a division of Medpro

TRANSAFE XRS2400 OPERATIONS MANUAL

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TRANSAFE XRS2400 PRODUCT INFORMATION

The Transafe XRS2400 E**X**tension **R**amp **S**ystem is a lightweight ramp and winch system designed to be quickly deployed for easy loading and unloading of ambulance transport patients. The two main components of the system are the portable extension ramps and a portable powered winch.

- The XRS2400 extension ramps have been designed to be light weight and sturdy and can handle weight loads of up to 2,400lbs, far beyond the combined weight of the heaviest of patients and transport cot.

- The XRS2400 winch box is meant to be used solely in conjunction with the two XRS2400 ramps. The winch-box utilizes an oversized winch that is more that capable of pulling the combined weight load of the heaviest patient and transport cot.

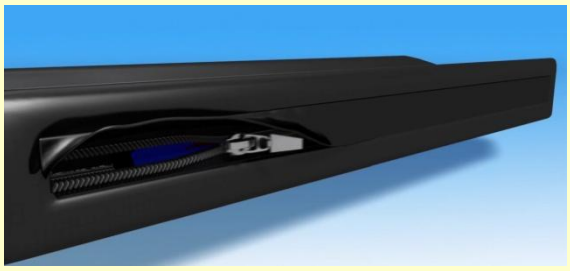
- The XRS2400 system components should never be used for any other purpose other than for its intended use for the safe and effective transport of ambulance patients. With simple care and maintenance the XRS2400 will provide many years of trouble free service.

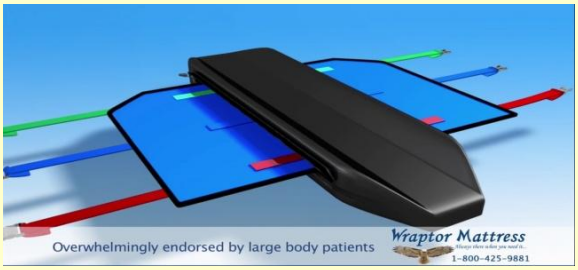
XRS2400 Features:

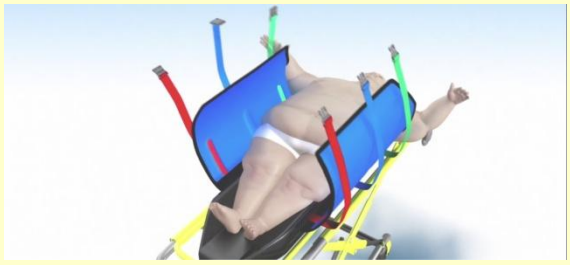
- 2,400lb. Weight Capacity
- Easy Storage
- Super Fast Deployment
- Able To Bridge From House Landing Directly Into Ambulance
- Set-Up Is So Fast You'll Want To Use It For Non-Heavyweight Patients As Well
- Lightweight And Portable… transferable from ambulance to ambulance via a XRS Ambulance Kits which enables additional ambulances to be "bariatric ready" to accept the XRS2400 Ramps and Winch

RECOMMENDED ACCOMMODATING PRODUCT

The Wraptor Mattress – *watch the video at www.vimeo.com/127618206*







- Always there when you need it
- Centered patient body weight substantially reduces cot tipping
- Overwhelmingly preferred by large body patients for comfort and feeling secure
- Less expensive and more effective that a Stryker XPS
- Wraps all size patients

TRAINING

It is important to become very well versed with all aspects of ramp operation. Staff members should become familiar via proper training with the ramp and how it operates alone, deploys from the ambulance, connects to the Transafe XRS Transition Plate, disconnects from the Transafe XRS Transition Plate, stores in the ambulance and is properly maintained. *Details about XRS2400 ramp use can be found in the Ramp Operation Section of this manual.*

Practice winch operations on "dry runs" before moving stretchers occupied by individuals. For personal protection, outfit your ambulance unit with leather gloves. Wear leather gloves when handling the winch wire rope to protect against cuts from sharp broken wire strands.

It is strongly recommended that your ambulance service put in place the following safety measures pertaining to safe and effective transport of patients.

1. Written policies and procedures for the proper operations, inspection, maintenance and supervision.

2. Orientation training and annual refresher training for EMTs and supervisors, incorporating pertinent ambulance service policies and procedures.

3. Careful documentation of training, inspection, maintenance and supervisory activities.

4. Maintenance of all patient transport equipment in accordance with manufacturers' specifications.

5. Ensure your EMTs use required cot restraint straps to provide both transverse and longitudinal patient protection. Straps are required at patient's knees, hips, chest and over shoulders (shoulder straps must be tethered together at cot frame).

6. Ensure your EMTs select low cot elevated positions. This practice increases stability and provides for a lower center of gravity. Please note that all cot manufacturers supply cot handle extensions and straps to enable EMTs to walk upright while pulling or pushing the cot.

7. Ensure your EMTs are mindful that when they use newer model cots, these cots roll easier and faster than older models. Obese patients coupled with a heavier model cot that rolls easier means that a cot may be more likely to tip over when meeting an uneven surface or object, and especially during a sudden turn.

8. Ensure your EMTs limit equipment carried on the cot. When the carrying of equipment is essential and unavoidable, it is especially important that the cot must be positioned at its lowest practical position. Both EMTs should always keep both hands on the cot frame, handles and straps at all times when moving the cot.

9. Ensure that when your EMTs transport a 'bariatric" patient, the cot is positioned at its lowest practical position. Instituting a supervisory system designed to assess and monitor cot safety practices.

10. Instituting a supervisory system designed to assess and monitor cot safety practices, incorporating use of the Administrative Check List tool, following page, to assist you.

BEST PRACTICES FOR BARIATRIC PATIENT TRANSPORT

Bariatric Patient Response: You have probably responded to calls where, en route to the scene, dispatch informs you that the patient is a 500-pound person who slipped and fell. Your immediate thoughts turn to how you are going to move and transport this patient safely, without injury to the patient, yourself or your partner. Are there enough people to effect a safe move? Do you have the extrication equipment to move the patient to your cot? What is the weight limit on your cot? Is your cot wide enough to make the patient comfortable? A safe movement that preserves the patient's dignity is the ultimate goal when equipping and planning for the care and transport of bariatric patients.

Extrication Devices: The first order of business is to safely move the patient on to an extrication device that will help you get them to the ambulance cot. There are several devices specially designed for the bariatric patient:

- The Stryker Transfer-Flat is constructed with heavy-duty vinyl and reinforced with two-inch polyester webbing, providing a maximum weight capacity of 1,600 pounds. Twelve rigid lift handles provide maximum operator comfort and ample lift and leverage points for multiple providers to aid in the lift. The Transfer-Flat can be used alone to transport a patient or as a means to move a patient to another transfer device.

- The Manta Rescue Aid/Transfer Sheet from Ferno has an 800 lb. weight capacity and multiple hand-holds for additional staff to assist with a lift or move. Pockets at both ends can hold a backboard or the patient's feet and head. The Manta is useful for transferring or lifting patients between surfaces and can also be used in conjunction with restraints to "wrap" bariatric patients and hold their bulk in a more secure way.

Ambulance Cots: Most ambulance cots are not suitable for bariatric patient transport. The Stryker MX-PRO Bariatric Transport offers a 1,600-pound weight capacity in its lowest position and maximum weight capacity of 850 pounds in all other positions. A wide wheel base provides stability during transport. The MX-PRO provides increased width, which helps to increase the patient's comfort level, as well as the stability of the stretcher. Accessories for the MX-PRO Bariatric Transport include tow package, side lift handles, rigid push/pull handles and patient security handles.

Safely Transporting The Bariatric Patient Into The Ambulance**:**

- After the patient is safely packaged on the stretcher, they must be loaded into the ambulance for transport. What could be a complex and dangerous operation to both EMT and patient is made simple and safe when utilizing the Transafe XRS2400. The stability of the litter and patient is greatest when the stretcher is at its lowest point, so make sure to work with the stretcher at this position as much during the transport process as possible.

- Transporting a patient by utilizing a Wraptor Mattress that in effect converts to a patient body burrito will significantly help to center the patient’s weight onto the cot and ensure critical cot stability while providing patient comfort.

If you have a spare person on scene, perhaps an engineer from an engine company, have them assemble the Transafe XRS2400 ramps required to load the patient once they've arrived at the transporting vehicle. An experienced operator can have the ramps set up and the winch deployed in a very short amount of time, readied to be attached to the stretcher by the time the crew arrives. This makes the operation seamless.

Stretchers have an attachment point where the winch cable attaches to the cot frame directly or with supplemental pull slings (provided with the Transafe XRS2400). Once the stretcher is attached, loading the patient onto the ramps is at least a two-person operation, with one rescuer operating the winch and the other(s) guiding the patient into the ambulance. Once the patient is in the ambulance, the cot can be locked into the usual cot restraint system. The Transafe XRS2400 ramps should then immediately be retracted and stowed back into the ambulance and your patient is safely on their way.

Patients should be made as comfortable as possible, with at least a 30-degree angle on the head of the stretcher to reduce shortness of breath. Use of a Wraptor Mattress goes a long way to help achieve this. Your receiving facility will need some advance notice to prepare for your arrival. Provide this, but with attention to the patient's dignity. In several transports done by my local bariatric unit, the patient cried during the transport because of embarrassment. It is difficult for a sobbing patient to communicate wants and needs during the journey to definitive care. It is in everyone’s best interests, from both humanitarian and patient care standpoints, to do all we can to preserve patient dignity and modesty. Moves like this are complicated, but at no time should they ever become a show.

Once you arrive at definitive care, complete the earlier steps in reverse. The ramps attach to the rear of the ambulance, and the stretcher is lowered using one rescuer to control the winch and other(s) to guide the stretcher. Adequate help should be available at the facility to transfer the patient to the facility's stretcher or bed.

Moving a bariatric patient involves special techniques and equipment. An ounce of prevention is truly worth a pound of crisis management on a scene. Knowing what to do can be the difference between a good patient/public encounter and a poor showing.

ADMINISTRATIVE CHECK LIST

1. Institute policies and procedures addressing proper use of the Transafe XRS-2400 Power Load System:
[ ] Proper operations
[ ] Inspection
[ ] Maintenance
[ ] Supervision

_____
_____
_____

2. Provide cot safety training:
[ ] Orientation training
[ ] Annual refresher training for EMTs and supervisors

_____
_____
_____

3. Documentation of related activities:
[ ] Training
[ ] Inspection
[ ] Maintenance
[ ] Supervisory activities

_____
_____
_____

4. [ ] Institute a maintenance system of cots and related systems:

_____
_____
_____

5. Institute oversight systems to ensure:
[ ] Proper use of required patient restraining straps,
[ ] Cot positioned in mid or lower ranges when transporting patients
[ ] Limitations on carrying medical equipment on cots

_____
_____
_____

6. [ ] Institute a supervisory system designed to assess and monitor cot safety practices.

_____
_____
_____

7. [ ] Institute policies that initiates the filing of Medical Devices Reports and Serious Incident & Accident Reports.

_____
_____
_____

GENERAL RULES OF PARKING THE AMBULANCE

When utilizing the XRS2400 system it is very important to park the ambulance on level ground whenever possible. The staging area requires a minimum 40-foot length and 14-foot width to accommodate the ambulance, ramps and one stretcher length. On hills, use a level driveway rather than parking on the hill. If parking on a hill becomes necessary, face downhill only. Turn the front wheel toward the curb and chock the rear wheel to prevent rolling forward. Always set the ambulance's parking brake on hills and level ground. Park the ambulance so that it doesn't tilt to either side. An ambulance tilting to either side has the same adverse effect as uneven ramps.

Never park across the road on a hill.

GENERAL RULES OF RAMP ANGLES

The ramps can be used to bridge across landings that are no higher than the floor of the ambulance. Never bridge down into the ambulance from a higher landing. The ramps have two angles that you must manage, lengthwise and sideward. The only thing holding the stretcher down on the ramps is gravity. When the center of gravity shifts, the stretcher is no longer stable and will tip. If ramp angles aren't parallel lengthwise and/or level across the width, the stretcher will tilt, the center of gravity will shift and the stretcher will tip over and off the ramps, causing serious injury.

Lengthwise the angle of the ramps should be near parallel to accommodate four-point contact with the stretcher.

Both ramps must be level across their width. Neither ramp should lean inward or outward or from side-to-side, or to one side.

Never risk your patient's safety by using ramps that aren't stable. If you can't stabilize the ramps, don't move the patient across them.

Reposition the ambulance if the foot-end doesn't have solid contact with the ground. For instance, if the foot-end rests on the edge of a curb and you foresee that the ramp would drop under the weight of a patient, then the ramps must be reconfigured to prevent movement. Never move the ambulance with the ramps attached, doing so will cause damage to the ramps.

RAMP USE

In-house trainers and EMT members alike should become familiar with best practices for ramp operation, specifically, (a) ramp operation, (b) ramp deployment, (c) disconnecting from the Transition Plate, (d) ramp storage and ramp care.

(a) Ramp Operation:

Each XRS extension ramp when in the retracted (closed) position measures 57 inches long from end to end and when in the fully extended position measures 11 foot long from end to end. When retracted the ramps measure 12" wide.

When standing a ramp vertically with the XRS Connect Plate at the top, you will notice a Locking-Pin on the left outside wall of the ramp (9 inches from the top of the ramp as you look into the usable floor of the ramp). The Locking-Pin is used to hold all three sections of the ramp in place and keeps the ramps from extending. Whenever moving the ramps to or

from the ambulance it is important to have the Locking Pin in place. Only remove the Locking-Pin when ready to extend the ramp.

(b) Ramp Deployment:
When lifting and transporting a XRS2400 ramp it is best to hold the ramp with two hands on both sides of the ramp. Remove the Locking-Pin when ready to hold the ramp in a horizontal position.

Always make sure right after attaching the ramps onto the Transition Plate to immediately install the Winch Cable Roller Guide, center of the Transition Plate.

As its name implies, the Transition Plate serves as a transition point between the ramps and the ambulance floor. As you walk the ramp toward the opened door of the rear of the ambulance, position the ramp so it is balanced at mid weight point near the hip of your body. You should now be able to walk the Connect Plate of the ramps to the Transition Plate and align the Connect Plate Connection Posts into the two receptor holes of the Transition Plate. Once the Connection Posts are seating into the Transition Plate holes begin walking the ramps away from the rear of the ambulance until they are fully extended. At this point the ramps will be locked into place onto the Transition Plate. Repeat this step for the second ramp. Note that the first ramp put in place should be from the far side of the ambulance where the ramps are stored. This will allow the second ramp to be put in place without having to walk around the first ramp. **Practice deployment of the ramps so that your EMT's and other staff members are well versed in the process.**

Always make sure both ramps are 100% fully extended. Unmatched ramp extension distance will cause a dangerous situation of the ramps not being level to each other. Ramps not being level with each other will cause the cot to tilt and most likely to tip.

(c) Disconnecting from the Transition Plate:
Once the patient has been transported into or out of the ambulance, lift the far end of the ramp to the point of being parallel the ground and walk it toward the rear of the ambulance. Once the ramps are completely retracted lift the ramp to a slightly higher angle to the ground by just a few degrees. This will enable the Connect Plate Studs to lift up and separate from the Transition Plate. Once separated from the Transition Plate, place the ramp in a vertical position and re-insert the Locking Pin in place. Return the ramp to its storage location in the ambulance and repeat the same steps for the second ramp.

Remove the Winch Roller Guide and return to its storage location

(d) Ramp Storage:
The ramps can be stored any way that best suits the ambulances storage ability as long as movement of the ramps while the ambulance is being driven is limited to a minimal amount. If the ramps are stored where a lot of movement is possible it is best to add padding to keep the ramps from banging around in place.

- Never use any type of grease, oil, etc. This will only cause dirt and grime to build up which will seriously impede smooth ramp extension and retraction.
- The XRS2400 system components should never be used for any other purpose other than for its intended design which is for the safe and effective transport of ambulance patients.
- The XRS2400 ramps should never be used individually for any reason whatsoever.

(e) Ramp Care:

With the ramps in the extended position wipe the inner and outer rails of each ramp with a slightly damp cloth after each use to keep the ramps in optimum condition. With simple care and maintenance the XRS2400 ramps will provide many years of trouble free service.

WINCH SET-UP

The winch is mounted inside a box to guard against injury. The box is held down to the already installed ambulance floor plates using two hand tight screws. If the winch was put in place prior to the ambulance arriving at the scene, re-check to make sure the hand tight screws are tighten by turning clockwise to ensure they are tight and haven't loosened up from vibration. Never use a tool to tighten them. Connect the Power Cable to the winch power wire tail.

Be certain during winch operation that the winch wire rope is routed so as to not touch and rub against the ambulance lockdown antlers. Proper winch location should have been done during the floor plate installation process which would keep this from happening.

The Winch Box houses a circuit breaker mounted on the inside side wall of the winch box to protect the winch from electric overload. The Winch Box circuit breaker provides double protection for the winch being that in most applications the winch power cable Is tied into an ambulance circuit breaker. Should the winch fail to operate the first place to look for the cause would be the ambulance circuit breaker and the Winch Box circuit breaker. Press the red button on the Winch Box circuit breaker to reset the breaker.

WINCH OPERATOR

The winch must be operated through the rear entrance during loading and unloading operations. Two or more trained personnel must remain with the patient loaded cot in order to guide the cot up or down the ramps. This position provides the best view of the cable in operation. Extend the remote control cable to the rear of the ambulance, preferably if possible between the cab and the winch, and out the side door. Make sure that both the winch power cable and winch control cable don't come in contact with sharp edges or lie in the path of moving objects, such as the wire rope or the incoming or outgoing cot. As the operator it is your responsibility to watch the winch wire rope's path during operation and listen to those who are guiding the stretcher. No one is authorized to occupy the action area, between the stretcher and the winch, while winching the stretcher up or down the ramps.

ATTACHING WIRE ROPE TO STRETCHER BEFORE LOADING

A snap-hook is attached to the "loop end" of the winch wire rope. While wearing leather gloves, slowly electrically unspool the wire rope until the hook reaches the end of the ramps, always keeping some tension on the cable so that it does not tangle. Run the wire rope under the antlers. Make sure the wire rope runs across the top of the Transition Plate Roller Guide and not to the side of the roller.

Align the stretcher's breakaway head assembly wheels between each ramp landing. This is the ready position. While other person(s) hold the foot end of the stretcher stable, clip the hook down onto the stretcher's tow ring or tow straps. Do not use the stretcher's wheel locks to hold the stretcher in the ready position, while occupied by a patient.

Before winching, visually inspect the entire wire rope's length between the winch and the stretcher for fraying. If fraying is observed or you suspect the wire rope is unsafe, don't use the winch until a qualified mechanical technician inspects the equipment. The wire rope and winch should be inspected at the end of each day, whenever the ambulance is readied for use.

Never free spooling the winch wire rope. Free spooling the winch cable will cause the winch wire rope to loosen around the winch drum which will cause the wire rope to bind during operation.

LOADING THE COT INTO THE AMBUALNCE

Inspecting the stretcher tow package before winching:

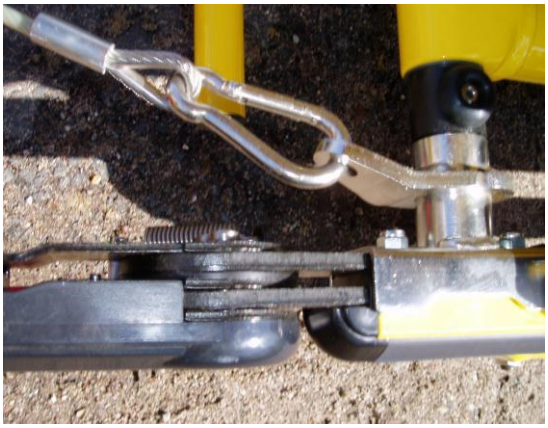
A Stryker bariatric transport stretcher or a Ferno Cot that accommodates a Ferno LBS or LBS Jr. can be equipped with a tow package to load and unload patients weighing up to 1,600 pounds. By design, the tow package can be removed when not in use. However, you should leave it attached so that it is not misplaced. Since the installation isn't permanent, you must inspect it before each shift. The visual inspection can be performed by looking up from under the breakaway head assembly or looking beneath the head-end storage pouch.

With patient loaded, never roll the transport cot onto the ramps in a raised cot position. Lower the patient loaded cot to the lowest position as soon as possible after loading the patient onto the cot.

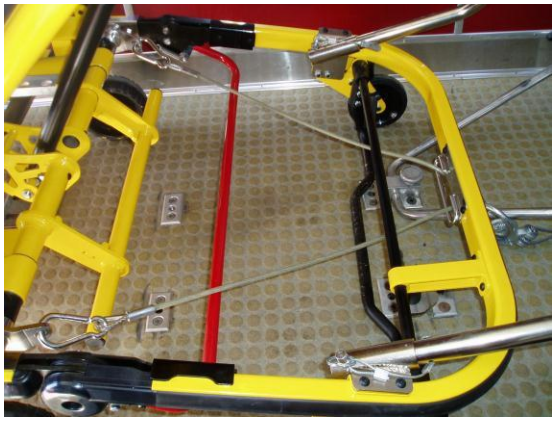
1. Make sure the stretcher's tow package is hooked to the cot at the proper attachment points. The adapters are attached to the outer rail near the breakaway head section's pivot points.

2. Make sure the tow package cables are positioned above the red bar and safety bar and below the black bar.

3. Make sure the tow ring runs through the tow harness loop bracket. The bracket is attached to the center of the breakaway head assembly's outer rail. Later, the tow ring will be used to connect the winch cable by a single clip. *[see 5 figures below]*



Above: Tow package clipped to litter/base adapter



Above: Head-end storage cover removed, tow package routed above red bar and safety bar, but below black bar.

Above: Tow harness loop bracket attached to inner rail. Tow ring and winch hook.

Note: The Transafe XRS-2400 System comes with two heavy duty nylon web tow straps that can be used in lieu of a tow-package. The two straps should be connected to the right and left side ends of the horizontal bar that the drop down frames attach to.

Reference the Stryker or Ferno cot manuals for a more precise understanding of where the tow straps are meant to connect to the transport cot.

Before winch loading begins make sure the transition plate roller for the winch wire rope is in place. Begin winching by moving the toggle switch forward. At all times strive to guide the stretcher to the center as it moves up the ramps.

To avoid risk, the winch operator ensures the stretcher's breakaway head assembly wheels never cross the yellow line painted across the action area floor. Doing so prevents contact between the antlers and the hook. *[see figure below]* Failure to prevent contact between the hook and antlers while the wire rope is under tension can cause damage and/or personal injury.

Above: Don't allow breakaway head section wheels to cross yellow line while wire rope is attached.

To prevent the breakaway head section wheels from crossing the yellow line, avoid continuous towing. As the front of the stretcher is half way into the ambulance begin toggling the remote control switch, jogging between forward and off. Repeat this step until the stretcher is in position. Doing so allows you to inch the stretcher forward. This is a critical aspect of the operation. Don't be hasty. Take your time.

Once the head assembly "load wheels" reach the yellow line, release the toggle switch. Only when all four of the cot swivel casters are inside the ambulance, disconnect the hook from the tow ring until you are ready to lower the stretcher again. Manually roll the stretcher into the antlers and hook the stretcher into the lock-bar.

While loading is complete, your work is not. The wire rope and hook pose a tripping hazard and must be moved out of the way. Don't winch the wire rope and hook in tight. Instead, draw the wire rope until it no longer presents a tripping hazard. NOTE: The winch is not designed to automatically coil the wire cable in a level and flat manner. Care must be taken to avoid the winch cable to bind during operation.

UNLOADING THE STRETCHER

Before winch unloading begins make sure the transition plate roller for the winch wire rope is in place. Disengage the lock-bar and manually roll the stretcher back so that the head assembly wheels are behind the yellow line. Disconnect the hook from the winch cover and slacken the wire rope. Once again, make sure the wire rope runs under the antlers. Connect the hook to the stretcher's tow slings. Reel out enough wire rope so that the stretcher's foot-end can be pushed or pulled out onto the ramps. Once the weight of the stretcher pulls the wire rope taught, use the remote control to lower the stretcher.

While the stretcher descends the ramps it must be guided so the wire rope lands on the transition plate roller. If the wire rope lands off to the side of the roller, you must stop unloading and reload to a point where the stretcher can be guided so that the wire rope lands on the roller. Never try to manhandle the cable onto the rollers. Allow the machinery to do the work. Once the stretcher's breakaway section load wheels roll off the ramps completely, hold the stretcher steady while the hook is released.

WINCH CARE

It is recommended that after each use the winch wire rope is electrically unspooled and then evenly re-spooled across the winch drum. Use protective leather work gloves when performing this function. This simple few minute procedure will ensure that the winch cable will not bind during use. The winch should never be free spooled. Free spooling enables the winch cable to loosen around the winch drum and uncoil unevenly. When a loosely uneven coil around the winch drum occurs, when strain is applied during operation the wire rope is very likely to bind-up causing critical operation failure.

It is strongly recommended that after each use the winch cable is fully let out and then recoiled neatly back onto the winch drum. Always operate the winch electrically and never free spool.

RAMP MAINTENANCE

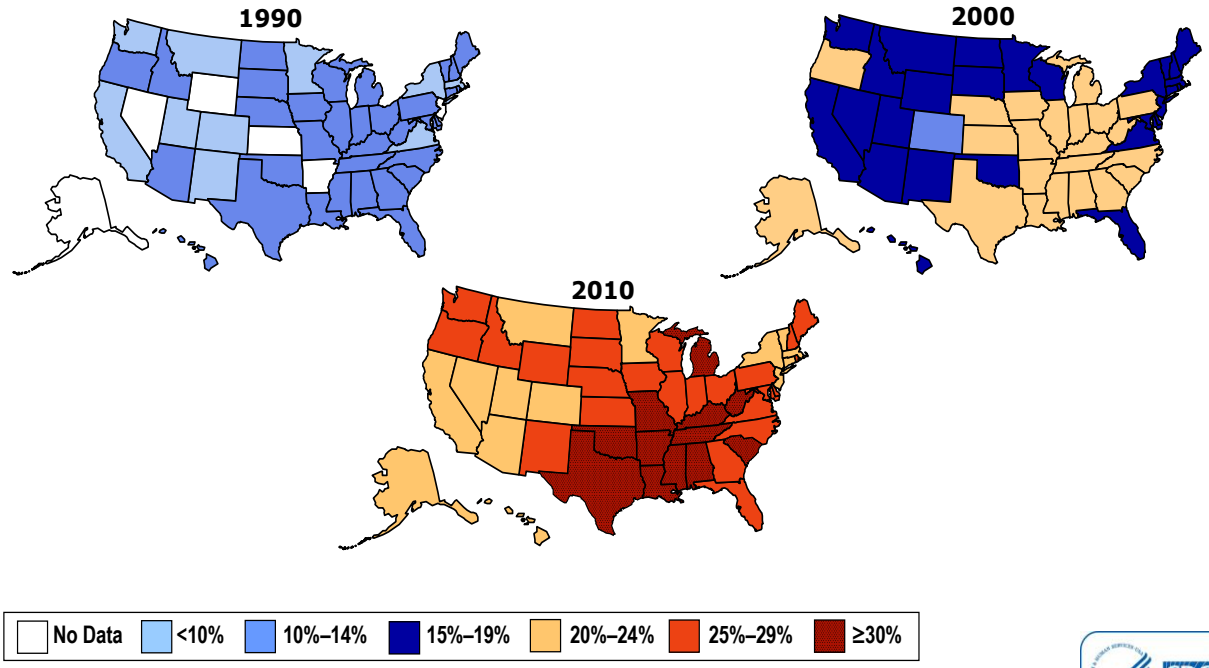
To keep the ramps in optimum condition it is important to keep the ramps completely free of dirt, grime, sand, fine road debris, etc. by wiping both the inner and outer rails of the ramps with a clean slightly damp cloth after each use. Extend the ramps to their full extension length and wipe the inner and outer side walls until clean. This should be no more than a three minute process per ramp. This simple procedure will keep the ramps in optimal operating condition for many years to come.

Never use any type of grease, oil or any other type of lubricant. Using a lubricant will cause dirty and grime to build up which will impede smooth ramp operation.

Obesity Trends* Among U.S. Adults

BRFSS, 1990, 2000, 2010

(*BMI ≥30, or about 30 lbs. overweight for 5′4″ person)



Source: Behavioral Risk Factor Surveillance System, CDC.