

Operation and Owner's Manual

For

Spectrum Sports Intl

MOBILE

ZIP LINE™

Gen III models manufactured after 11-1-2011



**Important Safety Information
Inside**

Mobile Zip Line™ Operations and Owner's Manual

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Product Identification

MOBILE ZIP LINE™

Product Name: _____

Model: _____ Date Manufactured: _____

Specialty Items: _____

Serial Number: _____

Passenger Capacity: _____

Company Name: _____

Customer Name: _____

Phone Number: _____

Address: _____



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WARNING!



Spectrum Sports Intl will not warranty or stand behind any of its products, components, or safety systems that do not use genuine and/or authorized replacement parts. Any modifications, work, or service that is performed on your Spectrum Sports Intl Mobile Zip Line™ or components, that is not performed by an authorized Spectrum Sports Intl employee(s), voids any and all claims to any manufacturer's liability.



Read and understand this manual before operating the product



Failure to comply with the information in this manual may result in serious injury or death to the operator and/or rider

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Manual Overview

Congratulations on your purchase of the Mobile Zip Line™ by Spectrum Sports Intl. We look forward to your success, and we hope to provide you the support you need moving forward.

The **purpose of this manual** is to provide the product owner with the necessary information to **transport, setup, inspect, operate, take-down, and maintain** the Mobile Zip Line™ as effectively and safely as possible. This manual is in no way a total representation of all facts. Safe operation of this product is the sole responsibility of the owner/operator. Sound and reasonable judgment must be used at all times.

The philosophy of Spectrum Sports Intl is centered on a commitment to excellence in meeting the needs of its customers and associates. We encourage you to likewise develop a standard of quality and service that makes you the leader in your market.

Our pledge to your success:

- ✓ Designing products with a commitment to safety
- ✓ Designing products with profit generating through-put
- ✓ Engineering products with a stamp from an independent, 3rd party firm
- ✓ Testing new product designs before releasing production models
- ✓ Manufacturing to applicable ASTM safety standards for the amusement industry
- ✓ Assembling in-house with exceptional quality control measures
- ✓ Building strong products with a lower cost of ownership
- ✓ Taking an active leadership role in the industry

Your responsibility:

- ✓ Commitment to safe operation
- ✓ Consistent inspection and proper maintenance as outlined in the manual
- ✓ Use of Spectrum Sports Intl certified replacement parts
- ✓ Effective and active marketing and promotion

Engineering Approval

Our Mobile Zip Line™ has been designed and reviewed by 3rd party engineers that stand behind the product design. If it is necessary for you to obtain a copy of the engineering analysis, we will provide a copy contingent upon the signing of a “non-disclosure/non-compete agreement” and a small fee. Please call Spectrum Sports Intl for details. The Mobile Zip Line™ has the following certifications or meet/exceed the following industry standards:



Receipt & Acknowledgment

This Operation and Owner's Manual is a critical document intended to familiarize you with the Mobile Zip Line™ and Auto-Retract® Safety System.



Read the following statement and respond to Spectrum Sports Intl in writing with any questions if the intent of this declaration is unclear:

As an owner, I have received and read my copy of the Mobile Zip Line™ Operation and Owner's Manual. I understand that the information outlined in this manual is subject to change at the sole discretion of Spectrum Sports Intl at any time. It is further understood that as an owner of the Mobile Zip Line™ & Auto-Retract® Safety System, I have the responsibility to ensure that the correct and latest version of the manual is being used.

As an owner of the Mobile Zip Line™ or authorized representative, it is my responsibility to keep this manual up-to-date with any changes that are made by Spectrum Sports Intl. In addition, if there is anything about the product and/or this manual that is unclear or not understood, it is my responsibility to seek clarification and refrain from product use until the issue is understood.

Unless informed in writing, Spectrum Sports Intl assumes that the customer fully understands and has no questions regarding the contents of this manual and the proper setup, inspection, operation, take-down, and maintenance of the Mobile Zip Line™.



You should not operate the products mentioned in this manual if you do not fully understand how to operate them safely! It is the customer's sole responsibility to clarify any question or concern with Spectrum Sports Intl before use and/or operation.

SET-UP

Step 1: Identify Safe Operating Area

- Operate on firm, level, and dry ground only
 - Grass, gravel, dirt, asphalt, & concrete okay
- Area should be free from overhead obstacles
 - Steer clear of power lines
- Consider allocating space for harnessing
- Do not operate in adverse weather conditions
 - No winds over 30mph
 - No lightening



Step 2: Remove Zip Line from Vehicle

1. Unplug the 7-pin electrical plug
2. Unhook the safety chains and safety brake wire
3. Remove the trailer coupler pin and slide to the open position
4. Drop the jack extension leg as far as possible & insert the pin
5. Crank the jack until the coupler is free of the ball hitch
6. Pull the vehicle away from the trailer



Step 3: Pin Operator's Safety Rail

This support arm is located on the center of the tower mast between the cables, and it pivots to reduce the overall transport height of the ride.

Position one employee on the ride near the tower mast to complete Steps 3 and 4 (ride is still lowered on trailer)

1. Remove the pin
2. Rotate the arm upwards
3. Pin Operator's Safety Rail in place



Step 4: Connect Steel Cables to Tower

1. Remove the 2 steel ride cables from the tool box
2. Remove the 2 steel guy lines from the tool box
3. Place the large loop of ride cable around the tower mast
4. Connect the ride cable by placing the pin thru the thimble and securing with the r-clip
5. Inspect the guy line cable (see page30) and attach (not turnbuckle end) to the tower mast by likewise placing the pin thru the thimble and securing with the r-clip



6. Ensure that the guy line cable is positioned to the outside of the large loop of the ride cable
7. Disconnect the Auto-Retract® rope from the travel position allowing it to retract into the pulley



Step 5: Raise the Tower

Your Mobile Zip Line™ is equipped with a 12 volt hydraulic lift system powered by 2 onboard 12 volt batteries, 1 lift pump, and 1 lifting cylinder.

1. Position rubber pads under stair feet if operating on asphalt (prevents damage to structure paint)
2. Connect 2-button pendent to receptacle on driver's side of trailer
3. Press and continue holding the "Up" button until tower mast just barely makes contact with the bucket structure
4. Immediately remove 2-button pendent and place in tool box for storage



Step 6: Stabilize the Tower

1. Extend outrigger jacks
2. Lower jack drop legs as far as possible
3. Jacks should make contact with the ground, and then be tightened another 5-10 turns of the handle
4. Wheels should retain their full contact patch with the ground
5. Position chocks front and back of the wheels as pictured, on each side of the trailer
6. Place wheel lock between the wheels on each side



Step 7: Reposition Hitch

During zip line operations the hitch must be repositioned to gain access to the staircase

1. Remove the clip and pull the hitch pin upward and out
2. Swing the entire hitch assembly to the side
3. Lower the jack leg just far enough to keep the hitch from moving
4. Replace the hitch pin so you don't lose it



Step 8: Lock the Tower Mast Upright

1. Position employee at the top of the stairs and locate the 2 yellow locks on either side of the mast



2. Remove the yellow locks from the transport position where they are hooked around the bucket handles
3. Rotate the locks around the tower mast and pin in place

If you are having difficulty with the pinhole alignment, it is possible that you may need to make small adjustments to the tower mast position.

- a. Remove employee from the tower
- b. Use 2-button pendent to slightly adjust tower mast position up or down.



Step 9: Connect & Tension Guy Line Cables

2 guy line cables run from the top of the tower, parallel to the stairs, and connect to the trailer near the front pivot. They are a critical component.

1. Pin the turnbuckle to the trailer
2. Use the turnbuckle to tighten the guy lines
3. The guy line should have no more than 6" of deflection at the midpoint of the stairs



Step 10: Preparing the Anchor Gear

Several items must be moved from the trailer to the anchor area. You may find it helpful to place these items in the truck bed for easy transportation:

- 2 Automatic Tensioning Devices (ATDs)
- Tire chocks (if anchoring with vehicle)
- 2 Inflatable targets and blowers (if using)
- Dual Anchor Single Hitch (D.A.S.H.) attachment
- Water ballast tank and frame (when applicable)



Step 11: Measure Anchor Distance

1. Connect the included measuring tape to the hook on the back of the trailer
2. Pull the truck forward and unload 2 inflatable targets and blowers around 90' from trailer
3. Measure to 142'-6". This will be the distance from the back of the trailer to where the ATDs connect to the anchor(s)



Step 12: Unroll & Inspect Ride Cables

Carefully unroll the steel ride cables by hand or by using the Cable Reel. At this time inspect the cables (see the section titled “Rope & Cable Inspection”). Be sure to work out any twists in the cable which will prevent kinking and bird caging. Cables should always be handled with care.



Step 13: Anchors

Spectrum Sports Intl offers several engineered anchor solutions to meet the needs of various markets and the requirements of several regulatory agencies. Please check with your local governing body to determine what is permissible in your area.



Step 13A: 2 Anchor Vehicles

Requirements: **Each anchor vehicle** must have a curb weight of **7000 lbs** (3175 kg) and a **Class 3** or greater 2” receiver hitch.

1. Position the 2 vehicles side-by-side so that the receiver hitches are 142’-6” (43.4m) from the end of the trailer as measured with the included tape
2. The distance between the 2 anchor vehicles should be parked 10’- 15’ (3 – 4.5m) apart when measured from **hitch-to-hitch**. This will allow adequate space between cables for the optional inflatable targets.
3. Install an Auto-Tensioning Device (ATD) into the receiver hitch of each vehicle and secure with a hitch pin and R-clip
4. Remove the pin from the lower portion of the **handle** on the ATD. This single hole in the handle will be the main connection point for the steel zip line ride cable.
5. Remove the pin from the lower series of holes that are arrayed in a half circle pattern
6. Connect the steel ride cable:
 - a. One employee will pull the handle towards the tower
 - b. Another employee will pull the steel ride cable towards the ATD
 - c. Place the thimble end of the cable thru the handle and pin it. Be sure to install the “R” clip pin.



- d. Release the handle after the cable is pinned allowing the ATD to properly tension the cable
 - e. The optimal position for the ATD handle at this point is very near 90°. The ATD gas shocks should not be fully extended allowing the handle to rest on the hitch side of the device. To micro adjust:
 - i. Unhook the zip line cable and move the tow vehicle a few inches as needed
 - ii. **Never** move the vehicle while the cable is connected to the ATD!
 - f. Now that the zip line cable has been properly tensioned, place the lower pin thru any set of aligned holes to lock the tension. Be sure to install the “R” clip on the pin.
 - g. Connect the back-up cable leg to the hitch safety chain loop on the vehicle using a rated quick link
7. Immediate secure the anchor vehicles by completing the following:
- a. Place the vehicles in “park” for automatic transmissions or in 1st gear for a manual
 - b. Remove the ignition keys and place in the tool box of the Mobile Zip Line™ trailer
 - c. Set the vehicle “Emergency Brake”
 - d. Place wheel chocks behind the rear tires.
8. Continue to disable the vehicle by choosing **2** of the following actions:
- a. Install a steering wheel lock
 - b. Place a “Caution” sign over the steering wheels
 - c. Lock the vehicle doors
 - d. Disconnect a battery cable or engage a battery disconnect switch
 - e. Place a wheel boot on the anchor vehicle



Step 13B: D.A.S.H.

It is possible to anchor the Mobile Zip Line™ with 1 vehicle and a Dual Anchor Single Hitch (DASH) adapter device. Requirements: **Anchor vehicle** must have a curb weight of **7000 lbs** (3175 kg) and a **Class 3** or greater 2” receiver hitch. Only OEM DASH components should be used.

1. The DASH allows for a small degree of misalignment between the zip line structure and tow vehicle, but position the anchor vehicle as closely in line with the zip line trailer as possible
2. Measure out 142'-6" (43.4m) from the end of the trailer to the receiver hitch on the anchor vehicle
3. Attach the center mount plate of the DASH to the receiver hitch of the vehicle and secure with a hitch pin and R-clip
4. Attach the 2 pivoting arms to the center mount plate using the 2 large pins and be sure to secure in place with the R-clips
5. Lower the stabilizer jacks on the pivoting anchor arms and secure with the U-pins
6. Place the yellow wheel chock bar in front of the rear axle, and adjust the chocks so that the alignment tab is pressing snugly against the inside of the tires. On dual axle vehicles the tab should be pressing against the inside of the outer tire.
7. Stretch a rated chain on each side between the notches located on the outer ends of the pivoting arms and wheel chock. For initial setup adjust the chain length so that the arms are perpendicular.
8. Attach the ATDs to each pivoting arm following the instructions in 13A, steps 3 thru 6d
9. The optimal position for the ATD handle at this point is near 90° or vertical. The ATD gas shocks should not be fully extended allowing the handle to rest on the hitch side of the device. If the gas shocks are fully extended you may need to slightly tighten the cable line.
 - a. Remove the chain from the notch on the wheel chock and retain a firm grasp on it
 - b. Another employee should assist by slowly pushing the pivoting arm in the direction of the vehicle to tighten the line
 - c. Continue adjusting the pivoting arm position until the ATD handle is near 90°
 - d. Place the chain back in the notch on the wheel chock to retain this tension level
 - e. Now that the zip line cable has been properly tensioned, connect the loose chain ends back to the tightened cable using the included quick-links.



10. Attach the backup cable leg to the quick-link on the end of the chain.

Step 13C: Water Ballast Anchor

The Spectrum Sports Intl Water Ballast Anchor is designed to replace a 7000 lbs (3175 kg) vehicle in the setup process. It may be used in several approved configurations:

- 1 Water Ballast for 1 zip line cable
- 1 Water Ballast & 1 Vehicle for 2 zip line cables
- 1 Water Ballast & the DASH for 2 zip line cables

Water Ballast installation is as follows:

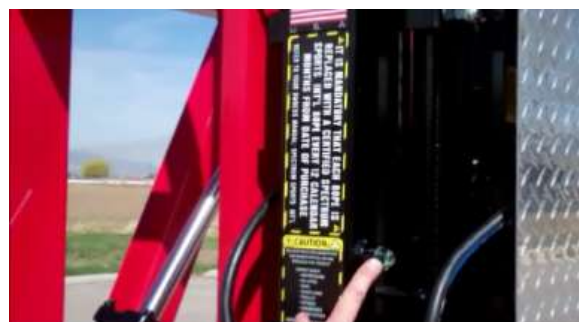
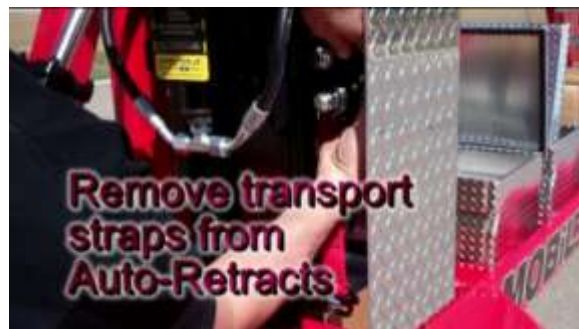
1. Remove the vinyl tank and steel support frame from the transport location on back of the zip line trailer
2. It is easier to drop the tank frame in the approximate location before positioning the zip line trailer
3. Measure out 142'-6" (43.4m) from the end of the trailer to the front of the Water Ballast frame
4. Assemble the steel support frame
 - a. layout the 2 bottom side base pieces
 - b. Stack the floor on the base pieces
 - c. Stack the front frame section on the side base pieces with the receiving hitch facing the zip line tower
 - d. Reconfirm the measurement of 142'-6" (43.4m) from the end of the trailer to the receiver hitch on the support frame
 - e. Stack the rear frame section on the base
 - f. Insert the side bars
 - g. Stack the 2 top side pieces
5. Unroll the tank and hang on the frame hooks
6. Fill with water to the top of the tank
7. Secure the optional vinyl cover over the tank
8. At this point cable attachment will depend on the configuration
 - a. See 13A, 3-6 if anchoring a single line
 - b. See 13B if anchoring both lines with a DASH



Step 14: Inflatable Targets

The Inflatable Targets add an element of fun to the Mobile Zip Line™. They are not intended as stopping devices. They are purely cosmetic in nature, and an operator may choose to omit their use. Setup is as follows:

1. Remove the inflatable targets and blower(s) from the transport location on the zip line trailer
2. It may be easier to transport these items from the trailer to the setup location by placing them in the back of your tow vehicle as outlined in Step 10
3. Measure out roughly 90' from the end of the trailer to the front of the inflatable targets
4. Remove from storage bags, unfold, and position each inflatable under a zip line cable
5. Unfasten the Velcro straps on top of the targets
6. Pull the Velcro straps over the top of the cables and refasten AFTER THE CABLES HAVE BEEN PROPERLY TIGHTENED
7. Connect the inflatable blowers (not included) to the inflate tubes located on the back of the targets.
 - a. 2 separate 1/4hp blowers may be used to inflate the targets
 - b. A single 1hp or greater blower may be used to inflate both targets if they are connected in series using the extra rear inflate tubes
 - c. All blowers should be connected to a grounded power source
8. Inflate targets
9. Position targets so that the zip line cables do not rub on the inside of the target notches.
10. Position targets so that a maximum weight zip line rider will stop just short of touching the target. This may take some testing & adjustment
11. Anchor the 4 corner straps with stakes, ground weights, or sandbag ground anchors
12. Keep the inflatable targets clean and dry



Step 15: Auto-Retract® Inspection

The following inspections must be completed for each Auto-Retract® safety system before the zip line is put into daily operation.

- Remove the transport straps from the Auto-Retract® trolley cart.
- Check the air pressure gauge to confirm that it reads within the safe operating range or 55-65 psi.
 - Air may be added via the Schrader valve stem opposite the gauge
- Check the oil sight eye for fluid. It is dyed a blue color and must register as visible in the bubble sight eye. To add oil:

- First release the air pressure using the previously mentioned Schrader valve
- Remove the cap on top of the tank
- Slowly add ISO 32 hydraulic fluid until the fluid level is visible in the sight eye. There should be enough residual blue dye in your tank to change the naturally golden color of the new fluid to blue
- Replace the cap on top of the tank
- Re-pressurize the tank to 55-65 psi by adding air to the previously mentioned Schrader valve
- Additional Auto-Retract® preparation will be addressed later and must be performed before the unit will be ready for use

Step 16: Preparing the Tower Gear

Remove the tower gear from the tool box and sort in preparation for ascending the tower stairs.

- 2 Trolleys
- 2 Rider Lanyards
 - Attach a steel auto-locking carabineer to the large grey loop, red loop, and any one of the smaller daisy chain loops
- 1 Full-Body Harness for operator
- 1 Operator Lanyard
 - Attach a steel locking carabineer to each end.

The tower employee will attach this gear to the tower after completing step 17.

Step 17: Employee Safety Connection

It is good procedure and the requirement of several regulatory agencies that the tower employee should always wear a full body harness when working at heights.

1. The operator lanyard is connected to the d-ring on the back of the harness by carabineer or a simple hitch knot may be used
2. Connect this lanyard before putting on the harness, or have a second operator assist with the lanyard connection to the back d-ring
3. Operator ascends the tower stairs
4. The operator lanyard is connected to the operator safety rail on the top of the tower.



- a. Thread the end of the lanyard over the bar on the operator safety rail.
- b. Connect the end of the lanyard to itself using a steel locking carabineer.
- c. The operator lanyard should not have slack.

Now that the tower employee is safely secured they are free to complete the zip line setup.

Step 18: Trolley Inspection/Connection

Inspect the trolley before connecting:

1. Steel connection points should not show signs of wear (grooves or key-holing)
2. Bearings should spin quietly and smoothly

Installation is as follows:

1. The hole on top of the trolley carriage should be on the tower side
2. Remove the R-clip and pin located part way down the trolley handle assembly, and keep in a safe and convenient place such as a pocket
3. Split the trolley halves apart by pulling lightly on the handles
4. Place the trolley over the cable and slide the halves back together
5. Keep a firm grasp on the trolley as it is free to roll down the zip line cable at this point!

Step 19: Attach Rider Lanyard

1. Attach the primary connection point of the lanyard (small red loop) to any of the 3 holes on the bottom of the trolley using a steel auto-locking carabineer

Tip: Slip the bottom loop of the lanyard around the handle on the tower bucket to keep the trolley from rolling away. This will give you both hands to work with for the next step.

2. Attach the large back-up loop of the lanyard to the top hole on the trolley by opening the carabineer gate, clipping around the ride cable, and then threading the nose of the carabineer thru the upper holes in the steel plates of the trolley.

Tip: Lift the front pulley wheel up, which in turn lowers the rear connection hole which in turn makes this step significantly easier.



At this point you should have a primary connection and a loose back up lanyard connection.

Step 20: Attach the Auto-Retract® Brake Rope to the Trolley

1. Thread the thimble loop of the Auto-Retract® brake rope thru the carabineer of the backup lanyard connection and between the side-plates of the trolley (see photo).
2. Insert the pin from Step 18 thru the trolley side plates and the thimble loop of the Auto-Retract® rope and secure with the r-clip. Always pin the r-clip so that it's visible to the operator during use.



Step 21: Auto-Retract® Priming

The Auto-Retract® braking device utilizes 2 hydraulic cylinders that absorb the energy of the zip line rider. These cylinders must be primed each day before opening the zip line or between cycles of raising/lowering tower.

1. The tower operator will pull out the Auto-Retract® rope by hand as gravity carries the trolley down the line.
 - a. The tower employee will inspect the rope as he pulls it out from the device
 - b. The ground employee will check that the rope is traveling freely thru the pulley blocks below on the trailer
2. The tower employee will eventually encounter resistance as he pulls out the rope. This is the braking portion of the ride which compresses the mechanical springs and hydraulic cylinders of the Auto-Retract®.
3. The tower employee will prime the Auto-Retract® cylinders by pulling on the rope thru this resistance phase until the rope will no longer spool out.

Tip: It may be easier to have an employee on the ground pull the rope out thru this resistance phase.
4. Let the rope retract back into the device 18ft (5.5m), and then repeat step 3. This should be repeated 3 times or until you are satisfied that the hydraulic cylinders are producing consistent resistance.
5. Allow the Auto-Retract® rope to fully retract into the device.

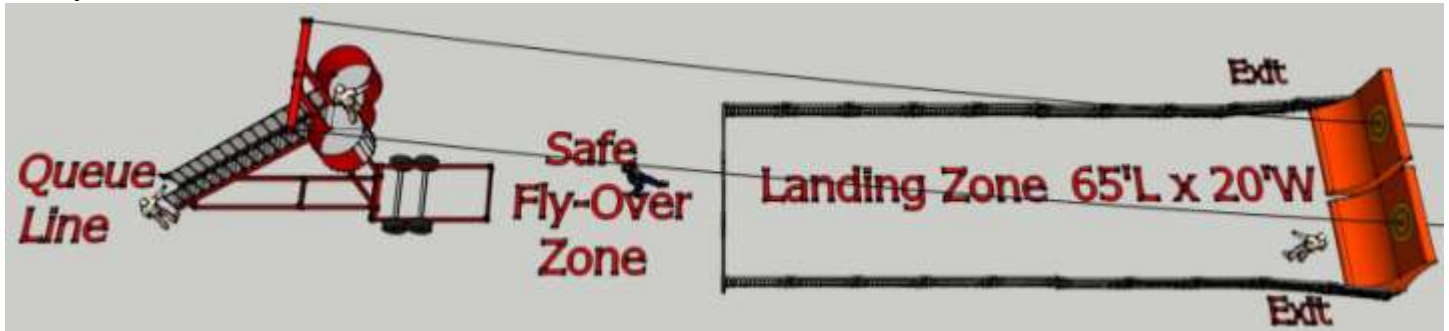


- 6. Repeat on the other zip line cable as each line has its own independent Auto-Retract® braking device.

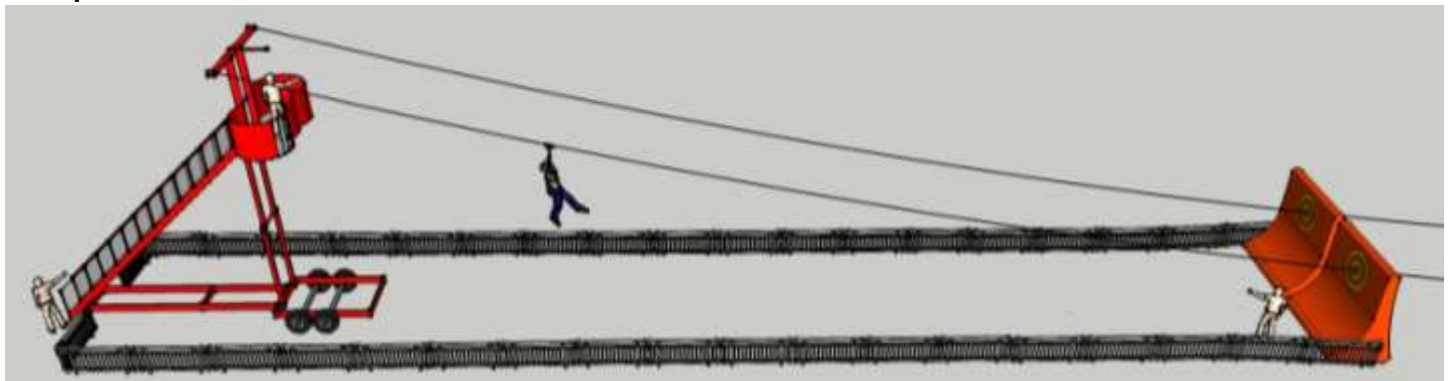
Step 22: Fencing

Check with your local governing body to determine what is required in terms of fence style. You may or may not be required to use ASTM event fencing in your area. We require that you at a minimum safely secure the Landing Zone (Example A). This is the 65' x 20' (20m x 6m) area from the inflatable targets forward towards the trailer. At least one rider exit should be located on either side of this fenced area. Some local governing bodies may require you to fence a larger area such as Example B.

Example A



Example B



Fencing stores nicely on the Mobile Zip Line™ stairway when the trailer is in the transport mode.

INSPECTIONS



ASTM Requirements for Owner/Operator Responsibilities:

“Owner/operators of amusement rides or devices shall have an inspection program consistent with the inspections outlined in Practice F 853 & Practice F 770. Inspection documents deemed appropriate by the owner/operator to be maintained in the ride file shall be filed in accordance with the procedures outlined in Practice F 770 and Practice F 853. The owner/operator of an amusement ride or device shall promptly notify the manufacturer of an incident, failure, or malfunction which, in his judgment, seriously affects the continued proper operation of the ride or device and is information of which the manufacturer should be aware.”

(Ref: *ASTM International Standards on Amusement Rides and Devices*: 7th Edition, Sections: 5.2.1-5.2.3)

Inspections

Inspections of the Mobile Zip Line™ and Auto-Retract® must occur on a daily/quarterly/annual basis to ensure continued, safe operation. These guidelines are a minimum. Take caution to ensure that any and all working parts and safety related products are thoroughly inspected and that all bolts and pins are secure before use.

Quick Reference for Inspection Checklists			
Inspection Item	Daily	Quarterly	Annual
Operating Area	✓		
Tower Locks	✓		
Guy Cables	✓		
Steel Ride Cables	✓		
Inflatable Targets (if used)	✓		
Auto-Retract® Ropes	✓		
Auto-Retract® Air Pressure	✓		
Auto-Retract® Hydraulic Fluid	✓		
Auto-Retract® Priming	✓		
Lanyards	✓		
Auto-Locking Carabineers	✓		
Trolleys	✓		
Compression Damping Coil Springs		✓	
Pulleys and Pulley Cart		✓	
Auto-Retract® Hydraulic Hoses		✓	
Hardware		✓	
Visual Inspection		✓	
Clean the Mobile Zip Line™		✓	
Replace Steel Ride Cables			✓
Replace Auto-Retract® Ropes			✓
Replace Critical Hardware			✓

DAILY INSPECTION CHECKLIST

Operator: _____

Date: _____

Operating Area
 Firm, level, and dry ground. Free of overhead obstructions. Winds under 30mph. No lightening.

1	2	Tower Locks
		Positioned and locked around tower mast for operations.

1	2	Guy Cables
		Inspect for flat spots, broken strands, twists, kinks, or bird-caging (page 30). Properly tensioned for operations (page 11).

1	2	Steel Ride Cables
		Inspect for flat spots, broken strands, twists, kinks, or bird-caging (page 30). Properly connected and tensioned for operations (pages & 12-13).

1	2	Inflatable Targets (if used)
		Properly anchored with stakes, ground weights or anchors, or sandbags. Blower(s) is connected to a grounded power source.

1	2	Auto-Retract® Ropes
		Inspect for cuts and frays. Inspect knots on each end: should be figure-8 with at least 2" tail or sewn end. Properly connected to trolley (page 19).

1	2	Auto-Retract® Air Pressure
		Check each air pressure gauge to confirm that they read in the range of 55-65 psi. <i>Write the actual reading in the box to the left, not a check mark!</i>

1	2	Auto-Retract® Hydraulic Fluid
		Blue-tinted hydraulic fluid should be visible in the oil sight eye when the tower is upright.

1	2	Auto-Retract® Priming
		Ensure that the Auto-Retract® has been properly primed (page 19)

Lanyards
 Inspect the 2 rider lanyards and 1 operator lanyard to ensure that there are no cuts, frays, or loose stitching.

Auto-Locking Carabineers
 Inspect for surface rust, pitting, or any wear in the metal. Gate automatically snaps closed.

1	2	Trolleys
		Connection points should not show signs of wear (grooves or key-holing). Bearings spin freely and quietly. Properly installed on ride cables (page 18).

QUARTERLY INSPECTION CHECKLIST

Operator: _____

Date: _____

In addition to Daily Inspections:

1	2	Compression Damping Coil Springs
		Check for cracks or signs of wear or fatigue.

1	2	Pulleys and Pulley Cart
		Check all pulleys (including 2 on tower) for wear, chipping, or cracking. Ensure that the pulley cart is free from debris, and make sure that it is not obstructed in any way. Check bearing wheels for signs of wear and conform there is proper contact with the track.

1	2	Auto-Retract® Hydraulic Hoses
		Inspect for leaks around the fittings. Tighten and document any alterations to the system.

1	2	Hardware
		Inspect the following critical hardware: 12" bolts thru pulleys on the Auto-Retract®, 2 bolts thru tower pulleys, bent-pull pins (4 on tower, 4 on ATDs).

1	2	Visual Inspection
		Visually inspect all structural components and welds for damage, deflection, or cracking.

1	2	Clean the Trailer and Zip Line
		Use mild detergents.

ANNUAL INSPECTION CHECKLIST

Operator: _____

Date: _____

In addition to Daily & Quarterly Inspections:

1	2	Steel Ride Cables
		Replace both steel ride cables

1	2	Auto-Retract® Ropes
		Replace both Auto-Retract® ropes. Inspect knots and connection points.

1	2	Hardware
		Replace the following critical hardware: 12" bolts thru pulleys on the Auto-Retracts®, 2 bolts thru tower pulleys, bent-pull pins (4 on tower, 4 on ATDs).

Rope Inspection Guidelines

WARNING

THE IMPROPER USE OF ROPE IS

DANGEROUS

FIBER ROPE WILL FAIL IF WORN, DAMAGED, ABUSED, OVERLOADED OR NOT PROPERLY MAINTAINED.

Rope Failure Can Cause Serious Injury or Death.

**Please read this
before using any
fiber rope**

- USER is responsible to determine suitability of a rope for specific applications.
- KNOW the working load limit (WLL) of your rope. Get WLL from manufacturer or supervisor.
- USE ONLY rope in good condition, without cuts or pulled strands.
- DO NOT exceed WLL or shock load.
- DO NOT stand within recoil (snapback) area.
- DO NOT use over rough surfaces without chafe protection.
- USE sheaves with a minimum of 8 times the rope diameter.
- DO NOT bend around unprotected, sharp, corners.

*There are many standards and guidelines for the use of rope in specific applications.
Contact the Cordage Institute: 994 Old Eagle School Road, St. 1019, Wayne, PA.
19087-1866. Tel: 610-971-4854; Fax: 610-971-4859; Email: info@ropecord.com*

FOLLOW THESE RULES FOR SAFETY AND GOOD CARE OF ROPE



Make sure your rope size is adequate for the job. **DON'T USE TOO SMALL A ROPE.** A table of specifications is available from your dealer, distributor, or the manufacturer.



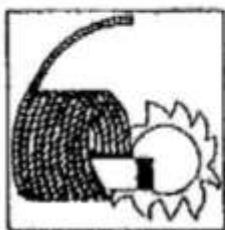
Keep rope clean. Don't drag rope over ground or other rough gritty surfaces. This allows abrasive particles to work into the rope and damage fibers.



Uncoil rope properly. Lay coil flat with inside end of rope nearest the deck. Loosen lashings and covering. Reach down through center of coil and pull rope up through from inside the coil.



Prevent kinks, which cause permanent damage and weakening of the rope. If rope is continually twisted in one direction, as over a winch, counteract by throwing in twist in opposite direction.



Dry rope before storing. Manila ropes mildew and decay if stored wet; a cool, dry room with free air circulation provides the best storage. Do not store in direct sunlight.



Protect rope from chemicals such as acids, alkalis, oils, paints and other agents not chemically neutral.



Reverse rope ends regularly, particularly when used in tackle. This permits even wearing and assures longer useful life.




Avoid sudden strains. Shock loading, as jerking, may cause failure of a rope normally strong enough to handle the load. When using tackle or slings, apply a steady, even pull to get full strength from rope.

CAUTION: Heat can seriously affect the strength of synthetic ropes. The temperature at which a 50% strength loss can occur are:

Polypropylene: 200 F	Nylon: 300 F	Polyester: 350 F
Kevlar/Technora: 400 F	Dyneema/Spectra: 150 F	

Cable Inspection Guidelines

 A rigorous inspection routine is not only recommended, but required. Proper inspection will eliminate the chance of using a wire rope beyond its useful life. The inspection routine listed is the procedure that should be followed rigorously. This inspection method is visual and adheres to the applicable standards published in the United States.

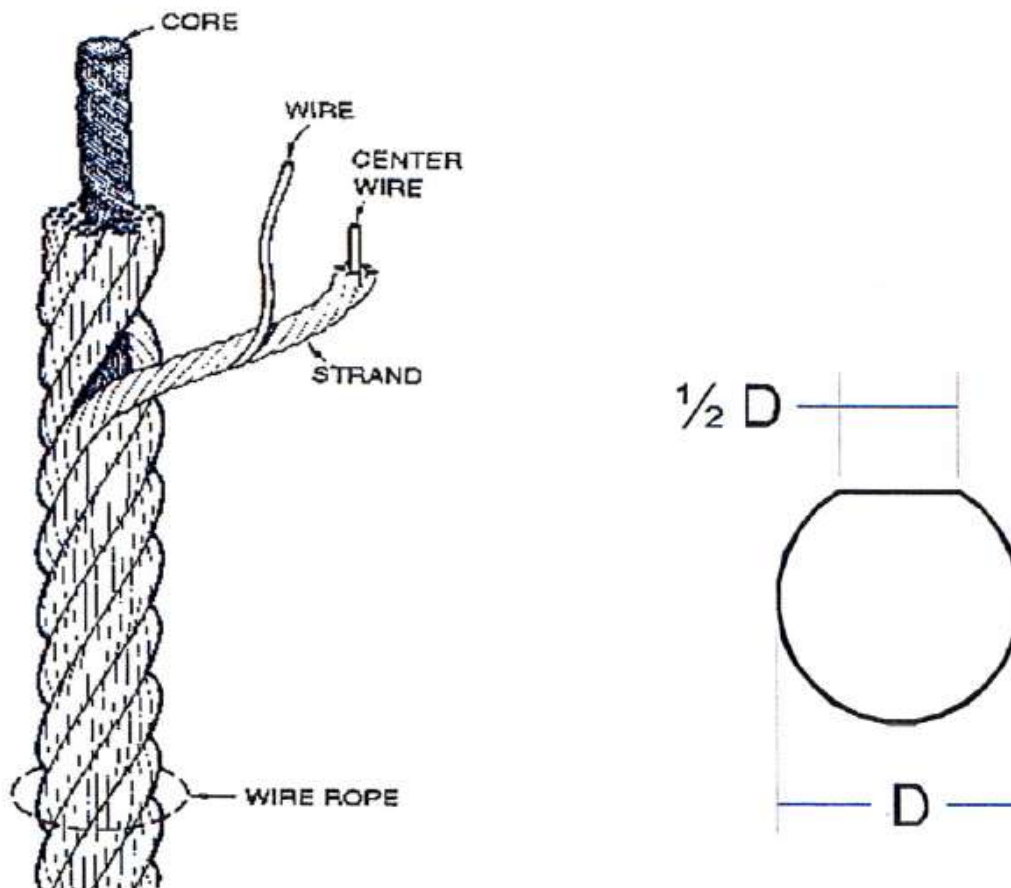


Figure 5.0 - Single Wire Inspection Criteria for the zip line wire ropes.



Replace the cable if any of the following conditions are true:

(Refer to Figure 5.0)

1. If any of the individual wires in a strand have a flat spot of more than $\frac{1}{2}$ the diameter of the smallest wire as shown in Figure 5.0.
2. If there is a single broken wire in any strand.
3. If there are 50,000 or more cycles on a cable.
4. If the cables have been on a Mobile Zip Line™ for 1 year (12 months).
5. If there are any twists, kinks, flat spots, or bird-caging.

Wire Rope Inspection Criteria recommended by various agencies and Manufacturers, Governing agencies in the United States have published guidelines pertaining to wire rope use, maintenance, inspection, and general specifications. Further, most wire rope manufacturers have additional guidelines for the use, maintenance and inspection of their cables. These guidelines and codes set precedence for the industry standard methods of use, maintenance and inspection of wire ropes. Deviation from these recommendations would be viewed as questionable by most engineers with experience in the industry.

To justify the inspection method recommended by Spectrum Sports Intl, the most noted codes and guidelines have been obtained and read by SAE Inc. engineers. The codes obtained by SAE Inc. engineers include:

- a. **ASME (American Society of Mechanical Engineers) International Publication**
ASME/B30.5c – Mobile and Locomotive Cranes, 1998, ISBN#: 0791822753
 This code is a revision of the ASME/ANSI B30.5-1989. It applies specifically to applications similar to the Space Shot™ ride.
- b. **Wire Rope Technical Board**
Wire Rope Users Manual, Third Edition, 1993
 This test gives a summary compilation of the recommended practices for wire rope use in general applications.
- c. **OSHA Wire Rope Excerpts** – General Standards, Vol. 37, Number 202, Oct. 1972.
 This general standard is a compilation of the ASME/ANSI standards that exist now as the SME/B30.XX series. These are the forerunner to current standards.
- d. **Leeschen Wire Rope Company**
 “Wire rope Inspection”, Report #107. This report gives guidelines to the inspection methods appropriate to identify wire rope damage.

Each of these codes specifies, in general, the same criteria for inspection of wire ropes. Additional ASME codes specify inspection criteria for additional applications including, but not limited to personnel hoist (elevators), overhead cranes, material hoist, etc. The ASME code governing Mobile and Locomotive Cranes is very stringent. It is the most stringent code that has any applicability to the zip line. The highlights of the inspection guidelines/codes listed above are included in the next table of this document to set a comparison reference for Spectrum Sports Intl guidelines. Note that the inspection procedures outlined in the referenced codes are all visual inspections.

Comparison of Wire Rope Inspection Criteria

Inspection Criteria Requiring Rope Replacement	ASME/B30.5c Cranes	Wire Rope Users Guide, 3 rd Edition
Length of Wire Rope Service	No specifications given.	No specifications given.
Abrasion	1/3 diameter worn on any wire. (see figure below)	1/3 diameter worn on any wire, see specific governing code.
Rope Stretch	No specifications given.	When the rate of stretch increases after initial break-in period.
Reduction in Rope Diameter	1/48" on cables ¼" diameter	When accompanied with significant rope stretch; otherwise not specific.
Corrosion	Not specific	If accompanied by metal pitting; if rust exists.
Kinks, Twists, Crushing	Any – replace wire rope.	Any – replace unless cable is repairable.
“Bird Caging”	Any defect – replace unless defect can be removed	Any defect – replace unless defect can be removed
Heat/Electrical	Any – replace wire rope.	If wires are fused or discolored.
Broken Strands	Rotation resistant ropes: 2 wires in 6 rope diameters – and 4 wires in 30 rope diameters. New criteria: 4 broken wires in one lay-length and 2 broken wires within 1 strand within 1 lay-length	See Specific Code
Damaged End Attachments	If non-repairable, replace wire rope	See specific code
Non-destructive	None specified	None specified

The ASME/B30.5 inspection criterion is very specific on the visual inspections required. The code is specifically designed to allow an inspector to accurately infer the status of the wire rope core from a thorough inspection of the wire ropes broken wires in a strand, abrasion of the wires in the strands, and the change in the diameter of the overall rope. The inspection criterion requires a thorough visual inspection of the rope.

The number of broken strands is a key aspect of all of the ASME codes. A summary of the ASME code allowable broken strands is included here due to the primary role it plays in determining the integrity of the rope core.

ASME Code governing when to replace Wire Rope - Based on number of Broken Wires


ASME Standard	Equipment Connection	Number of Broken Wires In Running Ropes		Number of Broken Wires In Standing Ropes	
		<u>In One</u> Rope Lay	<u>In One</u> Strand	<u>In One</u> Rope Lay	<u>In One</u> Strand
ASME/B30.2	<i>Overhead & Gantry Cranes</i>	12**	4	Not Specified	
ASME/B30.4	<i>Portal, Tower & Pillar Cranes</i>	6**	3	3	2
ASME/B30.5	<i>Crawler, Locomotive & Truck Cranes:</i> Retirement criteria based on number of broken wires rev B. Rotation Resistant Rope found in length of rope equal to 6x rope diameter – 2 broken wires maximum; and 30x rope diameter – 4 broken wires maximum.				
ASME/B30.5	<i>Running Rope</i>	6**	3	3	2
ASME/B30.6	<i>Derricks</i>	6**	3	3	2
ASME/B30.7	<i>Base Mounted Drum Hoists</i>	6**	3	3	2
ASME/B30.8	<i>Floating Cranes & Derricks</i>	6**	3	3	2
ASME/B30.16	<i>Overhead Hoists</i>	12**	4	Not Specified	
ANSI/A10.4	<i>Personnel Hoists</i>	6**	3	2**	2
ANSI/A10.5	<i>Material Hoists</i>	6**	Not Specified	Not Specified	


**Also remove for 1 valley break.

Trailer Inspections

Use the following Chart to assist you with your inspections.

Mobile Zip Line™ Trailer Inspection Checklist			
Inspect this:	Daily	Weekly	Quarterly
Travel straps secured on Auto-Retracts®	X		
Tower lock secured around handles on buckets for transportation	X		
Ensure the entrance gate is locked for transportation	X		
Check hitch to ensure that pins are secure and in tow position	X		
Check tool box for contents and ensure lid is locked down	X		
Tire Pressure	X		
Lugs nuts	X		
Trailer Plug	X		
Trailer Lights	X		
Trailer Brakes	X		
2-Button Remote Pendant (be sure to have this before leaving for a event)	X		
Check Battery for full charge	X		
Trailer welds		X	
Pivot welds		X	
Spare Tire for air pressure (see tire for specs)		X	
Stair way and platform welds		X	
Hydraulic Hoses on the lifting pump for leaks		X	
Clean all steel and handrail		X	
Axle Brakes			X
Axle Bearings			X
Upper pivot, grease			X
Fluid in lifting pump (ISO 32)			X
Jacks- Grease & Lube if needed			X
Hydraulic Lifting cylinders on trailer-check welds			X

 Spectrum Sports Intl recommends the following inspection for the Mobile Zip Line™. It is your responsibility to ensure that you follow our recommendation. Failure to comply will result in non-compliance and therefore no manufactures liability coverage.

 Be aware of the location of these stickers and follow their instructions:

Mobile Zip Line™ Stickers



Auto-Retract® Stickers

CAUTION:

YOU MUST READ AND UNDERSTAND THE OWNERS MANUAL BEFORE OPERATING THIS PRODUCT

INSPECT DAILY:

- AIR PRESSURE
- OIL LEVEL
- ROPE
- QUICK LINKS
- TROLLEY
- TETHERS
- CARABINEER
- PRIME SYSTEM

REFER TO OWNERS MANUAL FOR INSPECTION PROCEDURE

DO NOT USE THIS PRODUCT UNTIL INSPECTION HAS BEEN COMPLETED

SPECTRUM
SPORTS  INT'L
www.spectrumsports.com

CAUTION:

OWNERS RESPONSIBILITY TO FOLLOW RECOMMENDED MAINTENANCE SCHEDULE. REFER TO OWNERS MANUAL

REPLACE ANNUALLY:

- RETRACT ROPE
- TENSION CABLE
- TETHERS

SPECTRUM
SPORTS  INT'L
www.spectrumsports.com

AIR PRESSURE RANGE
55-65 PSI
3.8-4.5 bar

ROPE LENGTH

WARNING

ALWAYS SECURE SAFETY STRAP FOR TRANSPORTING

Non Destructive Testing (NDT)

Spectrum Sports Intl does not require NDT on the Mobile Zip Line™.

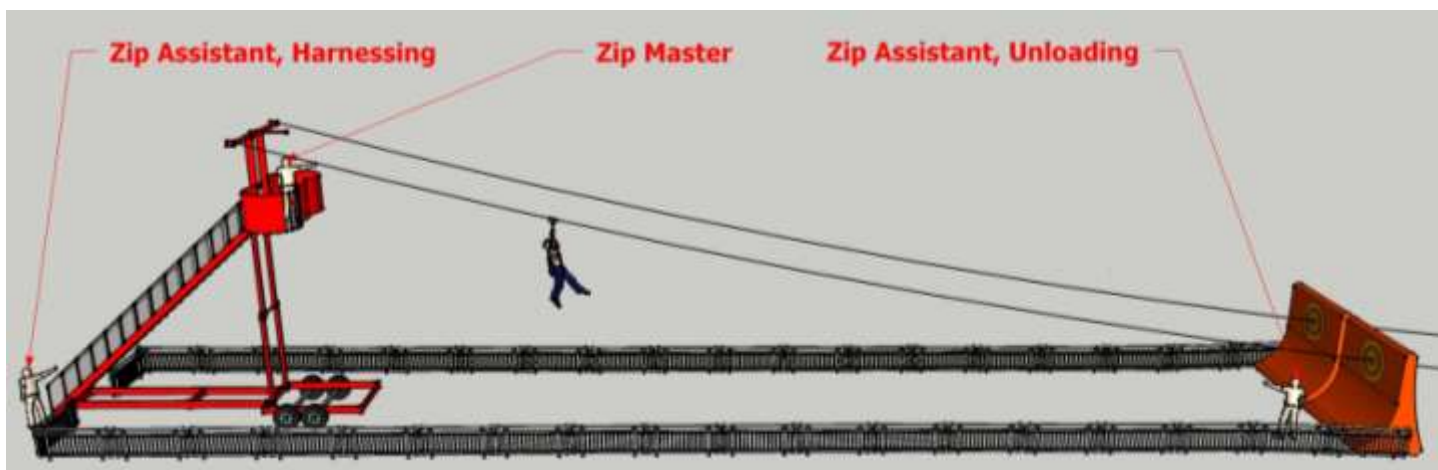
Spectrum Sports Intl requires the owner/operator to visually inspect all structural members and welds on the Mobile Zip Line™ trailer and tower on an ongoing quarterly basis.

These weekly, quarterly, and annual inspections must be completed to ensure safe operations.

OPERATIONS

Operator Requirements & Duties

For safe and efficient operations SSI recommends **3 operators** for the Mobile Zip Line™.



Zip Assistant, Harnessing - The role of the Zip Assistant, Harnessing, is as follows:

- Keeps the queue line and harness area in order
- Collects any tokens, tickets, or money for the Mobile Zip Line™ ride
- Verbally explains to the rider the Warning and Rules Sign and what to expect from the ride
- Harnesses the riders
- Admits the riders thru the gate onto the stairway

Zip Master - The role of the Zip Master is as follows:

- Knows and understands how to safely **transport** the Mobile Zip Line™
- Knows and understands how to **setup** the Mobile Zip Line™
- Knows and understands how to **inspect** the Auto-Retract® Safety System and Mobile Zip Line™
- Knows and understands how to **take-down** the Mobile Zip Line™
- Reconfirms that each rider is properly harnessed and aware of Warning and Rules Sign
- Connects riders to the zip line and gives final instructions before take-off
- Controls the flow of riders from the zip line tower
- Monitors that the Auto-Retract® Safety System is properly retracting the trolley

Zip Assistant, Un-loading - The role of the Zip Assistant, Unloading, is as follows:

- Disconnects the rider from the trolley lanyard once they arrive at the bottom of the ride
- Directs the rider safely out of the Landing Zone
- Keeps the Landing Zone free and clear of any objects and people

Ultimately it is the operators' responsibility to ensure that each Mobile Zip Line™ rider has a safe and enjoyable experience.

Rider Restrictions

- Rider weights between 40 lbs – 250 lbs (18kg – 113kg)
- 2 riders at a time permissible if combined weight is 250 lbs (113kg) or less
- Rider heights between 3' – 6'8" (91cm – 203cm)
- Long hair must be secured
- Riders cannot be under the influence of any substance
- Riders must be able to follow all verbal instructions from operators
- Riders are prohibited if they have health problems such as head, neck, back, or limb injuries; a heart condition; or are pregnant.
- Riders must have sufficient limbs to wear a full-body harness

Ride Cycle

1. Rider enters the queue line
2. Any tokens, tickets, or money are collected if applicable
3. Zip Assistant verbally explains to the rider the Warning and Rules Sign



4. Rider confirms that they understand the Warning and Rules Sign
5. Zip Assistant explains what is to be expected during the zip line experience
6. The rider is harnessed. Sizes are as follows:
 - a. Small: 3' to 4' (91 to 120cm)
 - b. M/L: 4' to 6' (120 to 180cm)
 - c. XL: 5'8" to 6'8" (170 to 203cm)
7. Zip Assistant allows the current rider onto the stairway when the previous rider takes-off from the zip line tower or the Zip Master signals for them
8. Rider should make use of the handrails and use caution as they ascend the staircase
 - a. Queuing on the staircase is not allowed
9. Rider is directed by the Zip Master to the appropriate launch bucket

- a. Opposite bucket from the previous rider
 - b. Zip Master directs rider to stand on the center step and face them
 - c. Zip Master needs to be cognizant of the trolley returning behind him to the bucket opposite of the current rider
10. Zip Master reconfirms that the rider is properly harnessed
 11. Zip Master reconfirms that the rider understands the Warning and Rules Sign as previously explained
 12. Rider is connected to the trolley lanyard
 - a. Carabineer is placed thru the 2 red chest straps on the harness
 - b. The carabineer is connected to the highest loop possible on the trolley lanyard
 - c. Be sure that you hear the carabineer click into the locked position!
 13. Zip Master visually double-checks the following before opening the launch bucket:
 - a. Auto-Retract® brake line is properly secured to the trolley cart
 - b. Lanyard is connected to the trolley
 - c. Carabineer is properly connected to the lanyard and harness
 14. Zip Master instructs the rider regarding the proper protocol to follow during and after the zip ride. This includes the following:
 - a. Put both hands on the trolley or around the lanyard if you are not tall enough
 - b. Never attempt to grab the steel ride cable or Auto-Retract® brake line at any time
 - c. Take a natural step off the platform. Do not jump up as you leave the Mobile Zip Line™ platform.
 - d. Do not bounce while descending the Mobile Zip Line™
 - e. Keep your eyes and body focused towards the landing area
 - f. Keep your feet up & in front of you in a “Crunch” position while approaching the ground
 - g. Once you have stopped, put your feet down and stand to facilitate unloading
 - h. The rider should wait for an employee to disconnect them from the zip line
 15. Zip Master double-checks that the cable line is free from other riders or obstructions
 16. Zip Master rotates the launch bucket to the take-off position
 17. Rider leaves the tower platform and travels down the zip line
 18. Zip Assistant disconnects the rider from the trolley lanyard once they arrive at the bottom of the ride
 19. Zip Assistant directs the rider to exit the Landing Zone pay special attention to avoid other Mobile Zip Line™ riders who may be descending on adjacent lines
 20. As directed by the operator return to a safe area where the operator can assist with removing the harness.
 21. Make sure that the area is clear below the tower and launch buckets and the zip line area is clear before hooking up another zip rider.

 ***As an additional note, although helmets are not required, we strongly recommend their use.***

Emergency Evacuation Plan

In the event that a rider becomes stranded mid line, the following emergency evacuation plan is to be implemented:

1. Pull the Auto-Retract® line towards the tower to see if the trolley will roll backwards. This may be all that is needed to free an obstruction that may be jammed in the trolley preventing forward movement. Then allow gravity to carry the rider to the ground
2. If the trolley will not move forward, but it can be pulled backwards toward the tower, retrieve the rider by pulling on the Auto-Retract® brake line until the rider has been pulled back to the launch bucket.
3. If the trolley has become wedged, and will not move in either direction, call the local fire department. A bucket truck or ladder truck can be used as deemed appropriate to retrieve a stranded rider.

TAKE-DOWN

Step 1: Dismantle Inflatable Targets

The following steps need to be completed to start the tear down process.

1. Clean the inflatable from any foreign substance
2. Ensure the inflatable is dry before putting away. **Never store wet!**
3. Let the air out of the inflatable paying particular attention to ensure it does not hang on the cable
4. Roll/Fold up inflatable to the appropriate size to fit in the included bag
5. Put the bag on the trailer and strap securely
6. Store the inflatable's blower on the trailer or in a tow vehicle

Step 2: Remove the Trolley and Lanyard

Zip Master on tower can perform this step while Assistants are working on inflatable targets

1. Loop the end of the lanyard around the bucket handle to prevent the trolley from rolling down the line
2. Remove the R-clip and pin holding the Auto-Retract® brake line to the trolley
3. Connect the end of the Auto-Retract® brake line to the hook on the tower mast
4. Remove the 2 carabineers connecting the lanyard to the trolley (keep a hold of the trolley!)
5. Split the trolley side plates apart and remove the trolley from the zip line
6. Replace the R-clip and pin for the Auto-Retract® brake line back onto the trolley
7. Place the trolleys, lanyards, and carabineers in the tool boxes for transport and storage
8. Inspect all harnesses and store for travel (Never store wet!)



Improper storage and care for the trolleys, lanyards, carabineers, and harnesses will decrease the life expectancy of the equipment. Always store in a dry/clean environment!

Step 3: Detach the Cables from ATDs

1. Remove the quick link on the back-up cable leg
2. Remove the pin from the lower series of holes that are arrayed in a half circle pattern on the ATD
3. Disconnect the steel ride cable:
 - a. One employee will pull the handle towards the tower
 - b. Another employee will remove the pin connecting the steel ride cable to the handle
 - c. Cable will pull towards tower as the tension is released
4. Place pins back into the ADT.
5. Stow ATD on MZL trailer storage

Step 4: Dismantle Anchors

Dismantle will depend on which anchor method was employed

Step 4A: 2 Anchor Vehicles

- Retrieve the ignition keys from the tool box of the Mobile Zip Line™ trailer
- Unlock the vehicle doors
- Release the vehicle “Emergency Brake”
- Remove wheel chocks behind the rear tires and stow in the zip line tool box

The following actions will depend on which additional methods were selected to disable the vehicle:

- Remove the steering wheel lock
- Remove the “Caution” sign from the steering wheel
- Reconnect the battery cables or disengage the battery kill switch
- Remove the wheel boot from the vehicle

Step 4B: D.A.S.H.

1. Remove the ATDs from each pivoting arm after releasing the steel ride cables
2. Remove the chains from each side
3. Remove the yellow wheel chock bar from under the vehicle
4. Raise the stabilizer jacks on the pivoting anchor arms and secure with the U-pins
5. Remove the 2 pivoting arms from the center mount plate by pulling out the 2 large pins
6. Remove the center mount plate from the receiver hitch of the vehicle
7. Store parts in the tow vehicle

Step 4C: Water Ballast Anchor

1. Remove the vinyl cover from the tank and set aside to dry
2. Lift the tank D-rings off the corner hook and dump the water
 - a. Use a sump pump and hose if you need to control where it drains
 - b. Similarly siphon with a hose as a measure to control drainage
3. Remove the tank from the frame and allow to fully dry before storing
4. Disassemble the steel support frame and lay the pieces to the side:
 - a. Remove the 2 top tube frame pieces
 - b. Remove the side pipe bars
 - c. Remove the rear frame section from the base
 - d. Remove the front frame section
 - e. Slide the 2 base tube pieces out from under the floor
5. Stack the Water Ballast Anchor frame on the trailer
 - a. Use 2 employees to place the floor in the trailer and tighten wing nuts to hold it down
 - b. Slide the 2 base tube pieces into the rear frame and place on the floor
 - c. Slide the 2 top tube pieces into the front frame and stack on top
 - d. Place the tank, cover, and side pipe bars on trailer
 - e. Use a strap to secure

Step 5: Cable Storage

- Carefully roll up steel ride cables by hand or use the Cable Reel

Step 6: Disconnect Guy Lines

Loosen turnbuckles and disconnect the guy lines where they attach to the zip line trailer

Step 7: Unlock the Tower Mast

If the tower has been erected for several hours it may lose oil pressure to the hydraulic ram holding it up. This will cause the tower to fall several inches when the locks are removed from the tower mast. To prevent this use the remote pendent and give it a few light taps in the “up” direction before proceeding.

1. Position employee at the top of the stairs and locate the 2 yellow locks on either side of the mast
2. Remove the locking pins and rotate the yellow locks from around the tower
3. Rotate the locks around the bucket handles and pin in place to secure for transport



- If you are having difficulty with the hole alignment you may need to pull the bucket handle toward you
- Failure to unlock the tower prior to attempting to lower the tower may cause permanent damage to the trailer, upper, and stairway. This will void any and all warranties.

Step 8: Prep the Trailer for Lowering

1. Remove chocks from the front and back of the wheels as pictured, on each side of the trailer and place in the tool boxes
2. Remove the wheel locks between the wheels on each side and place in the tool boxes
3. Use the jack handles to raise each of the 4 stabilizing jacks as high as possible
4. Pull the jack drop leg pins, slide upward, and replace pins
5. Push in the outrigger jacks and pin tube in place



Step 9: Lower the Tower

1. All employees should be off the tower and trailer
2. **Close and secure the gate** with the latch or you'll break it off when you lower the tower!
3. **Close the tongue and secure** with the pin and R-clip. This is critical to complete this step prior to lowering the tower. Severe trailer damage will result if you do not close the tongue/hitch assembly!



OKAY TO LOWER

4. Remove the 2-Button Remote Pendant from the tool box and plug into the receptacle
5. Press the "DOWN" button and lower the tower until it rests on the trailer
 - a. **There are several pinch points on the Mobile Zip Line™ - Use extreme caution**
6. Remove the 2-Button Remote Pendant and store in the tool box

Step 9: Collect Remaining Tower Gear

Open the gate and walk up the stairs to the bucket area

Remove the following:

- Steel ride cables
- Guy lines
- Flags
- Shade Canopy (if applicable)

Lower Employee Safety Rail for transit

Reconfirm the buckets are locked in place

Step 10: Prepare for Transit

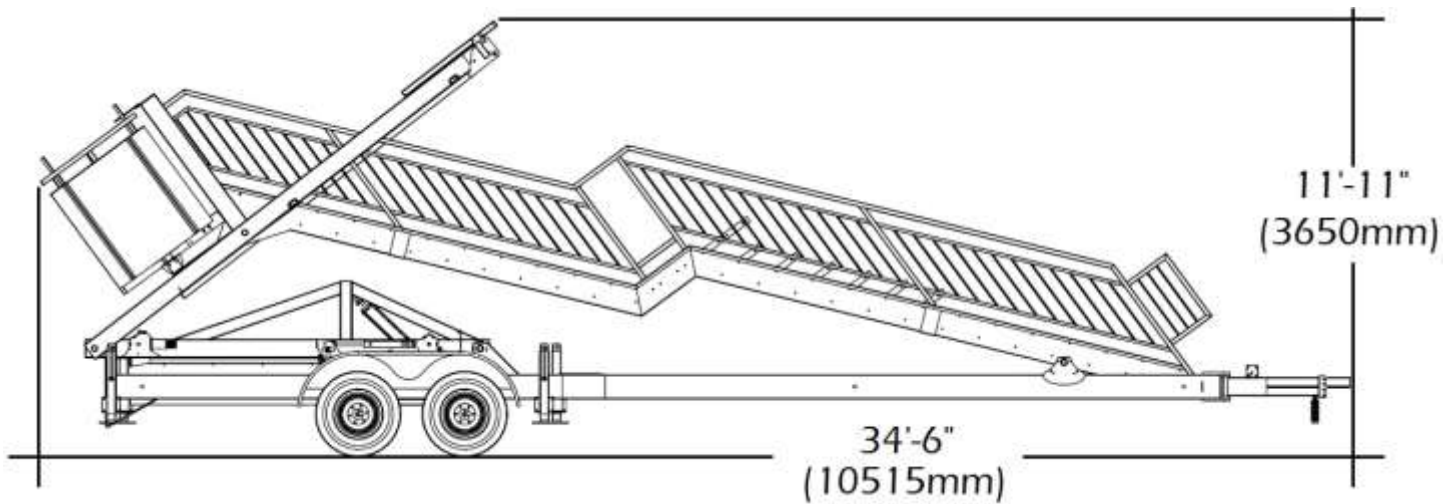
Carefully secure the Auto-Retract® carts with the red tie-down straps before transport

Confirm that you have the following stored for transport:

- ATDs
- Inflatable targets
- Zip line cables
- Zip line gear: trolleys, lanyards, carabineers, and harnesses
- Wheel chocks & tires locks
- Fencing

TRANSPORTATION

Transportation Dimensions



Length: 34'-6"

Height: 11'-11"

Width: 7'-6"

Weight: 7000 lbs

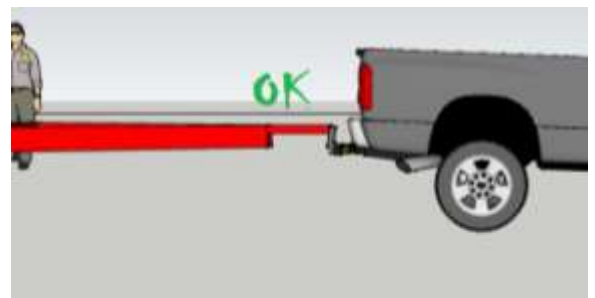
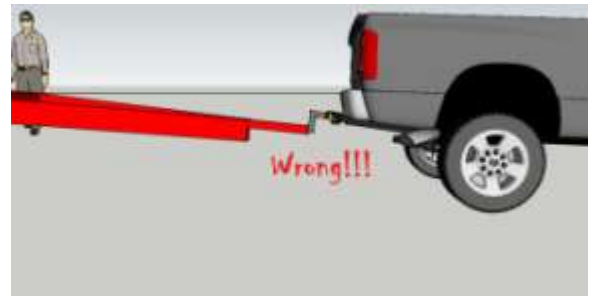
Step 1: Connect the Tow Vehicle

The Mobile Zip Line™ trailer is designed to be towed level with the ground. An adjustable hitch may be required depending on the height of the tow vehicle. The ball hitch should be between 18' -22" from the ground.

- Confirm that your tow vehicle is rated for 7000 lbs with a class 3 or greater hitch
- Confirm that you have the appropriate **2-5/16"** ball hitch on the tow vehicle

The following steps are to be followed each and every time the trailer is connected to a tow vehicle:

1. Remove the pin from the trailer coupler and slide it to the open position
2. Back the tow vehicle until the ball hitch is directly under the trailer coupler
3. Use the jack on the trailer tongue to lower the coupler onto the ball hitch
4. Slide the coupler into the closed position and secure with the locking pin



5. Connect both safety chains to the tow vehicle
(cross the chains)
6. Secure the “brake-away” cable to the tow vehicle
7. Connect the round 7-pin electrical plug from the
trailer to the tow vehicle

Step 2: Pre-Trip Inspection

- ✓ Tires properly inflated
- ✓ Torque lug nuts to 85ft lbs
- ✓ Spare tire secure and properly inflated
- ✓ In-line fuses 20 amp min.
- ✓ Hitch pin on coupler securely locked
- ✓ Safety tie down straps snug and secure on the 2 Auto-Retracts®
- ✓ All jacks raised in travel position with proper pins in place.
- ✓ Buckets are secure and in lock position
- ✓ Adjust mirrors so you can see the trailer clearly
- ✓ Check to ensure that your brakes work properly on
both the tow vehicle and the trailer
- ✓ Test to make sure that all lights are working
properly on both the tow vehicle and the trailer

Walk around the trailer and vehicle, looking for any items that may be out of place.

Step 3: Transportation Rules

It is your responsibility to practice safe driving while towing the Mobile Zip Line™. Observe the following:

1. Do not exceed 65 MPH while towing
2. Do not transport in snow, ice, heavy rain, or if
winds exceed 40 mph
3. Obey all traffic rules, laws, and speed limits
4. No texting while towing the Mobile Zip Line™
5. Make wide sweeping turns
6. Allow yourself plenty of room for braking
7. Be aware of the trailer height, width, and length
8. Plan ahead so that you have plenty of time to get
to your event/location

MAINTENANCE & REPLACEMENT PARTS

Maintenance Policy

Spectrum Sports Intl will not warranty or stand behind any of its products, components, or safety systems that do not use genuine and/or authorized replacement parts. Any modifications, work, or service that is performed on your Spectrum Sports Intl Mobile Zip Line™ that is not performed by an authorized Spectrum Sports Intl employee voids any and all claims to any manufacturer's liability.

Maintenance must be performed according to the following schedule – no exceptions.

Maintenance Schedule

Quarterly:

- Grease the 4 pivots on the Mobile Zip Line™ structure
- Grease the 5 jacks (perform earlier if jacks become difficult to crank)
- Check the axle bearings and grease as needed

Annual:

Items on this list are required to be replaced with Certified OEM Spectrum Sports Intl replacement parts.

Spectrum Sports Intl is not responsible for any product that has been altered or modified in any way, including the use of non certified replacement parts. Failure to follow this annual replacement schedule may result in serious injury and or death.

- 2 qty - 5/16" Zip Line Ride Cables (replace earlier if you observe any wear as outlined in inspections)
- 2 qty - 8mm Auto-Retract® Ropes (replace earlier if you observe any wear as outlined in inspections)
- 4 qty - 5/8" x 12" grade 8 bolts and nylon lock nuts on Auto-Retracts® (2 per device thru pulleys)
- 2 qty - 5/8" x 3-1/2" grade 8 bolts and nylocks (1 per each upper pulley on the tower)
- 6 qty - 5/8" x 3" bent-pull pins (4 connect cables to tower, 2 connect ATDs to anchor)
- 4 qty - 1/2" x 2-1/2" bent-pull pins (2 on each ATD for primary cable connection and locking tension)

Wear Items:

The following components are wear items. It is up to the operator to monitor and determine when it is time for replacement based on the following guidelines. When in doubt, change it out!

- **Carabineers** – Replace if the auto-locking sleeve on the gate no longer snaps closed on its own. Surface rust, pitting, or wear grooves would also suggest the need for replacement.
- **Quick-Link** – Replace if the screw gate will no longer close. Surface rust, pitting, or wear grooves would also suggest the need for replacement.
- **Pulleys** – Inspect the v-groove for wear and ensure that pulleys roll smoothly on bearings.
- **Trolley** – Ensure that bearings roll smoothly and quietly. Inspect all carabineer and pin connection points for wear. Connection holes that are oblong indicate that you should replace the trolley.
- **Auto-Retract® Cylinders** – Replace when you see excessive oil leakage (visible on every stroke).
- **Lanyards** – replace when you see fraying or stitching coming loose
- **Guy Cables & Turnbuckles** – Replace if inspection parameters on page 30 reveal problems or if any surface rust or pitting appear. Guy cables must be used for safe operations!

Service Options


On-Site Service: Spectrum Sports Intl has offered the option of On-Site Service for over a decade. Our service truck travels the U.S. twice each year and is fully equipped. Service that aligns with the truck's schedule can be offered at a very competitive rate. The service offered may include cable replacement, parts replacement, inspection, and any other maintenance needs pertaining to the customers' request. To be added to the On-Site Service schedule, visit our website at www.spectrumsports.com to complete and submit the request form, or call (888)563-0163.


Self Installation: Customers who wish to do their own maintenance have the option of ordering certified OEM parts directly from Spectrum Sports Intl. The customer then assumes all liability for the work, but the part is still covered by the manufacturer's liability provided it is installed and used properly.

3rd Party Service: Spectrum Sports Intl does not train nor authorize 3rd party vendors to service its products.

Cleaning

We recommend that you clean your Mobile Zip Line™ frequently. Use a spray nozzle and mild detergents and hand-dry thoroughly before storing.

 Use caution if you use a pressure washer to clean. **DO NOT** point the nozzle directly at the Auto-Retract®, lift pump, pivot points, grease points, or powder coat paint finish. You may damage the product.

 Do not use any mineral spirits, acids or other harmful chemical products on your Mobile Zip Line™.

We recommend using a furniture polish without natural oils to help keep steel parts clean and polished. This type of product leaves a light layer of wax on the steel to protect it and refreshes the finish. This process also provides an opportunity to look at the welds and inspect the product.

 **DO NOT USE POLISH ON THE STEPS OF THE ZIP LINE.**

Product Storage (Winterization)

If you're Mobile Zip Line™ will not be in service for a period of 30 days or more, we recommend the following storage procedures.

- Remove Auto-Retract® brake ropes and store in a dry location out of direct sunlight
- Depressurize (release air pressure) from Auto-Retract® tanks.
- Disconnect battery cables from battery (disconnect ground cable first). Store the battery indoors (off the ground).
- Clean and properly store the inflatable targets (make sure they are dry)
- Keep all safety gear (trolleys, lanyards, carabineers, and harnesses) in a dry location.
- Store entire product under roof or tarp if possible

If you have any questions or concerns, please call Spectrum Sports Intl at (435)792-3883, or email us at service@spectrumsports.com

WARRANTY

Warranty

The policy set forth below is in lieu of any other express warranties or obligations of Spectrum Sports Intl, its distributors, resellers/retailers, or employees.

Limited Product Warranty:

The Mobile Zip Line™ by Spectrum Sports Intl is warranted free from defect in material and workmanship for a period of 90 days from the date of purchase.

Additionally, the steel trailer and tower are warranted 1 year on welds and structure (does not include powder coat or any frame damage due to improper set-up or damage due to misuse).

Equipment not manufactured by Spectrum Sports Intl (harnesses, lanyards, trolleys, chocks, wheel locks, etc) is covered to the extent of the warranty provided by the original manufacturer.

Limitation of Remedy

Spectrum Sports Intl reserves the right to determine if a product is under warranty. Spectrum Sports Intl may elect at their discretion to use fabricators, distributors, and/or service agents local to customer to determine cause and/or repair of the particular part.

Spectrum Sports Intl's sole obligation under this warranty shall be to repair or replace any part or parts which, to their satisfaction, prove to be defective upon inspection. This obligation does not include labor to install replacement parts.

All claims in regards to the parts or equipment must be made within the warranty period.

To obtain repair or replacement parts, call **888-563-0163** or email **service@spectrumsports.com** for a **return authorization number**. Include the following information: company name, contact name, office phone and/or mobile phone, ship-to address, date of purchase, product model, and serial number.

At your expense, ship or deliver the product or part to:

Spectrum Sports Intl
3785 N. HWY 91
Hyde Park, Utah 84318

Replaced or repaired items will be shipped back to you at no cost and will be shipped in the same manner as they were received (i.e. overnight, 2nd day, ground, LTL freight, etc.).

For replacement parts that must be shipped to the customer before the original part is received back by Spectrum Sports Intl, it is REQUIRED that a valid credit card be charged for the replacement part before Spectrum Sports Intl will ship. Once Spectrum Sports Intl receives the original part, and if it deems that it is covered by warranty, a credit will be issued back to the credit card.

Spectrum Sports Intl is in no way responsible for lost revenue or income while product is not in operation due to warranty or any other problems due to installation and/or operations.

Warranty is only extended to the original owner.

Wear parts are not included under this warranty.

Should it be determined that the defect is due to abuse or misuse, any and all warranty rights or responsibilities are void.

If purchaser defaults in making payment for any parts or equipment, this warranty shall be void and shall not apply to such parts and equipment. No late payment or cure of default in payment shall extend the warranty period provided herein.

The warranty on Spectrum Sports Intl equipment remains valid only when genuine OEM Spectrum Sports Intl replacement parts are employed. Spectrum Sports Intl reserves the right to void warranty on any customer-modified parts.

If anyone other than a Spectrum Sports Intl authorized service technicians perform work or modify/repair any part of the product, it will VOID any warranty claim and liability.

Release of Liability:

I understand and am aware that the use of zip lines with Auto-Retracts® is a hazardous activity. I understand that I am solely responsible for the safe set up, inspection, operation, take-down, transportation, maintenance, and participant adherence to the rules. I understand that Mobile Zip Line™ involves a risk of injury to owner, operator, and participant. I HEREBY AGREE TO FREELY AND EXPRESSLY ASSUME AND ACCEPT ANY AND ALL RISKS OF INJURY OR DEATH TO THE OWNER, OPERATOR, AND USER OF THIS EQUIPMENT.

I will agree that I will release Spectrum Sports Intl, its manufacturers, distributors, retailers, and employees from any and all responsibility or liability for injuries or damages to the operator or user of the zip line product I am purchasing. I agree not to make a claim against or sue Spectrum Sports Intl, its manufacturers, distributors, retailers, or employees for injuries or damages relating to use of the equipment, other than such claims as are allowed by the Limited Product Warranty set forth above.

Agreement & Acknowledgement:

I have fully *read* the provided Operation and Owner's Manual and *understand* how to safely set up, inspect, operate, take-down, transport, maintain, and manage crowd and staffing issues for the Mobile Zip Line™ by Spectrum Sports Intl. I agree to operate only in accordance with these instructions and follow all of the warnings and cautions set forth in the manual.

I have carefully read the Limited Product Warranty, Limitation of Remedy, and Release of Liability and fully understand its contents. **I am aware that this is a release of liability and a contract** between me and Spectrum Sports Intl and its manufacturers, distributors, retailers, and employees.

If I do not understand the contents of this manual or warranty, or if I do not willfully accept the personal liability in the operation of the Mobile Zip Line™, I will immediately notify Spectrum Sports Intl in writing. I also acknowledge that I will not operate the said products until I do so.

APPENDICES

Zip Line M2P Parts Order Form

Contact:		Phone:		Fax:		Email:	
SHIP TO:				BILL TO:			
Payment Type: COD CC PO#				Name on CC:			
Shipping: Ground 2Day 3Day Overnight				Card Type:		Exp:	
Shipping Acct #:				Card #:		CVC:	
Item Description	Price	Qty	Total	Item Description	Price	Qty	Total
* Auto-Retract® Rope	\$199.00		\$	Trolley	\$275.00		\$
* Ride Cable	\$190.00		\$	Trolley Pin	\$5.00		\$
* Guy Cable 29'	\$50.00		\$	Replacement Tread	\$80.00		\$
Turn Buckles	\$60.00		\$	Stair Bolts (Set of 4)	\$10.00		\$
Pin for Guy/ Tension Cable 5/8" x 3'	\$10.00		\$	ZL Bucket Shock	\$60.00		\$
Measuring Rope	\$30.00		\$	Rubber Grip (Set of 2)	\$15.00		\$
Power Unit	\$1,295.00		\$	Plastic for ZL Buckets	\$500.00		\$
Front Jack	\$175.00		\$	Plastic for Operator Station	\$350.00		\$
Jack Leg Pin	\$14.00		\$	Gate w/ Sign	\$300.00		\$
Rear Jack 10K lbs.	\$240.00		\$	Gate Hinges	\$30.00		\$
ZL Extension Tube	\$320.00		\$	Gate Lock	\$60.00		\$
Extension Tube Pin	\$10.00		\$	Inflatable	\$1,600.00		\$
Remote (2 Btn.)	\$225.00		\$	Blower	\$250.00		\$
Wheel Chock	\$30.00		\$	Lanyard (Rider)	\$50.00		\$
Wheel Lock (Set of 2)	\$100.00		\$	Lanyard (Operator)	\$15.00		\$
7 Prong Trailer Plug	\$30.00		\$	3/8" Pin for Operator Safety Rail	\$10.00		\$
Remote Trlr. Plug: Aluminum	\$80.00		\$	Kids Harness (3' to 4')	\$60.00		\$
1" Hitch Pin	\$35.00		\$	Harness: M/L (4'-6'), XL (6'-6'8")	\$120.00		\$
Fender Installation Sticker	\$40.00		\$	ZL Flags (Set of 4)	\$100.00		\$
Auto-Retract Cylinders	\$120.00		\$	Carabineer	\$22.00		\$
Pulleys	\$22.00		\$	Tool Box	\$400.00		\$
Bearings	\$3.00		\$	Auto-Tensioning Device (ATD)	\$950.00		\$
Pressure Gauge	\$30.00		\$	ATD Pin 1/2"	\$12.00		\$
Oil Eye	\$10.00		\$	ATD Shock	\$45.00		\$
Latch Safety Pin 1/2"x 2 1/2"	\$10.00		\$	Canopy	\$1,500.00		\$
			\$	D.A.S.H.	\$2,500.00		\$
			\$				\$
			\$				\$
			\$				\$
			\$				\$
			\$				\$
* Items to be replaced Annually							
Cost of Goods	\$			Shipping & Handling	\$		
Discount	\$			COD Charge (\$15)	\$		
UT Sales Tax (6.37%)	\$			Total Due:	\$		



3785 N. Hwy. 91 ~ Hyde Park, UT 84318
PH: 888.563.0163 ~ FX: 435.792.3884

Appendix B: Change of Owner/Operator Form

Original Owner:

Company Name: _____
 Contact name (s): _____
 Bill to Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____ Alt. Phone: _____ Fax: _____

Former Location: _____
 City: _____ State: _____ Zip: _____

Date Sold: _____

New Owner/Operator Information:

Company Name: _____
 Contact name (s): _____
 Bill to Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____ Alt. Phone: _____ Fax: _____

Current Location: _____
 City: _____ State: _____ Zip: _____

Product Information:

Model: ZL M 2P
 Serial # _____
 VIN # _____
 Year: _____

Please mail or fax to:

Spectrum Sports Intl
 3785 N. Hwy. 91
 Hyde Park, UT 84318
 Fax: (435) 792-388



3785 N. HWY 91 | Hyde Park | Utah 84318 | 888.563.0163

Appendix C: Accident Reporting



Designation: F 1305 – 94

Standard Guide for the Classification of Amusement Ride and Device Related Injuries and Illnesses¹

This standard is issued under the fixed designation F 1305; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides a uniform procedure that should be used when classifying patron injury and illness data related to amusement rides and devices.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *illness*—personal discomfort resulting in treatment including a personal illness, food poisoning, drug abuse, toxic inhalation, insect sting, or other similar occurrence.

2.1.2 *injury*—sustained bodily harm resulting in treatment such as trauma, cuts, bruises, burns, and sprains.

2.1.3 *minor injuries/illnesses*—injuries and illnesses which may or may not require emergency first aid or significant treatment, or both, but cannot be otherwise classified as a serious injury or illness. This category includes incidents where treatment is limited to such things as the dispensation of over-the-counter medication or plastic adhesive strips², cleansing, rest, and other similar duties or assistance.

2.1.4 *serious injuries/illnesses*—a personal injury/illness that results in death, dismemberment, significant disfigurement, permanent loss of the use of a body organ, member, function, or system, a compound fracture, or other significant injury/illness that requires immediate admission and overnight hospitalization and observation by a licensed physician.

3. Significance and Use

3.1 The purpose of this guide is to provide a uniform procedure under which the amusement ride and device industry can organize data related to injuries and illnesses. This classification system may be used to formulate statistical information within the categories provided and will facilitate the analysis of

injury and illness incidents. The classification system may assist owner/operators and manufacturers to review incidents directly related to their amusement rides and devices, and may provide information for alternatives to reduce or eliminate similar occurrences.

4. Recording Recommendations

4.1 The administration of emergency health care service and treatment should be recorded as deemed appropriate by the owner/operator of amusement rides and devices to include the documentation of all first-aid treatment, including minor injuries and illnesses, in a first-aid log. Injuries and illnesses other than minor should be reported on a firstaid incident report in accordance with 4.2.

4.2 *First-Aid Incident Report*—A first-aid incident report should be completed for injuries or illnesses that result in hospital admission or where medical treatment is given, recommended, or may be required at a future date. All injuries or illnesses reported and other than those classified as minor, can be presumed to be in this category.

4.3 *Recorded Information:*

4.3.1 Information recorded in the first-aid incident report should include but not be limited to the following, where applicable:

4.3.1.1 Date the incident occurred.

4.3.1.2 Name, address, and telephone number of the person to receive emergency health care service or treatment.

4.3.1.3 Age of the person to receive emergency health care service or treatment.

4.3.1.4 Manufacturer's name of the amusement ride or device where or on which the incident occurred.

4.3.1.5 Description of the injury or illness. Physical description of the injury or illness. Description of the events causing and related to the incident.

4.3.1.6 Description of the first-aid service or treatment administered including medications given.

4.3.1.7 Incident classification in accordance with Section 5.

4.3.1.8 Additional information deemed necessary by the owner/operator.


5. Classification of First-Aid Incidents

5.1 When recording an applicable first-aid-related incident the owner/operator of an amusement ride or device should classify the injury or illness in accordance with each of the

¹ This guide is under the jurisdiction of ASTM Committee F-24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.40 on Operations.

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² Band-Aid brand adhesive strips, a trademark of Johnson and Johnson Products, Inc., New Brunswick, NJ 08093, have been found suitable for this purpose.

 **F 1305**

following categories based on the available reported or observed reliable information, or both:

5.1.1 *Amusement Ride and Device Incidents Classified in Accordance with Injury Qualification and Degree of Injury*—Injury, illness, serious injury/illness, and minor injury/illness as defined in Section 2 should be determined by the owner/operator to best describe the incident circumstances.

5.1.2 *Amusement Ride and Device Incidents Classified in Accordance with Facility Implication:*

5.1.2.1 *Facility-Related Incidents*—Injuries or illnesses that occur on facility premises shall be additionally classified as “Facility Related.”

5.1.2.2 *Not-Facility Related Incidents*—Injuries or illnesses that occur off facility premises shall be additionally classified as “Not Facility Related.”

5.1.3 *Amusement Ride and Device Incidents Classified in Accordance with Facility Location:*

5.1.3.1 *Amusement Ride and Device on Ride Incident*—Injuries or illnesses that actually occur to a person while riding during the operation of the amusement ride or device, including during the start up or shut down procedures, shall be additionally classified as an amusement ride and device “On Ride Incident.”

5.1.3.2 *Loading and Unloading Incidents*—Injuries or illnesses that actually occur to a person while he is within the area designated for loading and unloading of an amusement ride or device that was under the direct control of an amusement ride and device operator or attendant shall be additionally classified as a “Loading and Unloading Incident.”

5.1.3.3 *Queue Line Incident*—Injuries or illnesses that actually occur to a person while in a queue line for an amusement ride or device shall be additionally classified as a “Queue Line Incident.”

5.1.3.4 *Other Incidents*—Injuries or illnesses that occur to a person in a location other than as described in 5.1.3.1, 5.1.3.2, or 5.1.3.3 shall be classified as other than the preceding classifications and should be categorized in accordance with other predetermined descriptions that may be established by the owner/operator.

6. Manufacturer Notification

6.1 The owner/operator of an amusement ride or device shall notify the appropriate manufacturer(s) of an incident that resulted in a serious injury as defined in 2.1.4 within seven days of the occurrence of the incident.

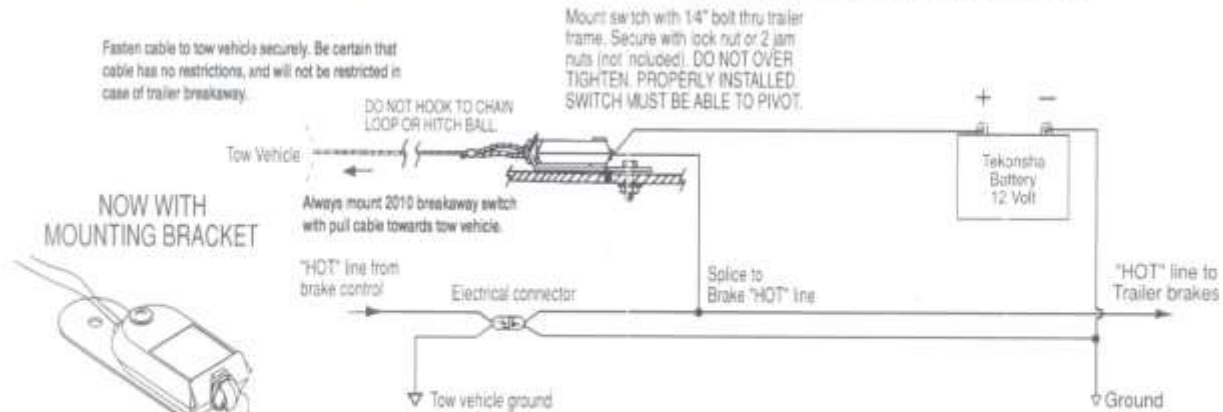
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This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

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Appendix D: Wiring Schematic for Breakaway Switch

SCHEMATIC WIRING DIAGRAM FOR TEKONSHA 2010 BREAKAWAY SWITCH



SAFETY ITEM: Solder all wire connections.





















ATTENTION INSTALLER: Please give this sheet to consumer upon completion of installation.

1. Mount Tekonsha battery case securely to frame, jack post or other suitable location on trailer.
2. Bolt breakaway switch bracket to frame of trailer or battery case bracket using 1/4" bolt and lock nut or (2) 1/4" jam nuts. (Bolt and nuts not included in kit).
CAUTION: Do not overtighten bolt. Switch must be able to pivot.
3. Check and install battery.
4. Wire per schematic diagram. Properly insulate all connections.
5. Attaching to tow vehicle:
Attach cable to tow vehicle frame being certain no strain is placed on cable.
CAUTION: Do not hook cable to safety chain loop or hitch ball.
CAUTION:
 1. Switch location should be selected to insure unobstructed line of pull in event of vehicle separation.
 2. Do not let cable drag on ground.
 3. Check condition of battery prior to each trip.
 4. **WARNING: Disconnect trailer plug before testing breakaway unit. Failure to do so will result in severe damage to electronic brake control.**


 **ENGINEERING COMPANY** 537 N. CHURCH STREET, TEKONSHA, MICHIGAN 49092 Phone: (517) 767-4142

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p/n 538

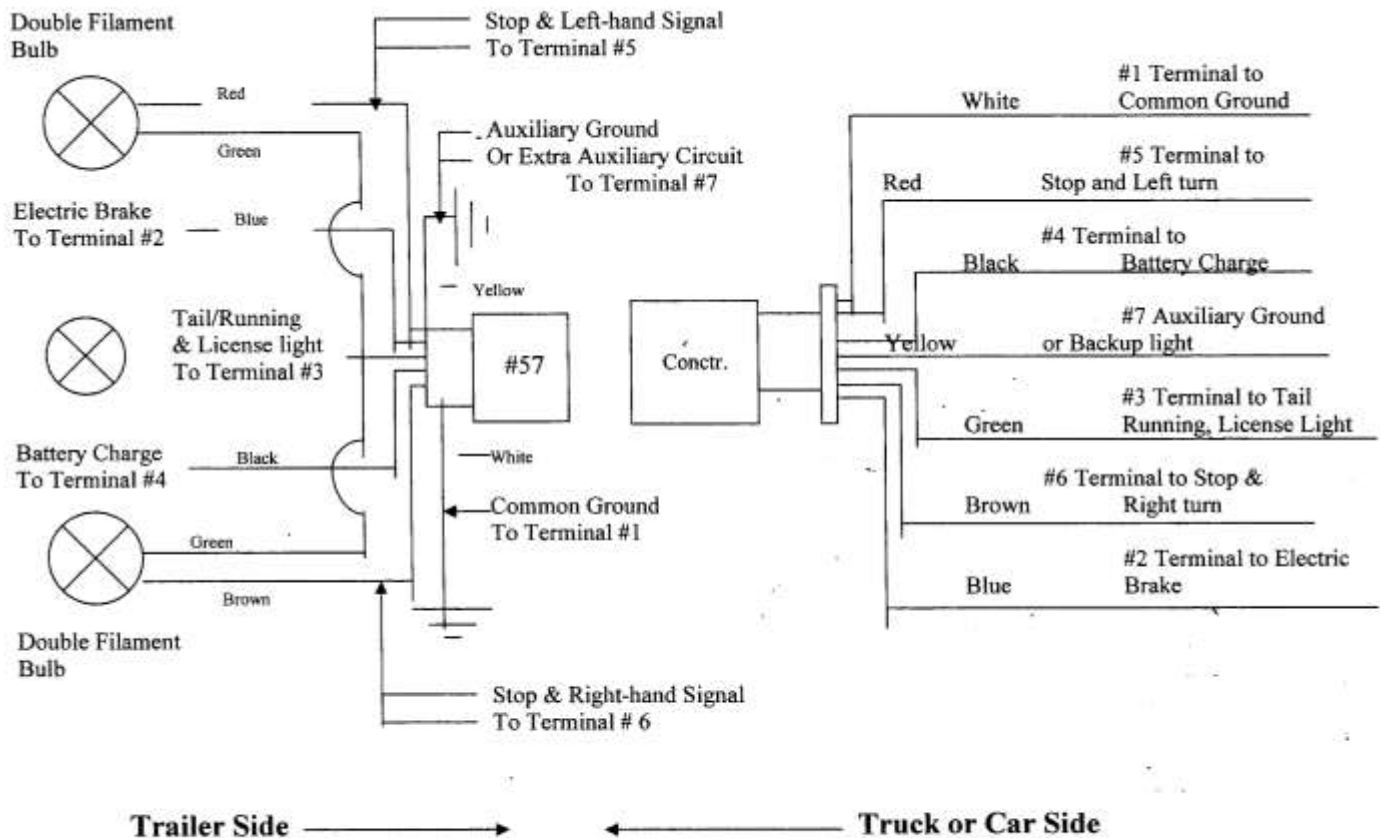
Appendix E: Wiring Diagram for Electrical Connectors

TAP™	6-WAY MOLDED CABLES			7-WAY MOLDED CABLES		
	Function	Gauge	Location*	Function	Gauge	Location*
 yellow	Left Turn / Brake	14		Auxiliary Power	14	
 green	Right Turn / Brake	14		Tail / Marker Light	14	
 brown	Tail / Marker Light	14		Right Turn / Brake	14	
 white	Ground	14		Ground	10	
 black	Auxiliary Power	14		Battery	10	
 red	Electric Brakes	14		Left Turn & Brake	14	
 blue				Electric Brakes	12	

*Locations are given looking at the FRONT of the plug.



Wiring Diagram for Bargman 7 and 9 Circuit, 12V Electrical Connectors



M

Appendix F: Wheel Lock Info

ULTRA-DELUXE CHOCK & LOCK TANDEM WHEEL TRAILER CHOCK INSTALLING & OPERATING INSTRUCTIONS

FUNCTION

The purpose of the Chock & Lock is to enhance trailer occupant comfort by preventing the tandem wheels from moving. When the wheels are chocked, the annoying rocking motion is essentially eliminated.

THINGS TO AVOID

Do not over tighten this wheel chock. Damage can be done to tires or Chock & Lock. This damage is not covered by the warranty.

Do not rely on this Chock & Lock as a brake. While it will assist in braking, other independent devices such as blocks or wedges should be used.

OPERATION

As the drawing shows, the Chock & Lock is to be positioned between the tandem wheels at the wheel centerline. It functions by pressing a fixed distance outward (front to back) against the two wheels, locking one wheel to the other. Because of the leverages built into the scissors mechanism and the over-center cam in the handle, modest operator effort develops tremendous force at the wheels. In normal use, the operating handle will swing through approximately a 90 degree vertical arc and stay in the "locked" (down) position by itself. The padlock hole is provided to allow for the utilization of a padlock to discourage theft of the wheel chock.

INITIAL ADJUSTMENT

Your Chock & Lock is precisely adjustable for tandem wheel spacing from approximately 1 1/2-5 1/4". The adjustment is accomplished by turning the nut on the threaded rod protruding from the top of the unit. As it is shipped, the unit is in its narrowest position and will not function. To adjust the width the first step is to pull the unit apart (wider). The threaded rod will then protrude further, exposing more threads below the nut. Turn the nut clockwise and note that this changes the operating width of the unit. Adjust until

the chock will fit closely between the two wheels with the handle in the open position (perpendicular to the "shoes"). With the unit properly adjusted, it will function every time by only moving the handle through its arc.

STIFFNESS

A new unit may be a little stiff in movement. Working it open and closed over its range a few times will normally correct this.

TIRES

The performance of the Chock & Lock is dependent on proper trailer tire pressures. Check tire pressures frequently for safety, good tire wear, and good chock performance.

ADDITIONAL ADJUSTMENT

Trailer size and geometry will influence just how tight the chock must be to work well. With experimentation, you may determine that a lighter setting, which requires less operator effort, is suitable.

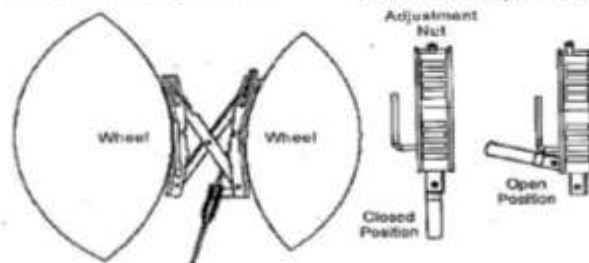
There is no specific service required for your Chock & Lock. A little light lubricant on the pivots from time to time will enhance useful life.

WARRANTY

ULTRA-FAB PRODUCTS, INC. warrants that this product will be free from defects in material and workmanship for the lifetime of the original purchaser. Should a failure to conform to this warranty appear, ULTRA-FAB PRODUCTS, INC. shall, upon notification thereof, and proof of purchase, correct such non-conformity, at our option, by repair or replacement FOB factory of the defective parts.

LIMITATION OF LIABILITY

Neither party shall be liable for special, indirect, incidental or consequential damages. The remedies of the purchaser, as set forth herein, are exclusive, and the liability of ULTRA-FAB PRODUCTS, INC. shall not exceed the price of the equipment or part on which such liability is based.



ULTRA-FAB PRODUCTS, INC.
ELKHART, INDIANA