the wheel arm. Remove the caster.
6. Move the left support plate (E) towards the brake/steer pedal to disengage the swing arm and torsion lever assembly from the support plates.
7. Using a 1/2" wrench, remove the locknut (F) retaining the spring hook (G) to the bolt (H).
8. Using two 1/2" wrenches, remove the two locknuts/shoulder spacers(4) (J) and bolts (H) holding the top part of the counter-levers to both fifth wheel torsion levers.
9. Using a 1/2" wrench and a 3/16" Allen key, remove the two locknuts (K) and the socket cap screws (L) holding the torsion levers to both ends of the fifth wheel shaft.

NOTE

Carefully note the torsion lever (mark their position) positions relatively to the fifth wheel shaft to properly reinstall them.

Be sure the socket cap screws (L) are tightly screwed down before tightening the locknuts (K).

10. Remove the defective wheel arm assembly (S).
11. Mount the fifth wheel on the new wheel arm assembly.
12. Reverse the above steps to install the new wheel arm assembly and reinstall the fifth wheel assembly on the base frame.
13. Verify the fifth wheel is operational with the steer pedal engaged before reinstalling the base hood.

FIFTH WHEEL CASTER

Required Tools:

1/2" Wrench (2) Bungee Cords

Replacement Procedure:

NOTE

Unless otherwise stated, reference letters in the following procedure refer to figure 3.8A on page 32.

1. Apply the stretcher brake. Fully raise the litter and all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.
3. Using two 1/2" wrenches, remove the locknut and bolt (D) holding the caster to the wheel arms. Remove the defective caster.
4. Install the new caster.
5. Remove the bungee cords and reinstall the base hood.

NEUTRAL GUIDE PLATE

Required Tools:

Bungee Cords 3/8" Wrench Phillips Screwdriver

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.8A on page 32.

1. Apply the stretcher brake. Fully raise the litter and all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.
3. Using a Phillips screwdriver and a 3/8" wrench, remove the two locknuts/screws (M) holding the neutral guide plate (N) to the left support plate.
4. Remove the defective guide plate.
5. Install the new guide plate and adjust its mounting position by first positioning the steer pedal to the neutral position and then aligning the guide plate cavity (O) with the neutral guide wheel (P). Tighten the fasteners.
6. Verify the neutral guide plate operates properly when the pedal is toggled to neutral position before reinstalling the base hood.

BRAKE/STEER PEDAL

Required Tools:

3/16" Punch Hammer Wheel Blocks

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.8A on page 32.

1. Immobilize the hydraulic stretcher with wheel blocks or lock the fixed height stretcher casters. Fully raise the litter and all four rails.
2. Position the brake/steer pedal to neutral position.
3. Using a hammer and 3/16" punch, remove the spring pin (Q) holding the pedal to the pedal shaft.
4. Remove the pedal from the pedal shaft (use of a hammer may be required).
5. Fit the replacement pedal on the pedal shaft, taking care to align the pedal and the pedal shaft holes.
6. Using a hammer, drive the spring pin in until it is flush to the top of the pedal.
7. Verify the pedal operation to ensure the unit functions properly in the brake, neutral and steer modes.

3.9 BRAKE BAR REPLACEMENT - HYDRAULIC STRETCHER

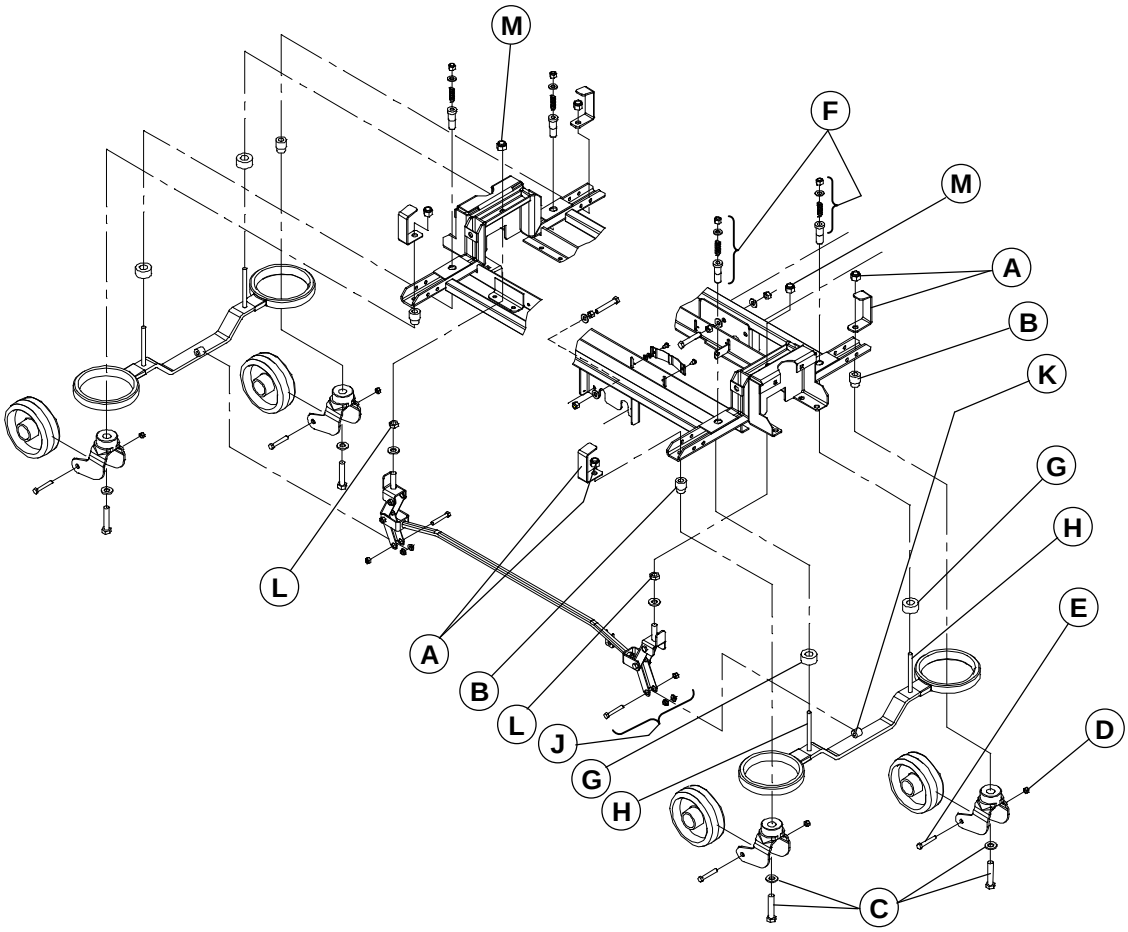


Figure 3.9

Required Tools:

Floor Jack and Jack Stands (2)	Bungee Cords	3/4" Socket and Ratchet
3/4" Angled Socket and Ratchet	5/8" Wrench	11/16" Socket and Ratchet
9/16" Wrench	1/2" Wrench (2)	OG2 Grease

Replacement Procedure:

1. Fully raise litter (hydraulic model) and all four rails.
2. Use a floor jack to raise the end of the base frame needing repair approximately 9" from the floor. Casters should be 2 1/2" off the floor. Place 2 jack stands adjusted to a 9" height under both corners of the end lifted and remove the floor jack.
3. Lift the base hood, separating the Velcro fasteners holding it to the frame, and support it using bungee cords.
4. Using a 3/4" socket and ratchet and a 3/4" angled socket and ratchet, remove the two locknuts/base hood supports (A), caster adjusting sockets (B) and washers/bolts (C) holding the two casters to the base frame. Remove both casters.

NOTE

Reaching the bolts (C) may be difficult without the adequate tool (angled socket). Removing the caster wheel will clear access to this bolt. Use a 5/8" wrench and an 11/16" socket and ratchet to remove the nut (D) and bolt (E) holding the wheel to the caster horn and remove the wheel.

5. Using a 9/16" wrench, remove the two locknuts/washers/compression springs/brake rod guides (F) and stoppers (G) holding the brake bar rods (H) to the base frame.

NOTE

Apply grease on the brake bar rods before re-assembly.

At reassembly, screw the locknut in until the rod end surface lines up with the locknut top surface.

6. Using two 1/2" wrenches, remove the locknut/shoulder spacers(2)/bolt (J) holding the brake levers to the brake bar bushing (K). Remove the defective brake bar.

NOTE

Do not lubricate the shoulder spacers, if they are worn, replace them.

Be sure to install the brake bar with the bushing (K) side facing toward the inside of the base.

7. Reverse the above steps to install the new brake bar and reinstall the casters. Before reinstalling the base hood, apply and release the brakes to verify they operate properly. If adjustment is required, see the "Brake Adjustment" procedure below.

3.10 BRAKE ADJUSTMENT - HYDRAULIC STRETCHER

Required Tools:

Bungee Cords 3/4" Wrench 3/4" Socket and Ratchet

Adjustment Procedure:

NOTE

Unless otherwise stated, reference letters in the following procedure refer to figure 3.9 on page 35.

1. Apply the stretcher brake. Fully raise the litter and all four rails.
2. Lift the base hood, separating the Velcro fasteners holding it to the base frame, and support it using bungee cords.
3. Using a 3/4" wrench and a 3/4" socket and ratchet, loosen the jam nut (L).
4. Using a 3/4" socket and ratchet, screw in the lock nut (M) and test the brakes; repeat until a proper brake adjustment is found.
5. Using a 3/4" wrench and a 3/4" socket and ratchet, tighten the jam nut (L).
6. Remove the bungee cords and reinstall the base hood.

3.11 CASTER REPLACEMENT

Required Tools:

Floor Jack and Jack Stands (2) Stryker Bertec Special Key (P/N 19-0803-Z)
3/4" Socket and Ratchet 3/4" Angled Socket and Ratchet
5/8" Wrench 11/16" Socket and Ratchet Bungee Cords

Replacement Procedure:

1. Fully raise all four rails.
2. Use a floor jack to raise the end of the base frame needing repair approximately 9" from the floor. Casters should be 2 1/2" off the floor. Support both corners of the base frame with jack stands adjusted to 9". Remove the floor jack.
3. Lift the base hood, separating the Velcro fasteners holding it to the base frame, and support it using bungee cords.

   For a fixed height stretcher, proceed with step 4 and 5 only and end the procedure.

   For an hydraulic stretcher, go to step 6.

4. While holding the caster stem (O, fig. 3.8, page 31) with a special tool available through our Technical Service department (P/N 19-0803-Z), use a 3/4" socket and ratchet to remove the locknut/washers(2) (P, fig. 3.8, page 31) holding the caster to the base frame. Remove the defective caster.
5. Install the replacement caster. Lower the stretcher to the ground and verify the new caster operation before reinstalling the base hood and returning the stretcher to service.
6. Using a 3/4" socket and ratchet and a 3/4" angled socket and ratchet, remove the locknut/base hood support (A, fig. 3.9, page 35), caster adjusting sockets (B, fig. 3.9, page 35) and washer/bolt (C, fig. 3.9, page 35), holding the caster assembly to the base frame. Remove the defective caster.

NOTE

Reaching the bolt (C) may be difficult without the adequate tool (angled socket). Removing the wheel will clear access to this bolt. Use a 5/8" wrench and an 11/16" socket and ratchet to remove the nut (D, fig. 3.9, page 35) and bolt (E, fig. 3.9, page 35) holding the wheel to the caster horn and remove the wheel.

7. Install the replacement caster. Lower the stretcher to the ground and verify the new caster operation before reinstalling the base hood and returning the stretcher to service.

3.12 HYDRAULIC BASE PEDAL REPLACEMENT

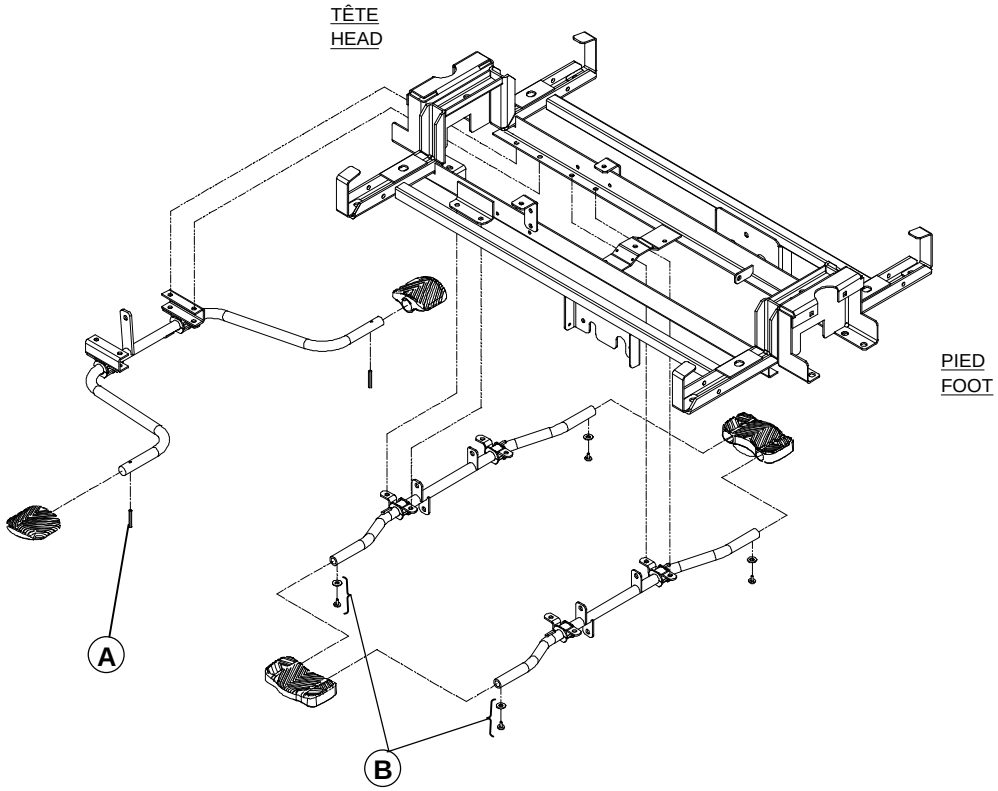


Figure 3.12

NOTE

Unless otherwise stated, reference letters in the two replacement procedures detailed in section 3.12 refer to figure 3.12 above.

PUMP PEDAL

Required Tools:

3/16" Punch Hammer

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the litter and all four rails.
2. Using a hammer and 3/16" punch, remove the spring pin (A) holding the pump pedal to the pedal rod.
3. Remove the pump pedal from the pedal rod (use of a hammer may be required).
4. Fit the replacement pedal on the pedal rod, taking care to align the pedal and the pedal rod holes.
5. Using a hammer, drive the spring pin in until it is flush to the top of the pedal.
6. Verify the pump pedal for proper operation before returning the stretcher to service.

UNI-LOWER PEDAL

Required Tools:

Drill w/ 3/16" Bit Floor Jack Pop Rivet Tool

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the litter and all four rails.
2. Use a floor jack to raise the side of the base frame needing repair approximately 4" from the ground.
3. Using a drill with a 3/16" drill bit, drill out the rivets/washers (B) holding the pedal to the pedal rod. Remove the defective pedal.
4. Using a pop rivet tool, install the replacement uni-lower pedal.
5. Verify the uni-lower pedal for proper operation before returning the stretcher to service.

3.13 ASSISTED FOWLER COMPONENT REPLACEMENT

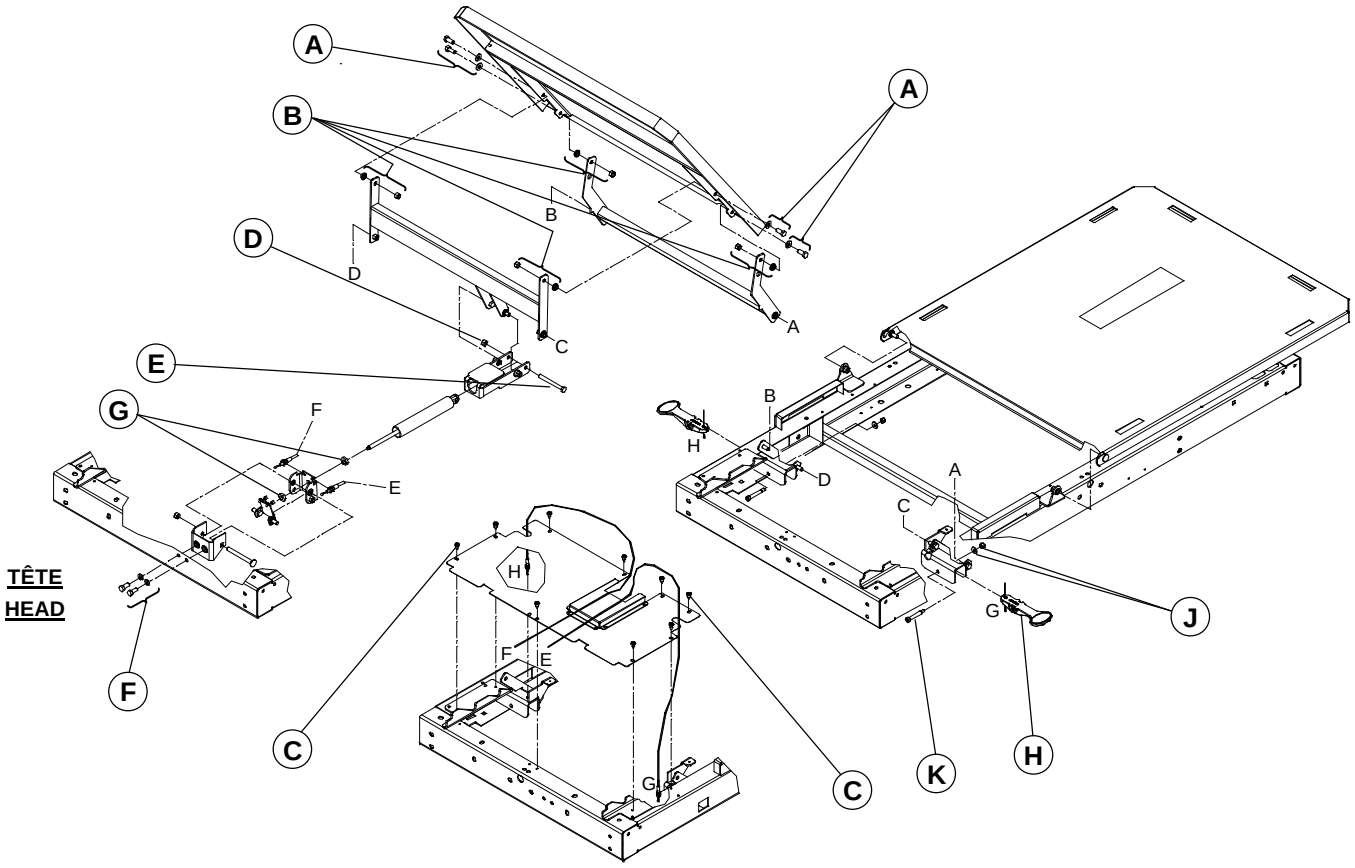


Figure 3.13

NOTE
Unless otherwise stated, the reference letters in all the replacement procedures detailed in section 3.13 refer to figure 3.13 above.

HEAD SECTION

Required Tools:

1/2" Wrench (2)

Replacement Procedure:

1. Apply the stretcher brake. Fully lower rails. Completely raise the Fowler.
2. Using two 1/2" wrenches, remove the four locknuts/shoulder spacers (A) and the washers/bolts (B) holding the head section to the two coupling bars.
3. Remove the defective head section and install the new one.
4. Verify the head section for proper operation.

PNEUMATIC CYLINDER

Required Tools:

1/2" Wrench (2) Phillips Screwdriver 11/16" Wrench

Replacement Procedure:

1. Apply the stretcher brake. Fully lower rails and completely raise the Fowler.
2. Using two 1/2" wrenches, remove the four locknuts/shoulder spacers (A) and the washers/bolts (B) holding the head section to the two coupling bars. Remove the Fowler.
3. Using a Philips screwdriver, remove the nine screws (C) holding the protective plate to the litter frame.
4. Using two 1/2" wrenches, remove the locknut (D) and bolt (E) holding the cylinder end to the bracket.
5. Using a 1/2" wrench, remove the two bolts/washers (F) holding the cylinder bracket to the litter frame.

NOTE
Apply medium strength thread locker on the bolt (F) threads before re-assembly.

6. Move the whole assembly slightly toward the centre of the stretcher and, using an 11/16" wrench, remove the two nuts (G) holding the cylinder threaded extremity to the bracket. Remove the defective cylinder.

NOTE
Apply medium strength thread locker on the nut (G) threads before re-assembly.

7. Install the new cylinder. Adjust the two nut (G) positions so that the cylinder release pin will press the activation flap enough to tighten the two Fowler release cables without activating the release pin.
8. Reinstall the cylinder assembly and the head section.
9. Test the pneumatic Fowler for proper operation before reinstalling the protective plate. If the Fowler operates erratically, adjust consequently the nut (G) positions.

FOWLER ASSIST CABLE

Required Tools:

Phillips Screwdriver 7/16" Wrench (2)

Replacement Procedure:

1. Apply the stretcher brake. Fully lower rails and completely raise the Fowler.
2. Using a Philips screwdriver, remove the nine screws (C) holding the protective plate to the litter frame.
3. Using two 7/16" wrenches, loosen the two nuts at both ends of the defective cable to enable its removal. Carefully note how the cable extremities are mounted at their tie points. Remove the defective cable.

NOTE
Carefully note the cable path to properly replace the cable at reassembly.

4. Install the new cable.
5. Adjust the two nuts at each cable end so that 1: the adjustment at the activation lever end leaves no play in the activation lever, 2: the adjustment at the activation flap end presses the activating flap against the cylinder release pin without activating it.
6. Verify the Fowler for proper operation before reinstalling the protective plate.

FOWLER ACTIVATION LEVER

Required Tools:

Phillips Screwdriver 7/16" Wrench (2) 5/32" Allen key

Replacement Procedure:

1. Apply the stretcher brake. Fully lower rails and completely raise the Fowler.
2. Using two 7/16" wrenches, loosen the two nuts holding the cable end to the activation lever (H). Remove cable from the activation lever.
3. Using a 5/32" Allen key and a 7/16" wrench, remove the locknut/washer (J) and shoulder screw (K) holding the activation lever to the litter frame. Remove the defective activation lever.
4. Install the new activation lever. Reinstall the cable end into the lever.
5. The cable end nuts must be adjusted for the Fowler to operate properly. Adjust the two nuts so that no play is left in the activation lever (see step 4 of the preceding procedure "Fowler Release Cable Replacement").

3.14 MANUAL FOWLER COMPONENT REPLACEMENT

HEAD SECTION

To replace the head section, refer to the assisted Fowler replacement procedure on page 39.

HEAD SUPPORT ARM

Required Tools:

Long Nose Pliers Bungee Cords

Replacement Procedure:

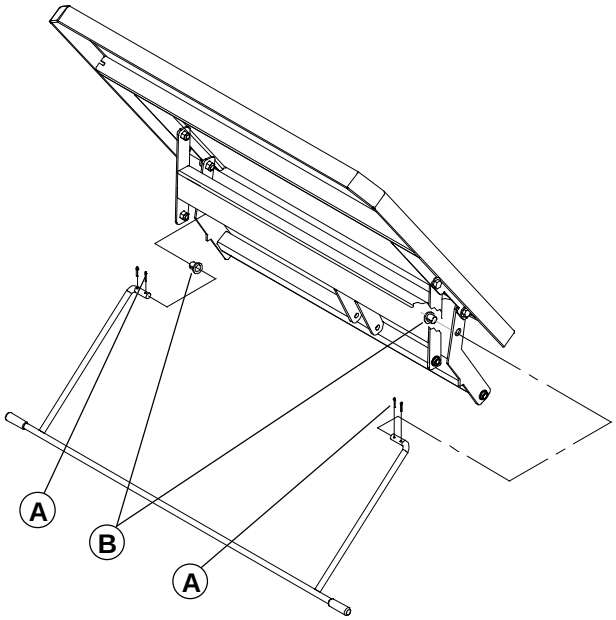


Figure 3.14

1. Apply the stretcher brake. Fully lower rails. Completely raise the Fowler and support it using bungee cords.
2. Using long nose pliers, remove the two inner cotter pins (A) holding in place the support arm.
3. Remove the defective support arm. Keep the nylon shoulder bushings (B). Replace if damaged.
4. Install the new support arm and verify it for proper operation.

3.15 SIDE/END RAIL COMPONENT REPLACEMENT

HANDLE ASSEMBLY

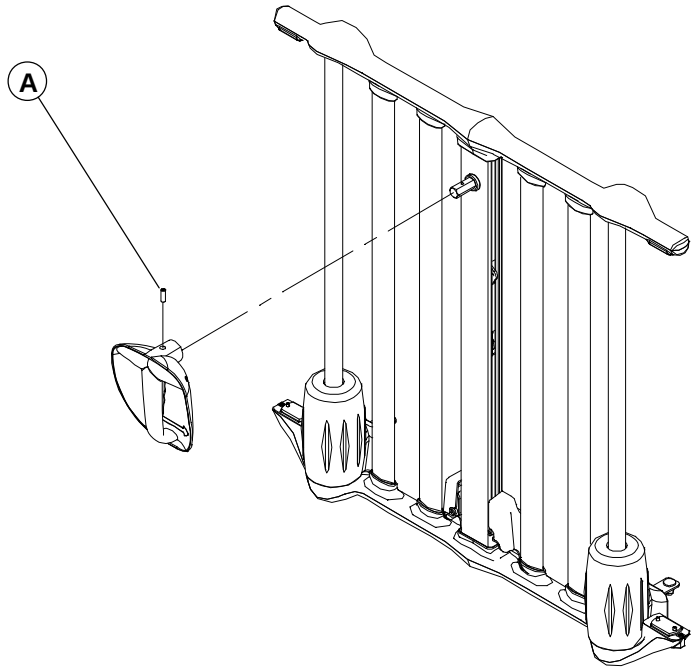


Figure 3.15A

Required Tools:

3/32" Allen Key

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the rail needing repair.
2. Using a 3/32" Allen Key, remove the set screw (A) holding the handle assembly to the shaft. Remove the defective handle assembly.
3. Install the new handle assembly and verify the trigger, the rotating movement and the locking of the rail at the 9", 14" and upper position for proper operation.

CENTRAL COLUMN ASSEMBLY

WARNING

The dismantling and reassembly of a central column inner mechanism is a complex and precise task requiring a thorough knowledge of the product. It must not be attempted without first seeking guidance from the Technical Service department (see section 1.2).
Disregarding this warning could result in serious injury to the patient or user.

NOTE

When ordering a central column, please specify if the bed is equipped with the double safety lock at the 9" position. Beds without this feature have a warning affixed to the central column indicating the rail can be lowered below the mattress surface without stopping.

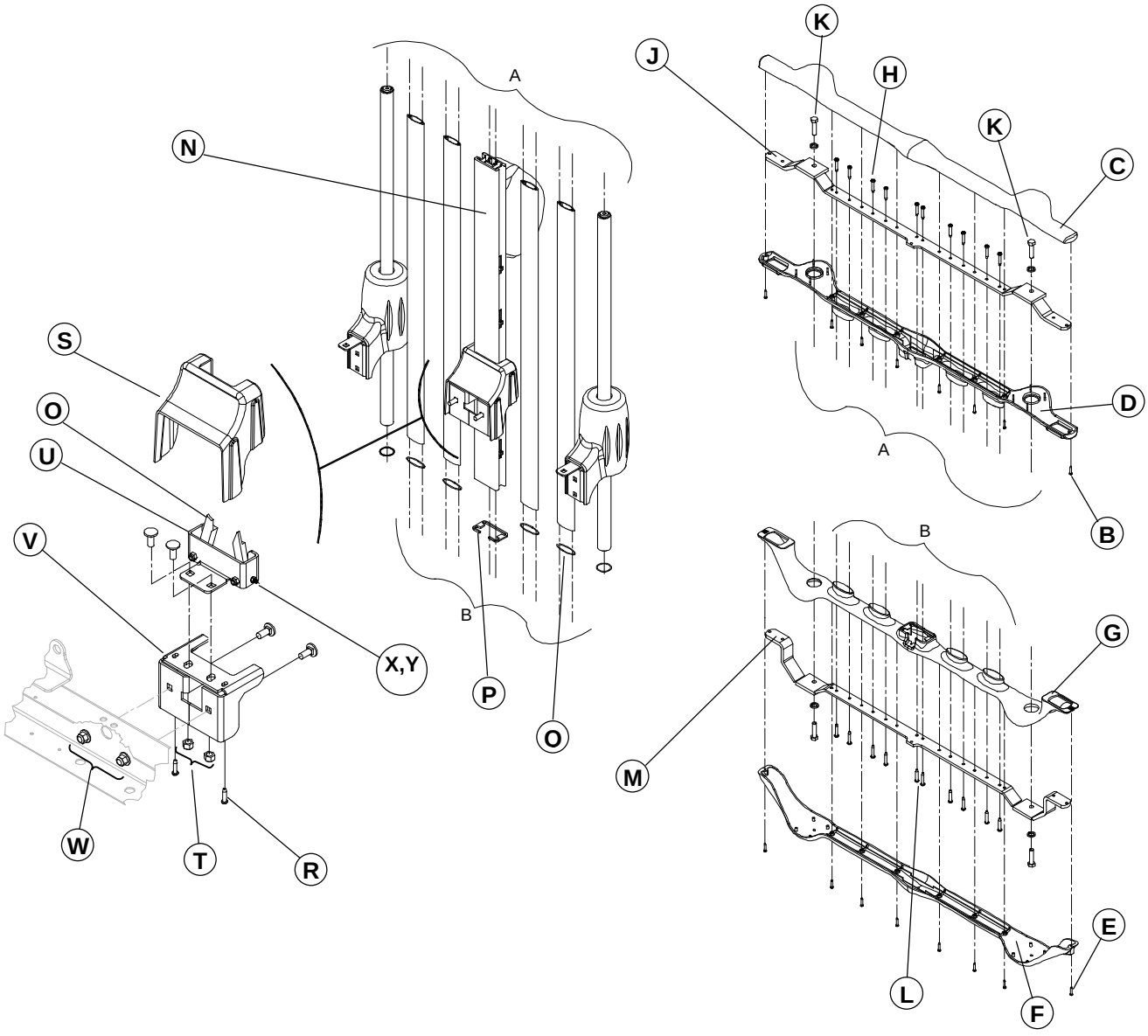


Figure 3.15B

Required Tools:

Phillips Screwdriver	Knife	1/2" Socket and Ratchet
3/32" Allen Key	3/8" Wrench	

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the rail needing repair.
2. Using a 3/32" Allen Key, remove the set screw (A, fig 3.15A, page 42) holding the handle assembly to the shaft. Remove the handle assembly.
3. Using a Phillips screwdriver, remove the eight screws (B) holding the rail upper plastic cover (C) to its lower counterpart (D). If working on a siderail, open the access doors to reach the last screw on each end of the lower plastic cover. Note that on a siderail with fixed access doors, these two last screws are not present.

NOTE
Remove the upper cover carefully to avoid damaging the lower cover snap fit pins.

4. Using a Phillips screwdriver, remove the eight screws (E) holding the rail bottom plastic cover (F) to its upper counterpart (G). If working on a siderail, open the access doors to reach the last screw on each end of the upper plastic cover. Note that on a siderail with fixed access doors, these two last screws are not present.

NOTE
Remove the bottom cover carefully to avoid damaging the upper cover snap fit pins.

5. Using a Phillips screwdriver, remove the siderail (10) or endrail (14) screws (H) holding the rail posts and central column to the upper structural member (J).
6. Using a 1/2" socket and ratchet, remove the bolts/washers (K) holding the two sliding guide posts to the structural member.
7. Remove the upper structural member (J) and the bottom plastic cover (D).

NOTE
If replacing the central column of a siderail, help will be needed to hold and remove the access doors while the upper structural member and the plastic cover is removed. The access door upper hinges are part of the structural member, only the bottom part of the access doors will be supported as the upper structural member is removed.

NOTE
At reassembly, make sure the access doors operate properly after having mounted the upper structural member and before fastening the upper plastic covers.

8. Using a Phillips screwdriver, remove the two screws (L) holding the bottom part of the central column to the lower structural member (M).
9. Gently remove the central column (N), disengaging it from the stop catches (O). Be sure the central column seal (P) remains in place when the column is removed.

NOTE
Ensure the O-ring seals (Q) located at the bottom of the posts are properly seated when reassembling the rail.

10. Reverse the above steps to install the new central column. Reinstall the handle assembly.
11. Check the stop catch (O) positions, and, if needed (see following note), follow steps 11.1 to 11.4 to adjust them.

NOTE
The right adjustment is obtained when the stop catches are laterally and longitudinally centered. The lateral positioning distributes the stop catch blocking surface equally under the fixed stoppers and prevent them from rubbing against the inner face of the plastic extrusion. The longitudinal positioning prevents the stop catches from rubbing against the inner sides of the plastic extrusion. Fine-tuning of the lateral position of the stop catches is also available through adjustment screws located on both sides of the brake shoe support.

11.1. Using a Phillips screwdriver, remove the two screws (R) holding the brake shoe cover (S) to the brake shoe support. Remove the cover.

11.2. Using a 1/2" socket and ratchet, loosen the two locknuts (T) holding the brake shoe (U) to the brake shoe support (V) and the two locknuts (W) holding the support to the frame.

11.3. Move the brake shoe (U) back and forth (longitudinal) and the brake shoe support (V) sideways (lateral) to properly position the stop catches (O). Tighten the locknuts.

11.4. To laterally fine-tune the stop catch position, loosen the locknut (X) using a 3/8" wrench and screw the adjustment screw (Y) using a 3/32" Allen key until the stop catch is properly positioned. This is especially needed when one or both stop catches still rub against the inner face of the plastic extrusion.

12. Verify the handle and the four rail positions, i.e. down, 9", 14" and 26" (highest) for proper operation before reinstalling the brake shoe cover and returning the bed to service.

RAIL UPPER/LOWER COVER

Required Tools:

Phillips Screwdriver

Replacement Procedure:

NOTE
Unless otherwise stated, reference letters in the following procedure refer to figure 3.15B, page 43.

1. Apply the stretcher brake. Fully raise the rail needing repair.

2. **Upper Cover:** Using a Phillips screwdriver, remove the eight screws (B) holding the rail upper plastic cover (C) to its lower counterpart (D). If working on a siderail, open the access doors to reach the last screw on each end of the lower plastic cover. Note that on a siderail with fixed access doors, those two last screws are not present.

   Lower Cover: Using a Phillips screwdriver, remove the eight screws (E) holding the lower plastic cover (F) to its upper counterpart (G). If working on a siderail, open the access doors to reach the last screw on each end of the upper plastic cover. Note that on a siderail with fixed access doors, those two last screws are not present.

NOTE
Remove the cover carefully to avoid damaging the snap fit pins of the cover lower or upper counterpart.

3. Install the new plastic cover, taking care that the cover receptacles match their corresponding snap fit pins in the cover lower or upper counterpart.

RAIL SUPPORT ROLLING BEARING

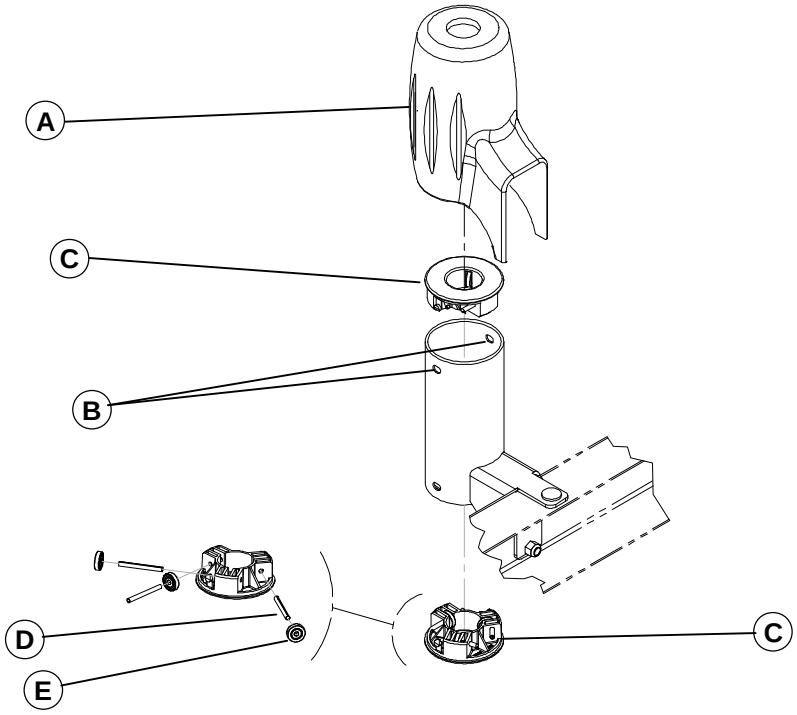


Figure 3.15C

Required Tools:

Slotted Screwdriver Long Nose Pliers Ø1/8" Punch
Bungee Cords

Replacement Procedure:

1. Apply the stretcher brake. Raise the Fowler or the foot section (if necessary, support it with bungee cords) and remove any accessory brackets present if working on a head or foot endrail.
2. If repairing the upper set of rolling bearings, fully raise the rail.
   If repairing the lower set of rolling bearings, lower the rail to the 9" position.
3. Lift the rail support cover (A). Support it using a bungee cord when the rail in is the upper position.

NOTE
The covers are tightly fit. Slightly lift each side of the plastic cover alternatively until completely removed.

4. Using a slotted screwdriver, press and lift the two locking tabs through the holes (B) located on both sides of the rail support to disengage the rolling bearing support (C) from its location.
5. Using long nose pliers, remove the spring pin (D) holding the rolling bearing (E). Remove the defective rolling bearing.
6. Using a Ø1/8" punch as a guide, insert the spring pin and the new rolling bearing in the support holes. Make sure the spring pin is centered, otherwise the rolling bearing assembly will not fit into the rail support.
7. Reinstall the rolling bearing support and the rail support cover.
8. Verify the rail for proper operation.

RAIL ASSIST CABLE

WARNING

Never replace the original assist cable by another type of cable or severe injury to the patient or user and damage to the stretcher may occur. The original cable (Part Number 19-0381) is available through our Technical Service department (see section 1.2).

Required Tools:

Phillips Screwdriver Vise Grip (2) Knife

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the rail needing repair.
2. Depending on the rail needing repair, lift and fold the foot section toward the head end of the stretcher or remove the head section to clear the way to the rail assist mechanism (see the "Assisted Fowler Component Replacement" procedure, page 39).

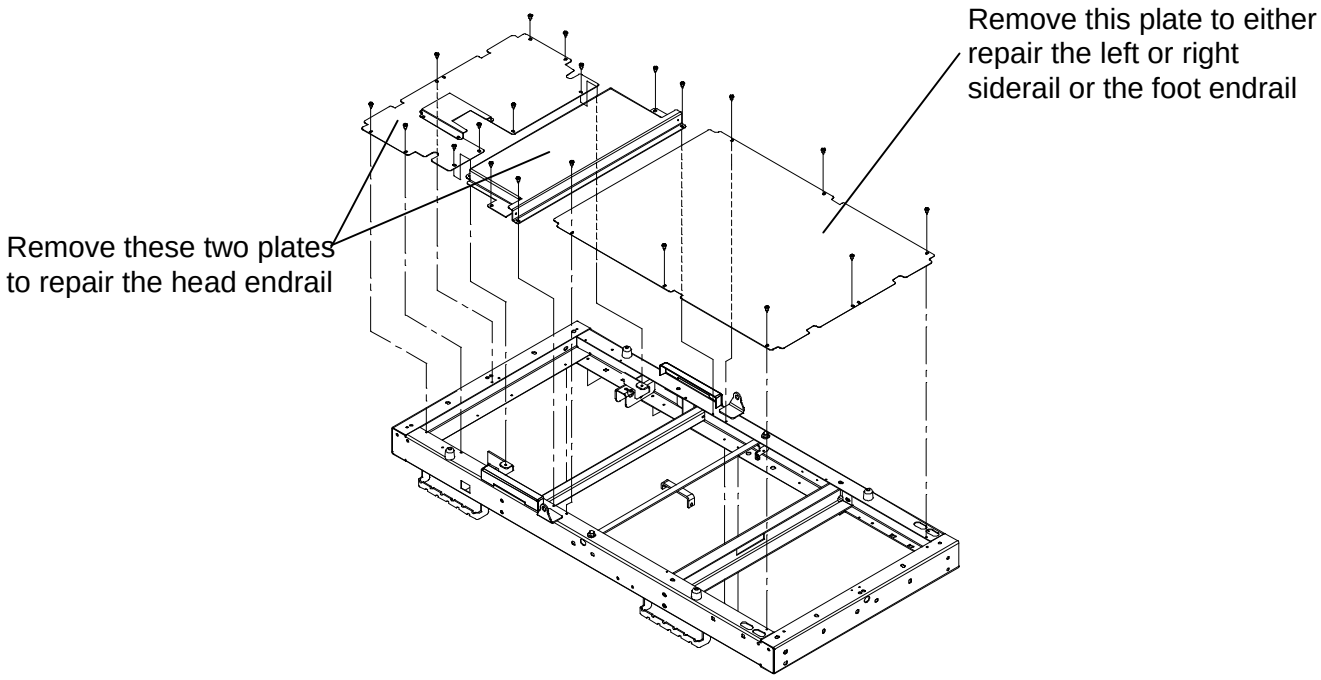


Figure 3.15D

3. Use a Phillips screwdriver to remove the screws holding the foot or head protective plate to the frame. Refer to figure 3.15D above to remove the appropriate plate.
4. Using a Phillips screwdriver, remove the eight screws (E, fig. 3.15B, page 43) holding the rail bottom plastic cover to its upper counterpart. If working on a siderail, open the access doors to reach the last screw on each end of the upper plastic cover. Note that on a siderail with fixed access doors, these two last screws are not present.

NOTE

Remove the bottom cover carefully to avoid damaging the upper cover snap fit pins.

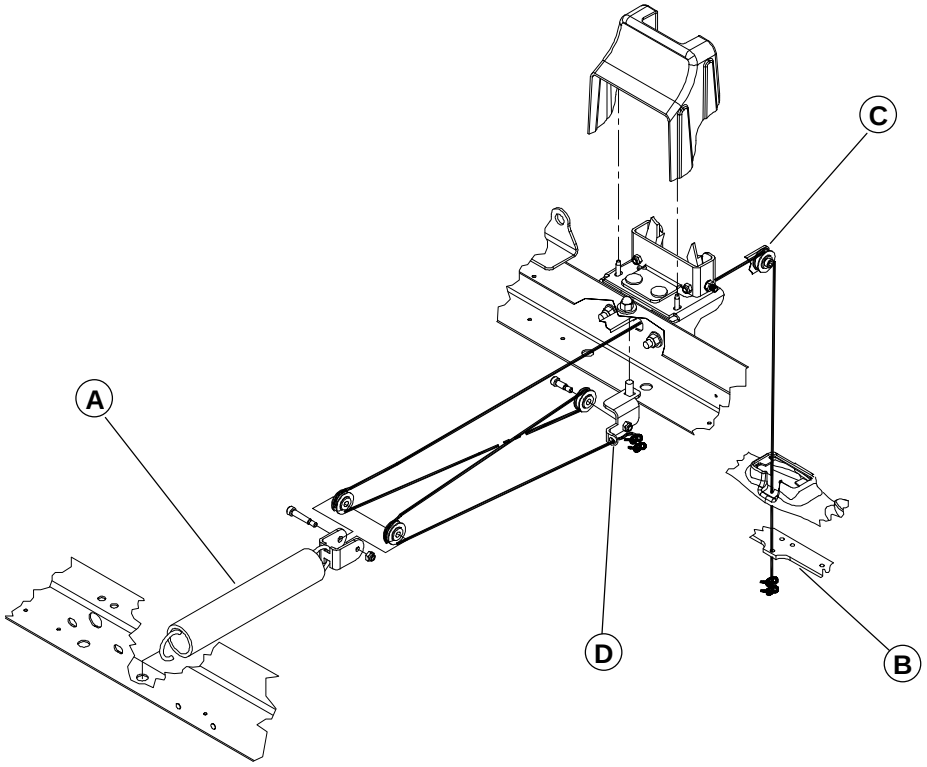


Figure 3.15E

5. Seize the cable, cut it and gently release the spring (A) to its rest state. Remove the defective cable. Note that the cable path begins underneath the lower structural member (B).

NOTE
Carefully note the complete cable path before removing it and refer to the drawings related to parts list OL190019 or OL190020 to properly replace it at reassembly.

6. Make two solid knots at one end of the new cable and pass the other end through the hole located in the center of the rail lower structural member (B) and into the first pulley (C). The rail will have to be slightly lowered to do so.
7. Raise and lock the rail in the highest position. Install the cable through the other pulleys and into the hole provided in the fixed pulley support (D) at the other end of its path. Hold it there using a pair of vise grip.
8. The cable first retaining knot position must now be found to finalize the cable installation. The following steps describe the operation.
9. The rail still being locked at the upper position, pull the cable using the vise grip and hold it tight against the fixed pulley support (D) using a second pair of vise grip. Do not pull too much on the cable, the rail must be able to lower on a distance of approx. 9". Unlock the rail using the handle and let it fall down. Raise the rail and again let it fall down by unlocking it. Repeat this operation several times. The distance traveled by the falling rail will lengthen but will finally come to a stop following the cancellation of the cable elongation factor (the cable lengthens by 2 to 3 inches).
10. Once the cable maximum elongation attained, find the position of the first retaining knot by pulling and holding the cable in different positions using vise grips until the rail lowers smoothly and reaches the 14" position without banging and locking. When the appropriate position is found, mark the cable right next to the support orifice for the first knot position and make the knot. Test once more before tightening the knot to make sure the position found is appropriate. Make another knot right after the first one. Tighten the knots and cut excess cable.
11. Verify the rail assist system for proper operation before replacing the bottom plastic cover and the protective plate(s).

3.16 ACCESS DOOR COMPONENT REPLACEMENT

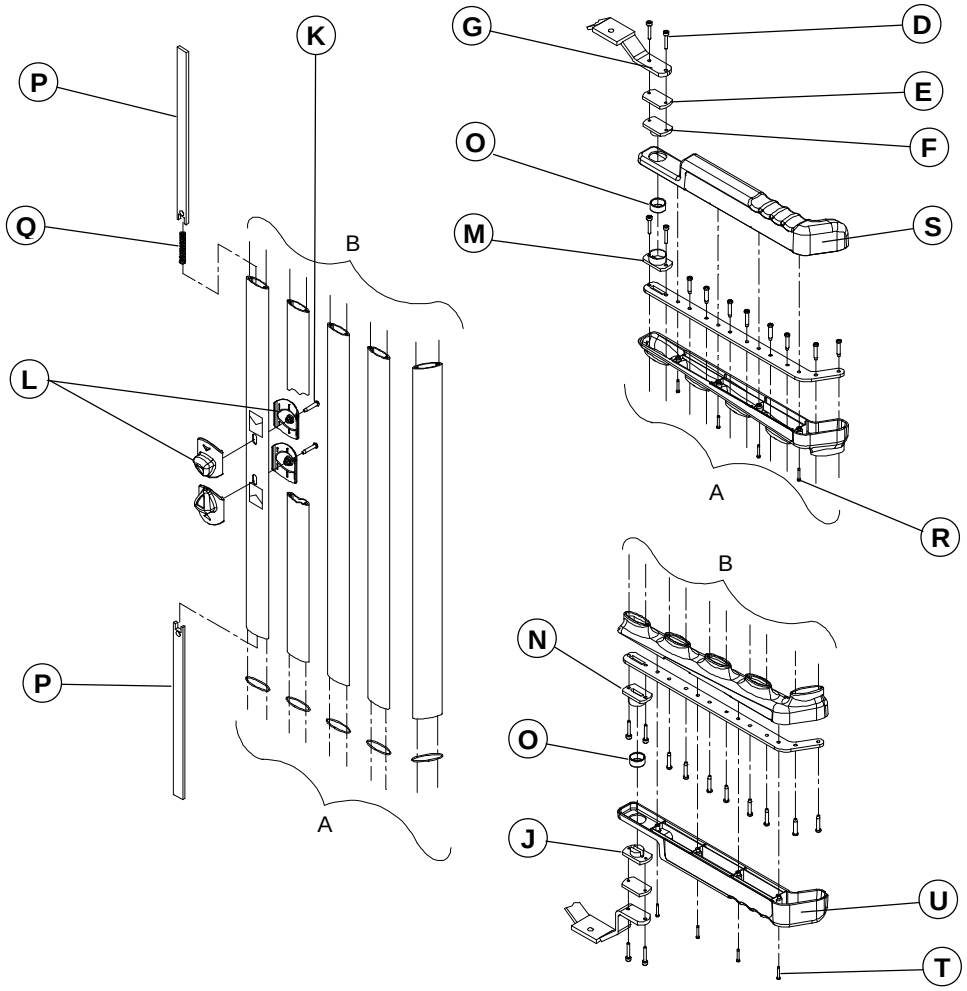


Figure 3.16

NOTE
Unless otherwise stated, reference letters in the replacement procedures detailed in section 3.16 refer to figure 3.16 above.

HINGE AND LATCH MECHANISM COMPONENT

Required Tools:

5/32" Allen Key	Medium Strength Thread Locker	1/2" Wrench
Phillips Screwdriver	OG2 Grease	

Replacement Procedure:

1. Apply the stretcher brake. Fully raise the siderail needing repair.
2. Using a Phillips screwdriver, remove the eight screws (A, fig. 3.15B, page 43) holding the siderail upper plastic cover (B, fig. 3.15B, page 44) to its lower counterpart (C, fig. 3.15B, page 43). Open the access doors to reach the last screw on each end of the lower plastic cover. Note that on siderails with fixed access doors, those two last screws are not present.

NOTE
Remove the upper cover carefully to avoid damaging the lower cover snap fit pins.

3. Using a 5/32" Allen key, remove the two screws (D) holding the spacer (E) and the outer hinge (F) to the structural member.

NOTE
Apply medium strength thread locker on the screw threads at reassembly.

4. Using a 1/2" wrench, loosen the bolt (H, fig. 3.15B, page 43) attaching the sliding guide post nearest to the access door being repaired.
5. Lift up slightly the structural member (G) extremity and the access door upper plastic cover to disengage the door upper outer hinge (F) and spacer (E) from under the structural member.
6. Lift the door and disengage it from the lower outer hinge (J). Lay the access door on a workbench.
7. Using a Phillips screwdriver, remove the two screws (K) holding the two parts of both release knobs. Remove the release knobs.
8. Identify the defective component among the followings: release knobs (L), upper (F, M) or lower (J, N) hinge mechanism, hinge sleeve (O), locking bars (P) or the compression spring (Q). Replace the defective component.

NOTE
Apply grease on the hinge mechanism and the compression spring at reassembly.

9. Reinstall the access door on the siderail.
10. Check the door and the release knobs for proper operation before reinstalling the siderail upper plastic cover. Make sure the door locks when closed. Verify that the open/close indicators show green when the door is closed and locked, and yellow when it is opened.

RELEASE KNOB

Required Tools:

Phillips screwdriver

Replacement Procedure:

1. Apply the stretcher brake. Raise the siderail needing repair.
2. Open the access door needing repair.
3. Using a Phillips screwdriver, remove the two screws (K) holding the two parts of the release knobs (L). Remove the defective release knob.
4. Install the new release knob.
5. Test the release knob for proper operation. Make sure the open/close indicators show green when the door is closed and yellow when it is open.

UPPER/LOWER PLASTIC COVER

Required Tools:

5/32" Allen Key Medium Strength Thread Locker 1/2" Wrench

Phillips Screwdriver

Replacement Procedure:

1. Proceed with step one through six of the “Hinge and Latch Component” replacement procedure, page 49.
2. **Upper Plastic Cover:** Using a Phillips screwdriver, remove the four screws (R) holding the upper plastic cover (S) to its lower counterpart.

   Lower Plastic Cover: Using a Phillips screwdriver, remove the four screws (T) holding the lower plastic cover (U) to its upper counterpart.

NOTE

Remove the defective cover carefully to avoid damaging the lower or upper cover snap fit pins.

3. Install the new cover, taking care that the snap fit pins match the posts of the upper or lower cover.
4. Reinstall the access door on the siderail.
5. Check the door and the release knobs for proper operation before reinstalling the siderail upper plastic cover. Make sure the door locks when closed. Make sure the open/close indicators show green when the door is closed and yellow when it is opened.

ACCESS DOOR REMOVAL

NOTE

To completely remove an access door, proceed with step one through six of the "Hinge and Latch Mechanism Component Replacement " procedure, page 49.

Appendix A: Installation Procedure of a Fixed Endrail

NOTE

Beds equipped with a fixed endrail will be packaged with the endrail down to prevent damage to the rail during transportation. The following procedure describes how to mount the endrail to its definitive position upon reception of the bed.

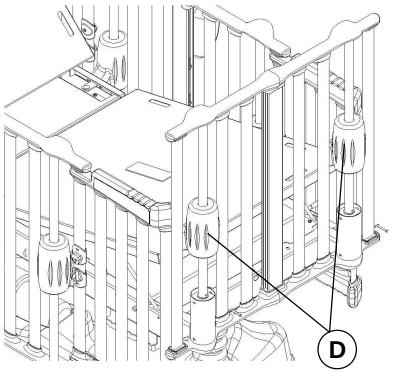


Figure A

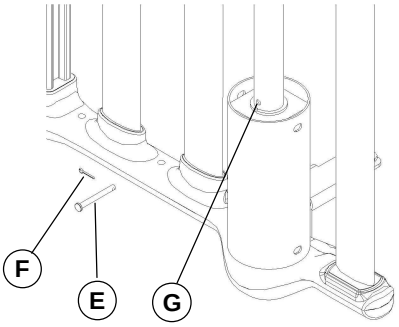


Figure B

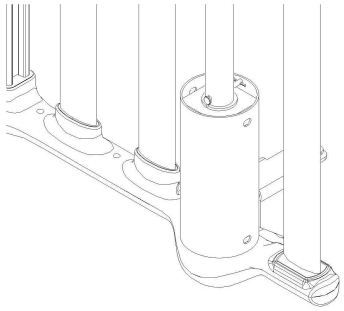
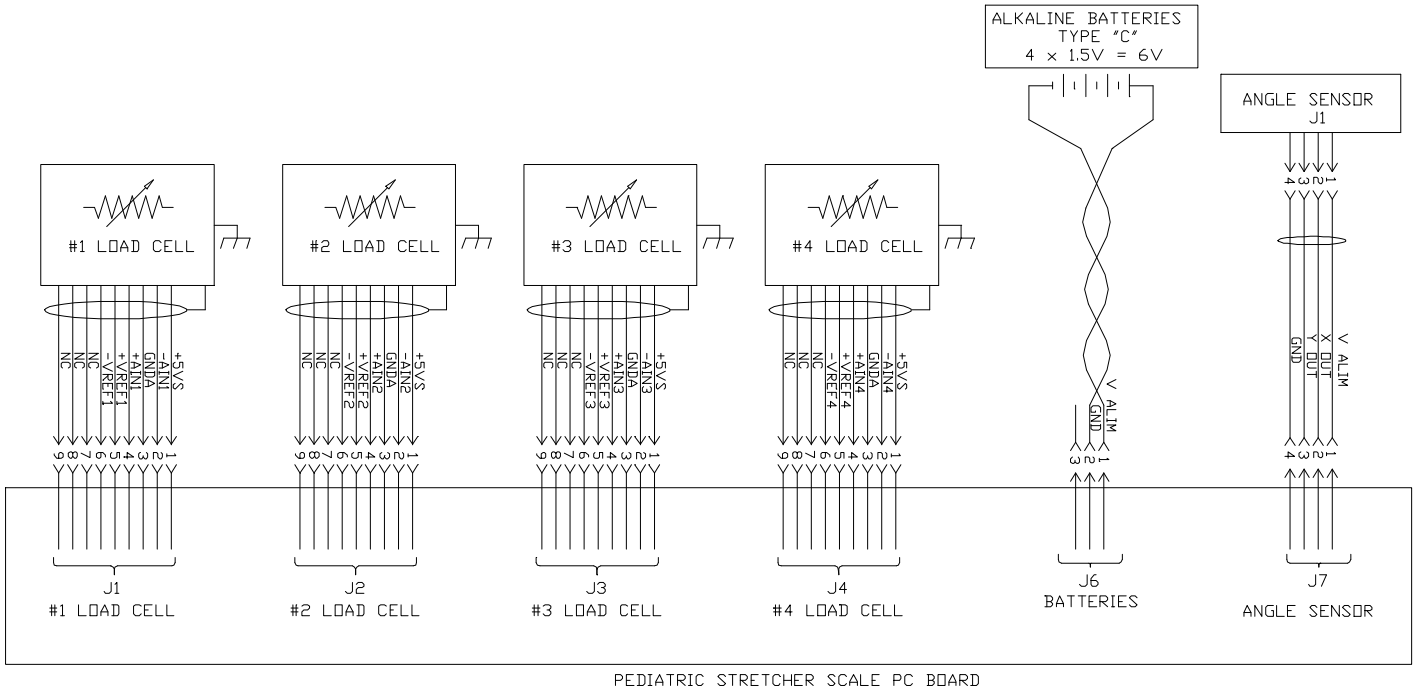


Figure C

Installation procedure:

1. Raise and maintain the endrail in high position (Fig. A).
2. Raise the barrel covers (D).
3. Insert the lock rods (E) in the provided holes (G).
4. Insert the cotter pins (F) to block the lock rods (Fig. C).
5. Remove the white powder from the barrels and reinstall the barrel covers (D).
6. Make sure the endrail is securely mounted.

Appendix B: Scale Control Board Connection Diagram



Appendix C: Protective Top Documentation

DOCUMENTATION DE L'ACCESSOIRE FA64074

ACCESSORY FA64074 DOCUMENTATION

Guide d'installation et d'utilisation / Installation and Operation Guide

Description de l'accessoire	*Accessory Description*
Toit de protection	***Protective Top***
Toit de protection conçu pour protéger les patients contre tout risque de chute au sol. Il ferme toutes les ouvertures possibles au dessus des côtés de sûreté. Cet accessoire a été conçu pour le produit suivant : Cub™ (FL19)	*Protective top designed to prevent patients from falling out the stretcher. It closes all openings above the rails.* *This accessory was designed for the following product:* *Cub™ (FL19)*

Mesures de sécurité	*Safety Precautions*
• Lisez cette procédure au complet avant de débuter l'installation et d'utiliser l'accessoire. • Certains accessoires nécessiteront avant leur installation que le patient soit retiré du lit afin d'éviter de le blesser. Lorsque nécessaire, cette mesure sera mentionnée dans la procédure d'installation de l'accessoire.	• *Read this procedure thoroughly before installing and using the accessory.* • *Some accessories may require before their installation that the patient be removed from the bed to avoid injury to the patient. When necessary, this precaution will be mentioned in the installation procedure of the accessory.*

Matériel inclus / *Material included*

Référez-vous à la liste **L64-0041** du livre de pièces inclus dans ce document.

*Refer to list **L64-0041** of the Parts List Manual included in this document.*

Installation

ATTENTION

Retirez le patient du lit avant d'entreprendre l'installation de l'accessoire.

Outils requis :

Clé 9/16"

Procédure :

Référez-vous à la figure 1 qui suit la section « Utilisation ».

REMARQUE

Deux personnes sont nécessaires pour installer le toit de protection

1. Installez les 4 poteaux dans les deux structures de plastique du toit de la façon suivante :
   Pressez la goupille d'ancrage, située dans la partie supérieure du poteau (A) et insérez le poteau dans un des quatre orifices prévus à cette fin sur les structures de plastique (B).
2. Tourner le poteau jusqu'à ce que la goupille s'insère dans l'orifice qui lui est destiné sur la face externe de la structure de plastique.
3. Installez les quatre poteaux du toit dans les douilles des supports d'accessoires et verrouillez les poteaux en place à l'aide des goupilles d'attelage (C).

ATTENTION

Avant d'utiliser le toit de protection, il est très important pour la sécurité du patient de s'assurer par un examen minutieux que le toit a été correctement installé sur la civière.

Installation

WARNING

Remove the patient from the bed before installing the accessory.

Necessary Tools:

9/16" wrench

Procedure:

See figure 1 following the Operation section.

NOTE

Two people are necessary to install the protective top.

1. *Insert the four posts into the two top plastic structures the following way:*
   Press on the lock pin located on the top part of the post (A) and insert the post into one of the four slots provided on the plastic structures (B).
2. *Ensure that the post is securely locked in place by checking that the lock pin is positioned in the slot provided on the outer side of the plastic structure.*
3. *Install the four posts in the accessory bracket sockets and lock the posts in place using the four hitch pins (C).*

WARNING

It is very important for the patient's safety that the whole assembly is thoroughly inspected before use to ensure it is properly and securely mounted.

Utilisation

1. Pour ouvrir le toit de protection du côté droit ou gauche de la civière, rapprochez les deux boutons de déverrouillage de la traverse inférieure (voir la figure 2), soulevez la traverse et rabattez le toit vers le côté opposé jusqu'à ce que l'ouverture désirée soit atteinte.
2. Pour refermer le toit, saisissez la traverse inférieure du toit et ramenez-la vers vous jusqu'à ce qu'elle se verrouille en place. Assurez-vous que le verrou à ressort de chaque extrémité de la traverse inférieure est bien engagée dans l'orifice prévu à cette fin sur la structure de plastique.

ATTENTION

Il est très important pour la sécurité du patient de s'assurer que les extrémités des deux traverses inférieures sont correctement verrouillées avant de laisser le patient sans surveillance.

Afin d'éviter des blessures aux mains et /ou aux doigts, n'utilisez jamais les bras articulés latéraux du toit pour le refermer. Manipuler toujours le toit par le centre de la traverse inférieure.

Operation

1. *To open the protective top from the left or right side of the stretcher, squeeze the two release knobs located on the lower rail (see figure 2), lift the rail and fold the top toward the opposite side until the desired opening is reached.*
2. *To close the protective top, grasp the lower rail and lower it until it locks into position. Verify that both lower rail spring plungers are properly engaged in the slot provided on the plastic structures.*

WARNING

For the patient's safety, ensure that both sides of the two lower rails are properly locked into position before leaving the patient unattended.

To avoid injury to the hands and/or fingers, do not use the lateral arms to close the top. Always use the centre of the lower rail.

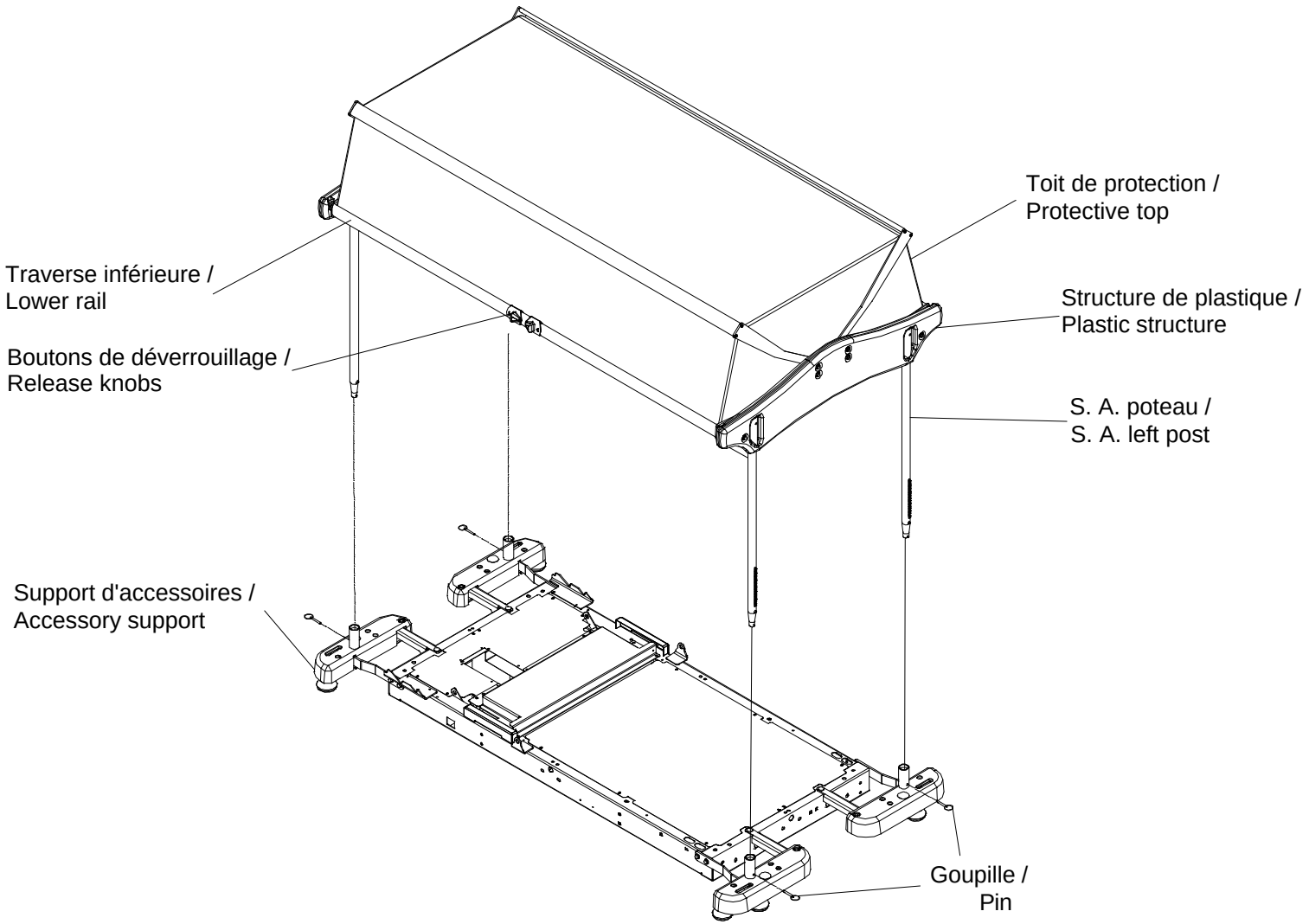
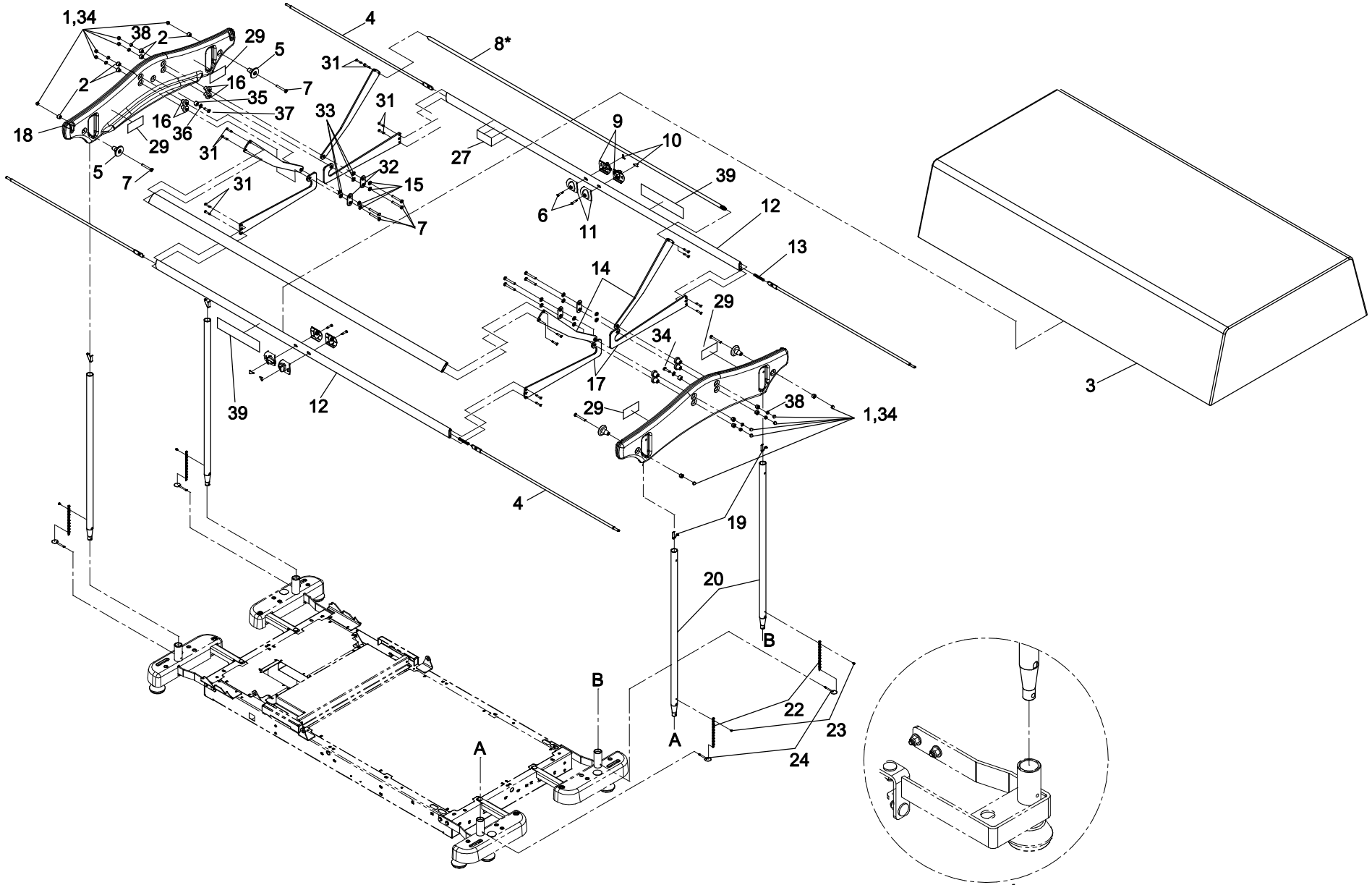

Toit de protection /
Protective top
Traverse inférieure /
Lower rail
Structure de plastique /
Plastic structure
Boutons de déverrouillage /
Release knobs
S. A. poteau /
S. A. left post
Support d'accessoires /
Accessory support
Goupille /
Pin

Figure 1

Figure 2

LIVRE DE PIÈCES DU FA64074

FA64074 PARTS LIST MANUAL



VUE AVECSUPPORT D'ACCESSOIRES RÉGULIER /
VIEW WITH STANDARD ACCESSORY BRACKETS
OL190089 ET OL190091

stryker BERTEC	TOIT DE PROTECTION *PROTECTIVE TOP*	PRODUIT : PRODUCT : L64-0041	2001–11–22 64–0588L	1 / 1	VERSION B

Listes de pièces/Part List

L64-0041

Toit de protection en vinyle

Vinyl protective top

Pour les modèles /For models FA64074,

Article *Item*	N° pièce *Part No.*	Description *Description*	Qté *Qty*
1	VE40A1N	Écrou borgne 1/4-20 p.z. *Cap nut 1/4-20 z.p.*	12
2	19-0723	Appui extérieur *Outer support*	12
3	QDF19-0725	Membrane du toit de protection *Protective top membrane*	1
4	19-0748Z	S.A. pêne de toit de protection *S.A. Protective top bolt*	4
5	19-0820	Guide de toit de protection *Protective top guide*	4
6	VVZ7A1E32	Vis tar. type AB tête pan phillips #8 x 1" p.z. *Tapping screw type AB Phillips pan head #8 x 1" z.p.*	4
7	VV33A1N50	Vis mécanique tête pan phillips 1/4-20 x 2 1/4",p.z. *Machine screw pan phillips 1/4-20 x 2 1/4" z.p.*	12
8	19-0677P	Traverse supérieure, toit de protection *Protective top upper rail*	2
9	QP19-0545	Bouton de déverrouillage- partie extérieure *Release knob - outer part*	4
10	QE71-0498	Autocollant boutons de déverrouillage, orange *Release knob sticker, orange*	4
11	QP19-0546	Bouton de déverrouillage - partie intérieure *Release knob - inner part*	4
12	19-0676P	Traverse basse, toit de protection *Protective top lower rail*	2
13	QRC19-0839	Ressort du toit de protection *Protective top spring*	2
14	19-0680P	Bras d'articulation supérieur *Upper hinge arm*	4
15	VW30A0816	Rondelle ressort en acier inoxydable *Stainless steel spring washer*	8
16	19-0724	Appui interieur *Inner support*	8
17	19-0679P	Bras d'articulation inférieur *Lower hinge arm*	4
18	QP19-0719	Structure d'assemblage *Mounting structure*	2
19	QDF5092	Goupille d'arrêt Valco # A-122 *Valco snap button # A-122*	4
20	19-0684P	S.A. Poteau gauche de toit de protection *S.A. Protective top left post*	4

Listes de pièces/Part List

L64-0041

Toit de protection en vinyle

Vinyl protective top

Pour les modèles /For models FA64074,

Article *Item*	N° pièce *Part No.*	Description *Description*	Qté *Qty*
22	19-0527	Chaîne de mise à la terre *Ground chain*	4
23	VR11H42	Rivet «POP» # 42 tête dome *Pop rivet #42 dome head*	4
24	VG50A0632	Goupille d'attelage 3/16 x 1.3" grip *Hitch pin 3/16 x 1.3" grip*	4
27	QE14399-T	Autocollant manufacturier *Manufacturer's name plate*	1
29	QE71-0533	Autocollant de toit de protection *Protective top sticker*	4
31	VV33A0G16	Vis mécanique t. pan Phillips #10-32 x 1/2" p.z. *Machine screw pan Phillips #10-32 x 1/2" z.p.*	16
32	19-0795Z	Plaque de friction *Friction plate*	4
33	QDF9540	Rondelle de freinage *Friction washer*	8
34	M0008	Ciment à filets - force moyenne (bleu) *Threadlocker - medium strength (blue)*	.16 ml
35	VEX3A1N	Insert fileté 1/4-20 hexagonale *Nutsert 1/4-20 hexagonal*	2
36	VW10C081802	Rondelle en nylon 1/4" dia. int. 9/16" dia. *Nylon washer 1/4" ins. dia. x 9/16" out*	2
37	VV33A1N24	Vis mécanique t. pan Phillips 1/4-20 x 3/4" p.z. *Machine screw pan Phillips 1/4-20 x 3/4" z.p.*	2
38	VE30A1N	Écrou hex. à blocage nylon 1/4-20 p.z. *Nylon hex. locknut 1/4-20 z.p.*	8
39	QE71-0560-F	Autocollant de mise en garde *Warning label*	2