



Model 35X Series PROFlexx[®]

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*Read this Manual
and Retain for
Future Reference*

Ferno Technical Support

Customer service and product support are important aspects of each Ferno product. Please have the product serial number available when calling, and include it in all written communications. For technical support questions:

Telephone (Toll-free)	1.800.733.3766 ext. 1010
Telephone	1.937.382.1451 ext. 1010
Email	quality.products@ferno.com

Ferno Customer Relations

For ordering assistance or general information:

CANADA AND THE U.S.A.

Telephone (Toll-free)	1.877.733.0911
Telephone	1.937.382.1451
Fax (Toll-free)	1.888.388.1349
Fax	1.937.382.1191
Internet	www.ferno.com

ALL OTHER LOCATIONS

For assistance or information, please contact your Ferno distributor. If you do not have a Ferno distributor, please contact Ferno Customer Relations:

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

Telephone	+1.937.382.1451
Fax	+1.937.382.6569
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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 Relations.

Proprietary Notice

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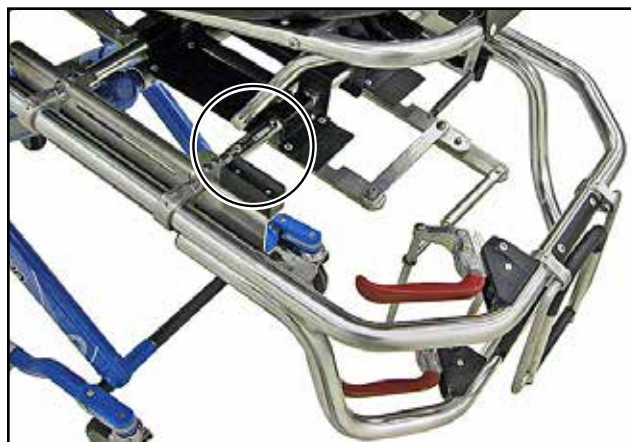
Limited Warranty Statement

The products sold by Ferno are covered by a limited warranty, which is printed on all Ferno invoices. The complete terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are also available upon request by calling Ferno at 1.800.733.3766 or 1.937.382.1451.



USERS' MANUAL

To request additional free users' manuals, contact Ferno Customer Relations, your Ferno distributor, or visit www.ferno.com.



Serial Number _____

Location: Crosstube Under Shock Frame.



Ferno-Washington, Inc.
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Wilmington, Ohio 45177-9371 U.S.A.



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1 - SAFETY INFORMATION

1.1 Warning

Warning notices indicate a potentially hazardous situation which, if not avoided, could result in injury or death.



WARNING

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

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

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

Failure to use the safety hook can cause injury. Install and use the safety hook as described in this manual.

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 restraints to secure the patient on the cot.

False locking can cause injury. After changing positions, lift the cot until all the wheels are off the ground. This allows the lock to engage if it has not already done so.

Rolling the cot sideways or in a loading position can cause it cot to tip and injure the patient or operators. Roll the cot only in a level (rolling) position and with the head-end or foot-end first.

Helpers can cause injury or be injured. Maintain control of the cot, operate the controls, and direct all helpers.

Improper bariatric transport can cause injury to the patient, operators and helpers. Follow local protocols and the instructions in this manual.

Heavy loads can cause injury. Use as many additional operators and helpers as needed to safely transport the patient.

Using a raised position for bariatric transport can cause injury and cot failure. Keep the cot folded when exceeding the Standard Load Limit.

Improperly unloading a cot during bariatric transport can cause injury. Station one operator or helper in the ambulance to release the cot from the safety hook or safety stop.

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

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

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

1.2 Important

Important notices emphasize important usage or maintenance information.

Important

1.3 Bloodborne Disease Notice

To reduce the risk of exposure to bloodborne diseases such as HIV-1 and hepatitis when using the cot, follow the disinfecting and cleaning instructions in this manual.

1.4 Cot and Fastener Compatibility

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

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

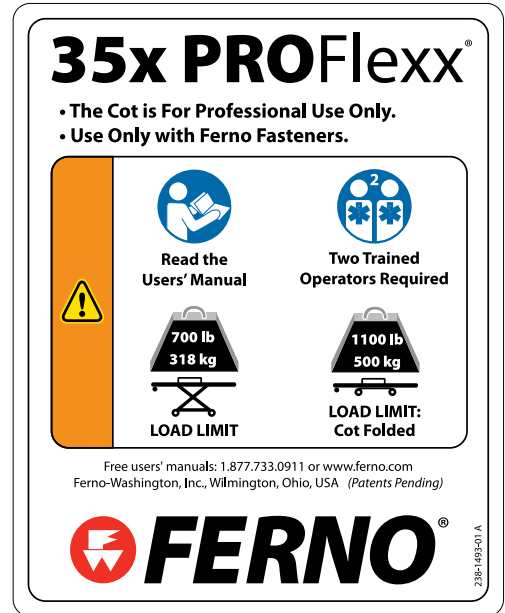
ANY COMBINATION OF A FERNO COT OR COT FASTENER WITH A NON-FERNO COT OR COT FASTENER IS MISUSE OF THE FERNO PRODUCT. Responsibility for the outcome of known, intentional misuse rests squarely on the misuser.

1.5 Safety and Instruction Labels

Safety and instruction labels place important information from the users' manual on the cot.

- The general information label shown at right is affixed to the foot-end frame. It provides general safety, load limit, and use information.
- The hand-guard label shown below reminds the user not to remove the hand guard.

Read and follow label instructions. Replace worn or damaged labels immediately. New labels are available from EMSAR (page 32) or from your distributor.



1.6 Symbol Glossary

The symbols defined below are used on the cot and in this users' manual. Ferno uses symbols recognized by the International Standards Organization (ISO), American National Standards Institute (ANSI) and the emergency medical services industry.

General Warning of Potential Injury	Read the Users' Manual	Cot Operation Requires Two Trained Operators	Standard Load Limit Use Cot Normally
Cot meets European Union Standards	Do Not Lubricate	Lubricate	Bariatric Load Limit Use Cot in Folded Position Only
		Unlocked Locked	

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.

2.2 Training

Operator trainees need to:

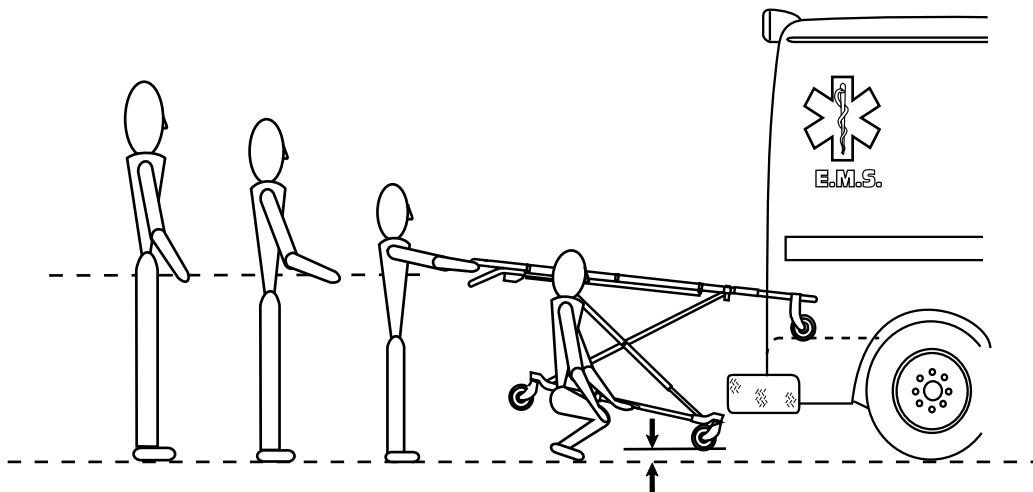
- read and understand this manual.
- be trained on the use of the cot.
- practice with the cot before using it with a patient.
- record their training information. A sample training record sheet is provided on page 35.



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 lift and hold the weight of the cot, patient and equipment high enough for the wheels to remain off the ground until the undercarriage legs completely unfold and lock into place.

Supporting this weight requires greater strength from short operators than from tall operators because short operators must raise their arms higher in relation to their shoulders.

Be aware that if the ambulance is parked on an uneven surface, the foot-end operator (and any helpers) may need to lift the cot higher than normal to allow the legs to unfold completely and lock.

Bariatric transport requires special operating procedures. See *Bariatric Transport*, pages 26-28.

Note: Use additional help as needed to lift the weight of the cot, patient and equipment (see *Using Additional Help*, page 25).

3 - ABOUT THE COT

3.1 Description

The Ferno® PROFlexx® Model 35X Series Cot (called the cot in this manual) is an emergency patient-handling device designed to transport a patient in a ground-based ambulance. The cot is for professional use by a minimum of two trained operators. It is designed for roll-in loading to help reduce the risk of back injury to medical service personnel.

The cot is designed for use with Ferno® cot fasteners (not included).

COT OPTIONS

- **PROFlexx® 35X:** Standard cot for use with Ferno® Model 175 (antler and rail) fastening system.
- **PROFlexx® 35X-ST:** Cot is compatible with Ferno® Stat Trac® cot fastener system.
- **Accessories:** Your cot may have been shipped with factory-installed accessories per your order; accessories are also available separately.

INCLUDED WITH PURCHASE

- Mattress (1 of 4 styles. See “Customer Choice” Build Options on this page).
- Set of 3 restraints
- Users’ manual
- Training CD-ROM
- Safety Hook (*not required or included with 35X-ST*)

U.S.A. NOTICE

The cot is for use with ambulances that meet the requirements of the “Star of Life” certification via Federal Ambulance Specification KKK-A-1822. For information, contact:

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



WARNING

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

STANDARD FEATURES

All cots are built with the following features:

- **Clear Anodized handling surfaces** (helps keep hands and clothing clean)
- **High-visibility control handles** (red)
- **9 Height positions**
 - 3 loading positions for vehicle floors 28"-33"
- **EZ-Pull control handles** at cot foot end (control handle may be activated before lifting weight of cot)
- **Shock Frame** (2-position)
- **Drop Frame** (5 positions with 4 locking positions)
- **Backrest** (pneumatic, infinite-positioning 0°-65°)
- **6" Swivel Transport Wheels** (4; 2 w/wheel locks)
- **Telescoping Lift Handles** (2)
- **Restraints** (set of 3)
- **Head-end Leg Protectors**
- **Lower-Frame Scuff Strips**
- **Folding Lead Handle**

“CUSTOMER CHOICE” BUILD OPTIONS

One each of the following options is standard equipment on your cot:

- **Color** (your choice of 5 colors)
- **Cot-Fastener Compatibility**
 - Ferno® Model 175 Antler-and-Rail
 - Ferno® Model 185 Stat Trac®
- **High-Reflectivity Labels**
 - Standard high-reflectivity labels
 - Personalized high-reflectivity labels
- **Sidearms**
 - Ferno® Universal (swing- and fold-down) sidearms
 - Ferno® swing-down sidearms
- **Mattress Options***
 - Mattress with locking hooks
 - Mattress with locking hooks and pocket
 - Mattress with locking hooks, pocket, transfer board
 - Mattress with hook-and-loop fastener

* Mattresses are also available as accessories and as replacement parts.

3.2 General Specifications

Height¹	
Bed Position 9	40 in./102 cm
Loading Position 3	35 in./89 cm
Bed Position 8	39 in./98 cm
Loading Position 2	31 in./79 cm
Bed Position 7	37 in./93 cm
Loading Position 1	27 in./69 cm
Bed Position 6	34 in./87 cm
Bed Position 5	31 in./79 cm
Bed Position 4	28 in./71 cm
Bed Position 3	24 in./62 cm
Bed Position 2	20 in./51 cm
Bed Position 1 (folded)	14 in./35 cm
Length	
Maximum	79 in./201 cm
Minimum	64 in./162 cm
Width (Overall)	24 in./61 cm
Weight²	92 lb/42 kg
Weight (ST)²	100 lb/45 kg
Strength to Weight Ratio³	7.6 SWR
Strength to Weight Ratio (ST)³	7.0 SWR
Load Limit	700 lb/317 kg
Bariatric Load Limit⁴	1,100 lb/500 kg

General specifications are rounded to the nearest whole number. Metric conversions are calculated before rounding the Imperial measurements. For more information, contact Ferno Customer Relations (page 2) or your Ferno distributor.

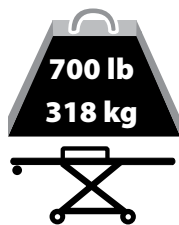
Ferno reserves the right to change specifications without notice.

¹Height measurements are as follows: Loading Position is the distance from the ground to the bottom of the loading wheel. Bed Position is the distance from the ground to the patient surface at the telescoping handle.

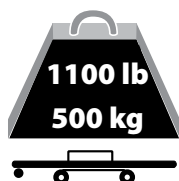
²Weight is without mattress, restraints and optional features.

³Strength to Weight Ratio is the load limit of the cot divided by the cot's weight.

⁴Bariatric transport requires special operating procedures. See pages 26-28.



**STANDARD LOAD LIMIT
(ALL COT POSITIONS)**



**BARIATRIC LOAD LIMIT
(FOLDED POSITION ONLY)**

Follow bariatric transport procedures (pages 26-28) when working with loads in excess of the Standard Load Limit. Inspect the cot if the Standard Load Limit has been exceeded (see *Inspecting the Cot*, page 30).

3.3 Cot Positions

Important

Not all users require the highest (9th) Bed/Loading Position. By default, this Bed Position is locked out by a metal plate that limits the cot to Positions 1-8. If your ambulance has a very high loading height that requires the 9th Bed Position, see *Accessing the 9th Bed Position*, page 31.

LOADING POSITIONS (3)

The loading position is for use only when loading the cot into, or unloading the cot from, an ambulance. Use the lowest loading position that allows the cot to roll into your ambulance.



ROLLING/TRANSFER POSITIONS (5)

Use a level position to roll the cot and for transferring the patient to or from the cot and an adjacent surface.



FOLDED POSITION

Use the folded position to transfer the patient, to roll the cot during bariatric transport, or to store the cot.



4 - SETUP AND INSTALLATION

4.1 Ambulance Requirements

The ambulance bumper extension should not exceed 14 inches (35.5 cm). The patient compartment should have a level floor large enough for the folded cot, and a Ferno® cot fastener installed (not included). See *Cot and Fastener Compatibility*, page 4.

Important

Loose items and debris on the patient compartment floor can interfere with the operation of the cot with the fastener. Keep the patient compartment floor clear.

4.2 Restraints, Mattress and Accessories

Before placing the cot in service, assign appropriate personnel to install the mattress, restraints, and any accessories shipped with the cot. Keep restraint and accessory users' manuals with this manual for future reference. For additional, free manuals, contact Ferno Customer Relations (page 2).

WARNING

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

For complete list of accessories, see *Accessories*, page 34.

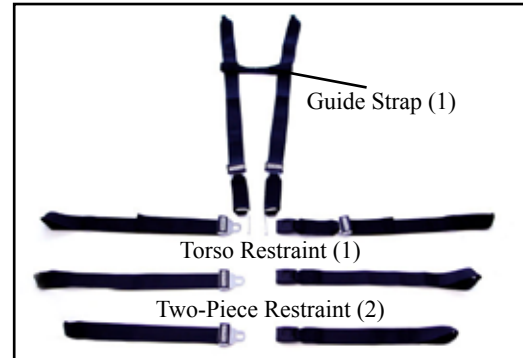


Figure 1 - Restraints (Set of 3)

4.3 Fastener Compatibility

Read the cot fastener users' manual for instructions on using the fastener (see *Cot and Fastener Compatibility*, page 4).

ANTLER-AND-RAIL FASTENERS

Model 35X series cots are compatible with all versions of the Ferno® Model 175 antler and rail cot fasteners. The cot fastener must be configured for use with the Ferno® Model 35 Series - see the fastener installation manual for details.

Using the Model 175 cot fastener requires the installation of the safety hook (included).

STAT TRAC FASTENERS


Model 35X-ST Series cots are compatible with all versions of the Ferno® Model 185 Stat Trac® fastener. The center of the fastener must be a minimum of 17" (43 cm) from the ambulance wall. If the fastener was installed closer than this minimum distance, it must be reinstalled further from the wall to provide room for the cot wheels to swivel during loading and unloading.

Important

A "sloped" (or low-profile) mounting block (shown here) must be used when the antler portion of the cot fastener is **removable** (installed with large turn-knobs for easy removal).

If your **removable** fastener does not already have this mounting block, contact Ferno Customer Relations, page 2.

This block is **not** used with fasteners permanently-mounted to the floor with a large bolt.



Important

Stat Trac fasteners installed before June 1, 2000 required only 16" (41 cm) of clearance from the ambulance wall to the center of the Stat Trac.

The 6-inch wheels on PROFlexx® Series cots require the fastener to be positioned at least 17" (43 cm) from the wall to allow room for the wheels to swivel as the cot is removed.

If you installed a Stat Trac at the old minimum, you must reposition your Stat Trac to at least the new 17-inch minimum. Contact Ferno Customer Relations (page 2) for a revised Stat Trac installation manual.

4.4 Install the Safety Hook

Note: If your ambulance service uses *only* the Stat Trac[®] Fastening System, skip the rest of Section 4.

The safety hook (Figure 2) provided with the cot is a component of Ferno’s Model 175 Cot Fastening System, and must be installed and used as described in this manual.

The safety hook catches the cot safety bar (Figure 3) to ensure that the cot remains secured inside the ambulance while the operators raise or lower the undercarriage during loading or unloading.

Installing the safety hook requires the skills of a mechanic familiar with ambulance construction.

Before installing the safety hook, consult the ambulance manufacturer regarding:

- the location of wiring, oxygen or fuel lines, and other elements under the ambulance floor.
- the ambulance warranty.

HARDWARE REQUIRED (NOT SUPPLIED)

2	1/4-20 Socket-head cap screws*
2	Flat washers
2	Lock washers
2	1/4-20 Nuts

*The socket-head cap screws must be long enough to pass through the safety hook, patient compartment floor, both washers, **and** still have at least two full threads extending past the nut. The hardware should be of at least SAE Grade 5 with UNC-2 threading (or equivalent).

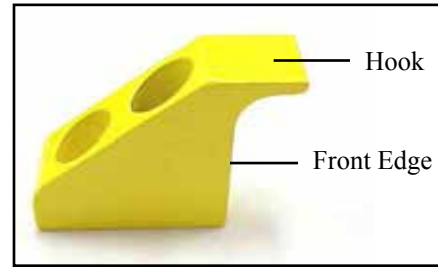


Figure 2 - Safety Hook

⚠ WARNING

Failure to use the safety hook can cause injury. Install and use the safety hook as described in this manual.

Important

Before installing the safety hook, consult the ambulance manufacturer about possible interference with wiring and other elements under the ambulance floor, and about the ambulance warranty.



Figure 3 - Engaging the Safety Hook

PROPER SAFETY HOOK PLACEMENT

Position the safety hook aligned with the center of the fastener and as close to the rear of the ambulance as possible, within the limits below:

- The bumper or extended folding bumper must not exceed 14 inches (356 mm).
- Position the safety hook with the hook facing the front of the ambulance.
- Position the safety hook at least 11 inches (279 mm) from both sides of the door frame (Figure 4) so the cot's safety bar will engage the hook when the cot is loaded or unloaded.
- Position the safety hook no more than 19-3/4 inches (451 mm) from the front edge of the hook to the rear of the ambulance, **including** the bumper and folding bumper step in the extended (open) position.

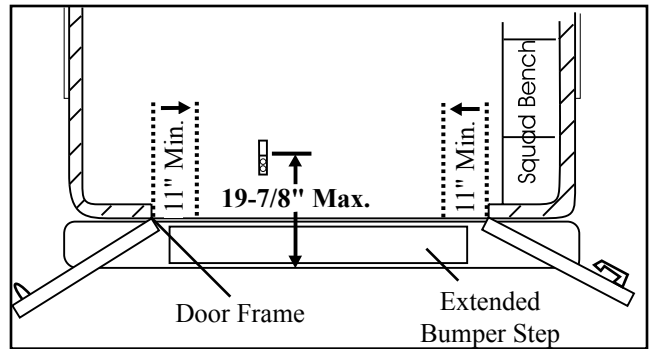


Figure 4 - Safety Hook Placement

Important

If the safety hook is installed too far inside the ambulance, you will not be able to properly fold or unfold the cot undercarriage when it is secured by the hook. Measure and install the safety hook as instructed in this manual.

INSTALLING THE SAFETY HOOK

1. Mark the position of the safety hook on the floor.
2. Drill holes for the socket-head cap screws and attach the safety hook to the floor (Figure 5).
3. To test the hook, load and unload the cot. Verify that there is no interference with folding or unfolding the legs.

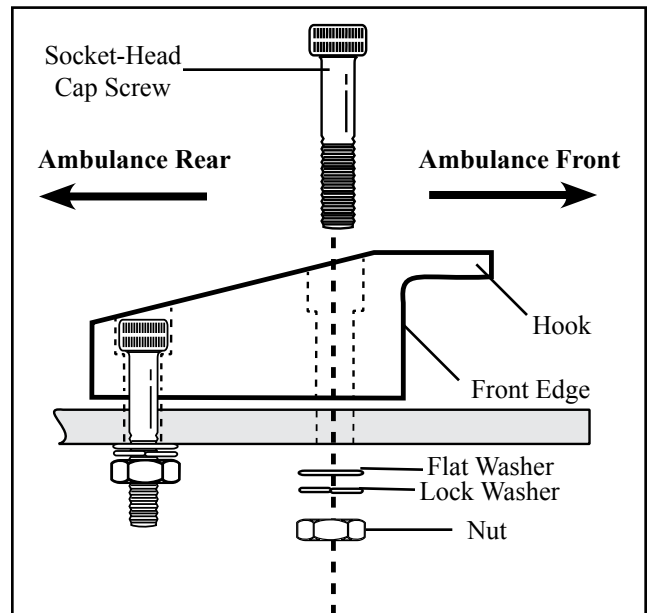


Figure 5 - Installing the Safety Hook

5 - COT FEATURES

5.1 Control Handles

- **Purpose:** An operator uses one of the undercarriage control handles to unlock the locking mechanism that allows the cot to be raised and lowered.
- **Location:** There are three control handles: an upper and a lower handle at the cot foot end, and a side control handle at the patient's right side (Figures 6 and 7).
 - To lift the cot evenly, the two trained operators must stand opposite one another. If using the upper or lower foot-end control handle, position the assisting operator at the cot head end. If using the side control handle, position the assisting operator at the opposite side of the cot.
- **Use:** Any one of the handles may be used to disengage the undercarriage lock.
 - Use the control handle that is best for the lifting situation. For example, the lower control handle gives a short operator better leverage for lifting.

UNDERSTANDING HOW THE

FOOT-END CONTROL HANDLES FUNCTION

Two styles of **foot-end** control handles have been produced. Practice with your cot before placing it in service so you will understand how your cot operates. The two styles require different procedures for using the cot.

- **THE EZ-PULL STYLE** control handle (serial numbers 09N-122459 and higher) requires less force to pull; also, the control handle may be pulled first, before the operators raise or lower the cot.
- **THE LIFT-FIRST STYLE** control handle (unmodified cots with serial numbers below 09N-122459) requires the operators to **lift the weight of the cot and patient off the locking mechanism BEFORE** pulling the control handle. An update kit is available to change from the Lift-First Style to the EZ-Pull Style handle.

Note: *The side lifting handle is a Lift-First style handle.*

Important

Cots with serial numbers **below 09N-122459** may be updated to the EZ-Pull style. **Do not assume** which style of control handles a cot is equipped with. Practice with the cot before using it in service.



Figure 7 - Side Control Handle

Important

Two styles of foot-end control handle have been produced. Understand how your cot functions **and** practice using the cot without a patient before placing the cot in service.

Lift-First Style (Closed Handle)



EZ-Pull Style (Open Handle)



Figure 6 - Control Handle Versions

Using the EZ-Pull Handle

1. Pull the control handle first, before lifting the cot. This allows you to grasp the cot with both hands and lift evenly, without having to open your palm to operate the handle after you assume the load.
2. In a motion coordinated with the head-end operator and any helpers, assume the load by raising the cot to take the weight off the locking mechanism.
3. Once the operators have assumed the load, the mechanism will automatically disengage and the cot can be raised or lowered to the desired height.
4. Release the handle when the cot is near the desired height, then raise or lower the cot until the lock engages. **Before relaxing your grip on the cot main frame, verify that the cot has locked at the new position.**

Using the Lift-First Handle

1. In a movement coordinated with the head-end operator and any helpers, lift the cot to take the weight off the locking mechanism.
2. Open your left hand and pull the control handle to unlock the cot's locking mechanism.
3. Raise or lower the cot to the desired height.
4. Release the handle when the cot is near the desired height, then raise or lower the cot until the lock engages. **Before relaxing your grip on the cot main frame, verify that the cot has locked at the new position.**

5.2 Fastener Release Controls

- **Purpose:** The fastener release control lever (Model 35X) or fastener release control handle (Model 35X-ST) allows the cot to be released from the cot fastener during unloading the cot from an ambulance.
- **Location:** The lever or handle is located near the cot's loading wheels.
- **Use:** To release the cot from the cot fastener:
 - **35X:** Release the cot from the safety hook by turning the lever counter-clockwise (Figure 8).
 - **35X-ST:** Release the cot from the safety stop by squeezing the handle (Figure 9).



Figure 8 - 35X Lever

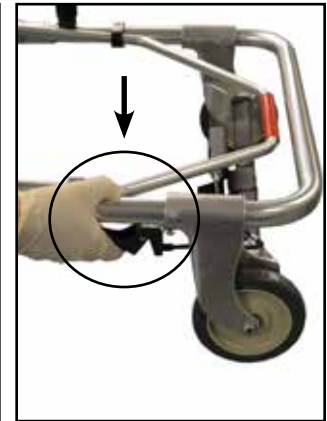


Figure 9 - 35X-ST Handle

5.3 Drop Frame

- **Purpose:** The 5-position drop frame has many uses (Figure 10).
 - **+2 (LOCKED):** The +2 position shortens the cot for use when space is limited. This position is also used to push the cot when it is being used as a bariatric sled (See *Rolling the Cot as a Sled*, page 21 and *Bariatric Transport*, pages 26-28).
 - **+1 (LOCKED):** The +1 position provides a good ergonomic lifting angle for raising or lowering the cot when the cot is at a low level.
 - **EXTENDED (LOCKED):** the extended position is used by an operator for raising or lowering the cot. This position is also used for loading the cot into an ambulance or unloading it from an ambulance. A safety bar (Model 35X) or head-end loading post (Model 35X-ST) attached to the drop frame secures the cot to a safety hook or safety stop inside the ambulance during the loading or unloading process.
 - **-1 (LOCKED):** The -1 position provides a good ergonomic lifting angle for raising or lowering the cot when the cot is at a high level.
 - **-2 (UNLOCKED):** The -2 position is used to shorten the cot when space is limited. The frame is unlocked and is not usable for lifting when in this position.
- **Use:** Squeeze the release bar (Figure 11) to unlock the drop frame, then raise or lower the drop frame to the new position. Let go of the release bar at the new position.
 - Raise the drop frame to the extended, +1 or +2 position before folding the cot.

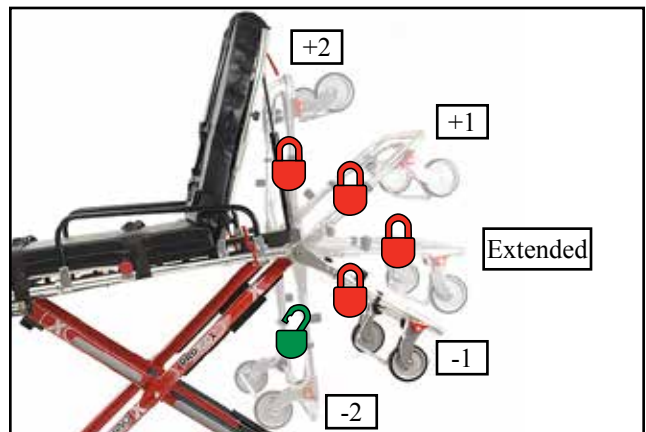


Figure 10 - Drop Frame Positions

Important

Extend or raise the drop frame before folding the cot. Folding the cot with the drop frame in a lowered position can damage the drop frame if it strikes the cot undercarriage, floor, or ground.



Figure 11 - Drop Frame Release Bar

5.4 Backrest

- **Purpose:** The backrest allows the operator to elevate the patient's torso for patient comfort or medical necessity.
- **Before Use:**
 - Loosen or unbuckle the torso restraint.
 - Support the weight of the backrest and patient.
- **Use:** Press the red control handle toward the backrest frame to unlock the backrest (Figure 12), then raise or lower the backrest to the desired position. Release the control handle to lock the backrest at the new position.
 - The gas spring is under pressure to ease raising and lowering. When a heavy patient is on the cot, support the patient's weight before adjusting the backrest. When a light patient is on the cot, control the upward movement of the backrest so it does not move too quickly.
 - The backrest can be adjusted between 0° and 65°.
- **After Use:** Buckle and/or adjust the torso restraint.



Figure 12 - Using the Backrest

5.5 Shock Frame

- **Purpose:** The shock frame allows the operator to elevate the patient's legs to treat shock or for patient comfort.
- **Use:**
 - **Before use,** loosen or unbuckle the leg restraint.
 - **To raise,** stand at the foot end of the cot. Use both hands to lift the shock frame until it locks in the raised position.
 - **To lower,** stand at the foot end of the cot. Lift the shock frame a little to support the weight, then press the shock frame control levers (Figure 13) and lower the shock frame.
 - **After use,** buckle and/or adjust the leg restraint.



Figure 13 - Lowering the Shock Frame

5.6 Lead Handle

- **Purpose:** The lead handle allows the foot-end operator to pull the cot when it is in a rolling position.
- **Use:** Unfold the lead handle for use (Figure 14); fold it for storage.
 - Do not allow the lead handle to hang unfolded.
 - Use the lead handle only when the cot is on a smooth, level surface. When the cot is on an incline or rough terrain, grasp the main frame of the cot with both hands.



Figure 14 - Using the Lead Handle

5.7 Sidearms: Swing-Down (Standard)

- **Purpose:** Sidearms provide patient security and comfort. Keep the sidearms raised except during patient transfer. The sidearms feature an intermediate stop that allows a patient’s arm to be placed on the sidearm for treatment, starting of intravenous (IV) fluids, etc.
- **Use:**
 - **To lower,** squeeze the sidearm release handle (Figure 15) and lower the sidearm. To stop at the intermediate position, let go of the release handle before the sidearm reaches the 90° point. To fully lower the sidearm, continue holding the release handle until the sidearm has passed the 90° point.
 - **To raise,** lift the sidearm until it locks. You do not need to use the release handle.



Figure 15 - Lowering the Sidearm

Important

Do not use the sidearms to lift the cot. Sidearms are not designed for lifting. Lift the cot only by grasping the main frame, or main frame and side lift handles.

Important

Sidearms are designed to support light objects. Do not place objects weighing more than 10 pounds (4.5 kg) on the sidearms.

5.8 Sidearms: Universal (Optional)

- **Purpose:** Sidearms provide patient security and comfort. Keep the sidearms raised except during patient transfer. The sidearms feature an intermediate stop that allows a patient’s arm to be placed on the sidearm for treatment, starting of intravenous (IV) fluids, etc.
- The universal sidearms fold along the cot main frame or swing down like a standard sidearm.
- **Use:**
 - **To fold:** Press the release lever (Figure 16) and fold the sidearm flat along the cot main frame.
 - **To lower:** Press the release lever, pull the sidearm slightly toward the foot end of the cot to free it from the lock, then swing the sidearm down below the cot main frame.
 - **To use the intermediate position:** Press the release lever and begin folding **and** lowering the sidearm, then slide the sidearm toward the head end of the cot to lock it before lowering to the 90° point.
 - **To raise:** Swing and/or lift the sidearm toward the head end of the cot until it locks.

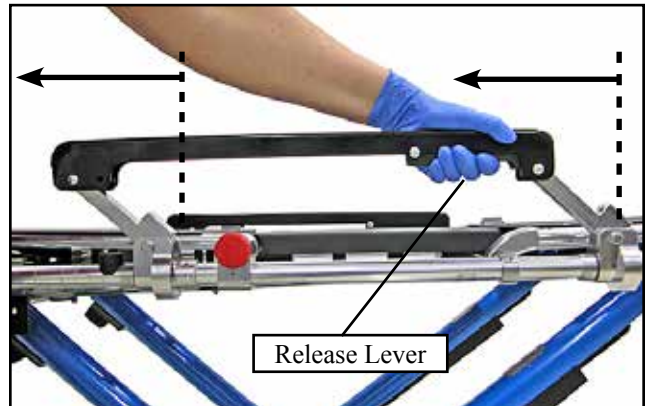


Figure 16 - Using the Universal Sidearm

Important

Do not use the sidearms to lift the cot. Sidearms are not designed for lifting. Lift the cot only by grasping the main frame, or main frame and side lift handles.

Important

Sidearms are designed to support light objects. Do not place objects weighing more than 10 pounds (4.5 kg) on the sidearms.

5.9 Telescoping Side Lift Handles

- **Purpose:** The telescoping side lift handles can be used as extra lifting or grasping points by operators or additional helpers.
- **Location:** The lift handles are located near the center of the cot.
- **Use:** Pull to extend the lift handle, push to retract.
 - Retract the lift handles when using the side control handle to raise or lower the cot.
 - Figure 17 shows one option for hand placement for lifting the cot. Alternately, grasp the lift handle with both hands.
 - Balance the cot by placing one operator or helper on each side of the cot; lift together, using both lift handles.



Figure 17 - Hand Placement for Using the Lift Handles

5.10 Wheel Locks

- **Purpose:** The wheel locks help keep the cot stationary during patient transfer and certain medical procedures. When engaged, the wheel lock stops wheel rotation and caster swiveling.
- **Location:** Wheel locks are located at opposite corners of the cot where they are accessible to the operator's right foot.
- **Use:** Press the lock lever to engage; tap the top part of the lock lever to disengage (Figure 18).
 - Wheel locks are not brakes. Stay with the cot and maintain control of it at all times. Do not leave the cot or patient unattended.



Figure 18 - Wheel Lock

5.11 Mattress

- **Purpose:** The mattress provides comfort for the patient.
- **Mattress Options (4):** Mattress with 5 plastic hooks; mattress with hooks and transfer-board pocket; mattress with hooks, transfer-board pocket, and transfer board; mattress with hook-and-loop fastening strips.
- **Use:** The bottom of the mattress has either 5 plastic hooks or hook-and-loop fastening strips. The hooks or hook-and-loop strips help hold the mattress in place when transferring a patient onto or off from the cot.
 - **To Attach:** Raise the backrest and/or shock frame as needed and either feed each hook through a hole in the bed surface (Figure 19) OR press the hook-and-loop surfaces together.
 - **To remove:** Slide one hand under the mattress and apply upward pressure, then remove each hook from the bed surface with your other hand OR separate the hook-and-loop fastening strips.



Figure 19 - Mattress Hooks Through Bed Surface

6 - USING THE COT

6.1 Before Placing the Cot in Service

- Personnel who will work with the cot need to read this manual.
- Set up the cot, following the instructions in *Setup and Installation*, pages 9-11.
- Confirm that the cot operates properly. See *Inspecting the Cot*, page 30.
- The vehicle must have a Ferno cot-fastening system installed.



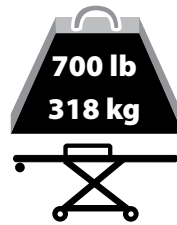
Read the Users' Manual



Two Trained Operators Required

6.2 General Guidelines for Use

- Medical advice is beyond the parameters of this manual.
- It is the users' responsibility to ensure safe practices for the patient and themselves.
- A minimum of two trained operators is required.
- Follow standard emergency patient-handling procedures when operating the cot.
- Stay with the patient at all times.
- Always use patient restraints to secure the patient on the cot.
- **Operators work together and maintain control of the cot at all times.**
- Operators communicate with one another and use coordinated movements to operate the cot.
- Lift only the weight you can safely handle. Use additional help when working with heavy loads (patient and equipment). For placement of helpers, see *Using Additional Help*, page 25.
- Keep the cot folded when the load exceeds the Standard Load Limit (see *Bariatric Transport*, pages 26-28). Inspect the cot if the Standard Load Limit has been exceeded (see *Inspecting the Cot*, page 30).



**STANDARD LOAD LIMIT
(ALL COT POSITIONS)**



**BARIATRIC LOAD LIMIT
(FOLDED POSITION ONLY)**

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

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

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

6.3 Fully Engaging the Locking Mechanism

False locking is a condition in which the locking mechanism does not fully engage when a control handle is released. This can occur after changing cot positions if the locking pin rests exactly on the tip of a ratchet bar tooth, and can allow the cot to lower to the next locking position when moved.

To ensure the locking mechanism fully engages after changing positions, lift the cot until all the wheels are off the ground. This allows the lock to fully engage if it has not already done so.

WARNING
False locking can cause injury. After changing positions, lift the cot until all the wheels are off the ground. This allows the lock to engage if it has not already done so.

6.4 Changing Cot Positions

Changing cot positions with a patient on the cot requires a minimum of two trained operators working together.

PREPARING TO RAISE OR LOWER THE COT

Operators do the following:

- Stand at opposite ends or sides of the cot (Figures 20-22).
- Select the lifting position that provides the best leverage (Figures 20 or 21).
- Use an underhand grip to grasp the cot main frame.
- **Control Operator only:** Position your hand to use the control handle.
- Choose the appropriate set of steps below.

Important

- With the EZ-Pull Handle, you may pull the control handle first, then lift the cot (See page 12).
- With the Lift-First Handle, you must lift the cot **before** you pull the control handle (See page 12).

EZ-PULL-STYLE CONTROL HANDLE

1. **Control Operator:** Pull the control handle.
2. **Both Operators:** Lift the cot high enough for the weight to be removed from the locking mechanism so the locking mechanism will disengage.
3. **Both Operators:** Both operators raise or lower the cot.
4. **Control Operator:** Release the control handle when the cot is near the desired height.
5. **Both Operators:** Together, lift the cot until all four transport wheels are off the ground. This ensures the undercarriage lock engages if it has not already done so.
6. **Both Operators:** Set the cot onto the floor or ground. Do not release your grasp until you are sure the undercarriage is locked at the new position.

LIFT-FIRST-STYLE CONTROL HANDLE

1. **Both Operators:** Lift the cot slightly to take the weight off the locking mechanism.
2. **Both Operators:** As the control operator squeezes and holds the control handle, both operators raise or lower the cot. If the control handle is difficult to squeeze, both operators lift the cot a little higher to free the locking mechanism.
3. **Control Operator:** Release the control handle when the cot is near the desired height.
4. **Both Operators:** Together, lift the cot until all four transport wheels are off the ground. This ensures the undercarriage lock engages if it has not already done so.
5. **Both Operators:** Set the cot onto the floor or ground. Do not release your grasp until you are sure the undercarriage is locked at the new position.

Important

Operators should expect and be prepared to control the normal downward movement of the cot that occurs when a control handle is squeezed.



Figure 20- Upper Lifting Positions



Figure 21 - Lower Lifting Positions



Figure 22 -
Changing
Positions from
the Side

Raising or Lowering the Cot in Two Stages

To maintain proper lifting techniques, the operators may choose to adjust the cot height in two stages (Figure 23). To do this:

1. Use one set of lifting positions to raise or lower the cot partway.
2. Stop at a comfortable position and verify that the undercarriage is locked.
3. Adjust your hands to new lifting positions:
 - **Assisting Operator:** Raise or lower the drop frame to a different locked position.
 - **Control Operator:** Move your hands from the main frame to the lower lift frame or vice-versa.
4. Raise or lower the cot to the desired finishing position.

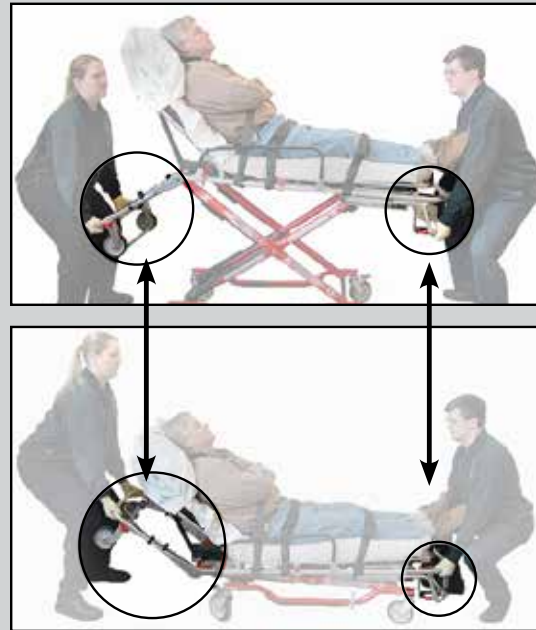


Figure 23 - Two-Stage Position Changes

HOW TO RECOVER FROM IMPROPERLY FOLDING THE COT

If you attempt to fold the cot with the drop frame locked in the lower lifting (-1) position, the drop frame mechanism will bind and cause the cot not to sit level.

If this occurs, do not release the drop frame hinges; you could jar the patient and/or damage the hinge mechanism. To recover, both operators raise the cot into a higher position. Adjust the drop frame to the extended position and then fold the cot.

6.5 Transferring the Patient

To transfer a patient onto the cot:

1. Unfasten the restraints and arrange the straps so they will not interfere with transferring the patient onto the cot.
2. Place the cot beside the patient and adjust it to the patient's level.
3. Engage the wheel locks, lower or fold the sidearms, and retract the side lift handles.
4. Transfer the patient onto the cot using approved EMS procedures and your local protocols.
5. Raise the sidearms. Adjust the backrest and shock frame as needed.
6. Fasten and adjust the patient restraints (Figure 24).
7. Release the wheel locks.
8. Before moving the cot or changing its position, verify that sheets and other articles are positioned where they will not interfere with cot operation.



Figure 24 - Securing the Patient

Important

Sheets or other articles that are placed, or find their way, beneath the metal bed of the cot can become caught in the ratchet mechanism and cause it to malfunction. Take care to tuck sheets between the mattress and the metal bed of the cot. Keep other articles above the mattress.

6.6 Rolling the Cot

GENERAL GUIDELINES

- Rolling the cot with a patient on the cot requires a **minimum of two trained operators working together and maintaining control of the cot at all times.**
- Rolling the cot in a loading position can cause the cot to tip. Always use a rolling position to roll the cot (see *Cot Positions*, page 8).
- Roll the cot on smooth, unobstructed surfaces whenever possible.
- To cross a low obstacle such as a door sill, lift the cot slightly to take the weight off the wheels so the wheels roll smoothly over the obstacle.
- Lift and carry the cot over a high obstacle such as a curb. **Do not** apply downward force on one end of the cot in order to raise the other end of the cot over the obstacle.
- Do not roll the cot sideways. Rolling a cot sideways can increase the chance for the cot to tip and injure the patient and/or operators.
- Use additional help as needed to safely control the weight of the patient and cot (see *Using Additional Help*, page 25).
- When using additional help, trained operators stand at the head and foot ends of the cot and work the controls. Helpers can extend the side lifting handles or grasp the main frame, and assist the trained operators.
- When rolling over rough terrain, the operators (and helpers) should grasp the cot with both hands. Side operators or helpers place both hands on the main frame or lifting handles, or place one hand on each.
- Side helpers may need to walk sideways under some circumstances. Follow local protocols.
- If the load (patient plus equipment) exceeds the cot's Standard Load Limit, use bariatric transport techniques. see *Bariatric Transport*, pages 26-28.

ROLLING THE COT

1. Securely fasten the restraints around the patient.
2. **Both Operators:** Place the cot in a rolling position. See *Cot Positions*, page 8.
3. **Control Operator:** Position yourself at the foot end of the cot, grasp the main frame, and pull the cot forward. Or, if rolling the cot on a smooth, flat surface, unfold the lead handle and pull the transporter (Figure 25).
4. **Assisting Operator:** Position yourself at either the head-end of the cot (grasping the drop frame) or at the side of the cot near the patient's torso (grasping the main frame, Figure 25). Attend the patient and assist in rolling and steering the cot.

WARNING

Rolling the cot sideways or in a loading position can cause it cot to tip and injure the patient or operators. Roll the cot only in a level (rolling) position and with the head-end or foot-end first.

Important

Roll the cot downhill foot-end first. If it is not medically appropriate to do this, roll the cot head-end first, but do the following:

To maintain cot balance while rolling the cot downhill head-end first, the Assisting Operator must exert upward force on the drop frame.



Figure 25 - Rolling the Cot

ROLLING THE COT AS A SLED

The cot's lead handle and drop frame allow the cot to be rolled as a sled. This is the preferred way to roll the cot when the load exceeds the cot's Standard Load Limit. See *Bariatric Transport*, pages 26-28. To roll the cot as a sled:

1. Fold the cot and raise the backrest.
2. **Assisting Operator:** Raise the drop frame to one of the high locking positions (+1 or +2). Grasp the drop frame with both hands and help steer and push the cot (Figure 26).
3. **Control Operator:** Extend the lead handle and pull the cot (Figure 26).

Note: Tall, bariatric push-pull handles that mount to the cot frame are available. See *Accessories*, page 34 to order accessories.

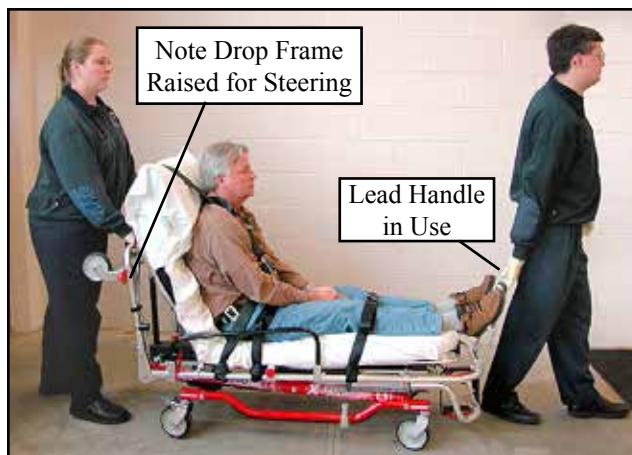


Figure 26 - Rolling the Cot as a Sled

6.7 Preparing to Load the Cot

1. Raise the ambulance folding bumper, if present.
2. Place the cot in a loading position (see *Cot Positions*, page 8).
3. Place the drop frame in the extended position.
4. Roll the cot to the patient compartment door.

Note: Use additional help as needed when working with heavy loads (patient and equipment). See *Using Additional Help*, page 25.

Important

If the ambulance is parked on an uneven surface, the operators (and any helpers) may need to lift the cot higher than normal to allow the undercarriage to lock.

Important

Loose items and debris on the patient compartment floor can interfere with the operation of the cot with the fastener. Keep the patient compartment floor clear.

6.8 Loading the Cot

Loading the cot with a patient on it into an ambulance requires a minimum of two trained operators working together.

1. Roll the cot forward until both loading wheels are on the patient compartment floor and either:
 - the safety bar passes the safety hook (Figure 27)
 - the head-end loading post passes the safety stop on the Stat Trac (Figure 28)

Important

- With the EZ-Pull Handle, you may pull the control handle first, then lift the cot (See page 12).
- With the Lift-First Handle, you must lift the cot **before** you pull the control handle (See page 12).

2. **Control Operator:** Choose the control-handle operation that is correct for your cot's control-handle style. To determine which control handle is on your cot, see *Control Handles*, page 12.
 - **EZ-Pull Handle:** Pull the control handle, then lift the foot end of the cot until it is level with the ambulance floor (Figure 29).
 - **Lift-First Handle:** Lift the foot end of the cot until it is level with the ambulance floor (Figure 29), then pull the control handle.
3. **Control Operator:** Tell the Assisting Operator to lift the undercarriage.
4. **Assisting Operator:** Kneel by the side of the cot (Figure 29) and grasp the undercarriage grip. When the Control Operator communicates that he/she is ready, lift the undercarriage all the way up and hold it in the folded position (Figure 30).
5. **Control Operator:** Release the control handle to lock the undercarriage in the folded position. Push the cot into the ambulance.
6. **Assisting Operator:** Assist the Control Operator as necessary. Release your grip on the undercarriage after all of the cot's wheels are inside the ambulance.
7. **Either Operator:** Secure the cot in the cot fastener.



Figure 27 - Safety Bar Past Safety Hook



Figure 28 - Loading Post Past Safety Stop



Figure 29 - Lifting the Cot Level



Figure 30 - Folding

6.9 Unloading the Cot

Unloading the cot with a patient on it from an ambulance requires a minimum of two trained operators working together.

1. Raise the folding bumper, if present.
2. Release the cot from the cot fastener.
3. **Control Operator:** Grasp the cot main frame or lower lift frame and squeeze the undercarriage control handle.
4. **Control Operator:** Keeping the foot end raised and level with the ambulance floor, pull the cot slowly from the ambulance (Figure 31) until the cot is stopped by either the safety hook or the safety stop.

Assisting Operator: As the cot is pulled from the ambulance, grasp the undercarriage hand grip on the lower frame (Figure 32) and lower the undercarriage to the ground.

Note: If the undercarriage is not unfolding, the Assisting Operator should lift the undercarriage slightly to take the weight off the locking mechanism.

Important

Verify that the undercarriage is locked before operating the fastener release lever or release handle. An unlocked undercarriage will allow the cot to fold.

5. **Control Operator:** Release the control handle.
6. **Control Operator:** Lift the cot until all four transport wheels are off the ground to make sure the undercarriage has unfolded completely and is locked. Set the cot on the ground.
7. **Assisting Operator:** Use the fastener release lever or handle to disengage the cot from the safety hook or safety stop (Figures 32 or 33).
8. **Both Operators:** Roll the cot completely out of the ambulance. As the cot is rolled away from the safety hook or safety stop, the Assisting Operator lets go of the fastener release lever or handle.
9. **Both Operators:** Place the cot in a rolling position (see *Cot Positions*, page 8).



Figure 31 - Unloading the Cot



Figure 32 - Disengaging the Release Lever (Model 35X)

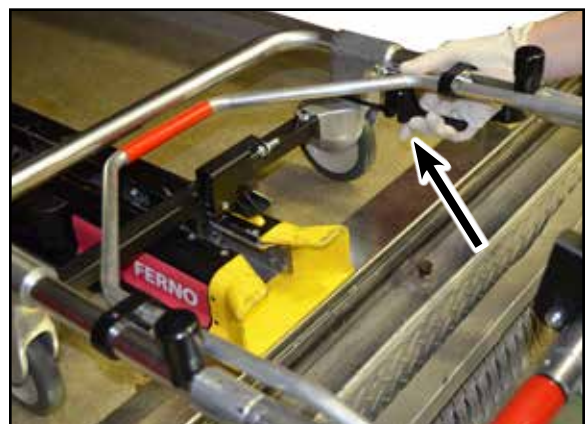


Figure 33 - Disengaging the Release Handle (Model 35X-ST)

6.10 One Operator, Empty Cot

CHANGING POSITIONS

If local protocols permit, **and** only when the cot is empty (no patient), one trained operator can change the cot position. Tip the empty cot onto its loading wheels (Figure 34), operate the control handle and raise or lower the cot to the desired position. Then, let go of the control handle and return the cot to its transport wheels.

ONE OPERATOR LOADING

An empty Model 35X (Model 175-compatible) cot may be loaded into and unloaded from the ambulance by one trained operator.

Do not load or unload a Model 35X-ST (Stat Trac-compatible cot) with one operator as this can damage the cot and/or the fastener. Always use two operators to load and unload the 35X-ST cot.

1. Raise the ambulance folding bumper, if present.
2. Place the cot in a loading position and roll the cot into the ambulance until both loading wheels are on the patient compartment floor and the safety bar passes the safety hook.
3. Choose one of the following steps (for control handle information, see *Control Handles*, page 12).
 - **EZ-Pull Handle:** Squeeze and hold the control handle, lift the cot until the wheels are off the ground, then lower the foot end of the transporter to the ground (Figure 35).
 - **Lift-First Handle:** Lift the cot until the wheels are off the ground, then squeeze and hold the control handle and lower the foot end of the transporter to the ground (Figure 35).
4. Release the control handle to allow the undercarriage to lock.
5. Grasp the undercarriage frame with one hand and pull upward on the undercarriage to make sure the cot has locked in the folded position (Figure 36).
6. Lift the foot end of the cot until it is level with the patient compartment floor (Figure 37). Push the cot into the ambulance.
7. Secure the cot in the cot fastener.

ONE OPERATOR UNLOADING

1. Raise the ambulance folding bumper and release the cot from the cot fastener.
2. Begin pulling the cot from the ambulance but do not operate the control handle. Continue pulling until the safety hook catches the safety bar.
3. Lower the cot foot end to the ground.
4. Squeeze the undercarriage control handle and raise the foot end until the cot wheels are off the ground and the undercarriage unfolds completely and locks.
5. Release the control handle and set the cot on the ground.
6. Disengage the safety bar from the safety hook.

Important

- With the EZ-Pull Handle, you may pull the control handle first, then lift the cot (See page 12).
- With the Lift-First Handle, you must lift the cot **before** you pull the control handle (See page 12).



Figure 34 - Changing Positions: One Operator

Important

Do not load or unload a Stat Trac-compatible cot with one operator as this can damage the cot or cot fastener.



Figure 35 - One Operator Loading



Figure 36 - Check Undercarriage Lock



Figure 37 - Lifting the Cot Level

6.11 Using Additional Help

Operating the cot requires a minimum of two trained operators. They may need additional help when working with heavy loads (patient plus equipment).

- Operators stand at the head and foot ends of the cot, maintain control of the cot, operate the controls, and direct all helpers.

- Side helpers may need to walk sideways under some circumstances. Follow local protocols.
- Ferno recommends that helpers work in pairs to help maintain cot balance.

The chart below shows suggested placement for operators and helpers.

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

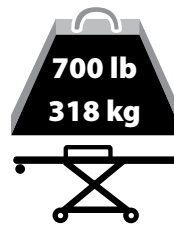
Key: O = Operator H = Helper P = Patient

WARNING

Helpers can cause injury or be injured. Maintain control of the cot, operate the controls, and direct all helpers.

Important

Trained operators position themselves at the head and foot ends of the cot and operate the controls. Show helpers where to stand and how to grasp the cot.



**STANDARD LOAD LIMIT
(ALL COT POSITIONS)**



**BARIATRIC LOAD LIMIT
(FOLDED POSITION ONLY)**

Follow bariatric transport procedures (pages 26-28) when working with loads in excess of the Standard Load Limit. Inspect the cot if the Standard Load Limit has been exceeded (see *Inspecting the Cot*, page 30).

7 - BARIATRIC TRANSPORT

7.1 Bariatric Transport Definition

Bariatrics is the branch of medicine dealing with extreme obesity. Ferno defines Bariatric Transport as using the cot when the Standard Load Limit has been exceeded.

The Standard Load Limit of the cot is 700 pounds (318 kg). This is the load limit for all normal cot functions including raising and lowering, loading and unloading an ambulance, and rolling.

When special techniques are used, the cot can be used with loads up to 1,100 pounds (500 kg). This is the Bariatric Load Limit.

Remember that the “load” on the cot equals the patient’s weight plus the weight of any attached accessories and other equipment being carried on the cot.

OPTIONAL EQUIPMENT (NOT REQUIRED)

- Additional patient restraints, restraint extenders, and/or longer patient restraints are recommended.
- The Ferno® Large Body Surface (LBS™) and LBS Jr. bariatric board accessories provide a wider bed surface for an extremely large patient. Patient restraint extenders are included with purchase.

Note: *The LBS™ and LBS Jr. accessories require a center-mounted cot fastener.*

- Manta™ Rescue Aid is a large vinyl sheet with multiple handholds to aid in moving a large patient.
- Bariatric push-pull handles are available to help steer the cot when it is being rolled in the folded position.

7.2 Bariatric Transport Guidelines

When undertaking a bariatric transport:

- Follow your local protocols for bariatric transport.
- Use as many additional operators and helpers as needed to safely transport the patient. See *Using Additional Help*, page 25 for recommended placement of additional helpers.
- Follow the instructions in this section.
- Keep the cot in the folded position when the load exceeds 700 pounds (318 kg).
- Properly restrain the patient as instructed in this manual, the restraint users’ manuals, and the LBS™ or LBS Jr. users’ manual. As needed, use additional restraints, restraint extenders, and/or longer restraints. Use only Ferno-approved restraints and accessories. See *Accessories*, page 34.

WARNING

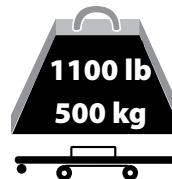
Improper bariatric transport can cause injury to the patient, operators and helpers. Follow local protocols and the instructions in this manual.

WARNING

Heavy loads can cause injury. Use as many additional operators and helpers as needed to safely transport the patient.



**STANDARD LOAD LIMIT
(ALL COT POSITIONS)**



**BARIATRIC LOAD LIMIT
(FOLDED POSITION ONLY)**

Follow bariatric transport procedures when working with loads in excess of the Standard Load Limit. Inspect the cot if the Standard Load Limit has been exceeded (see *Inspecting the Cot*, page 30).

Important

Exceeding the Standard Load Limit can cause damage to the cot. Immediately inspect the cot and restraints for damage if the Standard Load Limit has been exceeded.

7.3 Bariatric Transport: Transferring the Patient

If the load (patient plus equipment) will exceed the Standard Load Limit of 700 pounds (318 kg), follow the instructions in *Transferring the Patient*, page 19 with the following changes:

- If accessory items are used (restraint extenders, additional restraints, longer restraints, LBS™ or LBS Jr., etc.) attach these items to the cot before transferring the patient onto the cot.
- Place the cot in the folded position before transferring the patient onto the cot (Figure 38).
- Secure the patient onto the folded cot (Figure 39).



Figure 38 - Transferring a Bariatric Patient

7.4 Bariatric Transport: Rolling the Cot

Roll the cot in the folded position when the load exceeds the Standard Load Limit (Figure 40).

If the patient's size and medical condition permit:

- Raise the backrest, then raise the drop frame.
- Use the drop frame to help push and steer the cot (See *Rolling the Cot as a Sled*, page 21).

Do not place the cot in a raised position. Rolling the cot in a raised position when the Standard Load Limit is exceeded can lead to:

- Injury to the patient and/or operators and helpers.
- Cot damage and/or failure.

The operators and helpers must lift and carry the cot over obstacles. Follow your local protocols and use as much additional help as needed.

Note: (Optional) accessory push-pull handles provide an improved ergonomic solution for controlling the cot when it is in the folded position. To order, see Accessories, page 34.



Figure 39 - Securing a Bariatric Patient



Figure 40 - Rolling the Cot with a Bariatric Patient

WARNING

Using a raised position for bariatric transport can cause injury and cot failure. Keep the cot folded when exceeding the Standard Load Limit.

7.5 Bariatric Transport: Loading the Cot

To load the cot into an ambulance when the Standard Load Limit is being exceeded, **do not** use the cot control handles or the safety hook or Stat Trac® safety stop.

1. Roll the cot as close as possible to the ambulance while keeping it in the folded position.
2. Use as many additional operators and helpers as needed to safely pick up the cot and place it in the ambulance.

Do not activate any controls. Leave the cot in the folded position as you pick it up and place it in the ambulance (Figure 41).

Note: *If using the Stat Trac® fastener, you must load both of the cot loading posts into the Stat Trac®. Place one person inside the ambulance to watch and verbally direct the operators and helpers to guide the cot into the cot fastener.*

3. Secure the cot in the cot fastener.



Figure 41 - Bariatric Loading

7.6 Bariatric Transport: Unloading the Cot

When the Standard Load Limit is being exceeded, **do not** use the cot control handles or the safety hook or Stat Trac® safety stop while unloading the cot from the ambulance.

1. Station one operator or helper inside the ambulance to release the cot from the safety hook (or Stat Trac® safety stop) when needed.
2. **Outside Operators/Helpers:** Release the cot from the cot fastener.
3. **Outside Operators/Helpers:** Roll the cot slowly out of the ambulance (Figure 42), allowing all operators and helpers to grasp the cot main frame (or the LBS™ or LBS Jr. frame).
4. **Inside Operator:** When the safety hook (or Stat Trac® safety stop) catches the cot, use the release lever or handle to release the cot.
5. **Outside Operators/Helpers:** Together, lift the cot out of the ambulance and set it on the ground.
6. **Outside Operators/Helpers:** Roll the cot on the ground as shown in *Bariatric Transport: Rolling the Cot*, page 27.

⚠ WARNING

Improperly unloading a cot during bariatric transport can cause injury. Station one operator or helper in the ambulance to release the cot from the safety hook or safety stop.



Figure 42 - Bariatric Unloading

8 - MAINTENANCE

8.1 Maintenance Schedule

The cot requires regular maintenance. Set up and follow a maintenance schedule. The table at right represents minimum intervals for maintenance.

Keep maintenance records. A sample maintenance record sheet is provided on page 35.

When using maintenance products, follow the manufacturers' directions and read the manufacturers' material safety data sheets. You can purchase a recommended disinfectant from your Ferno distributor or Ferno Customer Relations (page 2).

8.2 Disinfecting and Cleaning the Restraints

Remove the restraints from the cot. Disinfect and clean only as directed in the restraint users' manuals provided with the restraints. Additional, free users' manuals can be obtained from Ferno Customer Relations (page 2).

8.3 Disinfecting and Cleaning the Mattress

1. Remove the mattress from the cot (also remove the transfer board from the mattress, if you have the mattress with pocket).
2. **To disinfect:** Apply disinfectant to the mattress, following the manufacturer's instructions for application method and contact time.
3. **To clean:** Wash the mattress with warm, soapy water and a soft cloth. Rinse the mattress with clear water. Hang the mattress to dry, or dry it with a towel.

8.4 Disinfecting the Cot

Wipe all surfaces with disinfectant. Follow the disinfectant manufacturer's instructions for application method and contact time. Ferno recommends you inspect the cot for damage as you disinfect it.

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

Minimum Maintenance Intervals	Each Use	As Needed	Each Month
Disinfecting (this page)	•		
Cleaning (pages 29-30)		•	
Waxing (page 30)		•	
Inspecting (page 30)		•	•
Lubricating (page 31)		•	

Important
Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Use caution when disinfecting and cleaning with products containing these chemicals.

8.5 Cleaning the Cot

1. Remove the restraints, mattress and any accessories.
2. Hand clean all surfaces of the cot with warm water and a mild detergent.
3. Rinse with warm, clear water. Dry the cot with a towel or allow it to air-dry.

8.6 Waxing the Cot

While it is not necessary to wax this cot, waxing the aluminum main frame or the painted legs will not damage them, and will help maintain the cot's appearance.

Disinfect and clean the cot before applying wax. Use an automotive wax as directed by the wax manufacturer.

8.7 Inspecting the Cot

Have your service's equipment maintenance personnel inspect the cot regularly. Follow the checklist at right and operate the cot through all its functions as described in this manual.

If inspection shows damage or excessive wear, remove the cot from service until repair is made. See *Parts and Service*, pages 32 and 33.

Important

Water under high pressure, or steam, can penetrate joints, flush away lubricant, and cause corrosion. Use caution when cleaning moving parts such as joints and hinges, and reapply lubricant if needed (see page 31).

Important

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

INSPECTION CHECKLIST

- Are all components present?
- Is the cot free of excessive wear?
- Are all screws, nuts, bolts, rivets, and roll pins securely in place?
- Do all moving parts operate smoothly and properly?
- Does the cot lock properly into each position?
- Does the cot load and unload properly?
- **35X only:** Does the safety hook properly engage the safety bar during unloading?
- **35X-ST only:** Does the Stat Trac safety stop properly engage the head-end loading post during unloading?
- Does the cot roll smoothly?
- Do the wheels have some tread?
- Do the wheel locks engage properly and stop wheel rotation?
- Are the restraints properly installed?
- Is restraint webbing in good condition with no cuts or frayed edges?
- Are restraint buckles free of visible damage and do they operate properly?
- Is the ambulance properly prepared for the cot with an approved Ferno[®] cot fastener installed (and safety hook for Model 35X cots)?
- Do installed accessories operate properly without interfering with cot operation?

8.8 Lubricating the Cot

Disinfect and clean the cot before applying lubricant. Use the lubricants designed below to lubricate the cot. Do not lubricate points marked with the “Do Not Lubricate” symbol.



LUBRICATION POINTS

Use a small amount of lubricant. Lubricate identical points on each side of the cot (Figure 43).

1. Drop frame hinge teeth	WRL-191S, E-Z-1, white lithium grease
2. Sidearm lock pins	SAE 30-weight oil (1-2 drops)
3. Ratchet bar mounts	WRL-191S or E-Z-1 (1-2 drops)

LUBRICATION-FREE POINTS

	Loading wheel bearings	Do not lubricate
	Backrest hinges	Do not lubricate
	Side lift handles	Do not lubricate
	Telescoping legs	Do not lubricate
	Transport wheels (sealed bearings)	Do not lubricate
	Control handle mechanisms	Do not lubricate

8.9 Accessing the 9th Bed Position

By default, the cot’s 9th Bed Position is inaccessible. The 8th Bed Position, with a loading height of around 31 inches (79 cm), is the most commonly-used loading height. However, if your ambulance has a very high floor that requires a higher loading height, the 9th position provides a loading height of 35 inches (89 cm). To access the 9th position, do the following:

1. Use a 1/8" Allen wrench and a 3/8" socket or open-end wrench to remove the two screws from the lockout bar (a large metal plate) that runs between the two ratchet bars (Figure 44).
2. Turn the lockout bar around so that the long end of the metal plate faces the head end of the cot (Figure 45).
3. Reattach the lockout bar.

Note: If your ambulance has an extremely low loading height (for example, some van-based ambulances) an accessory kit is available to make **both** Bed Positions 8 and 9 inaccessible (this makes Position 7 the highest accessible position). If you can load the cot into your ambulance using Position 7, order and install this kit. See Accessories, page 34.

Important

Lubricating parts that should not be lubricated allows dirt and foreign particles to collect on those parts, resulting in damage. Lubricate **only** the numbered reference points shown.

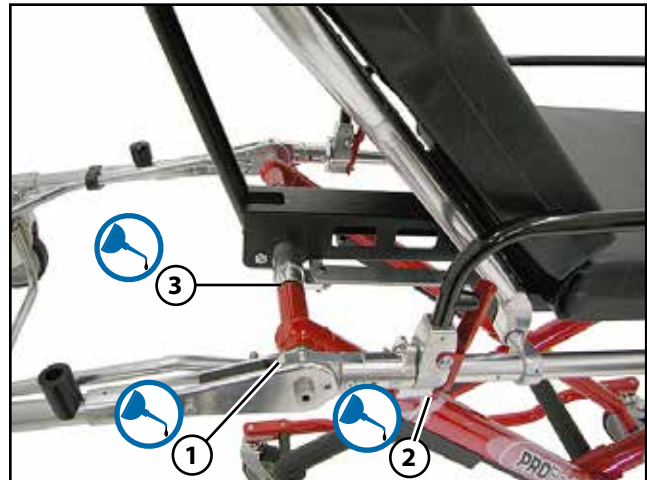


Figure 43 - 35X Series Lubrication Points

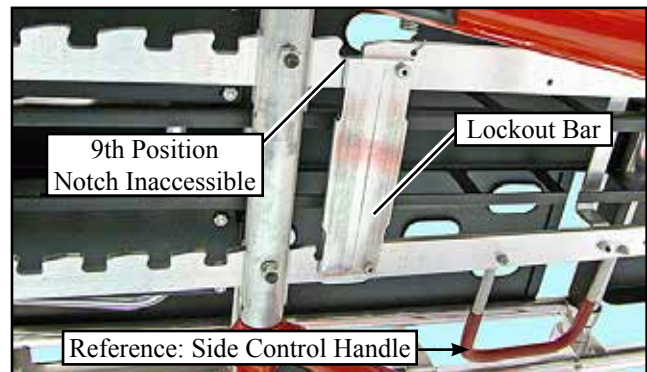


Figure 44 - Lockout Bar with 9th Position Inaccessible (Viewed from Beneath Cot)

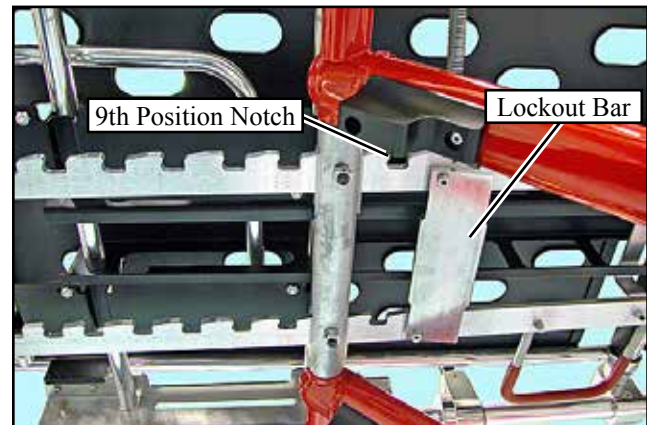


Figure 45 - Lockout Bar Turned to Allow Use of 9th Position (Viewed from Beneath Cot)

9 - PARTS AND SERVICE

9.1 U.S.A. and Canada

In the United States and Canada, to order parts or for professional cot repair, contact EMSAR[®] - the only agent authorized by Ferno to manage, service, and repair Ferno products.

Telephone (Toll-Free)	1.800.73.EMSAR
Telephone	1.937.383.1052
Fax	+1.937.383.1051
Internet	www.EMSAR.com

9.2 Worldwide

To order Ferno parts, and for professional cot repair, contact your Ferno distributor. Your distributor is the only agent authorized by Ferno to manage, service, and repair Ferno products.

 **WARNING**

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

 **WARNING**

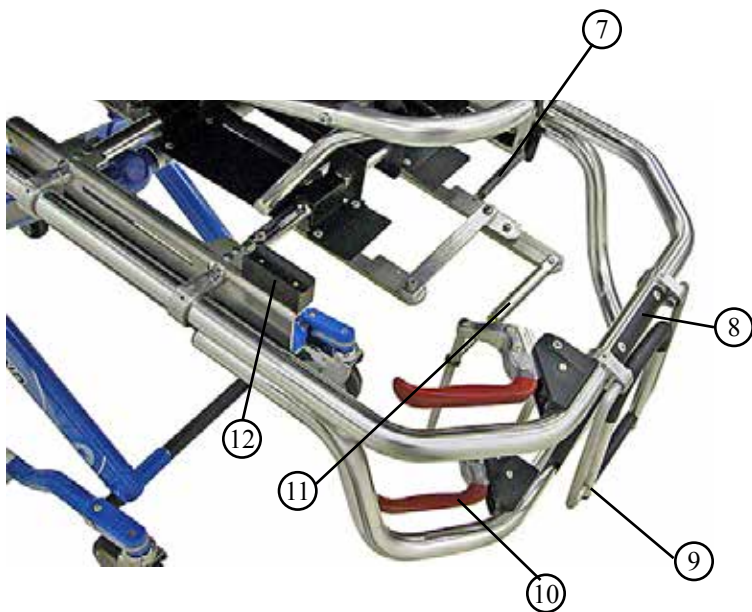
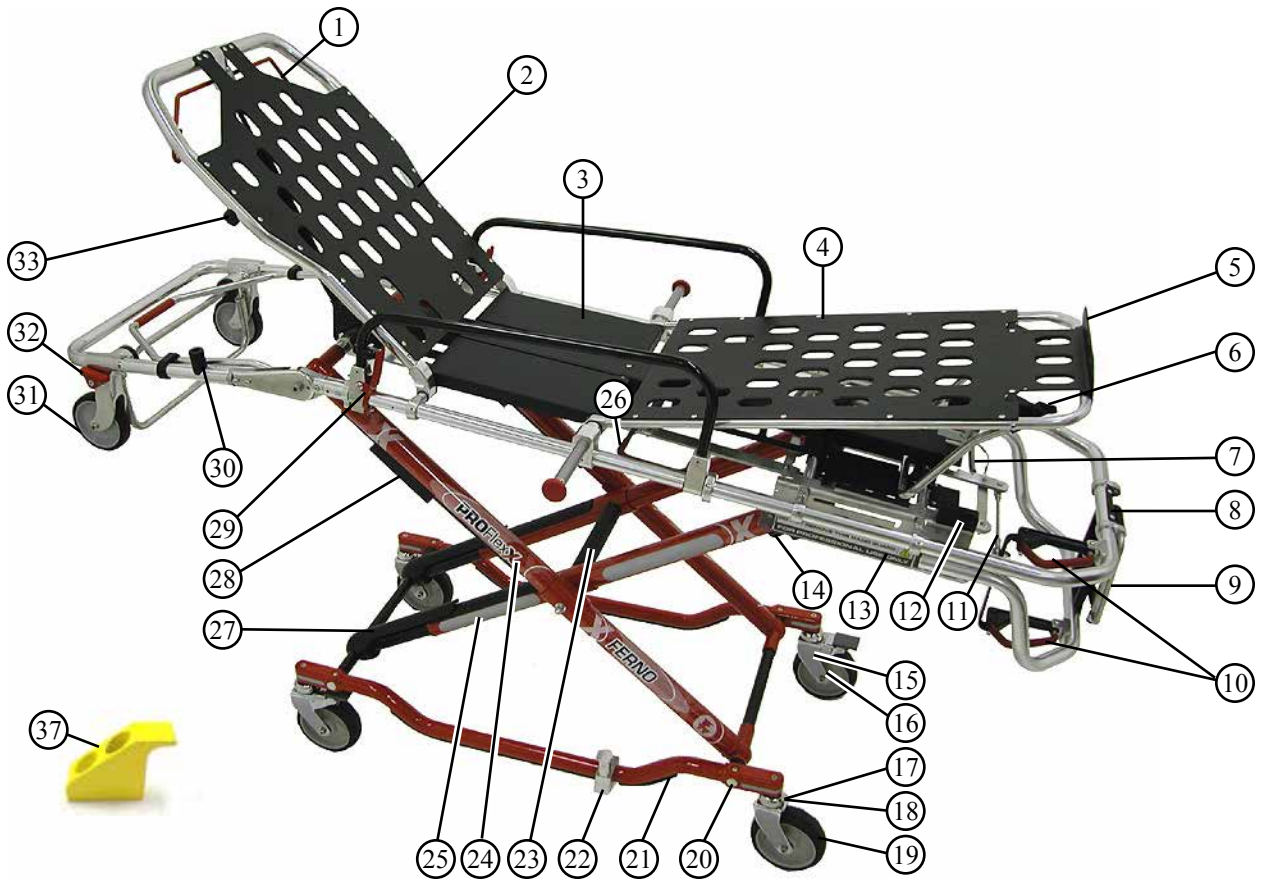
Modifying the cot can cause injury and damage. Use the cot only as designed by Ferno.

9.3 Parts List

No.	Part	Description	Qty
1	190-1357	Gas-assist release handle	1
2	190-1590	Backrest panel w/rivets	1
3	190-1251	Seat panel w/rivets	1
4	190-1246	Shock panel w/rivets	1
5	190-1258	Oxygen bottle mount bracket kit (not shown)	1
6	190-1365	Shock frame thumb release w/hardware	2
7	090-5326	Ratchet bar spring	2
8	190-1591	End panel w/rivets	1
9	190-1605	Lead handle w/E-Clips	1
	190-1732	E-Clips (package)	6
10	190-1592	Lift-First foot-end rel. handle w/hardware	1
	087-0002	EZ-Pull foot-end rel. handle w/hardware	1
11	190-1594	Lift-First rel. handle adjustment linkage	1
	190-1775	EZ-Pull spring cylinder & connect. rod assy.	1
12	190-1610	Shock frame guide w/hardware	2
13	190-1607	Slide cover w/hardware	2
14	190-1598	Foot end clearance block w/hardware	2
15	190-1600	Wheel fork with lock (no wheel)	1
16	190-1602	Caster assembly with lock	1
17	190-1601	Wheel fork (no lock, no wheel)	1
18	190-1603	Caster assembly no lock	1
19	190-1144	6" Wheel w/bearings and hardware	1
20	190-1589	Lower corner push-caps (set of 4)	1

No.	Part	Description	Qty
21	190-1608	Lower frame scuff strip (set)	1
22	190-1240	Fastener post, split	1
23	190-1604	X-frame axle w/cover, hardware	1
24	190-1597	35X logos and clear labels (set)	1
25	190-1599	High-reflectivity labels (set)	1
26	190-1593	Side release handle w/hardware	1
27	090-5795	Replacement leg guard (1 only)	1
28	190-1595	Head-end clearance block w/hardware	2
29	(select below)	Sidearm release handle:	
	082-2153	Pair	1
	082-2154	Patient right side	1
	082-2155	Patient left side	1
30	190-1771	35X Drop frame bumper w/hardware	2
31	190-1243	5" Load wheel w/bushing, hardware	1
32	190-1343	Safety bar release handle w/hardware	1
33	190-1013	Backrest bumper	2
34	190-1588	Gas-assist cylinder w/hardware	1
35	090-5465	Safety bar torsion spring	2
36	190-1609	Non-telescoping leg scuff strip	2
37	090-5015	2.5" Safety hook	1
n/s	190-1596	Tech label sheet	1
n/s	090-5866	O-ring kit for 6" wheels	4
n/s	190-1254	Ratchet bar limit cable	1

9.4 Parts Diagrams



10 - ACCESSORIES

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

Always follow the instructions packed with accessories. Keep the instructions with this manual. Be aware of any special considerations (loading heights, door width, etc.) when using accessories. Contact Ferno Customer Relations (page 2) or your Ferno distributor to order accessories or for additional information.



WARNING

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

Description	Part Number
SOFT GOODS	
PROFlexx Sof-Net (Drop Frame Storage)	082-1996
Sidearm Cover (Storage Device, 2 ea.)	082-1953
Model 430 Restraint (2 pc., 7' Black)	031-3911
Model 430 Restraint (2 pc., 5' Black)	031-3892
Model 417-1 Torso Restraint w/Shoulder Harness	031-3915
Restraint Guide Strap (only)	031-3945
Mattress w/Locking Hooks	031-3920
Mattress w/Locking Hooks, Transfer Board Pocket	031-4028
Mattress with Hook-and-Loop Fastening Strips	031-4035
Mattress (Folding) for LBS™	031-4025
Mattress (Folding) for LBS Jr.	031-4050

BARIATRIC ACCESSORIES

Bariatric Push-Pull Handle, Angled (1 ea.)	*082-2147
Bariatric Push-Pull Handle, Straight (1 ea.)	*082-2148
Bariatric Tow Package	082-2121
LBS™ (Large Body Surface) Complete w/Mounts	**082-2057
LBS Jr. Bariatric Board Complete w/Mounts	**082-2184
LBS™ Mounting Blocks (set/6)	082-1994
LBS Jr. Mounting Blocks (set/4)	082-2186
Model 132 Manta Rescue Aid (burgundy)	038-2969
1' Restraint Extender (1 ea.)	031-3942
2' Restraint Extender (1 ea.)	031-3659
3' Restraint Extender, Adjustable (1 ea.)	031-3670
Restraint Extender Kit (set/6, various lengths)	0000442

Description	Part Number
COT-MOUNTED ACCESSORIES	
Lower Storage Tray (Aluminum)	815-9607
Equipment Bracket "Extra Hand"	CA5250
Model 274 Pac Rac® Equipment Tray	081-8933
Model 513-13 IV Pole, Cot-Mounted	008-7172
Model 513-10 IV Pole, Cot-Mounted	008-7156
Model 513-LBS IV Pole (for LBS™/LBS Jr.)	008-7173
Lockout Kit (Locks Out Positions 8-9)	082-2244
Eclipse™ Flashlight Holder	082-2145
Dialysis Kickstand	082-2116
Swing-Out Lift Handle (pair)	082-1998
Oxygen Cylinder Holder (Mounts on Foot End)	081-9958
Oxy-Clip O2 Holder (Mounts on Cot Side Frame)	008-5500
Oxy-Clip2 O2 Holder (Mounts on Drop Frame)	082-1977
Head-End O2 Mount (Mounts on Backrest)	082-2111
X-O2 Mounting System (Mounts Btwn Cot Legs)	CA5320
X-O2 Mounting System w/Flow Control Valve	0000443

TOUCH-UP PAINT

Rescue Red	081-9972
DayGlo Green	081-9973
Safety Orange	081-9974
Electric Blue	081-9975
Black	081-9977

OTHER ACCESSORIES

Transfer Board	010-7992
SaniZene® Hard Surface Cleaner/Disinfectant (4 ea., 1 gal.)	078-9214
Low-profile mounting block and short knob for use with Removable-Mount Model 175 Cot Fastener	082-2243

* Bariatric Push-Pull Handles may be mounted at either the head end or foot end of the cot, or both. To mount a handle at both ends of the cot, order two kits. Note: If desired, kits may be mixed (angled handle at one end and straight handle at opposite end).

** Purchase of an LBS™ or LBS Jr. includes a set of restraint extenders and a Model 132 Manta Rescue Aid.

