



⚠ WARNING Warning Icons are used to alert users to potentially hazardous conditions and situations, which if not avoided may result in SEVERE INJURY or DEATH.

“Must” denotes a mandatory requirement and is synonymous with the use of the term “shall”.

In this guide, all components used for vehicle recovery activities, including but not limited to: synthetic rope, web straps, polyester or high performance roundslings, soft shackles, protection, components, connection points, etc. may also be referred to as Recovery Products*.

⚠ WARNING This guide contains important safety information about the use of Lift-It® Recovery Products*. However, it DOES NOT provide you with all the information you need to know in order to be considered trained and knowledgeable in recovery activities. The proper use of Recovery Products* is only one part of the many necessary ingredients for proper and safe use for successful recovery activities. You must be properly trained, and it is your responsibility to consider all risk factors prior to all recovery activities. Improper use and/or lack of proper training may result in SEVERE INJURY or DEATH from Recovery Product* failure, the unplanned release of tension, deadly recoil and/or impact force, and/or loss of control of the vehicle(s).

Thank you for taking the time to read and understand the information detailed in the Recovery Product User Guide and the Specific Product Guide that accompanies Lift-It® Recovery Products*. Recovery Products* can fail if damaged, misused, or overloaded, resulting in SEVERE INJURY or DEATH. Users must be knowledgeable and trained about the selection, use, and inspection of Recovery Products*. A Specific Product Guide for either: web, roundsling, Twin-Path® and/or synthetic rope products accompanied the specific product selected for your Recovery Product*. The Specific Product Guide must be used in conjunction with this Recovery Product User Guide. Both the Recovery Product User Guide and the Specific Product Guide provide some, but not all, of the information a user needs in order to use Recovery Products* properly and safely. However, failure to read and follow ALL of the information in BOTH the Recovery Product User Guide and the Specific Product Guide that accompanied the product used for recovery may result in SEVERE INJURY or DEATH.

The proper use of Recovery Products* is only one of the many necessary ingredients of a complete and successful vehicle recovery plan. You must be properly trained, and it is your responsibility to consider all risk factors prior to all vehicle recovery activities. Improper use and/or lack of proper training may result in SEVERE INJURY or DEATH due to Recovery Product* failure, the unplanned release of tension, deadly recoil and/or impact force and/or the loss of control of the vehicle(s) during recovery activities.

All Lift-It® products are sold with the express understanding that users are thoroughly familiar with safe and proper product usage. A manufacturer does not (and cannot) have complete knowledge or insight into the specific details and potential hazards associated with your particular vehicle recovery activity. The user is responsible for proper use as detailed in all applicable standards, regulations and warnings. The improper use of Recovery Products* by untrained persons is extremely hazardous and may result in SEVERE INJURY or DEATH. It is also important that Recovery Product* users be thoroughly familiar with the manufacturer's recommendations and safety information that accompanies products.

Read and understand all product and warning information provided in both the Recovery Product User Guide and the Specific Product Guide, available by scanning the QR Code on many of the Lift-It® tags and labels or available at www.lift-it.com and always follow OSHA, ASME, federal, state, provincial, industry, corporate, association, job site specific, insurance, vehicle manufacturer, best practice and/or manufacturer warnings and guidelines.

The American Society of Mechanical Engineers in the ASME B30.9 Sling Safety Standard, Section 9-X.1 clearly states the requirement for training. “Sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices, covered by this chapter.”

Lift-It® Recovery Product* users must follow the same guidelines for training.

Occupational Users who use Lift-It® Recovery Products* as part of their work must have sufficient training and knowledge of all applicable standards and regulations as well as employer and/or contractor policies. If you are unsure whether you are properly trained and knowledgeable or if you are unsure of what the standards and regulations require of you, ask your employer for information and/or training.

If you are a Consumer using Lift-It® Recovery Products* you must also be properly trained and informed in the safe and proper use of Recovery Products*. The unexpected release of tension may injure, kill, and destroy without regard to location. Consumers must follow safe and proper use guidelines during recreational activities. An important part of becoming properly informed is to read and fully understand the information in all warning/instruction labels, tags, safety bulletins and user manuals that accompany Lift-It® Recovery Products*. To increase your level of comprehension, instruction and competence, consider completing a nationally accredited or recognized four-wheel drive training course or contact a four-wheel drive organization or club for comprehensive advice, proper selection and use of Recovery Products*. Online resources, instructional videos and four-wheel drive publications may also provide valuable information for your specific recovery activity. DO NOT use Lift-It® Recovery Products* until you are ABSOLUTELY sure of what you are doing.

Please contact us if you have any questions at 800.377.5438 or email us at info@lift-it.com and NEVER TAKE CHANCES!
Not getting stuck in the first place is ALWAYS your best option.

The following guidelines cannot possibly cover all the unique variables present in every possible recovery scenario and are certainly NOT all that you need to consider for successful recovery activities. Only the user can possibly have complete knowledge or insight into the specific details and potential hazards associated with a particular vehicle recovery activity. You must decide if the following guidelines are appropriate for your specific set of circumstances and ultimately you are responsible for your decisions, actions and their consequences.



THE DYNAMICS OF RECOVERY AND THE "DANGER ZONE"

⚠ WARNING Recovery activities differ from load handling activities in a number of ways. Vehicles may be damaged and/or may be snagged or hung up in soil, sand, mud, snow, and/or by other obstacles, including, but not limited to rocks, outcroppings, shrubs, etc. In addition, vehicles may shift during recovery and certain situations such as, but not limited to hillside or water recovery will require additional planning, precautions and/or hazard recognition and abatement (which are not covered in this guide). Additionally, dynamic factors, such as, but not limited to: damaged and/or hung up vehicles, vehicles shifting during the recovery activity, combined with the tension necessary to free stuck vehicles and/or the deadly recoil and/or impact force of broken Recovery Products* (anything used during recovery activities including but not limited to vehicles and/or vehicle parts, components, accessories, etc.) may greatly increase the size of the Danger Zone. See Figure 1, below. If there is an unplanned release of tension even the estimates provided by the RPx2 Radius Length may not be adequate to prevent SEVERE INJURY or DEATH. Deadly projectiles traveling at hundreds of feet per second may turn what was a perfectly normal day into a deadly event with devastating effects on friends, family and loved ones. The following information may be used to establish a MINIMUM size for the Danger Zone. A Qualified Person** and/or Properly Informed and Trained Consumer MUST consider all the unique variables and potential hazards present in all recovery activities and based upon those specific variables determine the appropriate Danger Zone size.

⚠ WARNING To The Users of Lift-It® Recovery Products*

⚠ WARNING Even if you consider all of the factors/issues involved in recovery activities, things can still go wrong. Therefore, all personnel must be alert to potential risks associated with the use of Recovery Products*.

Make Sure All Personnel are Clear of Loads and Alert to Risks, especially in the "Danger Zone".

The Danger Zone is any area where vehicle(s), broken connection points and/or Recovery Products* may travel, or anywhere an unplanned release of tension may produce deadly recoil and/or impact force. The Danger Zone for recovery activities is made up of two Separate "Rings of Fire". To determine the Radius Length for each of the two separate Rings of Fire, double the Recovery Product* Length (RP x 2). Place the RPx2 Radius Length at the Vehicle 1 connection point and rotate 360°. The area inside the 360° rotation may enable one to estimate the MINIMUM size for Ring of Fire I. Repeat the process for Vehicle 2 to estimate the MINIMUM size for Ring of Fire II. You must always consider BOTH of the TWO Rings of Fire to estimate the MINIMUM size of the Danger Zone. See Figure 1.

- All personnel involved in the recovery activity must stand clear of vehicles and never be under, never on, and/or never in-line during recovery activity. An unplanned release of tension may strike personnel with deadly recoil and/or impact force.
- NEVER ride on vehicles during recovery activities.
- Personnel must not stand in-line with or next to Recovery Products* under tension. An unplanned release of tension from broken Recovery Products*, connection points and/or other components may strike personnel with deadly recoil force.
- Have all bystanders stay clear of the Danger Zone and made aware of the recovery activity. All bystanders MUST stay out of the Danger Zone (see Figure 1), preferably uphill, not in-line and away from the intended vehicle travel path.
- Communication must be established and maintained between all parties involved in the recovery activity. Bystanders MUST never be in the Danger Zone. Communication with personnel who are not involved in the recovery activity but are close by should be established and maintained to alert them when recovery activities begin and end.
- Once vehicle recovery activity begins, users must NEVER place any part of the body between the Recovery Product* and/or other components and the vehicle(s), or between the Recovery Product* and connection point and/or vehicle(s).

- Personnel must be alert to the potential for the Recovery Products* and/or vehicle(s) to become snagged or hung-up. When these conditions occur, Recovery Products* may become overloaded. If the Recovery Products* and/or stuck vehicle become snagged or hung-up, recovery activity must be stopped and corrective action taken to mitigate hazards.

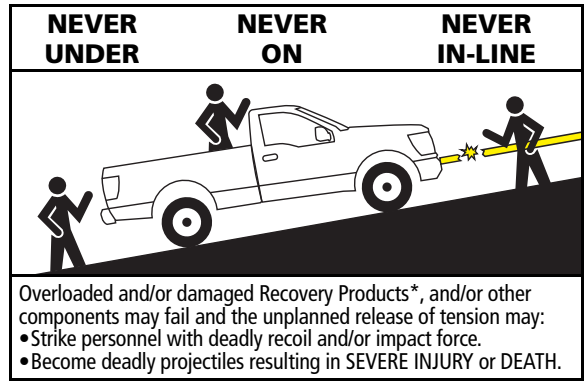
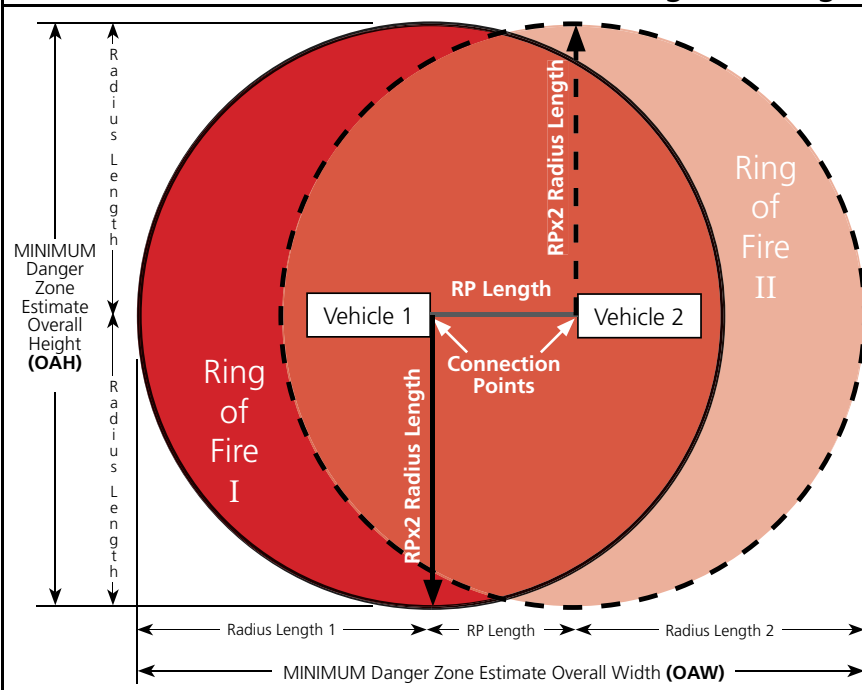


Figure 1 (Over View) RPx2 Radius Length & Danger Zone Size Estimation



During recovery activities ONLY essential personnel directly involved in the activity shall be in the Danger Zone. NEVER allow non-essential persons in the Danger Zone.

To determine the Radius Length for each of the two separate Rings of Fire, double the Recovery Product* Length (RP x 2).

Place the RPx2 Radius Length at the Vehicle 1 connection point and rotate 360°. The area inside the 360° rotation may enable one to estimate the MINIMUM size for Ring of Fire I. Repeat the process for Vehicle 2 to estimate the MINIMUM size for Ring of Fire II.

You must always consider BOTH of the TWO Rings of Fire to estimate the MINIMUM size of the Danger Zone.

30 Ft. RP* Length: RPx2 (30x2) = 60 Ft. Radius Length
 Danger Zone OAH = Radius Length 1 + Radius Length 2 = 120 Ft.
 Minimum OAH Estimate = RP Length x 4

30 Ft. RP* Length: RPx2 (30x2) = 60 Ft. Radius Length
 Danger Zone OAW = Radius Length 1 + RP Length + Radius Length 2 = 150 Ft.
 Minimum OAW Estimate = RP Length x 5

| MINIMUM Danger Zone Size Estimate Examples | |
|--|------------------------------|
| Recovery Product* Length | Danger Zone (Height & Width) |
| 20 Ft. | 80 Ft. x 100 Ft. |
| 30 Ft. | 120 Ft. x 150 Ft. |
| 40 Ft. | 160 Ft. x 200 Ft. |
| 50 Ft. | 200 Ft. x 250 Ft. |

⚠ WARNING Always know the Gross Vehicle Weight (GVW) of both vehicles. Never attempt to recover a vehicle with an unknown GVW and always add the additional weight of any accessories and/or cargo to determine the Total GVW.



RECOVERY PRODUCTS* - PROPER USE

The best plan is to not get stuck in the first place but if a vehicle becomes stuck you must be properly trained to handle the situation. Once a vehicle becomes stuck a recovery plan must be developed and successfully executed. By developing and properly executing a recovery plan, potentially hazardous situations must be addressed and avoided. If you rush into a recovery activity, with a "grab and go" approach, what may well have been avoidable hazards may result in SEVERE INJURY or DEATH.

Many important variables must be considered by using a systematic approach based on training for all recovery activities. This guide is intended to offer general information on the safe and proper use of Lift-It® Recovery Products*, however a Qualified Person** and/or Properly Informed and Trained Consumer must determine what products to use and how to properly use the information in each situation, based upon the specific details and potential hazards associated with the particular recovery activity. The safety and well-being of all parties is a paramount consideration.

Consider the importance of your decisions and actions. The way you do anything is the way you'll do everything. If you plan for and mitigate hazards associated with recovery operations, each and every time, your chances of going home, safe and sound to loved ones is dramatically increased. When haste, fatigue, frustration and/or ego take precedence over safety, lives may be lost, injuries may occur, and property destroyed. Always take the time to make safe and informed decisions or spend the rest of your life regretting poor choices.

- A hazard assessment must be done to ensure that vehicle damage will NOT hinder the recovery activity and/or cause damage to Recovery Products*.
- All personnel must realize that recovery activities are extremely dynamic, potentially dangerous and that conditions may change quickly.
- Do not allow haste, frustration or ego to lead you into bad decisions and/or actions.
- **Do not perform recovery activities if you are mentally or physically unfit and/or under the influence of drugs and/or alcohol.**

ALWAYS refer to the Specific Product Guide that accompanied the specific product being used as a Recovery Product* for important proper product use information and inspection requirements and use that information in conjunction with the information provided in this Recovery Products* User Guide.

- Do not drag Recovery Products* prior to assembly, during use and/or after the recovery activity. Embedded materials and snagging may damage Recovery Products*.

⚠ WARNING NEVER shock load Recovery Products*, connection points and/or other components used in recovery activities. The additional stress caused by shock loading may exceed the Work Load Limit (WLL) and damage Recovery Products*, connection points and/or other components resulting in SEVERE INJURY or DEATH. DO NOT allow Recovery Products* to slip or slide over and/or across any vehicle edges or surfaces.

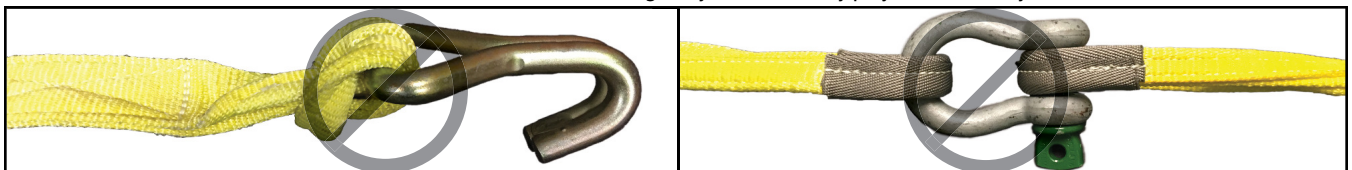
⚠ WARNING Recovery Products*, connection points and/or other components may fail if damaged, misused or overloaded, resulting in SEVERE INJURY or DEATH.

- ALL Parking brake(s) must be disengaged during recovery activities. The increased resistance from an engaged parking brake may overload the Recovery Products* and may result in SEVERE INJURY or DEATH.
- Always begin recovery activities with the least amount of momentum necessary from the pulling vehicle that DOES NOT result in shock loading. The pulling vehicle acceleration must be slow and steady. DO NOT over accelerate which may shock load Recovery Products*, connection points and/or other components. Shock loading radically affects the strength of all Recovery Products*, connection points and/or other components and may result in failure. Failure of ANY component used in the recovery activity may result in SEVERE INJURY or DEATH.
- **Remember, Slow and Steady may not win the race, but it gets the job done!**
- If the stuck vehicle does not come loose after the first attempt, slightly increase the momentum of the pulling vehicle in a controlled manner. NEVER shock load. Maintain a slow and steady rate of acceleration. **Remember, Slow and Steady!**
- If the stuck vehicle is not free after the second attempt, DO NOT increase the acceleration. A Qualified Person** and/or Properly Informed and Trained Consumer must now re-evaluate the situation and adjust the recovery plan as necessary. **Safety is always the top priority.**
- Due to the synthetic fibers used to make Recovery Products*, rest periods between use are required to allow them to return to their original length. Be aware that an excessive number of uses over a short period of time may build up heat and damage Recovery Products* resulting in SEVERE INJURY or DEATH.
- During recovery activities and after the stuck vehicle is freed, care must be taken not to drive over and/or drag Recovery Products*.
- Recovery Products* may be damaged if driven over or dragged.
- Only when both vehicles are stationary and secured should the Recovery Products* be removed.
- Nylon Recovery Products* lose approximately 15% of their strength when wet and/or saturated.
- Always refer to the Recovery Product* Capacity Tag to determine Recovery Product* Work Load Limits (WLL) and only use Recovery Products*, connection points and/or components that have legible tags and/or markings. NEVER EXCEED Work Load Limits (WLL) for any Recovery Product*, connection point and/or component!
- Prior to use inspect all Recovery Products*, connection points and other components used in recovery activities. You must refer to the appropriate section in the Specific Product Guide that was included with the Recovery Product* for important information regarding inspection and removal criteria, proper use, protection, etc.
- DO NOT use damaged Recovery Products*, connection points and/or components for any purpose. **Remember, any doubt, DON'T!**

The guidelines in this Recovery Products* User Guide are only some of the many necessary considerations that must be addressed at a minimum. Every recovery activity is different and has specific details and potential hazards that cannot be anticipated by the Recovery Product* manufacturer. A Qualified Person** and/or Properly Informed and Trained Consumer must evaluate specific details and potential hazards and ensure that recovery activities are performed properly and safely.

RECOVERY PRODUCT* CONNECTION CONSIDERATIONS

⚠ WARNING DO NOT attach hooks, metal shackles and/or other metal fittings to Lift-It® Recovery Products*. NEVER use hooks, metal shackles or other metal fittings to connect Recovery Products*. In the event of an unplanned release of tension, hooks, metal shackles and/or metal fittings may become deadly projectiles that may result in SEVERE INJURY or DEATH.



To join Recovery Products*, a Soft Shackle of appropriate size/strength may be used. See page 5.



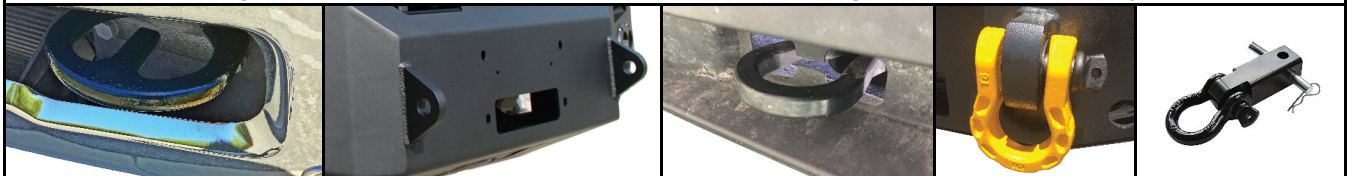
VEHICLE CONNECTION CONSIDERATIONS

WARNING NEVER CONNECT OR ATTACH RECOVERY PRODUCTS* TO: TOW BALLS, BUMPERS, HITCHES, BULL BARS, TIE DOWN EYES OR ANY SUSPENSION AND/OR STEERING PART OR COMPONENT. The use of improper connection points may result in SEVERE INJURY or DEATH.



- Refer to the owner's manual or contact the vehicle manufacturer for recommended recovery connection points.
- A proper connection point must always be used for Recovery Products*. Connection points must be specifically designed by the manufacturer for use in recovery activities and determined to be suitable by a Qualified Person** and/or Properly Informed and Trained Consumer for the application. If you are unsure if your connection points have an adequate WLL, or if they are approved for recovery activities you must contact the manufacturer.
- Verify that all connection points for all vehicles are acceptable for use, securely welded, properly bolted and/or attached to the vehicle's chassis/frame by methods approved by the Original Equipment Manufacturer.

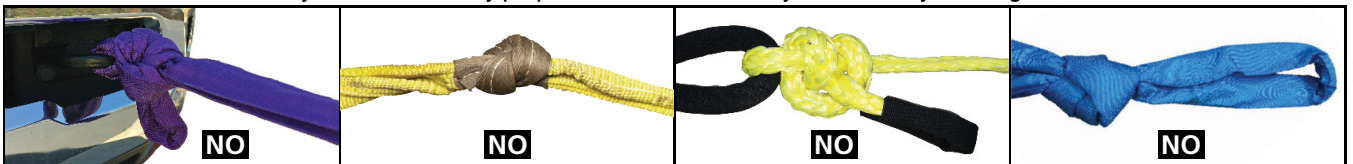
Original Equipment Manufacturer Connection Points Designed for Vehicle Recovery.



- Ensure that the connection points are free from any/all damaging surfaces, edges, nicks, gouges, rust, etc. that may potentially damage Recovery Products*, protection and/or components.
- Prior to using Recovery Products*, a Qualified Person** and/or Properly Informed and Trained Consumer must evaluate side loading hazards. Do not allow pulling in any direction that would side load connection points and/or other components unless connection points and/or other components were designed with the intent of allowing side loading.
- A recovery receiver hitch connection point must only be used IN-LINE (90° Angle of Loading, see the Lift-It® Specific Product Guide). NEVER side load recovery receiver hitch connection points and always follow the manufacturer's warnings and instructions for use.
- DO NOT attach Recovery Products* near or allow contact with hot exhaust systems or other hot surfaces and/or objects.
- During use, consider all Recovery Products*, protection and/or components conductive, energized or "hot".

OTHER IMPORTANT CONSIDERATIONS

- Additional precautions must be taken to protect the drivers of vehicles involved in recovery activities from an unplanned release of tension that may result in SEVERE INJURY or DEATH. Additional measures may include but are not limited to placing a protective barrier between the pulling vehicle driver and their back window and/or any other area that would prevent the deadly impact force of broken Recovery Products*, connection points and/or other components from striking the driver of the pulling vehicle and/or essential personnel involved in the recovery activity.
- Do not tie knots in Recovery Products* for any purpose or connect Recovery Products* by knotting.



- Always use an appropriate Recovery Product* Damper, which must be a SOFT/weighted object positioned on the Recovery Product* to dissipate energy in the event that the Recovery Product*, connection point(s) and/or other components fail. Dampers must be placed in the center of the Recovery Product*, as well as at both ends to reduce the recoil and potentially deadly impact force of Recovery Products*, connection points and/or other components in the event of an unplanned release of tension. There are several commercially available damper products specifically designed for vehicle recovery or they may be improvised by using multiple blankets, sleeping bags, heavy jackets, or other SOFT items. During recovery activities, NEVER touch or adjust Dampers. Remember, NEVER IN-LINE!

- NEVER use solid objects as a Recovery Product* damper. In the event that the Recovery Product*, connection point(s) and/or other components fail, solid objects used as dampers may become deadly projectiles, striking with deadly impact force resulting in SEVERE INJURY or DEATH.

WARNING Dampers will ONLY lessen recoil but WILL NOT PREVENT ALL of the recoil from an unplanned release of tension. Safety is of prime importance. ALWAYS consider hazards present in the Danger Zone and take corrective action to mitigate hazards.

WARNING Connecting Recovery Products* together with and/or attaching hooks, metal shackles, and/or other metal fittings to Lift-it® Recovery Products* is extremely dangerous. If unintended overloading and/or shock loading occurs, hooks, metal shackles, and/or other metal fittings may break and become deadly projectiles striking with deadly impact force resulting in SEVERE INJURY or DEATH.

- Soft Shackles must be properly used to connect Recovery Products*. Soft Shackles may also be used to attach Recovery Products* to proper vehicle connection points. See page 5.

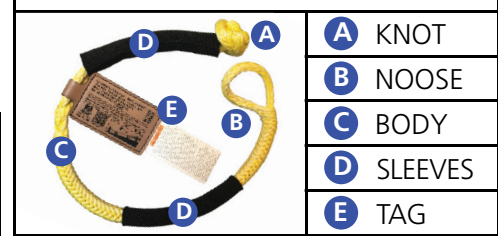


SOFT SHACKLES

⚠ WARNING NEVER use Lift-It® Soft Shackles for lifting or load handling.

Lift-It® Soft Shackles are made from UHMPE Rope. UHMPE Rope enables the unplanned release of built up tension and stored energy in a less abrupt manner compared to metal shackles, components and/or fittings. Always check the Soft Shackle Tag to verify that it has an adequate WLL and ensure that a proper spatial relationship exists with all components connected to Soft Shackles during use. You may use the Recovery Products* WLL Calculator to assist in estimating Recovery Product* WLL adequacy. See page 6.

Figure 2 Soft Shackle Anatomy



| Lift-It® Soft Shackle Specifications | | |
|--------------------------------------|----------------------|---------------------|
| Stock Number | SS-PLASMA-7/16 x 20" | SS-PLASMA-5/8 x 20" |
| Rope Body Diameter | 7/16" | 5/8" |
| 5:1 WLL (when new) | 6,000 Lbs. | 15,000 Lbs. |

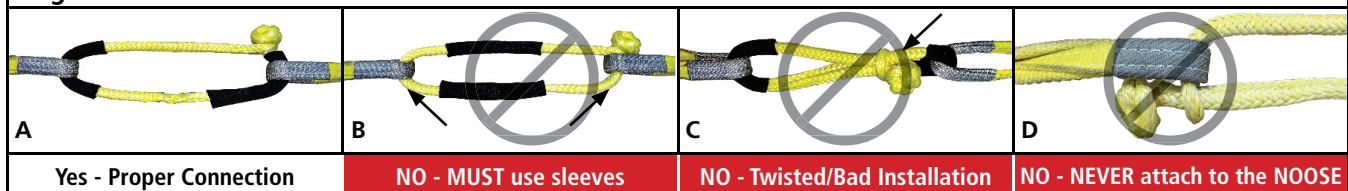
Lift-It® Soft Shackle Installation Instructions

| | | | |
|--|--|---|--|
| | | | |
| To open the Soft Shackle, hold the base of the Noose and pull the rope that forms the Noose to expand it. To disengage Lift the Noose over the Knot. | Pass the Soft Shackle Body through the connection points. Ensure that connection points will not damage the Soft Shackle. Do not allow twists in the Body. | To close the Soft Shackle, place the Noose over the Knot (1) and cinch the Noose securely around the Body and against the base of the Knot (2). | NOOSE must always be at the base of the KNOT. Always ensure that Sleeves are properly placed and that the Noose is connected at the base of the Knot. NEVER attach the base of the Noose, the Noose or the Knot to connection points. NEVER shock load Recovery Products* and always remember, Slow & Steady! |

⚠ WARNING DO NOT attach Lift-It® Soft Shackles to any object that is sharp, potentially damaging, rough, and/or has "square" edges. Only attach Soft Shackles to smooth, rounded objects that are completely free of damaging edges and/or surfaces.

- ALWAYS inspect Soft Shackles before use. See the inspection information that accompanies Lift-It® Soft Shackles.
- Sharp particles such as but not limited to (metal shavings) can severely damage Soft Shackles. DO NOT allow contact with sharp and/or damaging particles.
- Ensure that connection points make full contact with the Lift-It® Soft Shackle Sleeves. See Figure 3-A.
- NEVER connect the unprotected Body of Lift-It® Soft Shackles (without Sleeves) to any connection point and/or other component. See Fig. 3-B.
- NEVER allow the body of the Soft Shackle to become twisted when connected or during use. See Figure 3-C.
- NEVER connect Lift-It® Soft Shackles to an object with a width or diameter that is smaller (less) than the Soft Shackle diameter.
- NEVER connect Recovery Products* on or next to the Soft Shackle KNOT and/or on the NOOSE. Connecting to or next to either the Soft Shackle KNOT and/or NOOSE may cause an unplanned release of tension resulting in SEVERE INJURY or DEATH. See Figure 3-D.

Figure 3 Lift-It® Soft Shackle Connection Information



- | | | | |
|-------------------------|-----------------------|-------------------------------|--------------------------------|
| A | B | C | D |
| Yes - Proper Connection | NO - MUST use sleeves | NO - Twisted/Bad Installation | NO - NEVER attach to the NOOSE |
- NEVER use or expose Lift-It® Soft Shackles to temperatures above 140°F (60°C) or below -40°F (-40°C).
 - Do not allow Lift-It® Soft Shackles to be exposed to rust, prolonged UV exposure, and/or mechanical and environmental damage.
 - When Lift-It® Soft Shackles are not in use, store them in a location that is cool, dry, dark, free of environmental and mechanical damage, corrosion, rust, dirt and grit.

RECOVERY PRODUCT* FACTORS AND ESTIMATION OF WORK LOAD LIMITS

Additional factors must be considered when evaluating the Work Load Limit (WLL) adequacy for all Recovery Products*, connection points and components used in recovery activities. The Gross Vehicle Weight (GVW), including any additional cargo or accessories is ONLY a starting point. A Qualified Person** and/or Properly Informed and Trained Consumer must consider any additional resistance created by the terrain and/or possible vehicle damage before determining the required WLL to safely recover stuck vehicles. A Qualified Person** and/or Properly Informed and Trained Consumer may use the Recovery Products* Calculator Worksheet to estimate the additional resistance and the WLL adequacy for Recovery Products*, connection points and/or components. The Recovery Product* Calculator Worksheet Total Estimated MINIMUM WLL is just that, a MINIMUM Estimate that must be evaluated by a Qualified Person** and/or Properly Informed and Trained Consumer and must be adjusted accordingly for the specific recovery activity. ALL FIVE STEPS must be used and calculations verified to be complete and accurate. Remember, the goal in determining the MINIMUM estimated WLL is to avoid overloading ANY and ALL Recovery Products*, connection points and/or other components used in recovery activities. Always consider the "Weak Link" principle: The maximum WLL for all Recovery Products* is limited by the weakest component. ALWAYS consider the hazards in the Danger Zone and take actions to mitigate hazards.

***Recovery Product:** Any component used for vehicle recovery activities, including but not limited to: synthetic rope, web straps, polyester or high performance roundslings, soft shackles, protection, components, connection points, etc.

****Qualified Person:** A person, who by possession of a recognized degree or certificate of professional standing in an applicable field, or who, by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

⚠ WARNING The information in this guide is current through October 19, 2020. It is the user's responsibility to independently verify the accuracy of the information in this guide and all cited information, standards and regulations if this guide is used or referenced after October 19, 2020.



RECOVERY PRODUCT* FACTORS AND ESTIMATION OF WORK LOAD LIMITS

The Lift-It® Recovery Product* WLL Calculator Worksheet may be used to estimate the MINIMUM WLL needed for ALL Recovery Products*, connection points and components used during a recovery activity. Two examples are given:

Vehicle (A) 13,200 Lbs. GVW, stuck in Loose Dry Sand on a 30° uphill slope, with one flat tire.

Vehicle (B) 52,000 Lbs. GVW, stuck in Deep/Heavy Wet Mud (wheel depth), on a 45° uphill slope with over half the axles seized.

Lift-It® Recovery Products* WLL Calculator Worksheet

| STEP 1 GVW | Enter the stuck vehicle's Gross Vehicle Weight (GVW). You must add all cargo and/or accessories weight to determine TOTAL GVW. | Total GVW | Vehicle (A) 13,200 Lbs. | Vehicle (B) 52,000 Lbs. | |
|--|--|------------------------------|----------------------------|----------------------------|----------|
| CALCULATION WORKSHEET | | | | | |
| STEP 2 SURFACE TERRAIN RESISTANCE | SURFACE/TERRAIN RESISTANCE | | | | |
| | Surface/Terrain Type | Resistance Factor (RF) | GVW ÷ RF | GVW ÷ RF | GVW ÷ RF |
| | Hard (Asphalt or similar) | 25 | | | |
| | Dry Earth (Grass/Compacted Dirt) | 7 | | | |
| | Hard Wet Sand | 6 | | | |
| | Soft Wet Sand | 5 | | | |
| | Loose Dry Sand / Loose Gravel | 4 | | 3,300 | |
| | Light Mud | 3 | | | |
| | Deep Heavy Wet Mud - TIRE DEPTH (Up To the Bottom of the Rim) | 1.33 | | | |
| | Deep/Heavy Wet Mud - WHEEL DEPTH (Up To the Middle of the Rim) | 1.00 | | | 52,000 |
| Deep/Heavy Wet Mud - BODY DEPTH (From the Middle of the Rim and up) | .75 | | | | |
| STEP 3 SLOPE RESISTANCE | SLOPE RESISTANCE | | | | |
| | If the actual Angle from Horizontal is between the listed Angle from Horizontal a Qualified Person** and/or Properly Informed and Trained Consumer must always ROUND UP (NEVER DOWN) to the closest Angle from Horizontal. | | | | |
| | Angle from Horizontal | Slope Factor (SF) | GVW x SF | GVW x SF | GVW x SF |
| | 5° | .08 | | | |
| | 10° | .17 | | | |
| | 15° | .25 | | | |
| | 20° | .34 | | | |
| | 25° | .42 | | | |
| | 30° | .50 | | 6,600 | |
| | 35° | .58 | | | |
| 40° | .67 | | | | |
| 45° to 90° | 1.00 | | | 52,000 | |
| STEP 4 DAMAGE RESISTANCE | DAMAGE RESISTANCE | | | | |
| | Type of Damage | Damage Factor (DF) | GVW x DF | GVW x DF | GVW x DF |
| | Up to half of the vehicle axles locked or seized | .33 | | | |
| | Over half the vehicle axles locked or seized | .67 | | | 34,840 |
| | Flat Tires: GVW = 8,000 Lbs. or less | Add 1,000 Lbs. per flat tire | | | |
| Flat Tires: GVW over 8,000 Lbs. | Add 2,000 Lbs. per flat tire | | 2,000 | | |
| SUBTOTAL = The sum of all calculated values for Steps 2, 3 & 4. Do Not include GVW (Step 1) into the subtotal. | | | 11,900 | 138,840 | |
| STEP 5 | Error Factor | Subtotal ÷ 4 | 2,975 | 34,710 | |
| SUBTOTAL + Step 5 = Total Estimated MINIMUM WLL for ALL Recovery Products*, Connection Points and/or Components. | | | 14,875 Lbs. | 173,550 Lbs. | |



WARNING Lift-It® Recovery Product* WLL Calculator Worksheet is intended only for estimation and evaluation of **MINIMUM** Work Load Limits (WLL) by a Qualified Person** and/or Properly Informed and Trained Consumer. **NEVER EXCEED** the WLL of any Recovery Product*, connection point or component.