



FERNO

When it's critical.™

Users' Manual



Model 93ES

Model 93ESST

Squadmate™ Ambulance Cots

April, 2001

Pub. No. 234-2156-00

Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations. It is recommended that training on the proper use of this product be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Service.

Proprietary Notice

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Additional Instructional Material Provided with the 93ES and 93ESST Squadmate™ Ambulance Cots

Video 283-0207

EMT: Injury Free lifting and safety manual 234-1250

European Representative		
Ferno (UK) Limited , Stubs Beck Lane, Cleckheaton		
West Yorkshire BD19 4TZ, United Kingdom		
Telephone	+44 (0) 1274 851999	
Fax	+44 (0) 1274 851111	
Internet	www.ferno.co.uk	234-3468-00



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Ferno-Washington, Inc.
70 Weil Way
Wilmington, OH 45177-9371
U.S.A.

Telephone (U.S.A. and Canada) 800.733.3766
Telephone (Worldwide) 937.382.1451
Fax (United States) 937.382.1191
Fax (Outside U.S.A.) 937.382.6569
Internet www.ferno.com

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SECTION 1 - SAFETY INFORMATION

1.1 Warnings

The following warnings appear in this manual or on the cot.

! WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the cot.

Improper use can cause injury. Use the cot only for the purpose described in this manual.

Rolling the cot in a loading position can cause it to tip. Use a rolling position to roll the cot.

Improper use can cause injury. Unlock the auxiliary lock only to fold or load the cot.

Improper operation can cause injury. Operate the cot only as described in this manual.

An unattended patient can be injured. Stay with the patient at all times.

An unrestrained patient can fall off the cot and be injured. Use the restraints to secure the patient on the cot.

Helpers can cause injury. Maintain control of the cot, operate the control handles, and direct any helpers.

Helpers can be injured. Show helpers where to grasp the cot to avoid pinch points.

Improper maintenance can cause injury. Maintain the cot only as described in this manual.

Attaching improper items to the cot can cause injury. Use only Ferno-approved items on the cot.

Improper parts and service can cause injury. Use only Ferno-approved parts and service on the cot.

Modifying the cot can cause injury and damage. Use the cot only as designed by Ferno.

! WARNING

1.2 Important

Boxes like the one below emphasize important information.

Important

Operators should expect, and be prepared to control, the downward movement of the backrest when the control handle is squeezed.

1.3 Cot and Fastener Compatibility

Combining different manufacturers' products into a "mixed-component" cot/cot fastener system can increase the users' risk of injury and damage.

Ferno-Washington, Inc. strongly recommends that only Ferno-manufactured cots be used with Ferno-manufactured cot fasteners, and that only Ferno-manufactured cot fasteners be used for securing Ferno-manufactured cots in ambulances.

ANY COMBINATION OF A FERNO COT OR COT FASTENER WITH A NON-FERNO COT OR COT FASTENER IS MISUSE OF THE FERNO PRODUCT. Responsibility for the outcome of known, intentional misuse rests squarely on the user.

1.4 Bloodborne Disease Notice

Occupational Safety and Health Administration (OSHA) requires employers to protect workers from workplace exposure to bloodborne diseases such as HIV-1 and hepatitis. To reduce the risk of exposure when using the cot, follow the disinfecting and cleaning instructions in this manual. For more information, contact www.osha.gov or: U.S. Department of Labor, OSHA, Office of Public Affairs, Room N-3647, 200 Constitution Ave., NW, Washington, DC 20210.

1.5 Safety Labels

Labels place important information from the Users' Manual on the Models 93ES and 93ESST Squadmate™ Ambulance Cots.

Read and follow label instructions. Replace worn or damaged labels immediately. New labels are available from EMSAR® (page 30).

Pinch Point labels indicate pinch point locations on the transporter. Keep hands and fingers away from these areas.



The Auxiliary Lock label shows users which lever position locks the lock, and which position unlocks the lock.



The label below is used on the 93ES only:

The label below is used on the 93ESST only:

The 93ES is for professional use only.

 Use two or more trained EMTs to operate the cot.	 Keep the patient restraints fastened.
 Loading Position	 Rolling Position

Don't use the loading position to roll the cot. Use only the rolling positions to roll the cot.

Read the users' manual.

WARNING
Improper use or maintenance can cause injury or damage. Use and maintain the cot only as described in the users' manual.

500 lb. (227 kg) Load Limit

For additional free copies of the users' manual, call 1.800.733.3766.

FERNO
93ES Squadmate™

238-1344-00 B

The 93ESST is for professional use only.

 Use two or more trained EMTs to operate the cot.	 Keep the patient restraints fastened.
 Loading Position	 Rolling Position

Don't use the loading position to roll the cot. Use only the rolling positions to roll the cot.

Read the users' manual.

WARNING
Improper use or maintenance can cause injury or damage. Use and maintain the cot only as described in the users' manual.

500 lb. (227 kg) Load Limit

For additional free copies of the users' manual, call 1.800.733.3766.

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2 - OPERATOR SKILLS AND TRAINING

2.1 Skills

Operators using the cot need:

- a working knowledge of emergency patient-handling procedures.
- the ability to assist the patient.
- a complete understanding of the procedures described in this manual.

2.2 Training

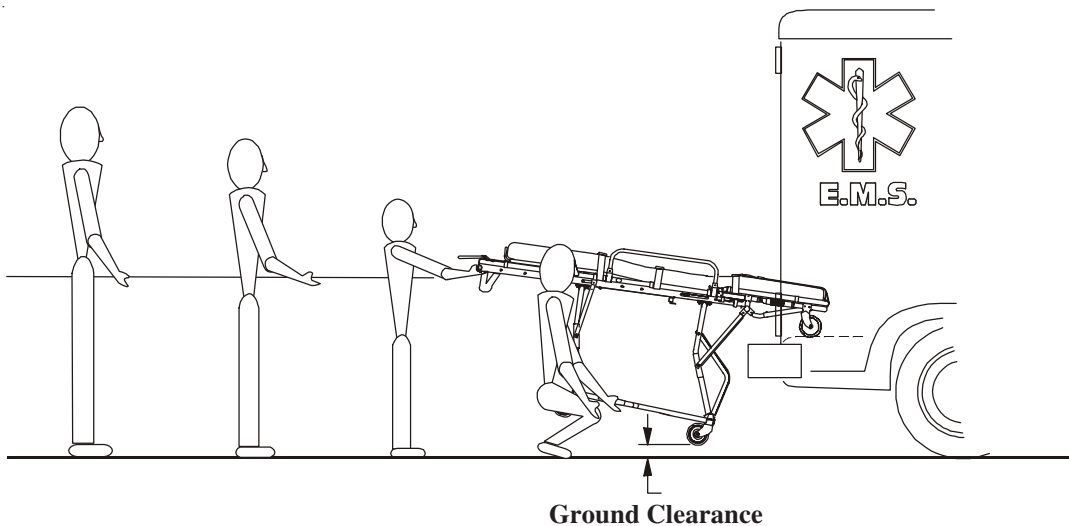
Trainees need to:

- follow a training program designed by their training officer.
- read this manual.
- practice with the cot before using it in regular service.
- be tested on their understanding of the cot.
- record their training information. A form is provided on page 35.

! WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the cot.

2.3 Height and Strength Considerations



When unloading the cot, the foot-end operator must be able to lift the cot high enough for the undercarriage legs to remain clear of the ground until they have unfolded completely and locked into place.

Supporting the weight of the cot requires greater strength from a short operator than from a tall operator because a short operator must raise his or her arms higher than a tall operator.

If the ambulance is parked on a sloped surface, the foot-end operator will need to hold the cot higher than normal to provide sufficient ground clearance for the undercarriage to unfold completely and lock into place.

Note: Use additional help as needed to safely lift the weight of patient, cot and any equipment (see Using Additional Help, page 20).

3 - ABOUT THE COT

3.1 Cot Description

The Model 93ES and Model 93ESST Squadmate™ Ambulance Cots (cot) are emergency patient-handling devices designed for transporting patients in a ground-based ambulance.

The cot is for professional use by a minimum of two trained operators.

Cot features include:

- Five height positions
- Anodized tubing (will not blacken clothes/hands)
- Backrest with eight raised positions
- Shock frame
- Swing-down sidearms
- Drop frame at head end
- Folding lead handle at foot end
- Swivel wheels at head end and foot end
- Mattress
- Three patient restraints


WARNING

Improper use can cause injury. Use the cot only for the purpose described in this manual.

The 93ES is designed to be used with Ferno’s Model 175 Series Cot Fasteners. The 93ESST is designed to be used with Ferno’s Model 185 Stat Trac® Cot Fastening System.

The cot is for use with ambulances that meet the requirements of the Federal Ambulance Specification KKK-A-1822. For information about Federal ambulance specification KKK-A-1822, contact:

Federal Supply Services
Specifications Section
Suite 8100
470 E. L’Enfant Plaza, SW
Washington, DC 20407

3.2 General Specifications

MODEL 93 ES AND MODEL 93ESST

Height

High-Level Rolling Position ...	32 in 80 cm
Mid-Level Rolling Position	23 in 59 cm
Low-Level Rolling Position	19 in 50 cm
Folded Position	9 in 23 cm

Length

Minimum	66 in 168 cm
Maximum	81 in 205 cm

Width

Bed	22 in 55 cm
Overall	23 in 59 cm

Weight** 77 lb 35 kg

Load Limit 500 lb 227 kg

Strength to Weight Ratio*** 6.5

93ES ONLY

Height

Loading Position*	30 in 77 cm
-------------------------	-------------------

93 ESST ONLY

Height

Loading Position*	29 in 74 cm
-------------------------	-------------------

* Loading position is measured from the ground to the bottom of the loading wheels. All other positions are measured from the ground to the top of the main frame at the head end of the cot.

** Without mattress and restraints.

*** Strength to Weight Ratio is the load limit (capacity) of the cot divided by the cot’s weight.

General specifications are rounded to the nearest whole number. Metric conversions are calculated before rounding. For more information, contact Ferno Customer Service (page 34). Ferno reserves the right to change specifications without notice.

AMBULANCE INFORMATION

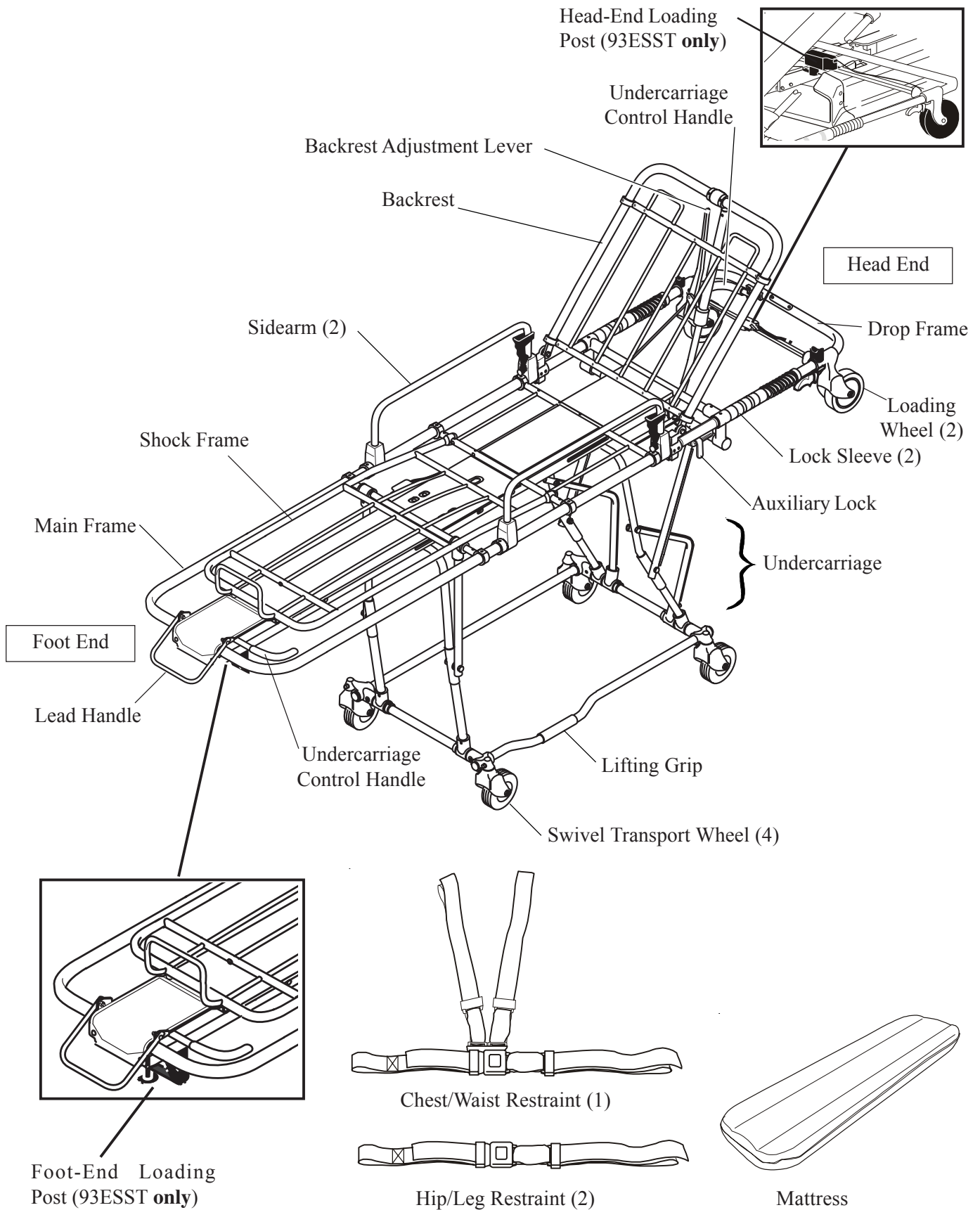
The ambulance bumper extension should not exceed 14 in. (36 cm). The patient compartment should have a level floor large enough for the folded cot and an approved Ferno cot fastener installed (not included).

LOAD LIMIT



Inspect the cot if the load limit has been exceeded (see *Inspecting the cot*, Page 28).

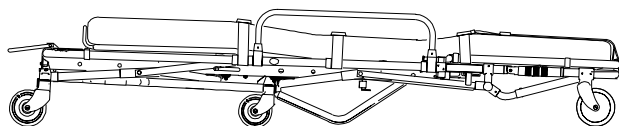
3.3 Components



3.4 Cot Positions

FOLDED POSITION

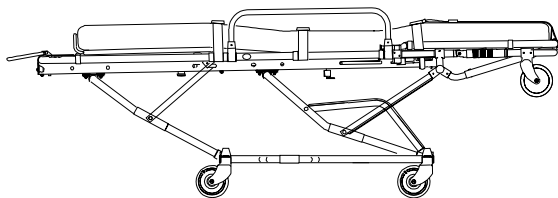
For storing the cot, and after loaded in an ambulance.



Folded Position
9 in (23 cm)

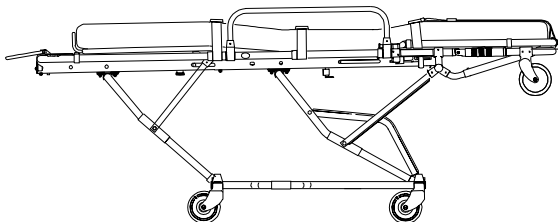
INTERMEDIATE POSITIONS

Low-Level Rolling Position - For rolling the cot and transferring a patient.



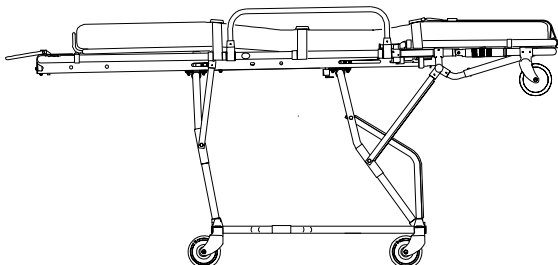
Low-Level
Rolling Position
19 in (50 cm)

Mid-Level Rolling Position - For rolling the cot and transferring a patient.



Mid-Level
Rolling Position
23 in (59 cm)

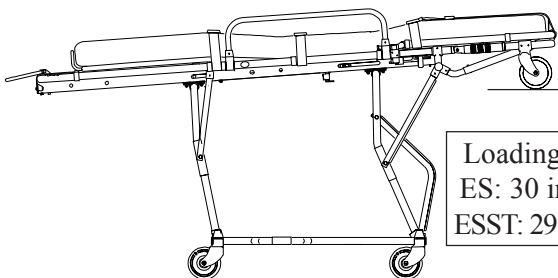
High-Level Rolling Position - For rolling the cot and transferring a patient.



High-Level
Rolling Position
32 in (80 cm)

LOADING POSITION

For loading or folding the cot.



Loading Position
ES: 30 in (77 cm)
ESST: 29 in (74 cm)

⚠ WARNING

Rolling the cot in the loading position can cause it to tip. Use a rolling position to roll the cot.

4 - COT FEATURES

4.1 Undercarriage Control Handles

There are two undercarriage control handles, one at each end of the cot. The handles operate the undercarriage locking mechanism that allows the cot to be raised and lowered.

To operate the control handles, the operators grasp the main frame with an underhand grip (palms up), positioning their right hands to squeeze the control handles (Figure 1).

Before squeezing the control handles, the operators lift the weight of the cot slightly off its wheels. This ensures that they will be supporting the weight before the lock is released.

Once the weight is lifted slightly off the wheels, operators squeeze the control handles and raise or lower the cot.

When the cot has been moved to the desired position, the operators continue supporting the cot while they release the control handles to allow the undercarriage lock to engage.

To make sure the undercarriage is locked into place, the operators lift the cot until the transport wheels are clear of the ground, allowing the lock to engage if it has not already done so.

Once the operators are sure the undercarriage is locked, they lower the cot onto its transport wheels.

LOADING TO HIGH-LEVEL ROLLING POSITION

When changing the cot from the loading (inclined) position to the high-level rolling position, only the head-end control handle is used. For complete instructions, see *Changing Cot Positions*, page 15.

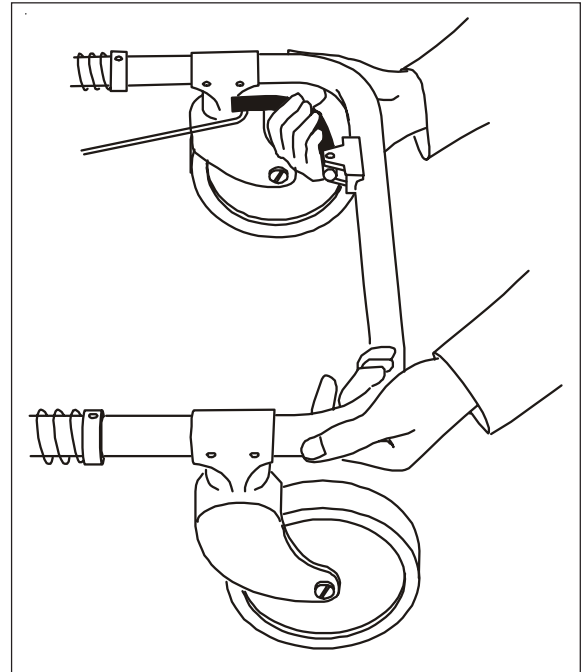


Figure 1 - Supporting the Cot While Squeezing a Control Handle

Important

- Always support the weight of the cot before squeezing a control handle.
- Both operators should expect (and be prepared to control) the normal downward movement of the cot that occurs when a control handle is squeezed.
- Always check to make sure the undercarriage is locked before you release your grasp on the frame.

4.2 Auxiliary Lock

The engaged auxiliary lock prevents the undercarriage from folding prematurely while the cot is being loaded into the ambulance.

The auxiliary lock engages automatically when the cot is moved from the folded position directly to the loading (inclined) position. This sequence occurs in two situations:

- When the cot is being **unloaded** from the ambulance.
- When the cot is raised from the folded position to the loading position.

Keep the auxiliary lock engaged in all positions. Disengage the lock only at the appropriate time (see *Lowering the Empty Cot from Loading to Folded*, page 17, and *Loading the Cot*, pages 21-26).

To disengage the auxiliary lock:

1. Place cot in loading (inclined) position.
2. Move lock lever down and toward head end of cot until it stops (Figure 2).
3. Fold or load cot.

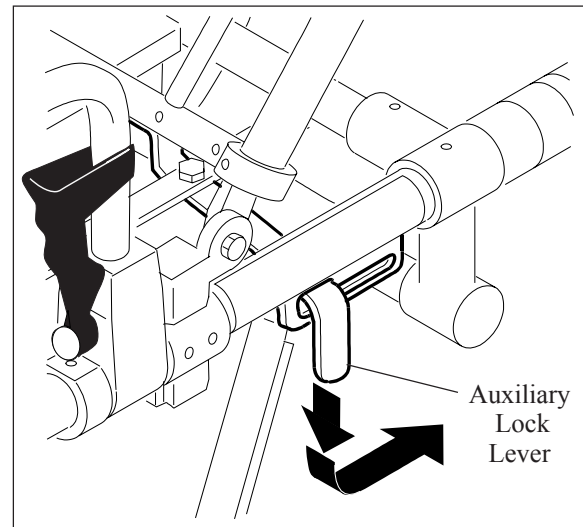


Figure 2 - Disengaging the Auxiliary Lock

! WARNING

Improper use can cause injury. Unlock the auxiliary lock only to fold or load the cot.

4.3 Drop Frame

The head end of the main frame folds down to shorten the cot in close quarters, such as in elevators or hallways. To lower the drop frame:

1. Place cot in a rolling position.
2. Unfasten or loosen chest/waist restraint.
3. Raise backrest.
4. Slide lock sleeves toward head end of cot until hinges are exposed.
5. Push frame down (Figure 3).
6. Fasten and adjust chest/waist restraint.

To return the drop frame to the extended position, pull the frame up until the lock sleeves snap over the hinges and the frame locks in place.

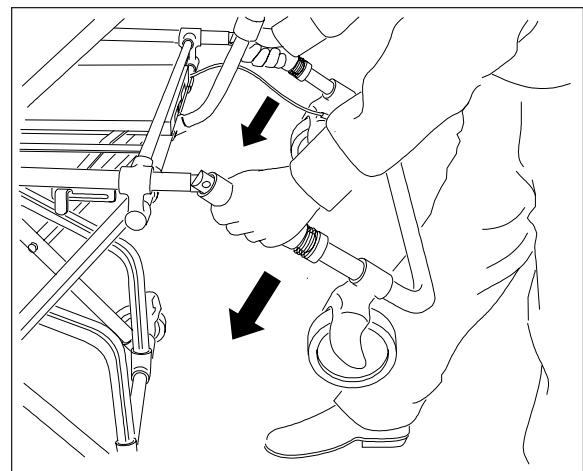


Figure 3 - Lowering the Drop Frame

4.4 Adjustable Backrest

The backrest adjusts from a level position to eight raised positions.

1. Unfasten or loosen chest/waist restraint before adjusting backrest.
2. To adjust backrest from level position to first raised position, lift backrest (Figure 4). The backrest support will lock in first raised position.
3. To adjust backrest from any raised position to any other position, support backrest frame with one hand and squeeze adjustment lever with other hand (Figure 5).
4. Move backrest to its new position and release adjustment lever. Support backrest frame until it locks into position.
5. Fasten and adjust chest/waist restraint.

Important

Operators should expect, and be prepared to control, the downward movement of the backrest when the adjustment lever is squeezed.

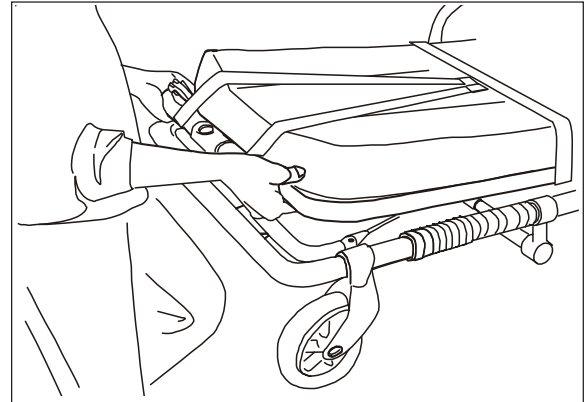


Figure 4 - Raising the Backrest from Level to the First Position

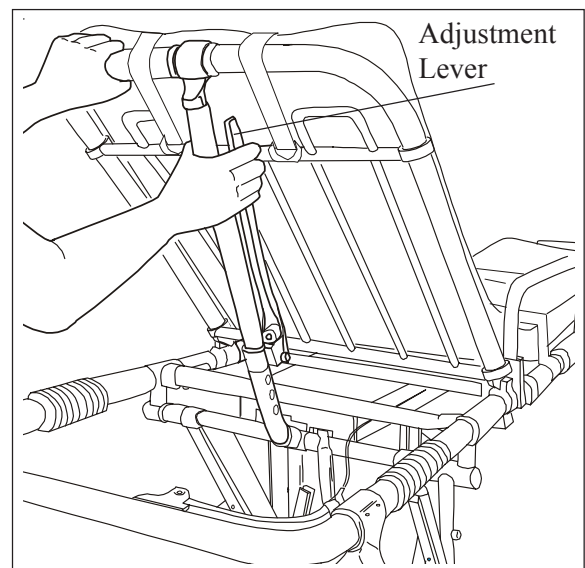


Figure 5 - Adjusting the Backrest

4.5 Swing-Down Sidearms

Sidearms provide patient security and comfort. Keep the sidearms raised except during patient transfer.

To lower a sidearm, squeeze the sidearm release (Figure 6) and swing the sidearm down.

To raise a sidearm, swing the sidearm up until it locks into place.

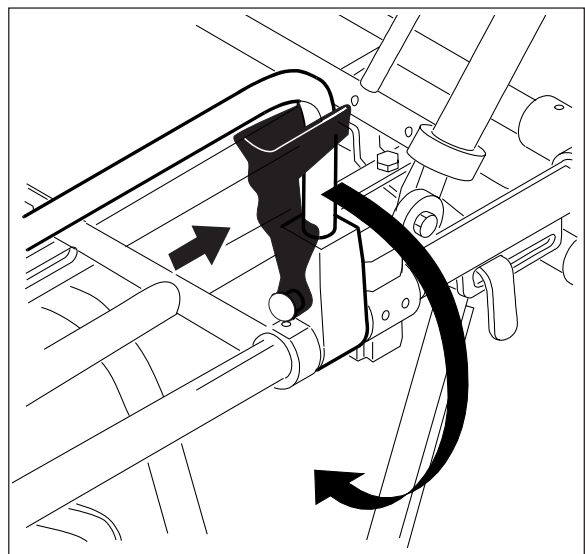


Figure 6 - Lowering the Sidearm

4.6 Shock Frame

Raise the shock frame to elevate the patient's legs. Use an underhand grip (palms up) to support the shock frame while raising or lowering it.

Always lift and lower the shock frame from the foot end of the cot. Lifting and lowering from the side can expose your hands to pinch points.

To raise the shock frame:

1. Unfasten or loosen hip and leg restraints.
2. Lift shock frame until support bar automatically engages in lock slot (Figure 7).
3. Fasten and adjust hip and leg restraints.

To lower the shock frame:

1. Unfasten or loosen hip and leg restraints.
2. Grasp corners of shock frame and raise shock frame slightly.
3. With your thumbs, press downward on control levers to disengage support bars and allow frame to move downward (Figure 8).
4. Lower shock frame completely.
5. Fasten and adjust hip and leg restraints.

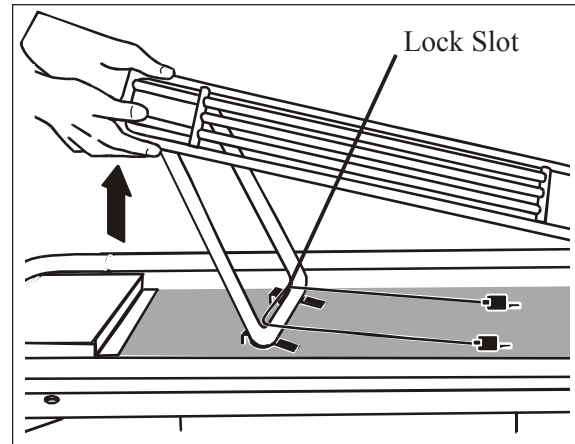


Figure 7 - Raising the Shock Frame

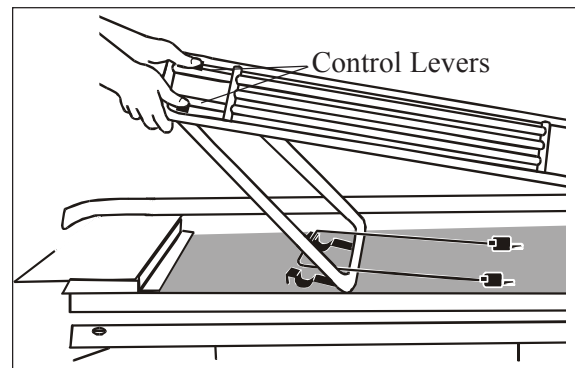


Figure 8 - Lowering the Shock Frame

4.7 Folding Lead Handle

Use the lead handle (Figure 9) to pull the cot when the cot is in one of the rolling positions.

Store the lead handle in the folded position. Swing the handle up and toward the foot end of the cot for use.

Note: When the Foot-End Operator is using the lead handle to pull the cot, the Head-End Operator is positioned near the patient's head, facing the foot end of the cot.

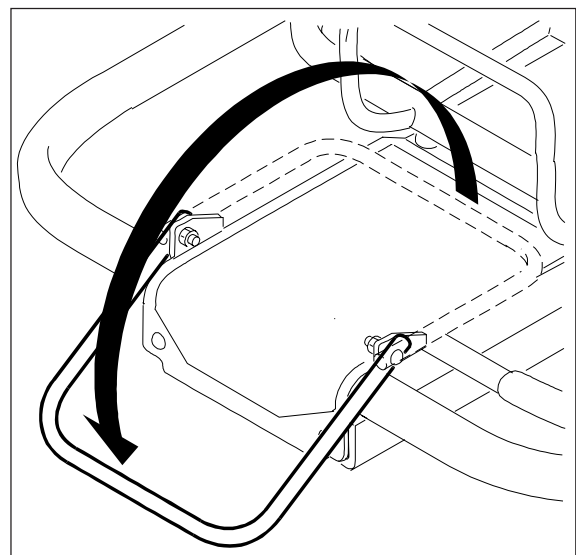


Figure 9 - Unfolding the Lead Handle

5- USING THE COT

5.1 Before Placing the Cot in Service

- ❑ Personnel who will work with the cot need to be trained. See *Operator Skills and Training*, page 6.
- ❑ Set up the cot, following instructions in the restraints and accessories packages.
- ❑ Confirm that the cot operates properly. Follow instructions in *Inspecting the Cot*, page 28.

5.2 General Guidelines for Use

- The cot is for use by a minimum of two trained operators.
- Operators may need help when working with heavy patients. For information about placement and direction of helpers, see *Using Additional Help*, page 20.
- Follow standard emergency patient handling procedures when operating the cot.
- Stay with the patient at all times.
- Always use patient restraints.
- See the cot fastener users' manual for instructions on using your cot fastener. See *Cot and Fastener Compatibility*, page 4.
- When the cot is empty, it can be folded flat or unfolded to the loading position by a single operator. Follow the single-operator instructions on page 17 only if local protocols permit one-person operation of an empty cot.

5.3 Patient Restraints

Three patient restraints are supplied with the cot: one Model 417-1 Restraint for use at the chest and waist (Figure 10-A) and two Model 430 Restraints for the hips and legs (Figure 10-B).

Install and use the restraints as described in the instructions in the restraint packages.

Keep the restraints fastened when they are not in use to prevent them from interfering with the operation of the cot.

Use all three restraints to secure the patient on the cot.

⚠ WARNING

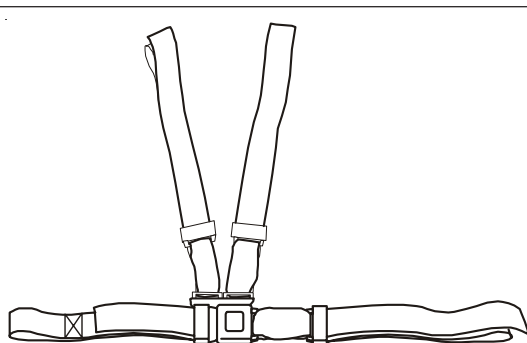
An unattended patient can be injured. Stay with the patient at all times.

⚠ WARNING

Improper operation can cause injury. Operate the cot only as described in this manual.

⚠ WARNING

An unrestrained patient can fall off the cot and be injured. Use restraints to secure the patient on the cot.



**Figure 10-A - Model 417-1
Chest/Waist Restraint**



**Figure 10-B - Model 430 Hip
and Leg Restraints**

5.4 Changing Cot Positions

The Operating Tips and General Guidelines below pertain to both operators.

TIPS FOR SMOOTH OPERATION

The cot moves directly from the folded (loaded) to the loading position (see Figures 11-A and 11-B). There are no intermediate stops.

To change the cot from the folded position to an intermediate position, first raise the cot to the loading position and lower the head-end of the cot to the high-level rolling position. Then lower the cot to the desired intermediate position (see page 16).

* * *

Once in an intermediate position (high-level, mid-level or low-level rolling), the cot can be raised or lowered to any position except folded.

To achieve the folded position, first raise the cot to the loading position, then lower to the folding position (see page 17).

* * *

When changing the cot between intermediate positions, begin lowering the head-end of the cot a moment before beginning to lower the foot end. This allows the cot undercarriage to change positions more easily.

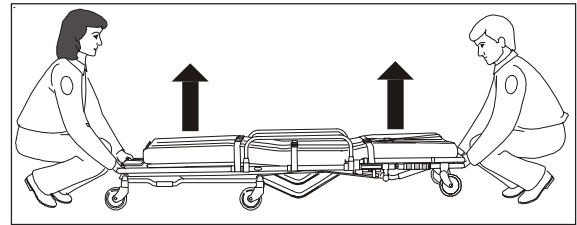


Figure 11-A - Folded Position

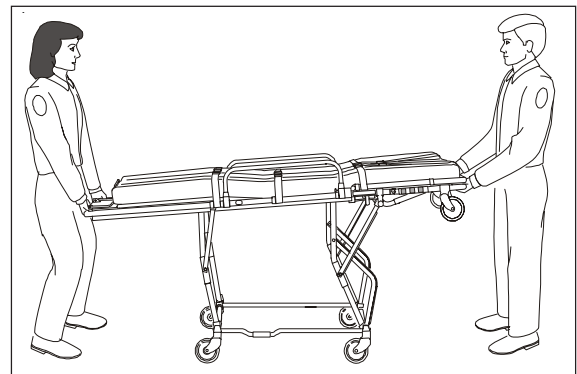


Figure 11-B - Loading Position

GENERAL GUIDELINES

- Operators stand at opposite ends of the cot, using an underhand grip (palms up) to grasp the main frame with both hands.
- Changing cot positions requires two operators. The only exception would occur when local protocols allow one operator to raise and lower an empty cot (see page 17).
- Lift the weight of the cot off its wheels before squeezing a control handle (see *Undercarriage Control Handles*, page 10).
- Be prepared to control, the normal downward movement of the cot that occurs when a control handle is squeezed.
- Make sure the undercarriage is locked into the new position before you release your grasp on the frame.

Important

- Always support the weight of the cot before squeezing a control handle.
- Both operators should expect, and be prepared to control, the normal downward movement of the cot that occurs when a control handle is squeezed.
- Always check to make sure the undercarriage is locked before you release your grasp on the main frame.

CHANGING BETWEEN FOLDED POSITION AND LOADING POSITION

Note: When in the loading position, the cot is at its maximum height and is inclined at the head end.

To change the cot from the folded position to the loading position:

1. *Both Operators:* Grasp main frame (see Figure 11-A, page 15) and lift cot until undercarriage unfolds and locks into loading position (see Figure 11-B, page 15). The auxiliary lock will engage automatically.
2. *Both Operators:* Continue to support cot while you check to make sure cot is locked in position (see box at right). Once cot is in locked position, release your grasp on main frame.

CHANGING BETWEEN LOADING POSITION AND HIGH-LEVEL ROLLING POSITION

Changing the cot from loading position to high-level rolling position, **only** the Head-End Operator squeezes his/her control handle. If the Foot-End Operator squeezes his/her control handle, the cot will lower past the high-level rolling position.

To change the cot between loading position and high-level rolling position:

1. *Both Operators:* Grasp main frame and lift weight of cot slightly off wheels. Wheels should remain on ground. (Figure 12).
2. *Head-End Operator:* Squeeze undercarriage control handle and begin raising or lowering main frame slowly. As main frame begins moving, release control handle.

To ensure patient comfort, control downward movement of main frame until it locks into position.

CHANGING BETWEEN AN INTERMEDIATE POSITION AND LOADING POSITION

To change from an intermediate position to the loading position, squeeze the control handles and raise cot completely, then release control handles.

CHECKING THE UNDERCARRIAGE LOCK ENGAGEMENT

To make sure the cot undercarriage is locked into position, both operators lift the cot until the transport wheels are clear of the ground. This allows the undercarriage to lock into place if it has not already done so. Visually check to make sure the auxiliary lock has engaged. Once you are sure the undercarriage is locked, and the auxiliary lock is engaged, lower the cot onto its transport wheels.

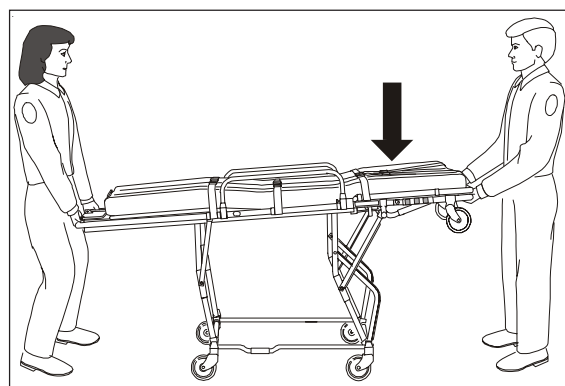


Figure 12 - Loading to High-Level Rolling

Important

When changing the cot from loading position to high-level rolling position, **only** the Head-End Operator squeezes his/her control handle. If the Foot-End Operator squeezes his/her control handle, the cot will lower past the high-level rolling position.

CHANGING BETWEEN INTERMEDIATE POSITIONS

Once the cot is in one of the three intermediate positions (see *Cot Positions*, page 9), it can be raised or lowered to any position except folded.

To change cot positions between the intermediate positions:

1. *Both Operators:* Grasp main frame and lift weight of cot slightly off wheels. The wheels should remain on the ground (Figure 13 or Figure 14).
2. *Both Operators:* Squeeze control handles and begin to raise or lower the cot. Release control handles when cot is near desired position.
3. Continue raising or lowering the cot until the undercarriage locks into the desired position.

5.5 Folding/Unfolding an Empty Cot

If local protocols allow, and only when the cot is empty, one trained operator can fold the cot or raise it from the folded to the loading position. These are the only one-operator position changes that can be made.

RAISING THE EMPTY COT FROM FOLDED TO LOADING

1. Stand at the foot-end of the cot and grasp main frame (Figure 15).
2. Lift cot until undercarriage unfolds and securely locks in loading position. The cot will be resting on its loading wheels and head-end transport wheels (Figure 16).
3. Lower foot end of cot until all four transport wheels rest on ground.

LOWERING THE EMPTY COT FROM LOADING TO FOLDED

1. Unlock auxiliary lock.
2. Grasp main frame at foot end of cot and tip cot until it rests on its loading wheels and head-end transport wheels (Figure 16).
3. While supporting foot end of cot, squeeze foot-end control handle and lower cot to folded position.

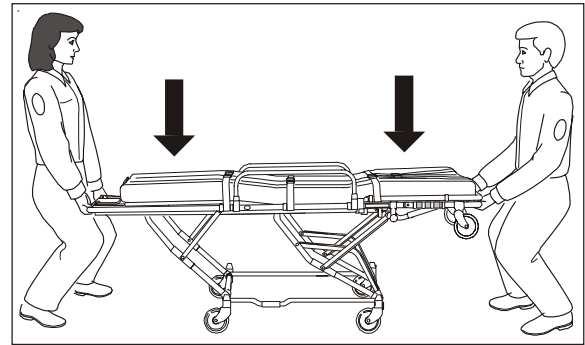


Figure 13 - High-Level to Mid- or Low-Level Rolling

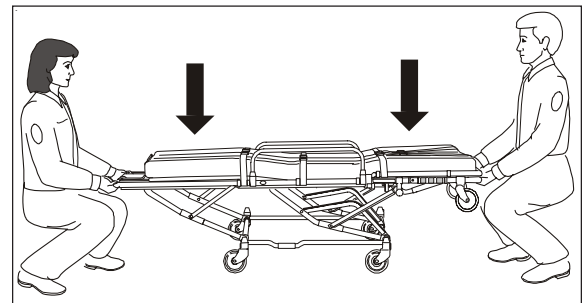


Figure 14 - Mid-Level to Low-Level

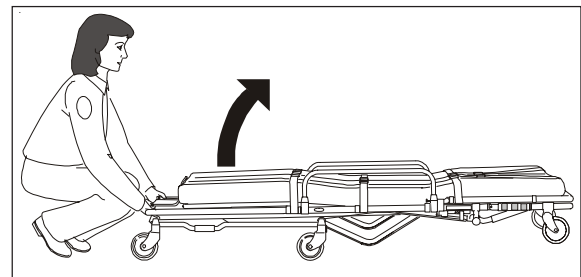


Figure 15 - Unfolding an Empty Cot

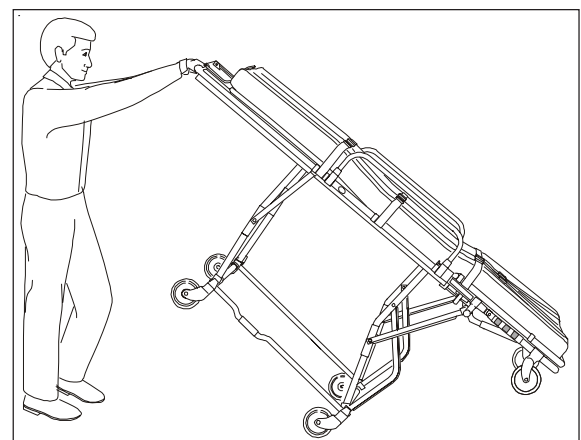


Figure 16 - Folding an Empty Cot

5.6 Transferring the Patient to the Cot

To transfer the patient onto the cot:

1. Unfasten all restraints and arrange straps so they will not interfere with transferring patient to cot.
2. Place cot beside patient and raise or lower cot as near as possible to patient's level (Figure 17).
Use the folded position for transferring a patient who is on ground or floor.
3. Lower sidearms.
4. Transfer patient onto cot using local protocols.
5. Raise sidearms.
6. Adjust backrest and shock frame as needed.
7. Fasten patient restraints.
8. Adjust restraints to safely secure patient without causing discomfort or impairing circulation.

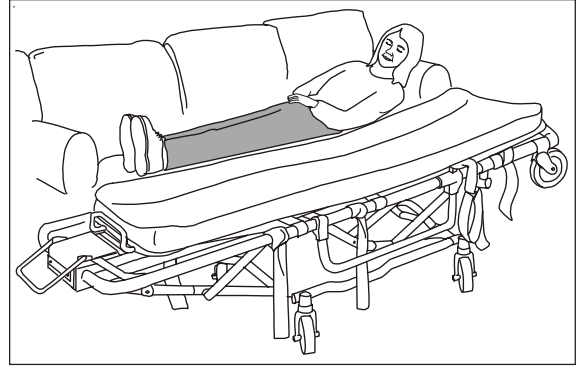


Figure 17 - Preparing to Transfer the Patient

5.7 Rolling the Cot

GENERAL GUIDELINES

- Rolling the cot requires a minimum of two trained operators working together.
- Rolling the cot in the loading (inclined) position can cause the cot to tip. Always use one of the three intermediate (rolling) positions to roll the cot. See *Cot Positions*, page 9, and *Changing Cot Positions*, page 15, for complete information.
- Roll the cot on smooth, unobstructed surfaces whenever possible.
- To cross low obstacles such as door sills, lift the cot weight off the wheels to allow the wheels to roll smoothly over the obstacle.
- Avoid high obstacles such as curbs whenever possible. If you must cross a high obstacle, lift and carry the cot.
- Use help as needed to safely control the weight of the patient and cot (see *Using Additional Help*, page 20).

TO ROLL THE COT

1. Make sure restraints are securely fastened around patient.
2. *Both Operators:* Place cot in a rolling position (Low-Level, Mid-Level, or High-Level).
3. *Foot-End Operator:* Position yourself at foot end of cot, grasp main frame, and push cot forward (Figure 18).
4. *Head-End Operator:* Position yourself at side of cot near patient's torso and head so you can attend patient and/or assist in rolling cot. When rolling cot, grasp cot frame.

! WARNING

Rolling the cot in the loading position can cause it to tip. Use a rolling position to roll the cot.

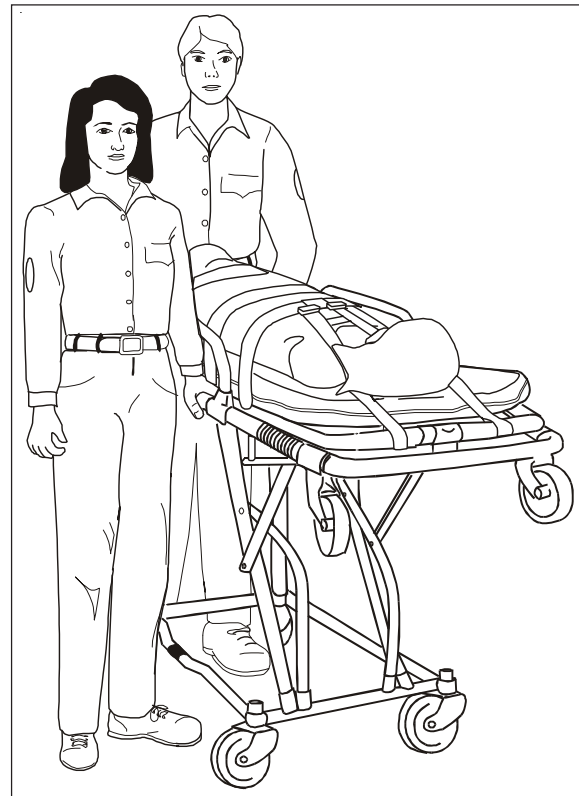
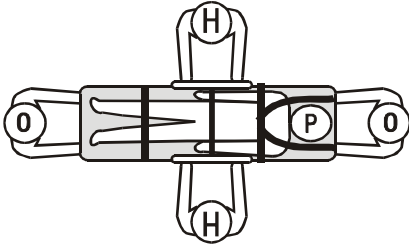
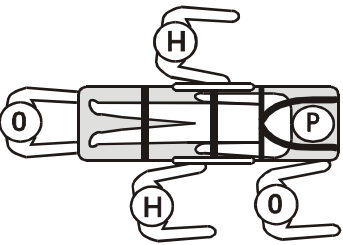
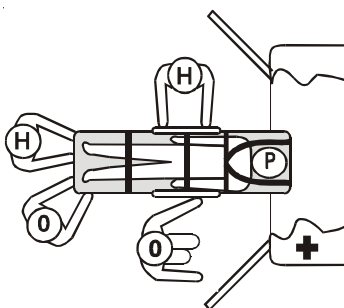
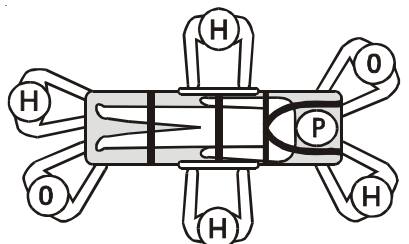
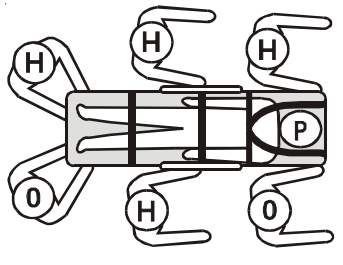
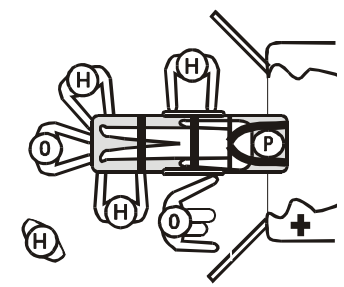


Figure 18 - Rolling the Cot

5.8 Using Additional Help

Two operators are required to operate the cot. They may need help when working with heavy loads. The operators should maintain control of the cot, operate the control handles, and direct any helpers. The chart below shows suggested placement for operators and helpers.

Helpers	Changing Levels	Rolling	Loading/Unloading
Two Operators + Two Helpers			
Two Operators + Four Helpers			

Key: O = Operator H = Helper P = Patient

⚠ WARNING

Helpers can cause injury. Maintain control of the cot, operate the control handles, and direct any helpers.

⚠ WARNING

Helpers can be injured. Show helpers where to grasp the cot to avoid pinch points.



**LOAD
LIMIT**

Inspect the cot if the load limit has been exceeded.
(see *Inspecting the Cot*, page 28)

6 - LOADING /UNLOADING THE 93ES WITH A MODEL 175 (ANTLER AND RAIL) FASTENING SYSTEM

6.1 Fastener Compatibility

The Model 93ES cot is compatible with removable and permanent installations of Ferno® Model 175 (antler and rail) fasteners (Figure 19). To use the cot with any of these Ferno fasteners, follow the directions in this section.

The Model 93ESST cot is compatible only with the Ferno® Model 185 (Stat Trac) Fastening System. If you have the Model 93ESST cot, read and follow the directions in *Section 7 - Loading/Unloading the 93ESST with the Stat Trac® Cot Fastening System*, pages 24-26.

See page 4 for more information on cot and fastener compatibility.

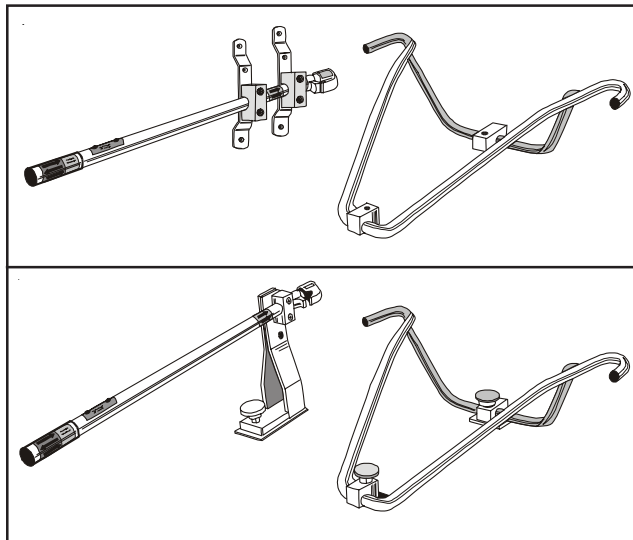


Figure 19 - Examples of Model 175 (Antler and Rail) Fasteners

6.2 Guidelines and Preparation

Loading the cot requires a minimum of two trained operators working together.

PREPARING TO LOAD THE COT

1. If ambulance has a folding bumper, raise bumper.
2. Make sure drop frame is in extended position (raised).
3. Place cot in loading position (inclined).
4. Roll cot to open doorway of ambulance patient compartment.

Important

If the ambulance is parked on a sloped surface, you may need to lift the cot higher than normal to allow the undercarriage to unfold completely and lock into place.

6.3 Loading the Cot into a Model 175 (Antler & Rail) Fastening System

1. *Both Operators:* Roll cot forward until both loading wheels are on patient compartment floor (Figure 20).
2. *Foot-End Operator:* Stand at foot end of cot, grasp main frame using an underhand grip, and support cot.
3. *Head-End Operator:* Unlock auxiliary lock.
4. *Foot-End Operator:* Lift foot end of cot until cot is parallel with patient compartment floor, or until transport wheels are off ground, whichever makes foot end of cot higher.
5. *Foot-End Operator:* Squeeze foot-end control handle and tell Head-End Operator to lift undercarriage.
6. *Both Operators:* Head-End Operator grasps undercarriage lifting grip and raises (folds) undercarriage while Foot-End Operator pushes cot into patient compartment (Figure 21), guiding the right head-end loading wheel into the right antler hook (see 175 Fastener users' manual for complete fastening instructions).
7. *Foot-End Operator:* Release control handle.
8. *Foot-End Operator:* Secure cot in cot fastener.

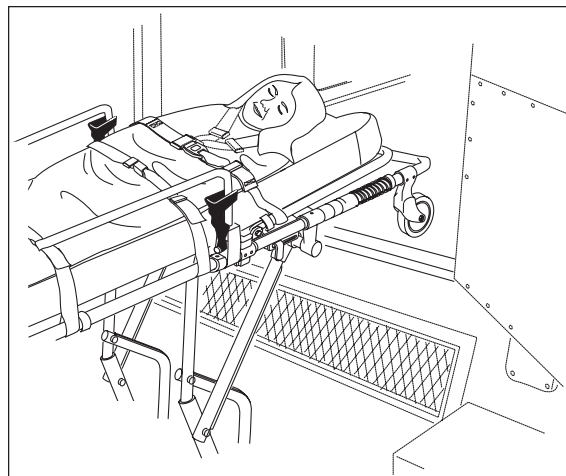


Figure 20 - Loading Wheels on Patient Compartment Floor

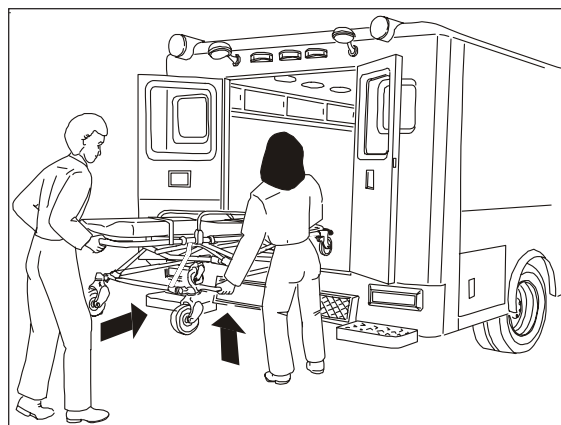


Figure 21 - Loading the Cot

Important

To recover from a folding or loading attempt halted by the auxiliary lock, do the following:

1. Release the foot-end control handle.
2. Keep loading wheels on ambulance floor.
3. Return the cot to its transport wheels and **make sure the undercarriage is securely locked in its loading position.**
4. Unlock the auxiliary lock.
5. Retry the folding or loading procedure.

6.4 Unloading the Cot from a Model 175 (Antler & Rail) Fastening System

Unloading the cot requires a minimum of two trained operators working together.

1. If ambulance has a folding bumper, raise bumper.
2. *Head-End Operator*: Release cot from cot fastener (see 175 Fastener users' manual for complete instructions).
3. *Foot-End Operator*: Using an underhand grip, grasp main frame at foot end of cot, and begin pulling cot from patient compartment.
4. *Head-End Operator*: As cot is being pulled from patient compartment, grasp undercarriage lifting grip and lower undercarriage (Figure 22).
5. *Foot-End Operator*: Lift and hold foot-end of cot high enough off ground for undercarriage to unfold completely and lock, then lower all four transport wheels to ground. Do not release your grasp on cot.
6. *Head-End Operator*: Visually check to make sure auxiliary lock is engaged and communicate this to Foot-End Operator.
7. *Foot-End Operator*: Make sure undercarriage has unfolded completely and locked into position. To check, keep loading wheels securely on patient compartment floor and lift cot until transport wheels are clear of ground. This allows undercarriage to lock into place if it has not already done so.
8. *Foot-End Operator*: Remove cot from ambulance.
9. *Both Operators*: Place cot in a rolling position (see *Cot Positions*, page 9).

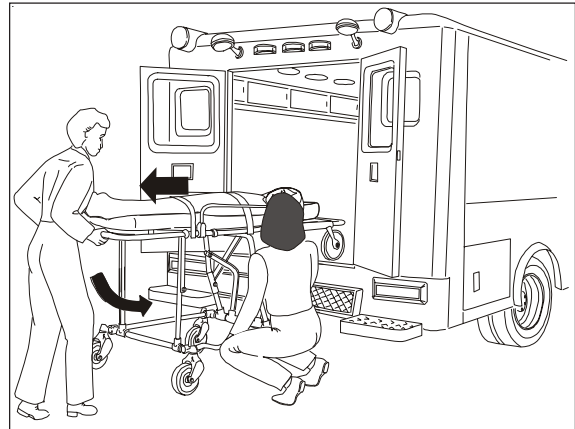


Figure 22 - Unloading the Cot

Important

Make sure the loading wheels remain on the compartment floor until the undercarriage has unfolded and locked into place.

Important

If the ambulance is parked on a sloped surface, you may need to hold the cot higher than normal to provide sufficient ground clearance for the undercarriage to unfold completely and lock into place.

7 - LOADING/UNLOADING 93ESST WITH THE MODEL 185 (STAT TRAC®) COT FASTENING SYSTEM

7.1 Fastener Compatibility

The Model 93ESST is compatible with the Ferno® Model 185 (Stat Trac) Fastening System (Figure 23). Read and follow the directions in this section.

The Model 93ES is compatible with the Model 175 antler and rail fastening system. If you have the Model 93ES, read and follow directions in *Loading/Unloading 93 ES with a Model 175 (Antler and Rail) Fastening System*, pages 21-23. See page 4, *Cot and Fastener Compatibility*, for more information about fasteners.

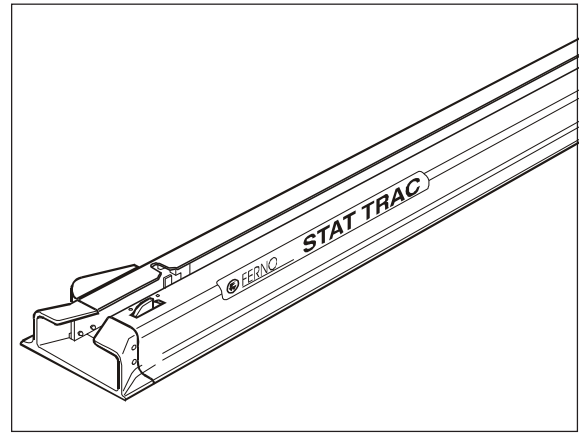


Figure 23 - Stat Trac® Fastener

7.2 Guidelines and Preparation

Loading the cot requires a minimum of two trained operators working together.

PREPARING TO LOAD THE COT

1. If ambulance has a folding bumper, raise bumper.
2. Make sure drop frame is in extended position (raised).
3. Place cot in loading position (inclined).
4. Roll cot to open doorway of ambulance patient compartment.

Important

If the ambulance is parked on a sloped surface, you may need to lift the cot higher than normal to allow the undercarriage to unfold completely and lock in place.

7.3 Loading the Cot into the Model 185 (Stat Trac) Fastener

1. *Both Operators:* Roll cot forward until both loading wheels are on patient compartment floor (Figure 24) and head-end loading post is aligned with cot fastener (Figure 25).
2. *Foot-End Operator:* Push cot forward until head-end loading post passes safety stop on cot fastener.
3. *Foot-End Operator:* Stand at foot end of cot, grasp main frame using an underhand grip, and support cot.
4. *Head-End Operator:* Unlock auxiliary lock.
5. *Foot-End Operator:* Lift foot end of cot until cot is parallel with patient compartment floor, or until transport wheels are off ground, whichever makes foot-end of cot higher.
6. *Foot-End Operator:* Squeeze foot-end control handle and tell Head-End Operator to lift undercarriage.
7. *Both Operators:* Head-End Operator grasps undercarriage lifting grip and raises (folds) undercarriage while Foot-End Operator pushes cot into patient compartment (Figure 26), guiding the foot-end loading post into the cot fastener (see Model 185 (Stat Trac) users' manual for complete fastening instructions).
8. *Foot-End Operator:* Release control handle.
9. *Foot-End Operator:* Secure cot in cot fastener.

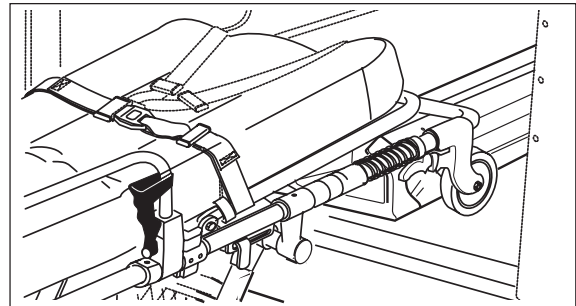


Figure 24 - Loading Wheels on Patient Compartment Floor

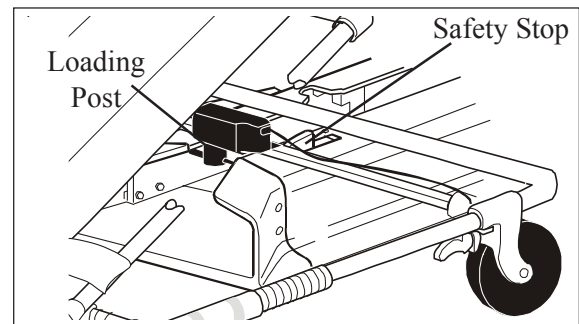


Figure 25 - Loading Post Aligned for Loading

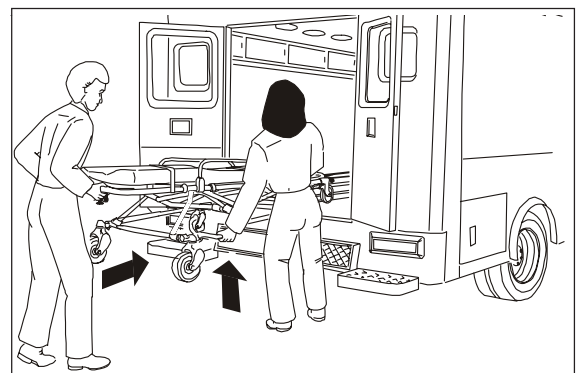


Figure 26 - Loading the Cot

Important

To recover from a folding or loading attempt halted by the auxiliary lock, do the following:

1. Release the foot-end control handle.
2. Keep loading wheels on ambulance floor.
3. Return the cot to its transport wheels and **make sure the undercarriage is securely locked in its loading position.**
4. Unlock the auxiliary lock.
5. Retry the folding or loading procedure.

7.4 Unloading the Cot from the Model 185 (Stat Trac) Fastener

Unloading the cot requires a minimum of two trained operators working together.

1. If ambulance has a folding bumper, raise bumper to prevent interference with unfolding undercarriage.
2. *Foot-End Operator*: Release cot from cot fastener by pulling cot fastener release handle (Figure 27), and sliding foot end of cot to the right.
3. *Foot-End Operator*: Using an underhand grip, grasp main frame at foot end of cot and begin pulling cot from patient compartment.
4. *Head-End Operator*: As cot is being pulled from patient compartment, grasp undercarriage lifting grip and lower undercarriage (Figure 28).
5. *Foot-End Operator*: Pull cot out of ambulance until head-end loading post is against safety stop on cot fastener.
6. *Foot-End Operator*: Lift and hold foot-end of cot high enough off ground for undercarriage to unfold completely and lock, then lower all four transport wheels to ground. Do not release your grasp on cot.
7. *Head-End Operator*: Make sure auxiliary lock is engaged and communicate this to Foot-End Operator.
8. *Foot-End Operator*: Make sure undercarriage has unfolded completely and locked into position. To check, keep loading wheels securely on patient compartment floor and lift cot until transport wheels are clear of ground. This allows undercarriage to lock into place if it has not already done so.
9. *Both Operators*: Push cot slightly toward front of ambulance, positioning the head-end loading post **at least 5/8"** forward of cot fastener safety stop.
10. *Head-End Operator*: Release cot from cot fastener by squeezing fastener release lever located on cot (Figure 29).
11. *Both Operators*: Roll cot completely out of ambulance.
12. Adjust cot to a rolling position (see *Cot Positions*, page 9).

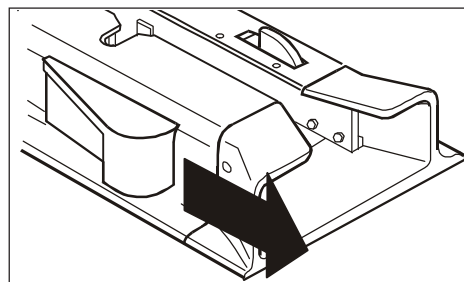


Figure 27 - Pulling the Stat Trac Release Handle

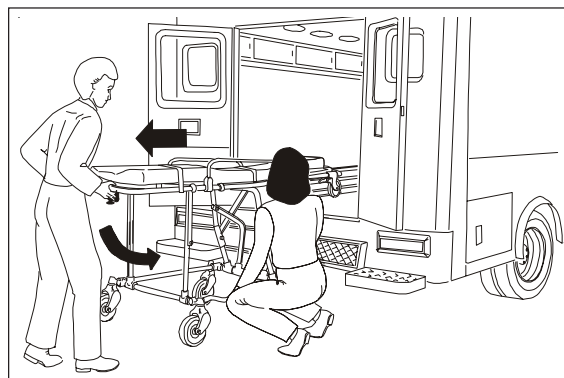


Figure 28 - Unloading the Cot

Important

Make sure the loading wheels remain on the compartment floor until the undercarriage has unfolded and locked into place.

Important

If the ambulance is parked on a sloped surface, you may need to hold the cot higher than normal to provide sufficient ground clearance for the undercarriage to unfold completely and lock into place.

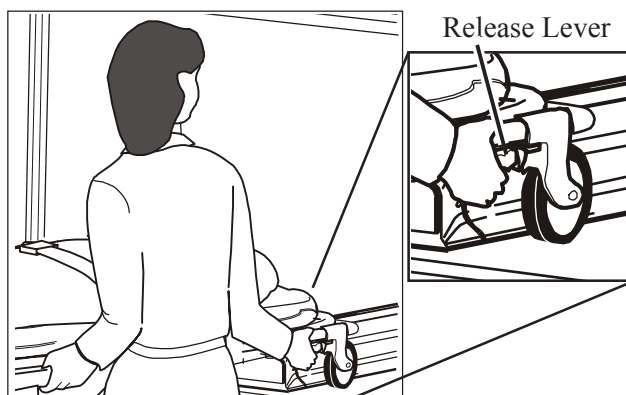


Figure 29 - Releasing the Cot

8 - MAINTAINING THE COT

8.1 Maintenance Schedule

The cot requires regular maintenance. Set up and follow a maintenance schedule.

The following chart represents minimum maintenance.

	Each Use	As Needed	Each Month
Disinfecting (this page)	•		
Cleaning/Waxing (this page)		•	
Inspecting (page 28)		•	•
Lubricating (page 28)		•	

When using a cleaning/disinfecting product, follow the manufacturers' directions and read the manufacturer's material safety data sheet.

Contact Ferno Customer Service to order Ferno cleaners and disinfectants (page 34).

Keep maintenance records. A form is provided on page 35.

WARNING

Improper maintenance can cause injury. Maintain the cot only as described in this manual.

8.2 Disinfecting the Cot

Important

Disinfectants and cleaners containing bleach, phenolics, or iodines can harm the cot. Disinfect and clean the cot only with products that do not contain these chemicals.

Wipe all surfaces of the cot with disinfectant. Follow the disinfectant manufacturer's directions. As you disinfect the cot, check for obvious damage and excessive wear.

8.3 Cleaning and Waxing the Cot

Important

Water under high pressure can penetrate joints, flush away lubricant, and cause corrosion. Do not use a high-pressure washer, or steam, to clean the cot.

Important

Using abrasive cleaning compounds or applicators on the cot frame can cause damage. Do not use abrasive materials to clean the cot.

1. For restraint cleaning instructions, see restraint users' manuals. For additional free manuals, call Ferno Customer Service, page 34.
2. Remove mattress.
3. Hand wash mattress with warm water, a mild detergent, and a soft cloth.
4. Rinse mattress with warm water. Wipe mattress dry with a towel or allow mattress to air dry.
5. Hand wash all cot surfaces with warm water and a mild detergent.
6. Rinse with warm water. Wipe cot dry with a towel or allow cot to air dry.

To wax the cot, apply a coat of automotive wax to all exposed metal surfaces of the cot. Waxing the cot will make it easier to clean and will maintain its appearance.

8.4 Inspecting the Cot

Have your service's equipment maintenance personnel follow the instructions in *Cot Features*, pages 10-13, and *Using the Cot*, pages 14-20, and check the following:

- Are all components present?
- Do the sidearms raise and lower properly?
- Does the shock frame raise and lower properly?
- Does the backrest adjust properly?
- Does the drop frame operate properly?
- Does the auxiliary lock function properly?

- Does the cot lock properly into each position?
- Does the cot load and unload properly?
- Do all moving parts move freely?
- Are all screws, nuts, rivets and roll pins securely in place?
- Are the restraints properly installed?
- Do installed accessories operate properly without interfering with cot operation?
- Is the ambulance properly prepared for the cot (approved cot fastener installed)?

If the inspection indicates a need to service the cot, see *Parts and Service* (page 30).

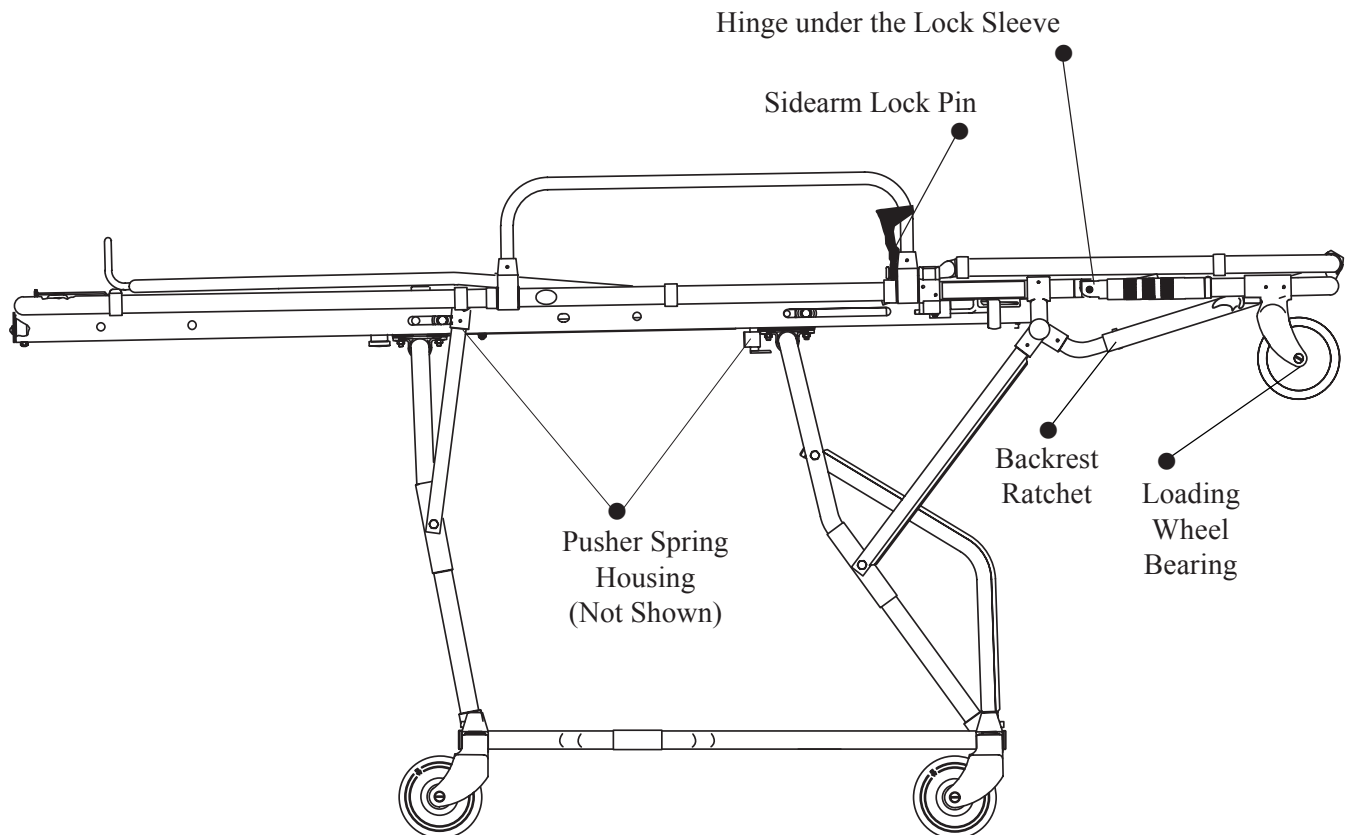
8.5 Lubricating the Cot

Lubricate the cot with WRL-191-S lubricant or 30-weight oil.

Follow the diagram below, lubricating points on both sides of the cot.

Important

Lubricating the C-channels can cause foreign matter to adhere to the channels and interfere with cot height adjustment. Do not lubricate the C-channels on the cot.



9 - ACCESSORIES

Ferno offers a full line of accessories (fasteners, IV poles, immobilizers, blankets, etc.) approved for use with the cot.

Ferno also has a full line of emergency products for the EMS professional. Contact Ferno Customer Service (page 34) or your Ferno dealer for product information.

Part Number Description

RESTRAINTS

031-2360 417-1 Restraint (chest), orange
 031-3062 417-1 Restraint (chest), maroon
 031-3071 417-1 Restraint (chest), black
 031-2570 430 Restraint (2-piece), 5' orange
 031-2580 430 Restraint (2-piece), 5' maroon
 031-2640 430 Restraint (2-piece), 5' black
 031-3249 430 Restraint (2-piece), 7' orange
 031-3250 430 Restraint (2-piece), 7' maroon
 031-3304 430 Restraint (2-piece), 7' black
 031-3305 430 Restraint (2-piece), 9' black
 031-3306 430 Restraint (2-piece), 9' maroon

OXYGEN EQUIPMENT

031-3033 252 O₂ Accessory Pouch (Yellow)
 031-3034 252 O₂ Accessory Pouch (Maroon)
 008-5500 514 Oxy-Clip Cylinder Holder
 081-9825 5120 O₂ Carry Kit "D" (Orange)
 081-9826 5120 O₂ Carry Kit "D" (Red)
 081-9827 5120 O₂ Carry Kit "D" (Blue)
 081-9828 5120 O₂ Carry Kit "D" (Green)
 081-9830 5121 O₂ Carry Kit "E" (Red)
 081-9831 5121 O₂ Carry Kit "E" (Blue)
 081-9835 5122 O₂ Carry Kit Jumbo "D" (Blue)

MISCELLANEOUS ACCESSORIES

081-8933 274 Pac Rac Instrument Platform
 031-3778 678 Pedi-Mate
 081-9503 255 StoNet Equipment Holder
 081-9692 One Hand Side Arm Release, Pair

IV POLES

008-5130 513 IV Pole
 008-7156 513-10 Non-Magnetic IV Pole

MATTRESSES

031-3691 360 Flat Mattress (Orange)
 031-3692 360 Flat Mattress (Burgundy)
 031-2721 460 Bolster Mattress (Orange)
 031-3063 460 Bolster Mattress (Burgundy)
 031-3877 460 Mattress (Orange)
 031-3878 460 Mattress (Maroon)

WARNING

Attaching improper items to the cot can cause injury and damage. Use only Ferno-approved items on the cot.

MODEL 65 SCOOP STRETCHERS

010-6500 65 Scoop Stretcher
 010-7953 65-PIN Scoop Stretcher

SCOOP™ EXL STRETCHER (WITH METAL BUCKLE RESTRAINTS)

010-7956 Without restraints
 010-7957 With 3 two-piece, 5 ft. restraints
 010-7958 With 3 one-piece, 7 ft restraints

SCOOP™ EXL STRETCHER (WITH PLASTIC BUCKLE RESTRAINTS)

010-7959 With 3 two-piece, 5 ft restraints
 010-7960 With 3 one-piece, 7 ft restraints

SPINE BOARDS

010-6000 60 Long Aluminum
 010-6020 60-2 Long, Folding Aluminum
 010-6040 60-4 Long, Folding Aluminum
 010-6100 61 Short Aluminum Spine Board
 010-7500 75 Short Backboard
 010-7700 77 Long Hardwood Backboard
 010-7722 740 Long Tan Phenolic Backboard
 010-7747 752 Long Dark Brown
 Phenolic Backboard w/Pins

MILLENNIA PLASTIC BACKBOARDS

010-7911 16" Blue Backboard
 010-7912 16" White Backboard
 010-7913 16" Orange Backboard
 010-7914 16" Yellow Backboard
 010-7915 18" White Backboard
 010-7916 18" Blue Backboard
 010-7917 18" Orange Backboard
 010-7918 18" Yellow Backboard
 010-7927 16" Burgundy Backboard
 010-7928 18" Burgundy Backboard
 010-7935 16" Blue Backboard w/Silkscreen
 010-7936 16" White Backboard w/Silkscreen
 010-7937 16" Orange Backboard w/Silkscreen
 010-7938 16" Yellow Backboard w/Silkscreen
 010-7939 16" Burgundy Backboard w/Silkscreen
 010-7940 18" White Backboard w/Silkscreen
 010-7941 18" Blue Backboard w/Silkscreen
 010-7942 18" Orange Backboard w/Silkscreen
 010-7943 18" Yellow Backboard w/Silkscreen
 010-7944 18" Burgundy Backboard w/Silkscreen

10 - PARTS AND SERVICE

10.1 General Information

EMSAR® is the only agent authorized by Ferno to manage, service, and repair Ferno products.

EMSAR factory-trained technicians use Ferno-approved parts and repair procedures.

EMSAR has a franchise location serving you. Phone, fax or visit EMSAR's web site for details.

To order parts or for professional product repair, contact EMSAR.



800.73.EMSAR (Phone)
937.383.1051 (Fax)
www.EMSAR.com (Internet)

! WARNING

Improper parts and service can cause injury. Use only Ferno-approved parts and service on the cot.

! WARNING

Modifying the cot can cause injury and damage. Use the cot only as designed by Ferno.

10.2 Model 93ES Parts List

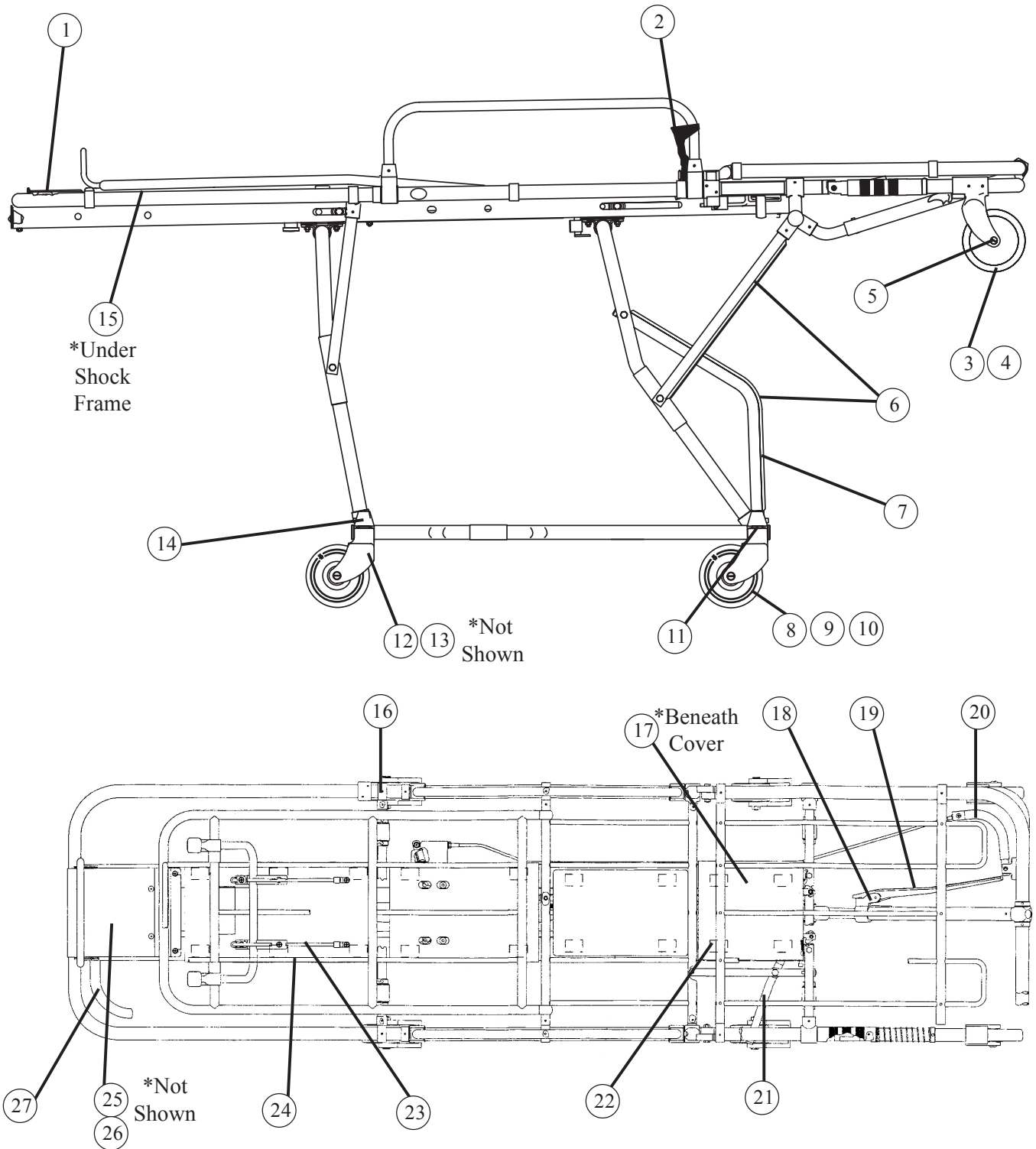
Ref .	Description	Part #
1	Lead Handle	090-5339
2	Sidearm Release (ea)	090-5596
3	Loading Wheel (only)	090-4054
4	Load Wheel with Hardware	090-4768
5	Loading Wheel Axle & Nut	090-5337
6	Scuff Strip, (set of 4)	090-5148
7	Scuff Strip Pair - Long	090-5149
8	5" Ultra Glide Caster w/Pin	090-5546
9	5" Ultra Glide Wheel Only	090-5656
10	5" Caster w/pin & Wheel Lock	190-1020
11	1/2" Bearings (Pr)	090-1259
12	Transport Wheel Caster w/Tapered Pin	090-5335
13	Shank w/Tapered Pin	090-5336
14	Tapered Shank Pin with Hardware	090-5328
15	Slotted Bumper Screw (Pr)	090-5153
16	Split Post Casting	090-0277
17	Single Pusher Spring Housing	090-5346
18	V-Spring For Backrest Adjustment Handle	090-2948

Ref .	Description	Part #
19	Manual Backrest Adjustment Handle	090-1258
20	Height Control Lever, Head End	090-5145
n/s	Label Set	238-1344
21	Aux. Lock Release Handle	090-5437
22	Seat Panel	090-5341
23	Shock Frame Support Kit	090-5480
24	Foot Panel	090-5343
25	93ES End Cover with O ₂ Mount	090-5502
26	Plain O ₂ Support with Rivets	190-1023
27	Control Grip, Foot End	090-5162
n/s	- not shown	

STAT TRAC RETROFIT KIT

Stat Trac retrofit kits are available. Contact EMSAR for details.

Figure 30 - Parts Diagram for the 93ES



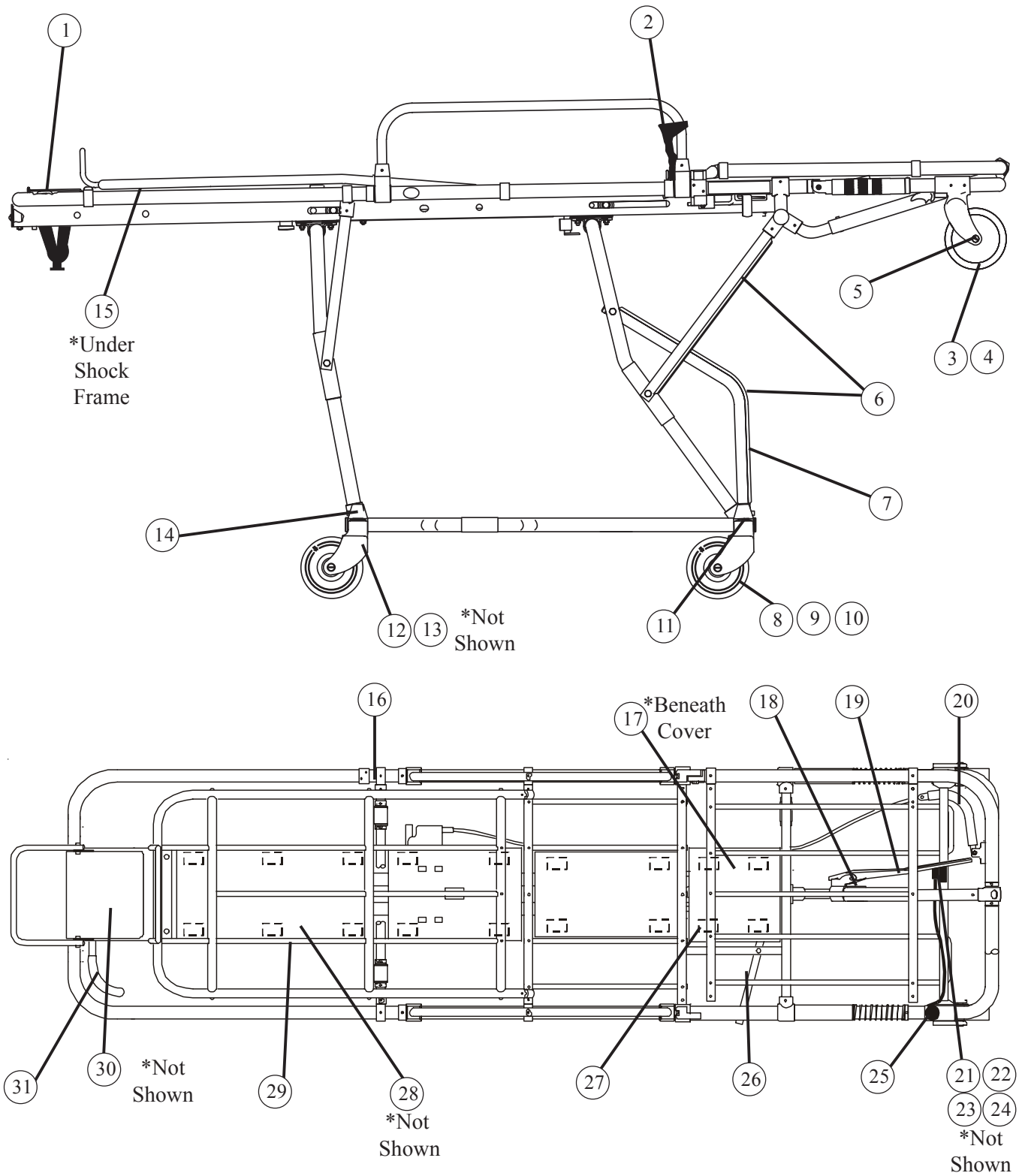
10.3 Model 93ESST Parts List

Ref .	Description	Part #
1	Lead Handle	090-5339
2	Sidearm Release (ea)	090-5596
3	Loading Wheel (only)	090-4054
4	Load Wheel with Hardware	090-4768
5	Loading Wheel Axle & Nut	090-5337
6	Scuff Strip, (set of 4)	090-5148
7	Scuff Strip Pair - Long	090-5149
8	5" Ultra Glide Caster w/Pin	090-5546
9	5" Ultra Glide Wheel Only	090-5656
10	5" Caster w/pin & Wheel Lock	190-1020
11	1/2" Bearings (Pr)	090-1259
12	Transport Wheel Caster w/Tapered Pin	090-5335
13	Shank w/Tapered Pin	090-5336
14	Tapered Shank Pin with Hardware	090-5328
15	Slotted Bumper Screw (Pr)	090-5153
16	Split Post Casting	090-0277
17	Single Pusher Spring Housing	090-5346
18	V-Spring For Backrest Adjustment Handle	090-2948

Ref .	Description	Part #
19	Manual Backrest Adjustment Handle	090-1258
20	Height Control Lever, Head End	090-5145
21	Safety Release Activator	090-5620
22	Ring Fastener	190-1026
23	Aluminum Loading Post Shield and E-Ring Clip	090-5618
24	Head-End Shield	090-5693
25	Safety Release Cable w/Handle Assembly	190-1022
26	Aux. Lock Release Handle	090-5437
27	Seat Panel	090-5341
n/s	Label Set	238-1346
28	Shock Frame Support Kit	090-5480
29	Foot Panel	090-5343
30	Plain O ₂ Support with Rivets	190-1023
31	Control Grip, Foot End	090-5162

n/s - not shown

Figure 31 - Parts Diagram for the 93ESST



11 - LIMITED WARRANTY

Limited Warranty Summary

Ferno-Washington, Inc. (Ferno), warrants the products we manufacture to be free from defects in material and workmanship for one year except as follows:

- (A) External finishes (gelcoat, decals, paint, etc.) are warranted for 90 days.
- (B) Soft goods (webbing, vinyl, fabric, foam, etc.) are warranted for 90 days.
- (C) Repairs and services are warranted for 90 days or until the end of the time period(s) above, whichever comes last.

This limited warranty applies when you use and care for the product properly. If the product is not used and cared for properly, the warranty is void. The warranty period begins the day the product is shipped from Ferno or the day you receive it if you have proof of the delivery date. Shipping charges are not covered by the limited warranty. We are not liable for shipping damages or damages sustained through using the product.

Limited Warranty Obligation

If a product or part is proven to be defective, Ferno will repair or replace it. At our option, we will refund the product's purchase price. The purchaser accepts these terms in lieu of all damages.

This is a summary of the limited warranty. The actual terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are available upon request by calling 800.733.3766 or 937.382.1451.

12 - FERNO CUSTOMER SERVICE

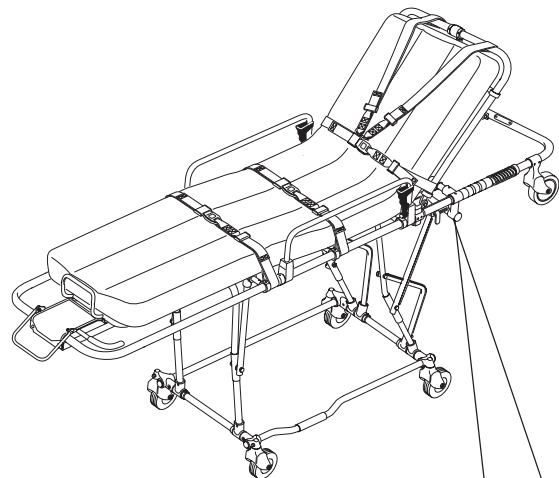
Customer service and product support are important aspects of each Ferno product.

For assistance with the Model 93ES and Model 93ESST, contact Ferno Customer Service.

Please have the serial number of your Ferno cot available when calling Ferno Customer Service, and include it in all written communications.

Ferno-Washington, Inc.
70 Weil Way
Wilmington, OH 45177-9371
U.S.A.

Telephone (U.S.A. and Canada) 800.733.3766
Telephone (Worldwide) 937.382.1451
Fax (United States) 937.382.1191
Fax (Outside U.S.A.) 937.382.6569
Internet www.ferno.com



Serial Number _____



TRAINING RECORD

Date	Name	Training Method

MAINTENANCE RECORD

Date	Maintenance Performed	By