Ropes Courses, Inc. Manual Copyright

This manual is for Ropes Courses, Inc. (RCI) certified operators, operator trainers and those undergoing training to become certified.

- This training is only for use with products that hold a current RCI inspection certificate.
- This training is the property of the RCI trainee, operator or operator trainer.
- Use of this training by persons not trained to RCI standards by a RCI certified trainer may result in serious injury or death and is not recommended by the manufacturer.
- All parts of this training are requirements of the manufacturer for the safe operation of any RCI product.
- The operator training is updated yearly. Course owners are responsible for staying up to date with training updates.

About Ropes Courses, Inc.

Ropes Courses, Inc. has been manufacturing, installing and servicing adventure course products since 1989. RCI adheres to the ASTM International standards for amusement devices. All engineering, design, installation, inspection, training and operation were developed in conjunction with ASTM standards.

Specific standards are included but not limited to:

- Standard practice for ownership, operation, maintenance and inspection of amusement rides and devices.
- Standard practice for special requirements for aerial adventure courses.
- Standard practice for design of amusement rides and devices.

Safety Reminder

The reasonable risks present by the activities and operational procedures in this manual could result in physical harm but can be minimized by following the safety rules in this manual and specific policies and procedures regarding the operation of safety equipment and RCI products. The authors and publishers do not assume responsibility for the misuse of information offered in this book either written or implied.

All operators must read this manual in its entirety, pass written tests and complete 100% of all practical training in order to receive a certificate of operation from RCI. Please ask the certified RCI operator trainer or contact the RCI Training Department at (269) 673-0016 with any questions pertaining to RCI products, the materials in this manual, paperwork, rules and procedures or training.

If a facility chooses to allow employees who have not undergone proper RCI training to operate an RCI product or RCI affiliated product, the facility will assume all liability in the event of an injury or death, as per the sales contract. Operating the Sky Trail® ropes course in this manner is deemed careless and reckless by the manufacturer.

Copyright Information

Patented, US Patent No. US 7,175,534 | US 7,416,054 | US 8,016,686 | US 7,981,004 | US 8,066,578 | US 8,360,937 | US 8,683,925 | US 8,807,044 | US 8,752,668 | 2 Patents Pending

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Product Overview

The Sky Trail® Discovery is a 1 level course with an equilateral triangle form structure. The course can be placed outdoors or in buildings with ceilings as low as 20' high. A minimum of 2 operators is required. This course can support a throughput of 30 to 100 people in 1 hour depending on the size.

The Sky Trail® Navigator is a 1 or 2 level course based on the equilateral triangle pole structure. These courses maximize limited spaced areas, indoors or out. A minimum of 2 operators is required to support a throughput of 30 to 200 people in 1 hour depending on the size of the course.

The Sky Trail® Explorer is designed for sites with a significant amount of traffic wanting to maximize throughput amounts with a multi-level course. The pole structure forms a square and can be 1 to 4 levels tall. A minimum of 2 operators is required to support a throughput of 30 to 260 people in 1 hour depending on the size of the course.

The Sky Trail® Voyager is ideal for locations with high foot traffic. This course utilizes a linear design of 2-pole platforms, which allow elements to be placed side-by-side. The course operates with 1 entrance and exit per linear line and between 2 to 4 linear paths per level. It can have up to 4 levels to support any desired throughput.

The Sky Trail® Expedition incorporates a single pole linear design therefore participants return back to the start in a circular system. The course operates with 1 entrance and exit per linear path and contains 2 elements between each pole. It can have up to 4 levels to maintain a throughput of 50 to 400 people depending on the size of the course.

The Sky Trail® Seeker is designed with proportionate platform heights and elements for children under 64" tall. A 2 level course will fit inside buildings with 20' ceilings and up to 4 levels are available to maximize throughput. There is no limit to pole expansion.

The Sky Rail™ is a rigid zip line that integrates directly into with the Sky Trail® ropes course. Participants experience a self-guided zip tour without unhooking at any time because of the seamless integration. There is an electronic, soft braking system and a non-automated braking system available. An operator must be stationed at the entrance of each non-automated Sky Rail™ to tell participants when it is safe to ride.

The CTS Zip Line is an engineered canopy tour. Operators are present at every launch and landing platform to facilitate the proper traffic flow. Tower heights can range from 30' to 60' and the distance between towers range from 150' to 500' depending on site requirements.

The Sky Tykes® ropes course is for kids under 48" tall and operates with full body harnesses, redundant sling lines, continuous belay systems, enclosed tracking systems and proportionally sized elements just like the Sky Trail® courses. It can be constructed as an independent attraction or a course that seamlessly integrates with a full-sized Sky Trail® ropes course.

Pre-Training

Please read this section prior to training. If you do not feel confident in becoming an operator or do not fit all of the requirements please notify your supervisor.

Operator

An operator is tasked with the day-to-day operation of a course, which includes pre-use inspections of the course and safety equipment, to properly outfit participants, to monitor activity on the course, and to maintain safety. Operators must become familiar with all aspects of operating a RCI product. In order to receive certification as an operator, an individual must attend training conducted by a certified operator trainer as well as pass written and practical testing.

An operator's certification is valid for 1 year.

Operators must attend annual updated training courses in order to maintain certification. If an operator's certificate has expired there is no longer an affiliation with RCI or its policies and procedures. Contact RCI for the current re-certification procedures.

Operator Requirements

- 17 years or older to operate all levels and positions. *May be subject to state or country laws.*
- 100% attendance of RCI training session.
- Capabilities to bend, stoop, climb and stand for long periods of time.
- Ability to insert and remove the puck of the slider assembly into and out of the overhead track.
- Must be able to communicate with staff and participants clearly.
- Successful completion of written and practical tests.
- Ability to understand and use a harness properly.
- Must be able to outfit all participants by choosing the correct size harness and make the needed adjustments to fit their body.
- Demonstrate complete understanding of harness components.
- Knowledge and ability to inspect all safety equipment and understand when something is unsafe.
- Follow all participant rules and perform their duties without restrictions for the safety of all parties involved.
- Comfortable being in close proximity to people of all ages and genders.
- Properly attach the sling line to a participant's harness, make correct adjustments in the length of the sling line and consistently inspect the slider assembly for any damage or deformation before inserting it into the overhead track.
- Monitor all participants on and off the course.
- Must be willing to work at heights of 15' (4.6m) or more for extended periods of time.
- Use competence to assess the difference between a medical emergency and non-emergency incident for purposes of the emergency take down procedures.
- Monitor all participants on the course and immediately stop any unsafe behavior.
- Capability and understanding to assist scared participants.
- Possess excellent communication skills.
- Express appropriate behavior towards customers and guests.

Training

RCI aims to deliver the most comprehensive skill set training to each operator on the skills necessary for safe course operation. Operators who demonstrate competence in skills, knowledge of all policies and procedures and pass written and practical tests will be awarded an operator certificate. A certificate may be revoked for the following reasons:

- If any RCI policy or procedure is disregarded.
- If the course is operated in a careless or reckless manner.
- If the operator operates the course unprofessionally.
- Failure to follow paperwork procedures.

All decisions made to revoke a certificate will be at the sole discretion of RCI.

At training, participants are expected to arrive fully prepared for an all-day training. Due to the high variability of course specifics, a standard Sky Trail® training can last up to 20 hours. Courses that have additional features such as a CTS Zip Line, QUICKjump or Sky Rail™ shall require additional days of training. Participants must be in comfortable clothes and secure footwear. No skirts, dresses, flip flops or open-heeled shoes. Training is subject to postponement at the client's expense if trainees arrive unprepared.

Trainees must participate 100%. Those who need to leave for any reason will not pass training and will not be able to operate the ropes course.

Online training videos available online at www.ropescoursesinc.com/login.

Note: Please e-mail services@ropescoursesinc.com to obtain a username and password. Please provide your company name, e-mail address and requested username. An RCI administrator will contact you within 48 hours of your request.

Course Operators

An operator is tasked with the day-to-day operation of a course, which includes all pre-use inspections of the course and safety equipment, properly outfits participants, constantly monitors activity on the course and maintains a low risk environment. Operators must be willing to become familiar with all aspects of operating a RCI product. In order to receive certification as an operator, an individual must attend training conducted by a certified operator trainer as well as pass written and practical testing.

Operator Rules and Responsibilities

1. **No one is allowed on the course without the proper safety equipment. If someone is seen on the course without the proper equipment notify the proper authority immediately.**
   Going on a course without the proper safety equipment or being properly attached to the course could result in serious injury or death.
2. **Operators are responsible for all opening and closing procedures including the daily inspection.**
3. **Operators are responsible for outfitting all participants in the correct safety equipment and performing all pre-flight checks.**
4. **One operator must stay within 1 level of every participant on the course.**
5. **Operators must constantly monitor all participant activity, enforce all safety rules and stop any behavior before it becomes unsafe.**
6. **A minimum of 2 operators are required to perform an emergency take down (ETD).**
   At least one operator working on the ground must be outfitted in a full body harness at all times.
7. **Operators must place themselves in a position to communicate with co-workers and participants at all times.**
8. **Operators must wear a whistle at all times in order to gain the attention of participants or sound the alarm in the instance of an emergency. It is RCI policy that all operators are provided with a whistle.**
9. **Operators must ensure that 1 emergency take down kit (ETK) is on every level of the course in the designated area. There may be more than 1 ETK per level if it is a custom course.**
10. **All necessary paperwork must be filled out completely before opening and after closing the course. This includes the course checklist and safety report if needed.**
    A RCI course checklist and safety report is provided in Appendix D of this manual.
11. **The use of cell phones for calling or texting and use of any devices such as MP3 players or handheld video games is strictly prohibited. This could result in termination of your job.**
12. **All participant rules apply to operators as well.**

Harnessing

While harnessing participants operators must explain the rules for the attraction.

Operators must choose the proper size harness for the participant and ensure that the harness fits correctly before allowing them on the course. While harnessing participants, operators must assess the harness for damage. Only operators or course assistants are allowed to harness participants. Operators should never allow a chaperone to harness or de-harness a participant.

Operators must pull out and down on the shoulder straps to check if the harness is tightened properly. If the harness is adjusted as tight as it will go and the shoulder straps still go over the participant's shoulders, that individual is not permitted to go on the course.

At least 2" of webbing must be pulled through the buckles at any location. If less than 2" of slack is attained, the participant will need a larger harness or will not be permitted to climb.

Harnessing a Participant – Trail Plus Harness

Step 1

Have the participant step into the harness and pull the shoulder straps over their shoulders. Ensure that both feet go through the leg loops at the bottom. Then have the participant hold the upper attachment loop of the harness near their belly button. Push the yellow bar to the top of the participant's back.

Adjust the shoulder straps so that they support the waist belt just above the hips.

Step 2

Tighten the participant's waist strap. The waist strap has 2 buckles and each side should be adjusted evenly. A properly tightened waist strap is not able to be moved around in excess or be pulled past the participant's hipbones. However, it should not be so tight that it hurts the participant.

Step 3

Tighten the leg straps so that they are snug on the participant's legs. Ensure the participant has circulation and is comfortable.

To remove, loosen the straps in the reverse order.

Harnessing a Participant – Trail Harness

Step 1
Put harness on participant like a backpack with the D-ring positioned on their upper back. Fasten and adjust the chest strap. The strap should rest in the middle of the participant's chest.

Step 2
Adjust the shoulder straps. Shoulder straps should always be adjusted before the leg straps. Shoulder straps should not come down over the participant's shoulders when properly fitted.

Step 3
Fasten and adjust the leg straps so they fit snuggly around the participant's legs. Leg straps should fit around the legs so they hug the seat of the participant.

Too Small

Too Large

Correct Fit

Proper Loading of RSA

RSA in Track

Loading and Unloading

- The loading and unloading operator is stationed at the entrance/exit to the course.
- The loading operator is responsible for connecting the participant's harness to the sling line and conducting the pre-flight checks.
- Only a certified operator is allowed to attach/detach the sling line to a participant's harness and load/unload the RSA from the overhead track.
- Operators must be sure that the white puck of the assembly is completely in the track.
- Operators must push the white puck to the top and slide it into the track. The puck should never be inserted by "flipping" it into the track by holding onto the bottom of the assembly. *The operator must properly inspect Redundant Slider Assembly (RSA) and insert it into the overhead track. Failure to inspect the RSA before it is loaded into the overhead track could result in serious injury or death.*
- With the Trail Plus Harness it is easiest to have the sling lines pre-loaded in the track before attaching participants.
- The loading operator should ask each participant to recite a rule. If they cannot, the operator should ask someone the person is with if there are any reasons why that person cannot recite a rule.
- Operators may not at any time leave the entrance/exit unattended while the course is in operation.

Attaching the Sling Line – Trail Plus

Step 1
Eliminate slack by positioning the participant under their RSA in the overhead track. Attach the redundant part of the sling line to the lower attachment loop with the carabiner.

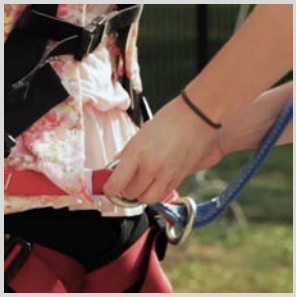
Step 2
Put the slotted webbing through the chest loop of the harness.

Step 3
Pull the slotted webbing through the upper attachment loop and pull tight. Count down 4 slots from the upper attachment loop and place the appropriate carabiner through this slot.

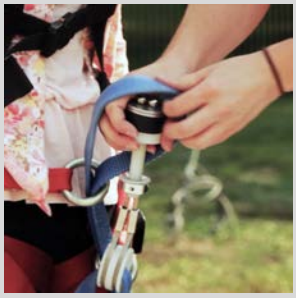
Step 4
Attach the carabiner to the upper attachment loop.

Attaching the Sling Line – Trail

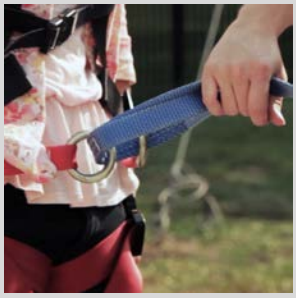
Step 1
Push the loop end of the sling line through both metal rings on the front of the Trail Harness.



Step 2
Once the loop is through both metal rings, pull the RSA through the loop.



Step 3
Pull the sling line completely through the loop until the rope is tightened all the way down onto the 2 metal rings.



Step 4
Insert the RSA into the overhead track.

Step 5
Once the puck is inserted into the track, adjust the participant's sling line to the appropriate length. The participant should be standing approximately 10-12" away from the RSA in the overhead track. When pulled away perpendicular from the participant's body, the sling line should form an "L" shape. The sling line must not droop below the participant's waist or be too tight so the participant may have to stand on their toes on certain elements on the course. The operator may slide the buckle up or down to make an adjustment in the slack of the sling line.

Pre-Flight Check for Trail Harness

Pre-Flight Check for Trail Plus Harness

Pictured above are the verbal and physical checks that must be used by the loading operator when they load each participant.

After a participant has been harnessed and they arrive at the loading area, the operator must perform all of the checks on the pre-flight check sticker before the participant is allowed to climb the course.

When checking the harness, the leg straps must be snug. Ensure that the waistband is snug and that the yellow bar is pulled up as far as it can go on the participant's back. The operator must also ensure that the shoulder straps cannot be pulled over the participant's shoulders.

To check the carabiners the operator must squeeze test the carabiners and ensure that it is on the correct attachment loops of the harness.

Finally, the operator must remind the participant of the listed rules.

Pre-Flight Check for the Trail Harness
After a participant has been harnessed and they arrive at the loading area, the operator must perform all of the checks on the sticker before the participant is allowed to climb the course.

To check the fit of the harness, the operator must make sure the harness cannot come off the shoulders, all buckles are closed and leg loops.

Since the operator loads each RSA after they girth hitch the harness, they must check that the white puck is in the track.

Finally, the operator must remind the participant of the listed rules.

Operator on Course

The number of operators needed on the course will be determined by the size and throughput of a course. There must be an operator within 1 level of every participant on the course. A minimum of 2 operators are needed to perform an emergency take down (ETD). You will always need at least 1 operator on the ground and 1 operator on the course.

Operators on the course depending on levels:

- 1 level = 1 operator on the course.
- 2 levels = At least 1 operator on the course.
- 3 levels = At least 1 operator on the course unless traffic is heavy.
- 4 levels = At least 2 operators on the course.
- 5 levels = At least 1 operator every other level.

Additional operators will be needed if the course has a CTS Zip Line, Sky Rail™ and/or QUICKjump.

Operators on the course must be outfitted with a properly adjusted full body harness, an orange (staff) sling line and a whistle. If radios are utilized on the course they must be 100% secured to the operator. The basic belt clip is not acceptable and the operator must be able to use the radio without the radio being loose.

These operators must constantly monitor behavior on the course and help participants that need assistance by acting in a timely manner especially to assist scared or stuck participants. One of the most important roles of the operator on the course is to determine if a participant needs medical attention and will have to be lowered off of the course using the emergency take down (ETD) procedures. It is the responsibility of the operator on the course ("top" operator) closest to the participant in need, to make the decision to initiate the ETD and alert the other operators.

It is not necessary for the operator(s) on the course to remain stationary at all times. Operators are encouraged to move around the course and engage with the participants.

Course Assistants
RCI offers a brief harnessing training to those who do not want to be a full operator. People who only want to harness will NOT be certified operators and are NOT allowed to do any other station for the ropes course. A person only trained in harnessing must meet all requirements to be an operator except the minimum age is 16 and they do not have to pass any written tests. A person who only harnesses does not count as a course operator and will never be expected to perform an emergency take down, should one arise. The harnesser must be under constant supervision by certified operators and managers. Inquire with the RCI training department about rules and regulations to having course assistants.

View our training videos online at www.ropescoursesinc.com.

Operator Trainer

An operator trainer is certified through RCI to lead operator training at their facility. Operator trainers must complete specific criteria before becoming certified to train operators (see Operator Trainer Requirements). These individuals must attend training as an operator and receive certification in that course first. If successful in leading an operator training, the individual will receive certification as an operator trainer and will be allowed to train operators at their facility. This certification is valid for 3 years.

Certification as an operator trainer does not include training others to be operator trainers. To maintain certification, an operator trainer must perform 1 operator training per year. If an operator trainer's certificate has expired there is no longer an affiliation with RCI or its policies or procedures.

Operator Trainer Requirements

- 21 years of age or older.
- Hold an operator certificate through RCI and have completed 160 hours of operating a course. *These hours must be documented and sent to RCI.*
- Successfully lead an operator training session under the supervision of a RCI instructor.
- Demonstrate proper judgment and possess good leadership skills.
- Previous management or supervisory experience.
- Professional verbal and written communication skills.
- Agree to uphold all RCI policies and procedures.

Training Records and Requirements

All operators that have been trained by a certified trainer or instructor will be certified to operate the ropes course for 1 year. This is documented on a certification sheet and mailed to the course manager. These certifications must be kept on file.

It is required that all operators must practice the emergency take down at least once a month.

Operator Extras

Each course will need a point of sale, which should be considered when assigning staff at the course for the day. This person could be in charge of selling tickets, administering wristbands and explaining the rules.

The ground operations include: crowd control, explaining rules, answering questions, harnessing, loading, unloading, de-harnessing and more crowd control. This is a lot of work for 1 person on a busy day. If there is more work to be done on the ground than on the course, prepare accordingly.

On busy days, the minimum number of staff required may not be sufficient to maintain efficiency. Consider any bottlenecks (tops of staircases, entrances for Sky Rails™ and QUICKjumps) on your course and station someone there to help guide the traffic. An ideal staff to participant ratio is 1:15.

Participants

This section will explain participant rules and discuss various scenarios operators may face while operating the course.

Participant Rules and Responsibilities

1. **Management reserves the right to refuse anyone access to the attraction if we believe it would be unsafe for them, other guests or the staff. Reasons a guest may be turned away include, but are not limited to, being under the influence of drugs or alcohol, exceeding the weight limit, inability to understand or obey the rules or being physically unable to traverse the elements.**
2. **Participating while under the influence of drugs or alcohol is prohibited.**
3. **Cell phones are NOT allowed on attraction.**
4. **Maximum weight is 300lbs (136kg).**
5. **Must be 48" (122cm) tall to participate without a responsible chaperone.**
   Based on observation, RCI recommends that any child under the height of 48" (1.22m) be assisted by a responsible adult. A responsible adult should be over the age of 18, fit all criteria pertaining to the rules and they must stay within 1 arm's length of the child at all times. The child must also fit safely into a harness to be allowed on a RCI product.
6. **Must safely fit in the harness.**
7. **Must have secure shoes. No bare feet, flip-flops or open heel shoes. Make sure shoelaces are tied.**
8. **Pockets must be empty. No loose objects such as cell phones or cameras. Eyeglasses should be secure. Operators are not responsible for items left unattended.**
9. **No gum, food or drinks allowed on the attraction.**
10. **Follow all operator instructions, posted rule signs and stickers.**
11. **Only 1 participant on an activity at a time except if child is being assisted by responsible chaperone.**
12. **No running, jumping, hanging or horseplay. Operators reserve the right to expel participants displaying these behaviors.**
    This rule prevents participants from injuring themselves or others on the course. If a participant displays these behaviors an operator must attempt to stop them or ask them to exit the course.
13. **The redundant sling line should stay in front of and between shoulders at all times. Do not allow redundant sling line to go under arm.**
    When participants are traversing through the course they should have their sling line in front of them and between their shoulders the entire time. This is to prevent possible injury if a participant falls.
14. **Do not touch the overhead tracking system or tamper with harness or redundant sling line.**
15. **Participate responsibly when on the Sky Trail®! You should be in good health to participate. You know your physical conditions and limitations, our operators do not. If you suspect your health could be at risk for any reason or you could aggravate a preexisting condition of any kind, do not participate. Risks are inherent when participating on a Sky Trail®. Injuries that can and will occur, include, but are not limited to bumps, bruises and scrapes. Please be aware of the risks involved with participating. Notify the manager of the attraction of any injuries on the attraction before leaving the area.**

RCI products can require physical exertion by the participant. Participants must climb, bend, stoop and walk up and down stairs, etc. Those who are not able to easily perform these activities should not attempt a RCI product. Anyone with joint or back injuries may re-injure themselves or worsen a preexisting injury. Some courses may be at heights of over 40' (12.2m) and are not recommended for those with heart problems. Women who are pregnant should refrain from participating. In the case of an accident, a manager must be notified and the operator, manager or participant may be asked to fill out a safety report. A safety report form can be found in ***Appendix D***.

It is important to report accidents and fill out a safety report. This can help determine the cause of the accident and the actions to prevent other participants from injuring themselves. If the accident was caused by an operator or course error this must be addressed immediately. If the accident was caused by the behavior or actions of the participant, filling out the proper paperwork can help with preventing a further claim by the participant.

Guest Belongings

People carry around a lot of stuff that is not allowed on the ropes course. The following items are things people have wanted to bring with them: cell phones, keys, wallets, purses, backpacks, guns, chewing tobacco, gum, food, drinks, cameras, iPods, knives, service dogs, shopping bags, walkers, inhalers, epi pens and outrageous hats. It is important to not allow these items for various reasons but mostly so that they are not accidently (or purposefully) dropped on guests below. Having a policy on what do with personal belongings is important. Ideas to consider:

- Lockers
- Storage bins
- Cubbies
- Leave personal items with a friend
- Leave personal items in car

Guest Attire

Participants must have secure footwear; no open heeled shoes, no flip-flops and no bare feet. Consider:

- Having shoes to borrow
- Having shoes to buy

Participants should also be dry and in clothing that covers their shoulders and thighs. This is to try to keep the harnesses cleaner for longer periods of time. Guests should also have on pants or shorts, no skirts or dresses.

Consider:

- Having clothes to buy
- Having disposable clothes to use

Assisting Participants

Below are some common reactions participants may have and how to handle situations appropriately.

Participant Freezes Up

Operators should never pressure a participant to go on a RCI product. If the participant is scared, talk in a calm, reassuring voice. An operator may encourage them to try 1 of the easier elements or assist them across an element to help gain confidence. If the participant is on an element away from the operator, the operator should immediately go to them. Help them to the nearest exit if they would like to get off the course. Operators may assist a participant through the course as long as the operator is still able to observe ALL participants on the course. If the participant directs the operator's attention too much, they may need to make the decision to take them back down to the ground.

Participant Panics

An operator should go to the participant immediately. Reassure them and talk in a calm voice. Many scared or upset participants will ask the operator to hold their hand and physically guide them through the course to an exit. If the participant will not respond to the operator, the operator should locate a parent, chaperone or friend to ask for advice or assistance in helping the participant.

Participant Urinates While on the Course

Facilities and operators should take all precautions to prevent a participant urinating while in their harness. Most of the time this happens because a participant has been waiting in line for long periods of time to get on the RCI product. RCI recommends 2 things to remedy this situation.

1. If a person is spotted that may need to use the restroom, or is overheard saying they need to use the restroom, operators should encourage them to use the restroom and return to their place in line.
2. Signs should be posted addressing this issue. Signs should clearly state that those who are waiting in line and may need to use the restroom may do so without the penalty of losing their place in line.

If a participant urinates in their harness, escort them off the course, and remove the harness from the participant. If your facility has an area for cleaning harnesses take the harness to be cleaned as soon as possible. If the harness cannot be cleaned immediately, it should be hung up to dry out of direct sunlight and cleaned at the earliest convenience. If urine is on the course, operators should clean it off as soon as possible. Prevent other participants from traversing the area with the urine. Rinse the area several times with warm water. Allow the area to dry.

Approaching Unruly Participants

Occasionally a participant may become disruptive on the course. They may disregard the rules and disobey operators when asked to stop their behavior. Different factors such as company policy, the number of participants on the course and the age of the disruptive participant will influence the operator's course of action.

If a participant becomes unruly and begins to behave in an unsafe manner an operator must reprimand the participant immediately.

If the participant disregards the first warning it is necessary to tell the participant they must leave the course.

Inspection

In this section you will learn how to inspect all safety equipment and a standard ropes course. For inspection criteria on a CTS Zip Line, Sky Rail™, Sky Tykes® or QUICKjump, please go to the product's specific section.

Daily Pre-Use Inspection

A daily inspection of the RCI product and the safety equipment must be completed by a certified RCI operator and/or trained maintenance staff before participants are allowed on the course. The daily inspection is a visual and tactile inspection of the course structure and all safety equipment. Use the daily checklist to complete the daily inspection. The daily inspection must be documented on the daily checklist provided or approved by RCI. This checklist must be filled out completely each day and kept on file at your facility. The time a full course and equipment inspection takes depends on the course size, specifics and how many people conduct the inspection. The inspection can take anywhere from 30 minutes to an hour or more.

Many courses keep an inspection binder that is maintained by the ropes course manager and is easily accessible to the operators performing the inspection. These checklists should be reviewed by a manager daily to ensure that there are no issues that need to be addressed on the course.

RCI may request copies of these daily checklists at any time.

Ropes Courses, Inc. Checklist

Date: _____ Manager: _____
Operators: _____
☐ Indoor ☐ Outdoor Weather: Temp: _____ Wind: _____ Rain: _____ Snow: _____
Type of Structure: ☐ Sky Trail® ☐ Sky Tykes® ☐ CTS Zip Line ☐ Sky Rail™
Pre-Use Inspection:
Inspect All Safety Equipment ☐ Harnesses ☐ Slider Assemblies/Sling Lines ☐ ETK's
Inspect All Parts of the Activity and Surrounding Area ☐ Steel Structure ☐ Nuts & Bolts
☐ Track ☐ Platforms ☐ Additional Structures (ie Quick Jump) ☐ Surrounding Area
Elements *(Please specify which level, additional level form on next page):*
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
☐ _____ ☐ _____ ☐ _____
Notes: _____

Activity Set Up:
☐ All access restrictions removed ☐ Set out harnesses and slider/sling lines
☐ Set up any stored away entrance access ☐ ETK inspected and set up
Outfitting:
☐ Check all participants for harness fit*
** Shoulder straps snug and don't come down over shoulders.*
** All buckles properly buckled and snug.*
☐ Attach and adjust slider/sling line
☐ Participants must see operator if they remove their harness
Ropes Course Operational Procedures:
☐ Point out all posted safety rules
Activity Closing:
☐ ETK taken down and stored properly ☐ All access restrictions replaced
☐ Store all harnesses and slider/sling lines ☐ Check area for lost articles
☐ Put up any removable entrance access
Operator Reports:
☐ Accidents/Incidents* ☐ Course maintenance or repair needed
**Fill out Safety Report if any accidents are reported.*

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Opening the Course

Operators must arrive before opening the course to inspect the course and all safety equipment. Before they enter the course the designated operator(s) must inspect their own safety equipment as well as be checked by another operator.

There should always be more than 1 certified operator on site before opening. In the event that the operator who performs the pre-use inspection on the course needs any kind of assistance, another certified operator must be available. All inspections must be documented on the daily checklist. Any element that a certified operator deems unsafe for use must be closed off and documented.

Setting Up Sling Lines

Include the location and issue found in your documentation, and place track stops (see Appendix B) on both sides of the element(s). Inspections include the course, all safety equipment, the emergency take down kit (ETK) and the weather conditions if applicable. Before opening to the public there must be the appropriate number of operators present at the course and outfitted in the appropriate safety equipment. The ETK(s) must be in the designated locations on the course. All barriers to the course should be removed and queue lines set up.

Safety Equipment

All safety equipment must be inspected thoroughly prior to use. The following is a list of failure criteria for safety equipment:

- Frays: any webbing, stitching, rope or wires that are unraveling or becoming worn at the edges.
- Abrasions: any webbing, stitching or rope that has damaged caused from scraping, dragging or friction that does not cause melting.
- Cuts/rips/punctures: any webbing, stitching, rope or wires that have been damaged by a sharp object.
- Warping: any webbing, stitching, rope, wires, buckles or other hardware that has a permanently altered shape caused by impact loads or other stressors.
- Chemical exposure: any webbing, stitching or rope that has been exposed to harsh chemicals such as bleach or ammonia. This may not always cause discoloration.
- Glazing: any webbing, stitching or rope that is melted caused by heat or friction that is not a part of the original design.
- Discoloration: any webbing, stitching, rope or hardware that has been permanently discolored due to excessive UV exposure, chemical exposure, paint or bodily fluids.
- Alterations: any equipment that has been altered from its original design.

Damaged Equipment Label

Damaged equipment labels should be filled out and connected to any equipment that is in questionable condition. **This is required before sending to RCI for repair.**

Harnesses

All harnesses must be inspected thoroughly prior to use. Failure to inspect harnesses prior to use may result in serious injury or death.

To inspect:

1. Make sure all webbing loops are fully extended through the buckles and that the yellow bar is pushed down towards the waist strap.
2. Inspect all webbing (straps) and stitching for cuts, fraying, pulled or broken threads, abrasion, excessive wear, altered or missing straps, burn, heat and chemical exposures.
3. Examine all of the hardware on the harness. Hardware includes all buckles, clips and metal rings found on the harness. They must be inspected for deformation, fractures, cracks, corrosion, deep pitting, sharp

edges, cuts, deep nicks, missing or loose parts, improper function, evidence of burns, excessive heat and chemical exposure.

*All Trail Plus Harnesses must have the harness keepers for the yellow bar. Please contact RCI to order harness keepers.

WARNING:
If there are any of these damages to the webbing the harness must be retired.

WARNING:
Harnesses that have damaged hardware must be retired.

4. Inspect all of the stitching on the harness for broken, pulled or cut thread. The joints of the webbing must not move apart.

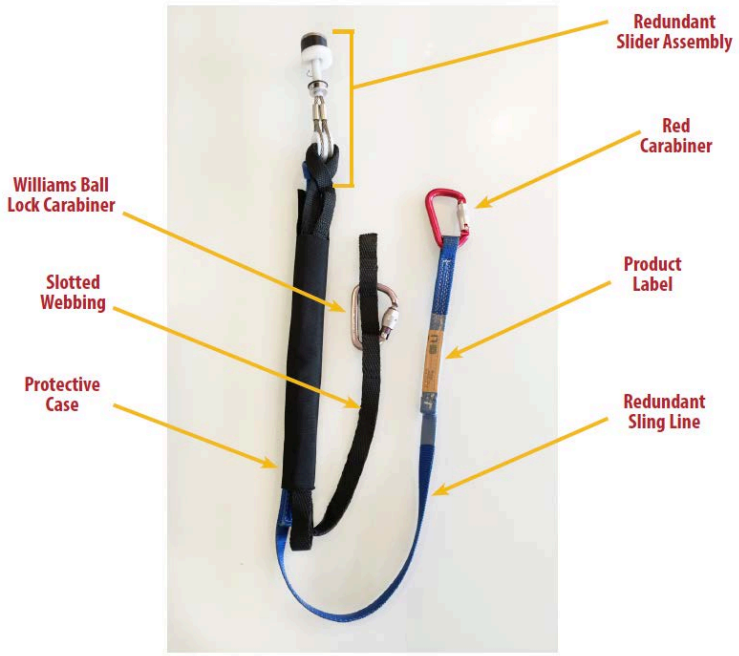
Good Stitching

Bad Stitching

5. Any harness that is in questionable condition should be clearly marked with a damaged equipment tag and taken to the course manager. Document the equipment removed on the daily inspection sheet.

Sling Lines

All sling lines must be inspected thoroughly prior to use. Failure to inspect sling lines prior to use may result in serious injury or death.



To inspect:

1. Inspect all webbing on the sling line. An inspector must perform a tactile and visual inspection of the webbing. There should be no cuts or abrasions to the webbing. Changes in the thickness of the strap are not acceptable because this could indicate damage and the sling line must be retired.
   a) Wear will occur on the surface of the nylon or polyester webbing and the sides will begin to appear "fuzzy". Certain areas may tend to wear faster than others. These areas include where the webbing comes into contact with any of the metal hardware. Fuzzing is normal wear and is not a cause for retirement.
   b) The sling line must be retired from service when 50% of the picks in the same row are not visually identified as a single pick due to an abrasion. Slotted webbing must be retired if:
      i) There is 1 or more broken strands in the webbing. This cannot be fixed by melting the strand.
      ii) There is 1 or more protruding loops of webbing that are larger than 1/2". Do not aggravate small loops by pulling on them or attempt to burn them.


Broken Strand in Slotted Webbing

2. Inspect the sling line for broken, loose or fraying stitching. A web sling shall be removed from service if any of the following are visible.
   a) If a sling rated capacity or sling material identification is missing or not readable.
   b) Acid or alkali burns.
   c) Melting, charring or weld splatters on any part of the web sling.
   d) Holes, tears, cuts, snags or embedded particles.
   e) Broken or worn stitching in load bearing splices.
   f) Excessive abrasive wear.
   g) Knots in any part of the web sling.
   h) Excessive pitting, corrosion, cracked, distorted or broken fillings.
   i) Any other visible damage that causes doubt as to the strength of the sling.

Any sling line that is in questionable condition should be clearly marked and taken to the course manager. Document the gear removed on the daily inspection sheet. If there are any questions about a piece of equipment contact RCI for assistance.

Carabiners

An acceptable carabiner must open and close easily and smoothly, and there must be no wear on the metal greater than 10% of the original diameter.

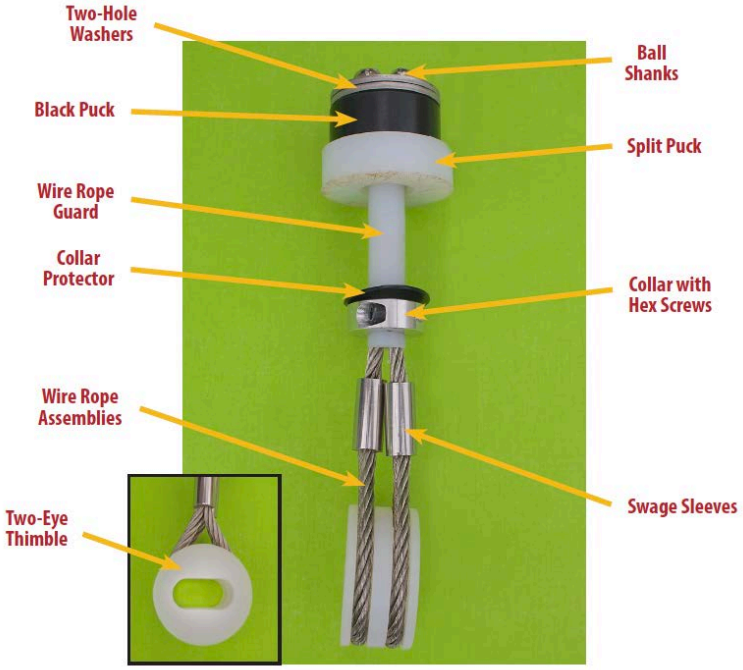
To inspect:

1. Open the gate of the carabiner and inspect for signs of wear, distortion or breaks. The gate should rotate easily and completely and should close and lock automatically when released. If the carabiner shows excessive wear, distortion, breaks or can come open when in the locked position, it must be taken out of service and retired.
2. If the carabiner requires a key, check that the carabiner cannot open without a finger key.
3. Perform a squeeze test by squeezing down on the carabiner gate while it is in the locked position.

Redundant Slider Assembly

A Redundant Slider Assembly (RSA) is made up of 2-wire rope assemblies along with several wear and form holding components including ball shanks, a black puck, split puck, cable sleeve and 2-eyed thimble.

A daily, pre-use inspection of all RSAs must be performed before they are put into service. Critical components of the slider assemblies must be present and without any deformation. Operators must do a hands-on inspection of all components of the RSA. Remove from service and notify a supervisor immediately if anything on the RSA has been compromised. Use the criteria in the following pages to inspect each part of the RSA. A visual inspection must be made of every RSA each time it is put into the overhead track. Failure to do so could result in serious injury or death.



To inspect:

1. Ball Shanks:
    a. Look at the top of the ball shanks; the wire should be flush with the ball and should not have slipped below the top and into the ball.
    b. Look for any cracks or rust with severe pitting in the surface of the metal.
    c. Exposure of any wires through the shank is cause for immediate retirement of the slider.
2. 2-Hole Washers:
    a. Look at the holes of the washers and make sure the washer cannot come off the ball shanks.
    b. Examine for any cracks or rust with severe pitting that penetrates the surface of the metal.
3. Black Puck
    a. Examine for large gouges or cracks. Retire if the black puck is broken.
    b. Inspect the serial number to make sure it is still visible. The RSA must be retired if the serial number is gone.
4. Split Puck:
    a. Make sure the puck is greater than 3/16" (4.5mm) thick.
    b. See Appendix A for details on how to replace the split puck.
5. Cable Sleeve:
    a. The cable sleeve must be replaced when it has worn through exposing the wire rope.
6. Collar Protector:
    a. If this component is missing, the RSA is still tolerable.
7. Collar:
    a. Make sure screws are present and tight.
8. Wire Rope Assemblies:
    a. Examine each set of wire ropes for rust with severe pitting which penetrates the surface of the wire.
    b. Inspect each wire rope assembly for broken wires.
    c. The two-in-two rule is to be used when inspecting the wire rope. For each wire rope assembly:
        i. Within any 2'' span of wire rope on a Redundant Slider Assembly, 2 wires are allowed to be broken. If there are more than 2 wire breaks within a 2'' span, the RSA must be retired.
9. Swage Sleeves:
    a. Look down into the sleeves; wires should be close to the top. Wires must be visible and the swage sleeve cannot be moved.
    b. Inspect for exposed wire rope. This means the swage sleeve has worn down too much.
    c. Look for any cracks or rust with severe pitting below the surface. These are all causes for retirement of the RSA.
10. 2-Eye Thimble:
    a. Inspect the inside of the thimble where the sling line is attached to be sure the wire rope has not worn through.
    b. There should be no visible cracks.

Broken Cable Sleeve

Emergency Take Down Kit

Emergency take down kits (ETKs) are put on the course in designated locations, every day prior to opening. The ETK for every course must contain an orange rescue rope, a tan guide rope, 3 aluminum carabiners, 1 steel carabiner, 1 RSA, 1 steel rescue figure 8, 1 aluminum figure 8, rescue scissors and a bag to contain it all. ETKs must be inspected every day, prior to opening the course.

To inspect:

1. Start by taking the kit apart. Always empty out an ETK in a clean environment. Never allow rope to sit on a surface that has had chemicals on it such as a parking lot.
    a. Remove the ropes from the bag and take off the carabiners and rescue figure 8.
2. Inspect the entire rescue figure 8 for sharp edges, cracks, or grooves in the metal.
3. Inspect the aluminum figure 8 for sharp edges, cracks, or grooves in the metal.
4. Inspect all carabiners as described on page 28.
5. Inspect the RSA as described on page 30.
6. Inspect the scissors to make sure they function properly and are not broken in any way.
7. The rope can be examined as it is being fed into the bag. Run your hands over the entire length of the rope checking for cuts, abrasions, damage to the sheath of the rope and feel for any changes in the diameter of the rope.
8. Run your hands over the ferrules to check for any sharp edges and examine the ferrules for any cracks. There are 2 folds that run the length of the ferrule where it was compressed onto the rope. There should be no cracking along these folds. A serial number must be legible on at least 1 of the 2 ferrules located on both ropes.
9. The bag the rope is packed into must be checked for rips and tears. If the handles of the bag are beginning to show signs of wear, the bag should be replaced.

Broken Ferrule

Packing the ETK

Step 1
Make a knot in the orange rope approximately 5-6"(13-15cm) from the end of the rope without the loop. Place the end of the rope through the hole in the bottom of the nylon bag and then tie another knot on the outside, bottom of the bag.

Step 2
Place 1 arm through 1 handle of the bag. With the same hand grab onto the orange rope. With the opposite hand, pull the orange rope down into the bag. Never coil the rope or wrap around an elbow and then place in the bag. An inspector must examine the rope for damage as it goes through their hands. The last 3-4' of rope must be left out of the bag.

Step 3
When a guide rope is included in your ETK, it can be put into the bag in the same way as the orange rope. Begin with the end of the rope opposite the loop. Always put the guide rope in after the orange rope. Leave the loop out of the bag.

Step 4
Connect the looped ends of the orange rope and tan rope together with 1 of the smaller, aluminum carabiners.

Step 5
Attach the larger, aluminum carabiner to the loop of the orange rope only. Then, attach the safety scissors to the large, aluminum carabiner on the orange rope.

Step 6
Put the remaining tan rope into the bag, followed by the 2 carabiners and scissors. This should leave a large loop of the orange rope out of the bag. Next, connect the slider assembly to the smaller end of the rescue figure 8 using the steel carabiner. Make sure the carabiner has the larger end facing down.

Step 7

When the rescue figure 8 and the slider assembly are attached, place the loop of orange rope through the larger hole in the rescue figure 8, pull it up and over the slider assembly and carabiner and pull tight so the rope rests on the "shoulders" of the rescue figure 8. Then put the remaining orange rope into the bag.

Step 8

Place 1 of the handles of the bag in the carabiner. It is only necessary to put 1 handle in the carabiner, not both. Last, pull the drawstring closed to protect all of the equipment in the bag. The ETK is now ready to be put in the track and brought to the designated area on the course.

Equipment Storage Procedures

- Store in a cool, dry area away from any damaging chemicals such as acids, petroleum based products, alkaline or bleach.
- Do not expose to direct sunlight for long periods of time.
- Only store when dry.
- Do not drag equipment across rough surfaces.
- Do not store in temperatures exceeding 110º F (43ºC).

Equipment Cleaning Procedures

1. Fill a clean tub with warm water.
2. Add 1 of the following: vinegar, Dawn dish soap or mild detergent. Except for vinegar, use 1 parts cleaning solution to 1200 parts water (ex: ½ oz. detergent to 5 gallons of water). If using vinegar mix ¼ cup vinegar with 1 gallon of water (approximately a 1:100 ratio).
3. Immerse the harness, sling line or rescue rope in the cleaning solution and scrub the soiled parts of the webbing using a soft cloth or another piece of webbing. Do NOT use scrubbing tools such as wire brushes as this can damage the webbing. Do not soak the equipment for longer than 10 minutes.
4. Thoroughly rinse the safety equipment in fresh water.
5. Hang equipment up to dry out of direct sunlight.

WARNING:

- Never use any harsh chemicals such as bleach or ammonia.
- Do not use laundering tools as this could damage the harness or sling line.
- Never force dry or put a harness in a drying machine.
- Always hang up to dry, out of direct sunlight.
- Do not use a pressure washer.

Course Structure

All components of the ropes course must be inspected before the course opens each day. The entire course must be cycled by an operator as part of this inspection in which every element is crossed and all stairs are climbed. Before any part of the course is traversed, operators must be outfitted in all the proper safety equipment and have a current operator certificate through RCI.

Steel Structure

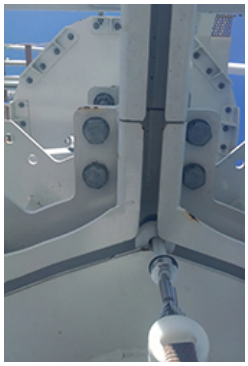
1. Footings: Footings are the foundation for an outdoor ropes course.
    a. Look for major cracks in the concrete.
    b. If there is a concern about the course footing(s) please contact RCI immediately for assistance.
2. Base Plates and Anchor Bolts: These are the bottom of the columns and the specialized bolts that keep the course anchored in place.
    a. Check the weld between the base plate and the column for signs of cracking such as chipped paint.
    b. These base plates are anchored to the concrete footings, or floor, by anchor bolts and a standard nut. Each nut must be in contact with the base plate. If a nut is tightened, but continues to turn, please contact RCI for proper procedures.
    c. The maximum allowable gap between a base plate and the footing is 1/4".
    d. Never cut any excess material off an anchor bolt without permission from RCI.
3. Nuts and Bolts: RCI uses Anco® lock, or self-locking nuts. In order for the Anco® nut to be used properly, the ratchet pin must be engaged in at least 1 full thread of the bolt.
    a. Look underneath all platforms at the nuts and bolts. Be sure all nuts and bolts are present and secure. The nuts should be in contact with the steel plates. If an Anco® lock nut is ever removed from a bolt, a new nut must replace it.
    b. The plate connections should be tight without the ability to see light between the column and the platform or at splice plates.
    c. Direct tension indicator (DTI) washers are used throughout the entire course. DTI's must be properly crushed at all locations. Contact RCI's Inspection Department for more information on DTI washers.

Anco® Lock Nut

4. Columns: It is best to begin the inspection at 1 column and work around the course to all the other columns.
    a. A daily inspection should begin at the ground level. This inspection is to check for anything out of the ordinary. From the ground it is easier to visually inspect bolts under platforms.
    b. Any loose nuts found must be tightened. Use a wrench to hand tighten the nuts.
    c. Follow the column upward, checking for any rust or large areas of chipped paint. Rust should be noted on the checklist and the proper personnel should be alerted until the issue has been addressed. Chipped paint should be touched up in a timely manner to prevent oxidation or further damage to the paint.
5. Splice Plates: Splice plates are found where sections of the course come together. All splice plates should be visually inspected that:
    a. All bolts and nuts are present and secure.
    b. The splice plate is flush with no visible space between the connection.

Splice Plate

6. Paint: Paint protects the steel from the weather and adds visual appeal for customers.
    a. Inspect for areas of chipped paint.
    b. Chipped paint should be fixed within the first 48 hours of exposure.
    c. Surface rust found on a course is not an immediate concern, but it should be addressed regularly and in a timely manner as to prevent further oxidation.
7. Entrance Barrier: The RCI product must have a barrier to secure the course entrance. Your facility should make reasonable effort to ensure that the RCI product is not accessible by any individual during the hours that the course is not in operation. A padlock must be in place when the course in unattended by operators. A carabiner of any kind is not a suitable lock.
8. Inclines: Most RCI products have 1 or more incline elements that are used as the entrance to the first level of the course and to upper-levels on multi-level courses.
    a. The inspection should begin at the base of the entrance incline. The base plate of the entrance incline should be flush with the ground. Be sure nuts are in contact with the base plate and examine the area around the base plate for cracks in the concrete or floor.
    b. Inspect the handrails for sharp spots, chipped paint, or rust.
    c. Check that the connections are flush and tight with no missing bolts.
    d. The staircase should be free of any debris and be securely bolted to the steel structure.
    e. If the incline has catch ropes, examine these ropes at their connection points to be sure they are secure. Also inspect for major frays or cuts in the ropes.
        i. If a catch rope is removed at any time it must be replaced immediately by another rope.
    f. Specialized incline catches have been provided to all courses that have a straight overhead track to help reduce the risk of severe injury if a fall on the stairs occurs.
        i. There should be 3 catches per incline on the course.
        ii. Inspect these daily for proper functioning by travelling through them. When coming down the stairs they must only open when the pull line is pulled.
        iii. If an incline catch does not open or you can travel through it without pulling the rope, call RCI for further assistance.
9. Overhead Track: While moving throughout the ropes course, check the overhead track.
    a. The track should be free from debris. Sticks, insect nests, bird nests and dirt are some things to look for in outdoor courses. All insect and bird nests should be removed daily.
    b. Make sure the track aligns properly at the connections. Should there be a significant misalignment found anywhere on the track, immediately notify RCI.
    c. There must be no gaps between pieces of overhead track greater than 3/4".


Overhead Track

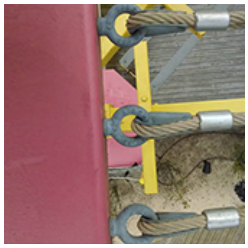
10. Platforms:
    a. At each platform, look at the base of the column. Inspect the weld around the column for any cracks.
    b. Be sure the plate of the column is flush with the platform. There should be no space between the 2, and the heads of the bolts should be in contact with the column plate.
    c. Check for any sharp edges or tripping hazards.

Elements

All elements must be crossed and inspected along the way. There should be nothing out of the ordinary. Anything found should be noted on the checklist and a manager or supervisor should be notified immediately. Any elements that fail must be blocked off until they can be replaced. See Appendix B for instructions on how to use a track stop.

To inspect the elements, follow these steps:


Fraying Combi-Rope


Eye Bolt Connection


Plumber Element

1. Combi-Rope: All rope elements are constructed out of a 5/8", 6-strand combi-rope. Combi-rope is an outer poly rope with an inner wire rope cable.
    a. The element ropes should be inspected for any damage where the wire rope cable has been exposed. If the cable is exposed examine the area further for any individual broken wires. If any broken wires are found on the element, a replacement element should be ordered. To determine if the element needs to be retired follow this criteria:
        i. There is only 1 wire break in 1 strand of rope within 1 lay.
        ii. There are only 3 wire breaks in 1 lay of rope.
        iii. There are only 7 wire breaks in 1 continuous length of element.

Any circumstance over these, fails the rope, and it should be scheduled for replacement. If a replacement element is not available at your facility, the damaged element MUST be closed off to prevent participants from traversing it. Closing of an element can be accomplished by using specialized track stops. Rope with only exposed, but no broken individual wires may be wrapped with Rescue Tape®, a self-fusing silicone tape. This tape adheres to itself and creates a waterproof, airtight barrier.

2. Plumber: Plumber is a plastic lumber.
    a. Inspect for cracks and splinters. These can be temporarily repaired until a new element can be ordered.
    b. Inspect for any loose plumber that is attached to inclines or walkways. Tighten any loose bolts.
3. Eye Bolt Connections and Thimbles: Eye bolts are often used to connect elements to the platforms that participants stand on.
    a. Ensure that the base of the eye bolt is flush with the platform face-plate.
    b. If an eye bolt is worn past 10% of its original diameter, the element must be replaced.
    c. RCI uses metal thimbles on rope elements, looped inside an eye bolt to secure elements. Make sure that none are broken as this could cause excessive wear or injury to participants. Small cracks in the thimble are acceptable but should be monitored.

Quick Link Connection

Ferrule T With Loose Screw

Poly Fix With Missing Screw

4. Quick Links: These are essentially a removable chain link that is commonly found on beam elements.
    a. The quick link must have its gate tightly closed.
    b. It cannot have over 10% wear into the steel surface that hangs, rubs and holds against the element.
    c. The steel on the beam element that is supported by the quick link must have at least 3/4" of steel between the hole and the top edge.
5. Ferrules and Ferrule T's: A ferrule is a metal ring or cap placed around the combi-rope for reinforcement or to compress pieces of rope together.
    a. These must not be cracked and the combi-rope cannot pull through its center. If there is an issue with the ferrule, the rope element needs to be replaced.
    b. Inspect for sharp spots on the ferrules. If sharp spots are found on ferrules they must be filed down or wrapped in rescue tape.
    c. Ferrule t's are found where 2 combi-rope lengths intersect and connect in a "capital-T" style. It is important that sharp points on aluminum ferrule t's are filed down so a participant cannot be cut by the edges. At the end of a ferrule-t, is a set screw. The set screw holds the ferrule-t tightly against the combi-rope it intersects.
    d. Check for loose ferrule t's as you traverse elements. These should be tightened to prevent excessive wear to the combi-rope.
6. Poly Fix: Poly-fixes are plastic ferrules and can be found on many of the rope elements.
    a. Inspect for cracks, sharp spots or looseness.
    b. All screws must be fully tightened, and should not be able to catch on a participant's clothing or harness.

Theming and Sun Shades

Inspect for:

1. Themed items in elevated locations must be securely attached. A variety of bolts, screws, welds and other types of fasteners must be checked for looseness or any signs of failure.
2. When the theming attachment is not secure it is considered a failure condition. Document any issues on the daily checklist and inform the course manager of the issues.
3. Make sure theming does not interfere with a person's ability to traverse the course.

Sun Shades

4. Inspect the sun shades for rips and tears in the material. RCI does not manufacture sun shades and appropriate manufacturing information will be provided to the course owner.
    a. Please refer to respective manufacturer information on inspecting, maintaining and removing sun shades and wind screens during harsh weather conditions.
5. Any issues with the sun shade attachments should be reported to RCI. If a sun shade has become unattached at any place, all elements under the shade must be shut down until it can be fixed.

When closing the course, operators must ensure that everyone is off the course and all gear is stored properly. If harnesses and/or sling lines become wet they must be stored to dry, out of direct sunlight. If gear was soiled with a biohazard, the proper cleaning procedures must be taken before leaving the course. Fences and barriers should be put back in place to prevent reasonable efforts to gain access to the course without supervision. If any injuries occurred throughout the day, all necessary paperwork must be completed and sent to RCI.

Course Details

Data Plate

Each course is unique and has a set number of people who can be on the course at 1 time. This number does not include operators. Individual courses are assigned a data plate, which is posted on the entrance to the course.

Sky Tykes®
Data Plate

On this data plate you will find:

- Manufacturer information.
- Course serial number.
- Maximum number of participants.
- Participant weight limit.
- Unaccompanied minimum height.
- Participant speed.

Stickers

All stickers must be in place on the structure according to manufacturer specifications.

Column Sticker

Stickers may include:

- Column number stickers.
- Warning stickers.
- Operator instruction stickers.
- Inspection certification stickers.
- Any other stickers provided by RCI.

Replacement stickers can be ordered from RCI. If any stickers are missing, they must be replaced.

Discovery
Rules Sign

Rules Sign

A participant rules sign is provided with each course and it is mandatory that this sign is posted near the course. Rules signs must be accessible to participants and presented in such a way that makes viewing them easy. These signs should be posted near the entrance or loading area of the course. If your location sells tickets for the course at a distant location, rules signs should also be kept there to allow participants to read the rules and restrictions before they purchase a ticket. All participants have a duty to read and acknowledge the rules.


Entrance
Barrier Option

Entrance Barrier

It is the duty of the course owners/operators to ensure that appropriate barriers are kept in place for the course.

Barriers may include:

- Perimeter fencing.
- Entrance barriers with a lock.
- Walls or rooms.

All design and engineering specifications for the entrance barrier must be in place and have an appropriate padlock. Carabiners may not be used as locks for an entrance barrier.

Barrier Elements
The elements next to any incline must prevent participants or operators from swinging into them. Barrier elements have been designated by RCI's Engineering Department and must be in place in order to be in compliance with RCI Standards.

Keeping Track of Equipment

Table 1: Soft Gear Service Life

Item	Maximum Service Life
Harness	5 years
Sling Line	3 years (webbing only)
Carabiner	5 years
Rope	5 years
RSA/Trolley	10 years

Table 2: Gear Record Example

Description	Serial Number	Date of Manufacture/Or First Use	Latest Retirement Date	Actual Retirement Date	Reason Retired
Small Harness	00000	1/1/2015	1/1/2020		
Small Harness	00001	1/1/2015	1/1/2020	2/14/2016	Chemical Damage
Small Harness	00002	1/1/2015	1/1/2020		
Small Harness	00003	1/1/2015	1/1/2020		
Small Harness	00004	1/1/2015	1/1/2020		

Since safety equipment has specific maximum service life spans, it is important to keep track of all gear on the ropes course. RCI recommends that each course keep track of all equipment being used. See above chart that could be used to maintain this equipment record.

Replacement Parts
All replacement parts must be purchased or approved by RCI. Parts can be ordered via phone or email from the Product Sales Department.

Quarterly and Annual Inspections
A quarterly inspection involves the safety equipment, ropes course and all course documents. A trained person at each facility must inspect a quarter of all RSA's for wire breaks in the wire rope assemblies. This is more involved than a daily inspection, for the wire rope guard must be removed so that all wires can be examined. This inspection must be documented on the proper form, which can be acquired from the RCI Inspection Department. Please send each quarterly inspection to RCI Inspection Department for review. By the fourth quarter, all RSA's will have been inspected in this way. Harnesses and ETKs must also been thoroughly inspected.

All course documents must be reviewed by the manager including:

- Operator certificates
- Trainer certificates
- Daily inspection sheets
- Safety Equipment Inventories
- Annual Inspection Report

An annual inspection of a RCI product is a very thorough and detailed examination of all components of the ropes course including safety equipment. Annual inspections must be performed by a certified RCI inspector who has undergone and passed the inspection training. If another individual who has not completed the Sky Trail® inspection training performs the annual inspection, the inspection will be considered void and a course certificate will not be issued.

If an annual inspection is not performed, your facility will assume all liability for structure and safety. Annual inspections are necessary to be able to verify that the RCI product meets the standards set by the government and manufacturer. The inspection is an important step in providing participants a safe experience on course. During use of a course, some items become worn and other items will need routine maintenance. It is the responsibility of the inspector to locate and start a plan for the continued safety of the participants.

Inspection blueprints for systematic inspection must be purchased from RCI. Please allow 4 week's notice prior to certification expiration to compile the prints.

RCI recommends maintaining written documents of the following:

- Maintenance and inspection records.
- Accidents or near misses.
- Site-specific, appropriate emergency action plan (EAP).
- Internal reviews of incidents that are related to the EAP.
- Operator certifications.

Closing the Course

When closing the course, operators must ensure that everyone is off the course and all gear is stored properly. If harnesses and/or sling lines become wet they must be stored to dry, out of direct sunlight. If gear was soiled with a biohazard, the proper cleaning procedures must be taken before leaving the course. Fences and barriers should be put back in place to prevent reasonable efforts to gain access to the course without supervision. If any injuries occurred throughout the day, all necessary paperwork must be completed and sent to RCI.

Weather Procedures

Operating a course during adverse weather is at the discrepancy of the facility where the course is located. RCI recommends courses list weather on a website and/or have signs on site stating your weather policies.

Wind

Depending on the geographic location of a course, the structure is designed to withstand very high wind speeds. However, it is not safe to operate a RCI product under extreme wind conditions. Extreme winds include those that inhibit any vision or hearing, or are creating unsafe conditions on a Sky Trail®, CTS Zip Line, Sky Rail™ or free fall device. An operator must be able to communicate with other operators and participants in a reasonable manner. If winds inhibit adequate communication, the course must be shut down until wind speeds reduce. Likewise, it is important for operators to monitor participants continuously. If winds are making it hard to see, operations must cease.

Crosswind/Headwind/Tailwind

Certain wind directions will affect a CTS Zip Line or Sky Rail™ more than it would a course. A crosswind is a wind that blows across, or perpendicular to the line of travel. If a crosswind is present, depending on the speed, it could be necessary to shut down areas of the course, run a CTS Zip Line or Sky Rail™ in only 1 direction, or implement a weight minimum for participants. Large gusts of wind blowing across a zip line could stop small participants and prevent them from making it all the way to the other side. Therefore, a weight restriction could be enforced until the wind conditions are ideal. The weight minimum may vary between different zip lines or facilities. Please consult a supervisor for the weight minimum.

A headwind is a wind that blows against the direction of travel of a participant. A headwind reduces the participant's speed and makes it more difficult to reach the landing platform. Depending on the speed of the headwind, a weight minimum should be implemented. If certain participants do not weigh enough, they could stop before reaching the landing platform. If the headwind is very strong, participants may have to ride the zip line in 1 direction only.

A tailwind is the opposite of a headwind, where the wind is blowing in the direction a participant is travelling. A tailwind increases the speed of a participant when zipping, causing them to come into the landing platform "hot" or very fast. A tailwind is less likely to require suspending zip line operations, unless it becomes too dangerous to catch participants because their rate of speed is too fast.

Rain

The course can be operational while it is raining. Please notify participants to be more careful on solid surfaces as they could become slippery. Make sure all the safety equipment is allowed to dry completely before storing. Harnesses should be hung to dry, out of direct sunlight. It is important to stretch out the rope in an emergency take down (ETK) and let it dry overnight before packing it back into the bag.

Thunderstorms

If inclement weather is known to be approaching, operators should regularly check weather and radar to monitor the storm. Upon hearing thunder, all participants must be asked to leave the course immediately and instructed to find shelter in their vehicle or an enclosed building. Sheds, picnic shelters, tents or covered porches do not protect people from lightning. Thunder indicates that lightning is in the area. Lightning can strike as far as 10-15 miles away from the source. So even if the storm is not overhead, as soon as thunder is heard, all participants must evacuate the course immediately. There is immediate threat when thunder is heard.

Once all participants are off the course, operators should find a safe and secure indoor area to wait out the storm. Operators should not worry about removing the ETK's as it could be dangerous to go on the course. Once the storm has passed, it is okay to let participants back on the course 30 minutes after the last thunderclap is heard. Remind participants that the course is wet and they should be careful when walking on platforms and beams. All safety equipment must be allowed to dry completely before storing after closing the course.

It is okay to touch someone who has been struck by lightning because no electricity is stored in their body. In the event that someone is struck, they will need immediate medical attention. Call 911 and begin giving appropriate first aid. Cardiac arrest is the most typical response from being struck by lightning.

Visit the National Oceanic and Atmospheric Administration for more information about lightning at www.lighningsafety.noaa.gov.

Cold

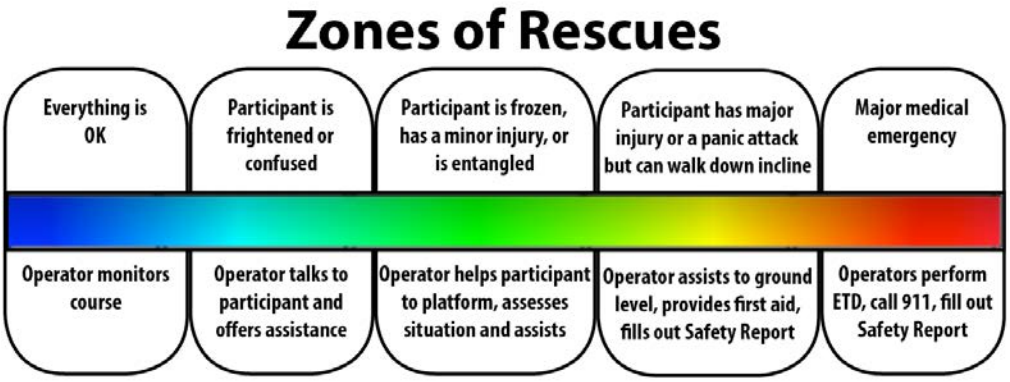
RCI products can be operated in cold weather, including snow. Be sure that the full body harness goes over all clothing, including jackets and coats. Participants should take care when wearing gloves, as their grip may not be as strong or secure as usual due to cold temperatures. Operators should warn participants of possible icy conditions.

Extreme Heat

In extreme heat it is important that operators and participants stay hydrated as much as possible and should be required to wear sunscreen. Supervisors and managers must be sure to rotate operators on and off the course regularly and should monitor the condition of operators in extreme heat. Operators must pay special attention to participants on days that are above the heat average. If participants have been outside without drinking a lot of liquids and then go on the course, the physical activity may cause them to become dizzy or pass out. If someone shows signs of dizziness or dehydration immediately go to that participant and get them to a platform. Loosen their sling line and ask them to sit down on the platform. The operator on the course should notify staff on the ground of the situation and ask them to bring water up to the person. Do not allow the participant to continue on the course. When they are okay, get them to the nearest exit and off the course. If your facility has staff trained in first aid, they should be contacted and attend to the participant. Make sure a safety or accident report is filled out.

Rescue and Emergency Procedures

There are different levels of rescue on any RCI product. Some rescues may be as simple as reaching out a hand, where others will involve emergency procedures. Rescue situations may arise due to equipment entanglement, misuse, or failure; human fatigue, fear or lack of knowledge; or medical reasons such as dislocations, cardiac issues, respiratory issues, seizure or allergic reactions.



To help prevent these situations from happening there are steps that are in place. Equipment and course inspections are conducted every day to keep bad equipment from going into service and to ensure that the course has only appropriate amounts of wear. Operators must have knowledge and understanding of all rules and inform the participant of the rules and recommendations before they participate. Operators go through annual training to stay current in their knowledge. All course locations must have routine audits and practice on a regular basis. Operators must also be willing to provide as much information as the participant desires before participating.

Emergencies that arise on a RCI product are defined as sudden and often unexpected occurrences that demand immediate action to maintain safety. Medical situations are usually the cause of emergencies, but other situations can cause an emergency as well. As an operator, you are responsible for determining when an emergency exists and taking appropriate action.

If an emergency arises on the course, the operators must decide what course of action to take. In many cases, emergencies on the course can be resolved by having the operator go out to the participant and assist them back to the exit area. If, however, a participant's medical condition would be threatened by staying on the course or by moving to the exit, an emergency take down (ETD) procedure must take place.

It is RCI policy that first aid and CPR be available to all participants and implemented in an appropriate manner. Operators for RCI products should be certified in first aid and CPR, as they will be the first responders to any medical emergency on the course. Operators should never put themselves in a dangerous situation or attempt any heroic rescues without full knowledge and understanding of medical aid. If an operator is unsure of how to correctly apply first aid or perform CPR, it is better to wait for professional medical persons to arrive.

Emergency Action Plan (EAP)

Managers and staff must have an emergency action plan (EAP) in place in the event of a medical emergency and the need to quickly remove a participant from the course. These medical conditions may include, but are not limited to heart attack, seizures, asthma attack or unconsciousness. All staff members should know what their participation would be in an EAP. The EAP should also include what to do in the event of severe weather conditions such as tornado warnings, lightning, earthquakes, fires or anything that may warrant the immediate evacuation of participants off the course.

Each course must have a documented EAP in place. Your site can choose to write its own EAP. The EAP should include emergency contact numbers, evacuation routes and procedures, weather procedures, locations of emergency take down kits, the facility address, nearest fire department, paramedics, policy and utility company emergency contacts. Please ensure that your location has an EAP and you are familiar with it and its location. RCI highly recommends that all staff carry a whistle at all times while operating a RCI product. Whistles are helpful with sounding alarms and gaining the attention of participants on the course. Included in the EAP should be the proper alarm calls used when alerting others to an emergency. For example:

- 1 long repeated blow on the whistle indicates an emergency.
- Short blast indicates the operator is speaking to a participant.

Please have an EAP in place before opening your RCI product, and be sure to practice these procedures on a regular basis so that all staff are familiar and comfortable with them. Forms are provided in the back of this manual for writing down important information pertaining to the EAP at your facility. Please be sure these forms are filled out completely and posted near the course or in a binder and kept at the course.

Levels of Rescue

Verbal Rescue

Each person comes to a RCI product with a unique story and background, which operators will most likely never know. The bare minimum an operator may need to do to help someone is talk to them in a calm manner. First, it is important to find out if someone actually needs assistance. Simply asking someone how you can help them can lead you to making the appropriate decision. Approaching a nervous or scared participant and talking them through the steps they need to take to complete an element or to get off the course can be empowering for the participant. Nervousness and fear can manifest in many different ways in a person's expression. As an operator, you should learn to recognize when someone just needs some words of encouragement.

A ten-year-old girl has climbed to the top of the first incline. You are the operator on course and watched her approach the first element. The girl seemed brave as she ascended the incline but when she looked down at the first element, fear took over her face and she moved back towards the column. When she felt the column she turned and clamped tight to it and shut her eyes. You decide to give her 30 seconds to think to herself about her situation before moving over to the girl to speak to her. You approach and ask how she is doing, and she responds meekly with "ok." You have a couple of choices. You can ask her if she would like to sit in her harness and feel that she is secure and reassure her that she will not fall, or you could give her the option of continuing or going down. When giving options it is a good idea to ask 'yes' or 'no' questions rather than stringing together some choices. When a person is frightened, they will probably not process decisions at a complex level.

Reaching Out a Hand

Sometimes a participant may become exhausted, mentally stuck on an element or have trouble reaching the platform. As an operator your best course of action may be to just reach out a hand. The strength in a hand can be mentally relieving for a participant. They know that they are not alone and that someone is helping them. A hand provides stability as well. Similar to the effect of holding onto one's sling line, a hand also provides balance. Always ask a participant if they would like a hand if it looks like they could use one. If they don't, let them know that you are there to help them in any way they need.

A youth participant is standing in the middle of a beam element. He is gripping tightly to his sling line and looks scared. You move over to give him some words of encouragement but he seems to be non-responsive to you. You ask if you can join him out on the beam and he nods his head affirmatively. You offer him your hand and he takes it. Together you traverse the element back to the platform where his mood greatly improves.

Pull to the Platform

In some instances, an operator may need to physically assist a participant. This could be pulling on their hand if they offer it or pulling on their sling line and slider assembly if they do not take your hand. You may need to do this to help an injured participant that does not have a medical emergency, assist an exhausted participant to a platform, or help a frightened person who has frozen on the element. Know your own physical limitations before pulling someone. Someone who is much larger than you is going to be difficult to pull.

You are the operator on course. The harnesser and loader/unloader allowed a 15-year-old participant who claims to have a wrist injury to participate on the RCI product. She seems to be doing fine and has made it to the third level of the course when suddenly her grip gives out near the end of the element and she catches herself with her bad wrist. The participant begins to cry in pain. She is now cradling her wrist and makes no attempt to pick herself up to reach the platform. When you arrive and offer her a hand she refuses. You reach out, grab the sling line and pull her onto the platform where you can then calm her down and help her safely to the incline to get down to the ground.

Emergency Take Down (ETD)

Only the most extreme scenarios require an ETD. When there is a medical emergency, an immediate danger or someone has been hanging in their harness for more than 2 minutes, an ETD is necessary. A medical emergency can be defined as an unconsciousness participant or a life threatening condition. A person may still be conscious and be having a medical emergency. Someone who is highly allergic to bees may have a constricted airway after being stung, which can lead to asphyxiation. Likewise, someone who is bleeding profusely is in danger of losing too much blood.

Guests should not be allowed to hang motionless in their harness for longer than 2 minutes. Suspension trauma known as orthostatic shock, also known as harness hang syndrome (HHS), has been recorded in as little as 3.5 minutes and as much as 20 minutes.

"HHS, the rapid loss of consciousness followed by death due to hanging immobile in a harness, happens in ALL harnesses and ascending systems." (Ivy, Joe . "Harness Hang Syndrome: Fact and Fiction." Outdoorswa. N.p., n.d. Web. 20 Dec. 2016)

Due to this reason ropes course operators are expected to be able to perform an emergency takedown in under 2 minutes. Loss of consciousness from HHS is often due to blood pooling in the lower extremities, and blood pooling eventually leads to lack of blood flow to vital organs, such as the brain, that fail due insufficient oxygen. On your Sky Trail ropes course, the odds of HHS onset are minimal but still a reality. RCI maintains that ETD procedures be practiced regularly in order to prevent unnecessarily wasted time in emergency situations. In many emergencies rapid response is key; the case remains the same while operating the course.

The day is hot and sunny on your outdoor course. You are the operator loading and unloading when you notice that the operator on course looks pale and inattentive. You are distracted by a participant coming off the course. After you address the participant and look back to the operator, they are now sitting and appear to be losing consciousness. You alert the other operator on course to go check on them and they find that the operator is unresponsive. At that point, the emergency action plan is initiated and an ETD must happen to get the operator to the ground where they can receive medical attention.

*****

An adult male guest, along with several others, is climbing on the third level of the RCI product. Below the participant you notice people looking disturbed and moving out from underneath the course. Upon further investigation you see that the man's pant leg is soaked in blood and is dripping. The man notices as well and asks for some assistance. He informs you that he has staples in his leg from a recent biking injury and he believes they have busted. The wound is substantial and continues to bleed but the man is still conscious. He will not lose enough blood during the time it would take to walk him down the course to be life threatening. However he is creating a risk for all people below the course. This is a situation involving immediate danger and the man should be lowered by way of an ETD to limit spreading more blood, which is a biohazard.

Notification of Emergency or Injury

If a reportable injury occurs or in the event that an ETD is performed on your course, RCI must be notified within 7 days of the occurrence. A reportable injury may be defined as an injury that requires medical attention. Please fill out the safety report provided in the back of this manual and fax or email it to Ropes Courses, Inc. Attention: Training Department. Failure to do so may result in the revocation of your course, Certificate of Operation by RCI, or could require additional safety training by RCI at the cost of the customer.

In the event of a reportable injury or emergency take down (ETD) you must notify Ropes Courses, Inc. within 7 days!

Email: services@ropescoursesinc.com | Fax: (269) 290-7815

Emergency Take Down Procedure

Step 1 - Initiate Emergency Take Down Procedures

- Ensure alternate rescue is not an option.
- The top operator must whistle to gain everyone's attention. Yell: "Everyone to the nearest platform!"
- If the participant is unconscious designate an individual to contact 911 or emergency services.
- Retrieve ETK and walk with it to platform closest to the distressed participant.
- Loosen drawstring and remove handle of bag from carabiner. Walk to participant with the ETK in front of you.



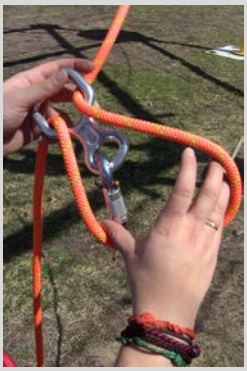
Step 2 - Drop Rope

- The top operator holds the bag of rope over the spot where it should land and yells: “Rope!”
- Bottom operator yells: “Clear!” when area is clear.
- Drop rope bag.
- Bottom operator grabs both ropes and throws rope bag behind them to extend the rope.




Step 3 - Secure Participant in Distress

- Remove scissors and secure them.
- Attach rescue carabiner to upper attachment loop on participant's harness after passing ropes and carabiners behind the chest loop on the participant's harness.
- Remove any slack in the rope.
- Bottom operator threads rope through aluminum figure 8 and secures it to the lower attachment loop.



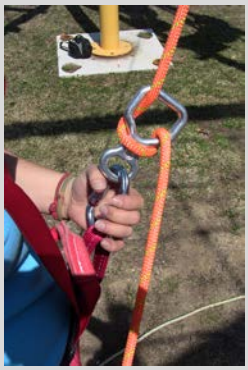
Step 4 - Operators communicate the check commands

Locked Rope on Belay

Unlocked Rope on Belay

- Top operator yells: "On Belay!"
- Bottom operator tightens the rope through the aluminum figure 8 and ensures the rope and their hand is in the brake position by their hip.
- Bottom operator yells: "Belay On! Check 1!"

- Top operator squeeze checks rescue carabiner on participant and yells: “Check!”
- Bottom operator yells: “Check 2!”



- Top operator squeeze checks steel carabiner on steel figure 8 and ensures the rope is threaded properly on figure 8. Then yells: “Check!”
- Bottom operator yells: “Check 3!” and squeeze checks the carabiner attached to their harness with their hand that is not holding the brake in place. Then yells: “Check!”

- Bottom operator yells: “Check 4!” and checks that the rope extended behind them is free and clear. Then yells: “Check! Cut!”

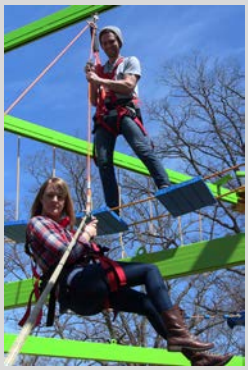
Step 5 - Cut the sling line

The top operator removes the sling line by taking off the sling line carabiners if possible. If not possible the operator will cut the sling line with the scissors.

Step 6 - Lower Participant

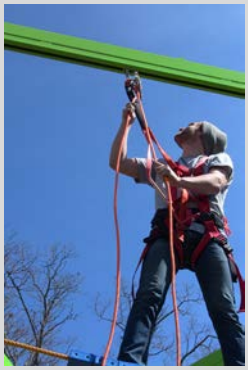
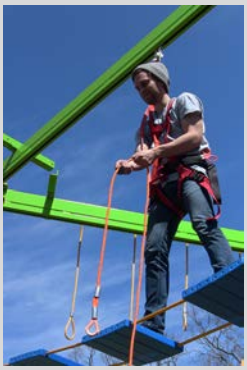
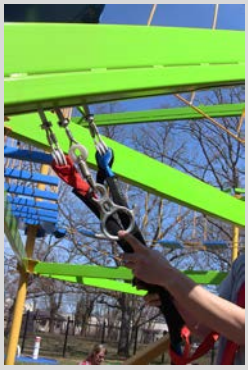
- Top operator yells: “Descending?!” and makes sure the participant is clear of the element.
- Bottom operator yells: “Descend on!” and allows the rescue rope to slide through their hand until the participant is on the ground.
- A guide rope operator may be necessary to pull the participant away from any obstructions.






Step 7 - Reset ETK

- Remove all carabiners from the rescue rope.
- Pull the rescue rope up through the rescue figure 8.
- Lower the end of the rope with the ferrules down hand over hand so they do not drop.
- Once rope is on the ground, re-pack the bag and place back on the course.


All course operators should practice emergency take down procedures regularly. RCI recommends that new staff practice the emergency procedures daily for the first couple of weeks of operating a course. Once operators are fully competent in these procedures, it should be practiced at least once a month. It is a good idea to keep a log of practices. Supervisors and/or operator trainers should be present for all practices and should continue to monitor their staff's abilities to perform an emergency take down (ETD) quickly and proficiently.

Emergency Take Down Commands

Command	Speaker	Action
"Everyone to the nearest platform!"	Top	Retrieving bag and traversing to closest platform.
"Rope!"	Top	Getting ready to drop the bag.
"Clear!"	Bottom	The area below is clear of people and objects and it is safe to drop the bag.
"On Belay?"	Top	The rescue carabiner has been securely attached to the participant's harness on the upper attachment loop.
"Belay On!"	Bottom	Bottom operator has rescue rope attached to the figure 8 and the figure 8 is securely attached to the lower attachment loop. All slack is out of the rescue rope. Rope is as tight as possible and supporting the weight of the participant.
"Check 1!"	Bottom	None
"Check!"	Top	Squeeze test the gate of the rescue carabiner and ensure it is attached to the participant properly.
"Check 2!"	Bottom	None
"Check!"	Top	Checks the connection above. Rescue rope is running properly through the rescue figure 8. Rope is not twisted.
"Check 3!"	Bottom	Checks the connection on their harness. Rope is not twisted. Figure 8 is connected to carabiner. Carabiner is through lower attachment loop on their harness and the gate is locked.
"Check!"	Bottom	Confirmed
"Check 4!"	Bottom	Operator looks behind them at the rescue rope to be sure it is free of any knots or twists and no one is standing on the rope. They also check that the person on guide rope is ready.
"Check!"	Bottom	Confirmed.
"Cut!"	Bottom	Giving the command to the top operator to use the rescue scissors to cut the sling line of the participant.
"Descending?"	Top	The participantis free from the sling line and is ready to be lowered.
"Descend on!"	Bottom	Double-checks that everything is correct. Begins to feed the rescue rope through the figure 8 slowly to allow the participant to lower to the ground.

Safety Reports

Safety reports must be filled out for the following reasons:

- Any injury or illness that required immediate operator attention and/or first aid. (Examples: scraped shin, cut hand, heat exhaustion, diabetic coma, large bruise.)
- If hospitalization is required, recommended or will be needed at a later date. (Examples: Dislocated shoulder, broken bone, deep laceration.)
- Near misses or incidents that could have resulted in serious injury/death. (Examples: participant takes off harness while on ropes course, participant is on course with no safety equipment, critical element failure, dropped object.)
- Extreme fear which leads to an emergency take down (ETD).

All safety reports must be sent to RCI within 7 days of the incident.

Safety reports do not need to be filled out for the following reasons:

- Participant broke a rule and was NOT subsequently injured. (Examples: two people walking on an element at a time, participant was swinging in harness.)
- Minor injuries as defined by the course manager. (Examples: bloody nose, reopened small wound, minor bruise.)
- Participant was scared.

Instructions for filling out a safety report:

1. Fill in the basic information.

Ropes Courses, Inc. Safety Report

Name of Facility: _____
Primary Operator Name: _____ Operator Phone #: _____
Additional Operators Present: _____
Date of Incident: _____ Time of Incident: _____
Area of Course Where Incident Occurred (i.e. beam, cargo net, platform): _____
Location of course: ☐ Indoor ☐ Outdoor Weather: Temp: _____ Precip: _____ Wind: _____
Participant Name: _____ ☐ Male ☐ Female
DOB: _____ Weight: _____ Height: _____
Participant Phone #: _____
Participant Address: _____

2. Detail the injury specifics. Use the diagram to pinpoint the areas affected.

Ropes Courses, Inc. Safety Report

Name of Facility: _____
Primary Operator Name: _____ Operator Phone #: _____
Additional Operators Present: _____
Date of Incident: _____ Time of Incident: _____
Area of Course Where Incident Occurred (i.e. beam, cargo net, platform): _____
Location of course: ☐ Indoor ☐ Outdoor Weather: Temp: _____ Precip: _____ Wind: _____
Participant Name: _____ ☐ Male ☐ Female
DOB: _____ Weight: _____ Height: _____
Participant Phone #: _____
Participant Address: _____

3. Describe in detail what actions were taken to provide first aid for the injured person.

First Aid Provided: ☐ Yes ☐ No Ambulance Called: ☐ Yes ☐ No ETD Performed: ☐ Yes ☐ No
Description of First Aid Provided: _____
_____
_____

4. Explain the cause of the incident.

Cause of Incident *(Describe in detail what happened to cause incident and if any rules were broken.)*:
_____
_____
_____
_____

ROPES COURSES 1300 Lincoln Rd Allegan, MI 49010 | P (269) 673-0016 | F (269) 673-0017 | www.ropescoursesinc.com

5. Explain the action taken on behalf of the operators on duty.

Ropes Courses, Inc. Safety Report (continued)

Action *(Describe in detail the actions taken by the operators.)*:
_____
_____
_____
_____

6. Fill out the witness and manager information and send in to RCI.

Witness Name: _____ Witness Phone #: _____
Witness Signature: _____ Date: _____
Report Prepared By: _____ Date: _____
Reviewed By Course Manager: _____ Date: _____
Date Submitted: _____ ☐ Faxed *(269-673-0017)* ☐ Emailed *(services@ropescoursesinc.com)*

Sky Rail™

Operator

Since the Sky Rail™ is integrated into the ropes course, all Sky Trail® operator rules apply (see the Sky Trail® ***Course Operators*** section). The operator or trained employee (course assistant) of a Sky Rail™ with a non-automatic system must be stationed at the entrance of the Sky Rail™ to tell participants when it is safe to ride and explain how the system works.

The operator is responsible for setting up the rescue equipment prior to opening the Sky Rail™. A rider retrieval rope must be placed at each take off platform. The emergency take down kit (ETK) should be kept near the landing platform of each Sky Rail™.

Participant Rules and Responsibilities

All Sky Trail® participant rules found in the Sky Trail® ***Participant Rules and Responsibilities*** section apply to participants who want to experience the Sky Rail™.

In addition to those rules, participants must also follow these rules:

1. **Only 1 participant on the Sky Rail™ at a time.**
2. **Must be in a seated position in the harness. Do not hold yourself up while zipping.**
3. **No horseplay, running or jumping off the platforms, kicking and flailing legs or flipping upside down while zipping. Operators reserve the right to expel participants displaying these behaviors.**
4. **Walk through brake and exit the landing platform.**
5. **Use the emergency exit track for backing out from the takeoff platform.**

WARNING:
Participants who break these rules MUST be told to stop! If these rules are not enforced, damage to the Sky Rail™ component may occur. Bent bolts at the brake or other broken components caused by abuse will be repaired by Ropes Courses, Inc. at the OWNER'S expense.

Inspection

Safety Equipment

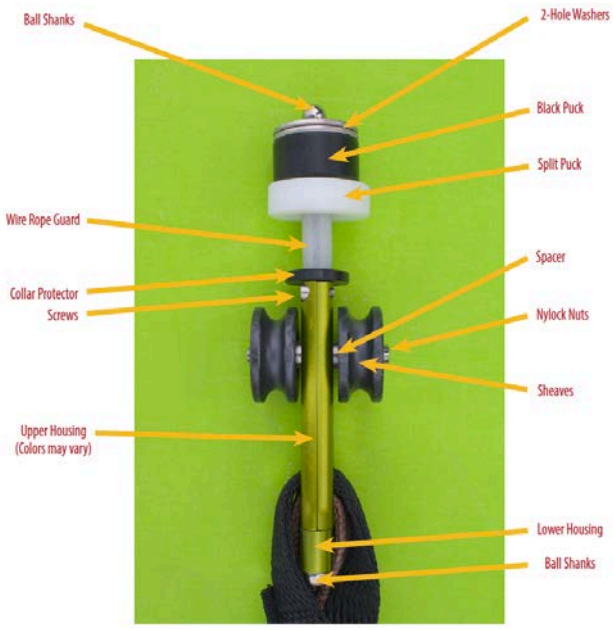
The only difference in the safety equipment for the Sky Rail™ compared to a Sky Trail® is the Redundant Slider Assembly (RSA) and the rescue kit.

Sky Rail™ RSA

The Sky Rail™ RSA is designed to be compatible with the Sky Trail® and the Sky Rail™.

To inspect:

1. Inspect the top portion as described in the Sky Trail® ***Inspection*** section.
2. Examine the housing for signs of wear, gouging of the metal or cracking. A trolley that has gouges or wear that exposes any wire must be refurbished by RCI.



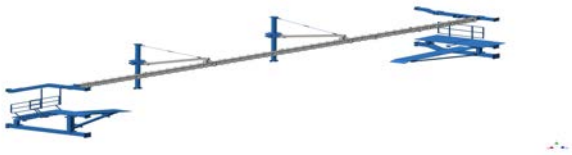
3. Check that all nylock nuts are present and engaged.
4. The 2 sheaves should spin freely and not have excessive wear. Make sure that the rod holding the sheaves is not wobbly. If it is, tighten with wrenches.
5. Inspect the additional ball shanks at the bottom of the housing.

Rescue Equipment
The rescue kit must include:

- Rider retrieval rope assembly.
- Emergency take down kit (ETK).

All of these items contain parts that are commonly found on the course. Inspect all parts as described in the inspection section in the Sky Trail® ***Inspection*** section.

The Sky Rail™
The actual rail has a smooth connection from the overhead track onto steel rods. There is a redundant track that holds the white puck up and will catch a rider should there be a failure in the system.



To inspect:

1. Be sure there are no gaps in the transfer area or the rails that will allow a participant to come out of the track.
2. Make sure all nuts and bolts are present and tight.
3. To check the rails, ride them and note any bumps in the track as this could indicate there is debris or dirt in the track. Remove any debris as best you can because it will cause people to slow down while riding.
4. Ensure all padding is securely in place.
5. Check that there are no un-padded objects within the rider's safety clearance envelope.

Sky Rail™ Brake
The Sky Rail™ has a braking mechanism designed to slow down participants up to 300lbs. It is automated so that after a participant has left the braking zone, it will automatically reset for the next rider. A green signal will indicate when the brake is fully reset and the next rider may ride the rail. A red signal indicates that the participant must wait before entering the takeoff area.


Brake Trolley

Non-automated Sky Rail™ Inspection Sequence (this is a checklist to be filled out daily.)

- Ride the rail and observe the webbing or rope that is extended when you are slowed by the brake.
- Check the webbing/rope for significant signs of wear such as ripping, fraying or burns. If any significant wear is present, please contact RCI immediately to schedule a replacement of the webbing.
- Examine the brake trolley and ensure that all nuts and bolts are present and tight.
- All moving parts should function normally.
- Allow the webbing to retract into the housing. It should retract strong and smooth. If the webbing does not retract, contact RCI for assistance.

Automated Sky Rail™ Inspection Sequence (this is a checklist to be filled out daily.)

- Power up Sky Rail™ by turning key on main control box. Light on main control box will turn on.
- The Sky Rail™ light will be red.
- Walk up and attempt to use Sky Rail™ to ensure rotor gate is locked.
- Push the "Reset" button. Light will turn green.
- Walk up and pass through rotor gate.
- Light must turn red.
- Test entrance rotor gate to ensure it stays locked.
- Go out through emergency exit track to test rotor.
- Light must turn green.
- Test emergency exit rotor to ensure it cannot be passed through backwards.
- Push "Enter" button. A bell must sound.
- Walk up the emergency exit track. Your RSA must pass through the emergency exit track rotor backwards.
- Test the entrance rotor to ensure that it remains locked.
- Go back down to operator control box. Push "Reset". Bell must stop and light must turn green.
- Ride down to end of rail.
- Listen for any out of the ordinary sounds and feel for the consistent brake speed. Do not put your feet down right away.
- Braking should be strong and smooth.
- Check the brake trolley to ensure all nuts and bolts are tight and all wheels spin freely.
- The brake trolley should not contact the Sky Rail™ itself at any point.
- Completely exit rail and observe brake reset.
- Walk back out and test that RSA cannot pass through exit rotor.
- Push "Enter" and ensure that your RSA can pass through the exit rotor.
- Push "Reset" and ensure light is green.

Rescue and Emergency Procedures

Rider Retrievals

If someone gets stuck on either a platform or on the Sky Rail™ itself, there are procedures in place to rescue them.

If someone is stuck on the receiving platform perhaps due to a malfunction of the brake, an operator will need to travel backwards onto the ramp to reach the participant. The operator should try to solve the problem with the brake. If it is beyond repair, the operator will retrieve a sling line and hook it into the participant's harness in the standard manner. They can then disconnect the participant's sling line and escort them to the ground. This may need to be done if the participant's RSA is jammed with the brake trolley, or if the brake itself becomes jammed beyond repair. The Sky Rail™ must be closed if the brake does not function properly.

If a participant becomes stalled on the Sky Rail™, the operator can use the rider retrieval rope to pull the participant to a platform. The operator will call for an operator to help on the ground and to clear any participants out of the way underneath the Sky Rail™. The rider retrieval rope is simply a rope attached to a Sky Rail™ trolley. The operator can drop the rope down to the bottom operator who will walk the rope out to the participant. Instruct the participant to hold on to the rope and then the operator can drag them to the landing platform. Before the next rider is allowed to zip, the course operator must organize the rider retrieval rope and secure it back to the platform so that it is ready in the event it needs to be used again. Hanging in a harness can be uncomfortable for participants and it is important to retrieve them quickly to avoid discomfort.

In the event a rider's trolley becomes stuck in the Sky Rail™, an operator may need to go onto the rail to provide assistance. In order to avoid running into someone, the operator will hold onto the retrieval rope. The operator on the ground can then walk the operator on the Sky Rail™ out to the stranded participant. Once to the participant, the operator on the Sky Rail™ can assist the participant.



Emergency Take Down
If a medical emergency arises on the Sky Rail™, an emergency take down (ETD) will be necessary. All emergency take downs are to be completed from the platforms as the emergency take down kit (ETK) are equipped with a standard RSA. It may be necessary to pull someone onto the platform following procedures previously described. Follow the procedures found in the Sky Trail® ***Rescue and Emergency Procedures*** section.

Automated Sky Rail™ Electronic Operations

Overview/General Operations:
The automated Sky Rail™ uses a system of actuators, sensors and motors to control the flow of participants. If a participant chooses to ride the Sky Rail™ a braking system will catch them at the end of the rail. When the participant has completed the Sky Rail™ and walks out of the landing area a sensor will activate the brake to return and a gate will not allow them back into the area once exited. Once the brake is fully returned to its home position the light will turn green and open the entrance gate for the next person.

The entrance tracking consists of 2 parallel tracks. The track nearest the Sky Rail™ is used for participants entering the rail. The track behind the entrance track is referred to as the emergency exit track. The emergency exit track allows participants to back out of the system if they choose to not enter the rail. The emergency exit track sensors and gate operate the same as the exit system on the landing platform. Passing through either the emergency exit track or exit track will activate the green light and the entrance gate will open.

The emergency exit track also provides an entrance for operators during a rescue situation. The emergency exit gate and exit gate open if the enter button is pressed.

Operators may not stand within the system that would create a situation where the system detects that 2 people could zip. This will cause the system to shut down. Operators must give instructions on the ground and/or at the beginning of the Sky Rail™.

WARNING:
Participants who break these rules MUST be told to stop! If these rules are not enforced, damage to the Sky Rail™ electronic components may occur. Broken rotor gates or bent bolts at the brake will be repaired by Ropes Courses, Inc. at the OWNER'S expense.

Automated Sky Rail™ Control Boxes

Main Control Box:

- The main control box is the large box located near the bottom of the landing platform column. It is locked shut and should only be serviced by RCI personnel.
- On/Off Switch: Turn system on with key switch located on the outside of the main control box attached to landing platform column. A green indicator light will illuminate when system is on. **Turn system off when not in use.**

Operator Control Boxes:

- Operator control boxes are located at the entrance and exit of each Sky Rail™. They control the entrance and exit gates, brake and stop lights.
- Reset/Start Button: This button is located in the top right corner of the control boxes mounted at the entrance and exit of each Sky Rail™. The reset button will turn the green light on and open the entrance gate. Be aware that pushing the reset button also checks that the brake is fully returned. The brake return motor will start if brake is not in the returned position. It is important to ensure that everyone has exited the system before pressing the reset button. **The light should never be green while someone is in the system**. The green light will not come on and entrance gate will not open if the brake is not fully returned. In the event that the brake is jammed or is slow to return the red light will remain illuminated. If this happens push the reset button again and watch the brake car. If brake car is not returning to its full reset position, first try turning off the entire system with the main control box and waiting at least 5 seconds before turning back on. Contact RCI if the problem persists. Repeated motor overload will damage the motor driver.
- Stop Button: This button is located in the top left corner of each control box. Push this button if the Sky Rail™ is to be closed. The stop push button will turn the light red and lock the entrance gate.
- Enter Button: This button is located in the bottom left corner of the control boxes mounted at the entrance and exit of each Sky Rail™. Pushing this button will open both the exit at the end of the Sky Rail™ and emergency exit gate located at the takeoff platform. The enter button is to be used so operators can enter the system to assist someone or perform an emergency rescue. The entrance gate will remain locked. Operators must enter through either the emergency exit on the takeoff side or the exit on the landing side. The enter button will disarm the brake return motor and all sensors so that a rescue may be performed safely. A bell will sound while the enter button is activated. The reset/start button is used to deactivate enter mode. It is the operator's job to ensure that everyone, including operators are out of the system before pushing the reset/start button.

Emergency Enter Lever:

- The emergency enter lever is located in a slot on the side of all rotor gate boxes (See photo). This lever is operable with the finger key also used on carabiners. Insert the grommet on the finger key into the slot and pull sideways until the rotor moves. Only use the emergency enter lever if power is out. Using this lever to enter the system while power is on may result in unwanted brake return activation and multiple participants entering.

Emergency Enter Lever

Trouble Codes

- If the exit sensor (thru beam, C-shaped sensor) located on the landing platform, or sensor located on the emergency exit tracking is falsely triggered (by water or debris) then a trouble code will slowly flash (one flash per second) on the red light. This trouble code is triggered by a signal from the exit sensors and entrance gate occurring simultaneously.

- To clear the trouble code the exit sensors must be cleared of debris or liquid on lenses. This can be done with a soft cloth. The reset button will return the system to normal operation once the sensor problem is resolved.
- A similar trouble code seen as a fast flashing red light will appear if the thru beam sensor located before the entrance gate is obstructed or malfunctioning. The reset button will return the system to normal operation once the sensor problem is resolved.

C Sensor

Closing the Sky Rail™

The Sky Rail™ electronics should be switched off with the main control box when not in use. To prevent participants from attempting to use the Sky Rails™, use approved track stop devices or the padlocked pin/closed sign installed on the course. If the entrance to the Sky Rail™ is not blocked, participants may attempt to ride the rail and damage the rotor gates. **These will be fixed at the owner's expense if the rails are not appropriately locked off at both the take off and the landing platform**.

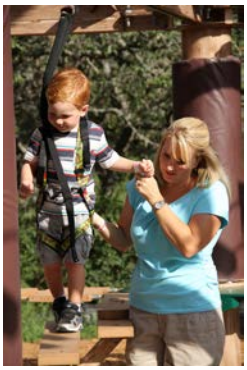
Sky Tykes®

Sky Tykes® ropes courses are manufactured specifically for children ranging in age from 2-7 years old. Just like the Sky Trail® courses, harnessed participants will load into the patented safety system and begin their adventure. A unique feature of Sky Tykes® is the walk through beam element which allows for the participant's parent to accompany the child through any part of the course. Parents walk alongside their child and are able to assist with any help they may need without having to climb over or under any of the elements.

All weather procedures are the same as the Sky Trail® system. Please refer to the Sky Trail® ***Weather Procedures*** section.

Operator

Stations



Operating a Sky Tykes® ropes course can be broken down into 2 stations: harnessing and loading/unloading. While there are 2 stations of operation for Sky Tykes®, this does not mean each station requires its own operator. If the Sky Tykes® is operating as a stand-alone course, there is a requirement of 1 operator. If the Sky Tykes® course is operating in association with a Sky Trail®, an operator can be simultaneously harnessing and loading/unloading each course. Since an operator is not required to be "on the course", it is important that the operator instructs the chaperone on their responsibilities to the participant. A chaperone is responsible for aiding a participant who is traversing the course and must be made aware of the rules before a participant is loaded into the tracking system.

Harnessing

Operators must be sure a harness fits a participant correctly before allowing them on the course. The Sky Tykes® has a specific harness that is XXS. This can be used only on the Sky Tykes®, not the Sky Trail® or other features. A child that is under 48" that does not fit in the XXS harness can wear a XS Trail Plus Harness. While harnessing participants, operators must assess the harness for any damage. Before loading a participant on the course, it is important to go over the safety rules with the child and their chaperone. Operators should never allow a chaperone to harness or de-harness a participant. Only a certified operator can harness a participant and adjust their sling line, and only a certified operator should de-harness a participant and remove the participant from their sling line. Operators may not leave the safety equipment unattended at any time while the course is operational. If the course is closed, the equipment must be stored in a secure area and locked up.

Harnessing a Participant - Fraggle Harness

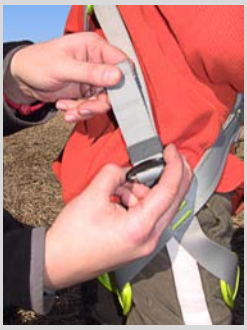
Step 1
Be sure that all webbing straps are completely loosened. Lay the harness on the ground so that the leg loops are positioned in an easy way for the child to step into.

Step 2
With the child facing the operator, have the child step into the leg loops. The operator may need to help them with their balance to ensure that both feet make it through the leg loops. Once the child's feet are through the loops the operator can pull the rest of the harness up over the participant's shoulders. There should be 2 loops on the front of the harness and 0-1 loop on the rear of the harness depending on the model.

Step 3
If the harness has a front buckle, buckle this first.

Adjust the shoulder strap(s) so that the shoulder straps cannot be pulled off the participant's shoulders.

Step 4
Adjust the leg or hip strap(s) so that the harness is snug against the participant's body.



The full body harness is designed to fit most participants of all shapes and sizes. However, there are occasions where an individual may be too small or too large to fit comfortably, or safely, in a harness.

If a participant is too small to fit into the harness the shoulder straps of the harness will slip easily over their shoulders. Operators should pull out and down on the shoulder straps to check this. If the harness is adjusted as tight as it will go and the shoulder straps still go over the participant's shoulders, that individual is not permitted to go on the course.

At least 2'' of webbing must be pulled through the buckles at any location. If less than 2'' of slack is attained, the participant will need a larger harness or will not be permitted to enter the course. This may not apply to chest strap.

WARNING:
The Sky Tykes® harness is specifically designed for the Sky Tykes® and is NOT to be used on the Sky Trail®, CTS Zip Line or Sky Rail™.

Loading/Unloading

- The loading operator is responsible for connecting the participant to the sling line and conducting the pre-flight checks.
- Only a certified operator is allowed to attach/detach the sling line to a participant harness and load/unload the RSA from the overhead track.
- Operators must be sure that the white puck of the Redundant Slider Assembly (RSA) is completely in the track before allowing a participant to begin climbing.
- Operators must use their thumb to push the white puck to the top and slide it into the track. The puck should never be inserted by "flipping" it into the track by holding onto the bottom of the assembly.
- The operator must properly inspect all Redundant Slider Assemblys (RSA) and insert it into the overhead track. Failure to inspect the RSA before it is loaded into the overhead track could result in serious injury or death.
- On the Sky Tykes® it is easiest to have the sling lines pre-loaded in the track before attaching participants.
- Operators may leave the entrance/exit unattended while the Sky Tykes® course is in operation only if it has been properly blocked off to participants.

Attaching the Sling Line

Step 1
The participant must be standing under their RSA in the overhead track. This positioning eliminates excess slack.

Step 2
Pull the slotted webbing tight. Line up the slotted webbing with the 2 loops at the front of the harness.

Step 3
Attach the carabiner through the 2 loops on the harness and through the slot on the webbing that is touching the 2 loops. There should be very little slack in the sling line.

Operator Rules and Responsibilities

1. **NO ONE IS ALLOWED ON THE COURSE WITHOUT THE PROPER SAFETY EQUIPMENT. This includes operators, maintenance, participants, heads of companies or RCI staff. If someone is seen on the course without proper equipment notify the appropriate authority immediately.**
2. **An operator must load/unload a participant from the course.**
3. **An operator must remain within the area of the course to unload a participant when they are finished.**
4. **Operators must wear a whistle at all times in order to gain the attention of participants or sound the alarm in the event of an emergency.**
5. **Operators must be sure that 1 emergency take down kit (ETK) is located at the entrance to the course.**
6. **Operators must go over the rules of the course with the participant's chaperone before loading the participant onto the course.**
7. **Operators must place themselves in a position to communicate with co-workers and participants at all times.**
8. **All necessary paperwork must be filled out completely before opening and after closing the course. This includes the Sky Tykes® checklist and safety report if needed.**
9. **The use of cell phones for calling or texting and the use of any devices such as MP3 players or handheld video games is strictly prohibited. This could result in termination of your job.**
10. **An operator must take care to instruct the chaperone how to use the lift gates. The lift gate must be completely closed before a participant is allowed to cross the element.**

Participant Rules and Responsibilities

1. **Maximum height is 48" (122cm) tall.**
   If a participant, who is over 48", were to attempt the Sky Tykes® they may be injured.
2. **Must be accompanied by responsible chaperone.**
3. **Must safely fit in the harness.**
4. **Must have secure shoes. No bare feet, flip-flops or open heel shoes. Make sure shoelaces are tied.**
5. **Pockets must be empty. Eyeglasses should be secure. Operators are not responsible for items left unattended.**
6. **No gum, food or drinks allowed on attraction.**
7. **Only 1 participant on an activity at a time.**
8. **No running, jumping, hanging in harness or horseplay. Operators reserve the right to expel participants displaying these behaviors.**
9. **The redundant sling line should stay in front of and between shoulders at all times.**
10. **Do not touch the overhead tracking system or tamper with harness or redundant sling line.**
11. **No zip lining down the stairs.**
12. **Lift gates are for chaperone use only. They must be in the closed position before the participant can cross the beam.**

Participate responsibly when on the Sky Tykes®! You should be in good health to participate. You know your physical conditions and limitations, our operators do not. If you suspect your health could be at risk for any reason or you could aggravate a preexisting condition of any kind, please do not participate. Risks are inherent when participating on the Sky Tykes®. Injuries that can occur, include, but are not limited to, bumps, bruises and scrapes. Please be aware of the risks involved with participating. Make the operator aware of any pre-existing injuries before being harnessed. Notify the manager of the attraction of any injuries on the course before leaving the area.

Inspection

All gear and course inspections must be executed every day as described in the inspection section of this training. There are a few items that are specific to all Sky Tykes® courses such as harnesses, sling lines and the emergency take down kit (ETK). For all other items, please refer to the Sky Trail® ***Inspection*** procedures.

To inspect harnesses:

1. Make sure all webbing loops are fully extended through the buckles.
2. Inspect all webbing (straps) and stitching for cuts, fraying, pulled or broken threads, abrasion, excessive wear, altered or missing straps, burn, heat and chemical exposures. If there are any of these damages to the webbing, the harness should be retired.
3. Examine all of the hardware on the harness. Hardware includes all buckles, clips, and metal rings found on the harness. They must be inspected for deformation, fractures, cracks, corrosion, deep pitting, sharp edges, cuts, deep nicks, missing or loose parts, improper function, evidence of burns, excessive heat and chemical exposure. Harnesses that have damaged hardware must be retired.
4. Inspect all of the stitching on the harness for broken, pulled, or cut thread. The joints of the webbing must not move apart.

Any harness that is in questionable condition should be clearly marked and taken to the course manager. Document the equipment removed on the daily inspection sheet.

To inspect sling lines:

1. Inspect all webbing on the sling line. An inspector must perform a tactile and visual inspection of the webbing. There should be no cuts or abrasions to the webbing. Changes in the thickness of the strap are not acceptable because this could indicate damage and the sling line must be retired.
    a. Wear will occur on the surface of the nylon or polyester webbing and the sides will begin to appear “fuzzy”. Certain areas may tend to wear faster than others. These areas include where the webbing comes into contact with any of the metal hardware. Fuzzing is normal wear and is not a cause for retirement.
    b. The sling line must be retired from service when 50% of the picks in the same row are not visually identified as a single pick due to an abrasion.
    c. Slotted webbing must be retired if:
        i. If there is one or more broken strands in the webbing. This cannot be fixed by melting the strand.
        ii. If there is 1 or more protruding loops of webbing that are larger than 1/2" (.01m). Do not aggravate small loops by pulling on them or attempt to burn them.

2. Inspect the sling line for broken, loose or fraying stitching. A web sling shall be removed from service if any of the following are visible.
    a. If a sling rated capacity or sling material identification is missing or not readable.
    b. Acid or alkali burns.
    c. Melting, charring or weld splatters on any part of the web sling.
    d. Holes, tears, cuts, snags or embedded particles.
    e. Broken or worn stitching in load bearing splices.
    f. Excessive abrasive wear.
    g. Knots in any part of the web sling.
    h. Excessive pitting, corrosion, cracked, distorted or broken fillings.
    i. Any other visible damage that causes doubt as to the strength of the sling.

Any sling line that is in questionable condition should be clearly marked and taken to the course manager. Document the equipment removed on the daily inspection sheet. If there are any questions about a piece of equipment contact RCI for assistance.

The emergency take down kit (ETK) consists of a pair of rescue scissors in a magnetic pouch.

To inspect:
1. Remove the scissors from the pouch.
2. Test the function of the scissors by opening and closing them.
3. Return the scissors to the pouch.

Before participants are allowed to go on a Sky Tykes®, operators must have inspected the ETK and be sure that there is an ETK at the entrance to the course. It's easiest to place the ETK on the top of the entrance column. There is a magnet located inside the pouch that will attach the ETK to the steel column. The ETK should be placed there at the beginning of each operational day and be taken down and placed somewhere safe once the course is closed.

Equipment Storage Procedures
- Store in a cool, dry area away from any damaging chemicals such as acids, petroleum based products, alkaline or bleach.
- Do not expose to direct sunlight for long periods of time.
- Only store when dry.
- Do not drag equipment across rough surfaces.
- Do not store in temperatures exceeding 110º F (43ºC).

Equipment Cleaning Procedures
1. Fill a clean tub with warm water.
2. Add 1 of the following: vinegar, Dawn dish soap or mild detergent. Except for vinegar, use 1 parts cleaning solution to 1200 parts water (ex: ½ oz. detergent to 5 gallons of water). If using vinegar mix ¼ cup vinegar with 1 gallon of water (approximately a 1:100 ratio).
3. Immerse the harness, sling line or rescue rope in the cleaning solution and scrub the soiled parts of the webbing using a soft cloth or another piece of webbing. Do NOT use scrubbing tools such as wire brushes as this can damage the webbing. Do not soak the equipment for longer than 10 minutes.
4. Thoroughly rinse the safety equipment in fresh water.
5. Hang equipment up to dry out of direct sunlight.

Rescue and Emergency Procedures

There may be different levels of rescues for a participant on the Sky Tykes®. Operators must be prepared to talk to young children who are scared on the Sky Tykes®. Most often the chaperone will assist the child.

Once it has been decided that a participant must be lowered to the ground due to a medical emergency, the operator will blow their emergency whistle call and begin the emergency take down. Upon blowing their whistle the operator should immediately proceed to the emergency take down kit (ETK), which is located at the entrance to the course.

The operator will then blow their whistle again to gain the attention of the other participants on the course and he/she will ask all participants to go to the nearest platform and remain there until it is safe to begin using the course again.

The operator will instruct the chaperone of the child to cradle the participant so that when the sling line is removed from the child they will not fall. While the chaperone holds the child the operator can then remove the carabiner from the participant. In extreme scenarios the operator may have to cut the sling line, which is why the ETK must be placed on the course each day.

Once the sling line has been removed the chaperone can lower the participant to the ground.

Once the rescuee is on the ground, staff should take whatever first aid measures they are competent and certified to do and attend to the rescuee until professional medical personnel arrives. When the rescue is complete and the rescuee is out of the area, the ETK should be inspected and repacked and then put back on the course. Other participants may resume using the course.

On Going Safety Management Guidelines

RCI recommends all facilities operating a Sky Tykes® maintain records of:

- Maintenance and inspections.
- Incidents and accidents.
- Internal review of incidents as related to the emergency action plan (EAP).
- Site-specific emergency action plan.

Notification of Emergency Take Down or Reportable Injury

If a reportable injury occurs or in the event that an emergency take down (ETD) is performed on your course RCI **MUST be notified within 7 days** of the occurrence. Please contact RCI by fax at (269) 290-7815 or email ***services@ropescoursesinc.com***. A reportable injury may be defined as an injury that requires medical attention. Please fill out the safety report provided in ***Appendix D*** and fax or e-mail it to Ropes Courses, Inc. Attention: Training Department. Failure to do so may result in the revocation of your certificate of operation by RCI or could require additional safety training by RCI at the cost of the customer.

WARNING:

- **Never use any harsh chemicals such as bleach or ammonia.**
- **Do not use laundering tools as this could damage the harness or sling line.**
- **Never force dry or put a harness in a drying machine.**
- **Always hang up to dry, out of direct sunlight.**
- **Do not use a pressure washer.**

CTS Zip Line

Operator

An operator is tasked with the day-to-day operation of a course which includes all pre-use inspections of the zip line and safety equipment, properly outfitting participants, constantly monitoring activity on the zip line structures and maintaining a low risk environment. Operators must be willing to become familiar with all aspects of operating the zip line. In order to receive certification as an operator, an individual must attend training conducted by a RCI certified operator trainer as well as pass written and practical testing.

Stations

A CTS Zip Line can be broken down into 2 stations: Sending and Receiving. Most CTS Zip Lines work in conjunction with the Sky Trail® ropes course so additional stations such as harnessing and loading/unloading follow the same procedures. Follow all harnessing and loading/unloading procedures located in the Sky Trail® Operator ***Loading and Unloading*** section.

Sending

The sending operator is responsible for the participant before they zip. The sending operator "sends" the participant across the zip line to the receiving operator.

Each sending operator should follow these steps:



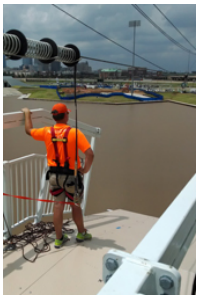
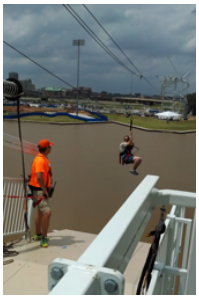


1. Once the participant has reached the sending platform, the operator must check the participant's harness for the correct fit. This must happen before the participant is transferred onto the zip cables.
    a. Look at the participant's harness for any loose straps or improper fit. Be sure the slotted webbing part of the zip tether runs through the chest loop on the harness.
2. All carabiners must be checked for proper connections.
    a. Squeeze test all carabiners.
3. The operator must explain the following rules to the participant:
    a. Do not kick and flail while zipping.
    b. Do not attempt to flip upside down.
    c. Do not attempt to grab the overhead cable.
    d. Try not to kick the operator on the other side.
4. Once the previous participant makes it to the receiving platform, then the sending operator can transfer the next participant's trolley through the transfer box.
5. Once the receiving operator's attention is fully on the sending operator, the participant's trolley can be transferred through the ribcage onto the zip cables. The operator must make sure that the sheaves of the trolley can roll on the cables.

6. If the cables are clear and the guest is not caught on anything, the sending operator can start the checks with the receiving operator.
    a. Sending operator starts with “Ready to zip.”
    b. The receiving operator will respond with “Brake set, check 1.”
    c. The Sending operator will squeeze test the carabiners of the participant’s zip trolley and respond with “Check.”
    d. The receiving operator will say “Check 2.”
    e. The sending operator will ensure that the sheaves of the trolley roll freely on the cables and have the participant sit down, keeping ahold of the participant to prevent them from zipping. They will respond, “Check.”
    f. The receiving operator will then say, “Zip away!”
7. The sending operator then releases the participant’s trolley and lets them zip.
8. The sending operator can then begin this process with the next participant.

Receiving

The receiving operator is responsible for the participant’s deceleration and exit from the zip platform. They also will be responsible for most of the rescue procedures should anything occur during the participant’s zipping experience. The receiving operator assists the participant by supporting them as they land and by grabbing the zip tether to prevent them from slipping back onto the zip line. Operators must position themselves so as not to be run into by the zipping participant. It may be necessary to reach out your hand to grab someone if they come in slowly, but the operator should still try to stay out of the way in case they misjudge the speed of the zipper. Then the receiving operator must move the zip line trolley from the cable to the track. The operator should also encourage participants to hold onto the handrail and zip tether as they ascend the stairs to the sending platform or back to the base of the ropes course.

To properly receive a participant, follow these steps:

1. Once the sending operator gives the command for “Ready to zip.” the receiving operator will ensure that the receiving platform is clear and that the zip brake is set. They will then respond with, “Brake set, check 1.”
2. After they hear or see the command for “check” the receiving operator will reply with "Check 2."
3. The final commands are, “Check” from the sending operator, and the receiving operator responds with, “Zip away!”
4. While the participant is zipping, the receiving operator must keep their full attention on them.
5. The receiving operator must use the brake designated for the zip line to stop the participant before they run into the ribcage or zip line termination.
6. Once the participant has been stopped the operator must quickly grab the zip tether and guide the trolley through the ribcage and transfer box.
7. The receiving operator will then instruct the participant what to do next.
8. Once the participant is off the receiving platform the operator can get set up for the next participant.

The commands are meant to be redundant so that each operator is checking that they have done their jobs. It is a verbal contract to each other the participant has been checked and is ready to be received and that all reasonable measures to maintain that participant safety have been taken. If at any point it is not safe for the participant to zip, either operator can abort zipping. The operator will create a big 'X' with their arms to cancel the zip. If this occurs the operators will cease zipping participants until it is safe to do so once again. Checks will restart when it is safe to zip.

Speaker	Command	Hand Signal
Sending Operator	"Ready to Zip."	Tap top of head
Receiving Operator	"Brake is set, check 1."	Tap top of head
Sending Operator	"Check."	Thumbs up, to the side
Receiving Operator	"Check 2."	Two thumbs up, to the side
Sending Operator	"Check."	Wave in front of participant

For single cable zip lines that require manually transferring a participant from 1 system to another, extra precaution must be taken. All gear and loading/unloading techniques must be used precisely to avoid injuring participants or operators. As participants approach the sending platform the operator must check to make sure all safety equipment is attached and properly fitted. Look at the participant's harness for any loose straps or improper fit.

The sending and receiving operators will go through the following commands with each other via radio or hand signals: *Chart*

Using the Zip Brake

RCI has a variety of zip line brakes that are specifically chosen for each zip line based on engineering, speed, and environmental conditions. Operators must only use the brake that has been provided for the zip line they work at. Do not interchange brakes unless instructed to do so by RCI. Report any braking difficulties to ***RCI training department***.

Plastic Disc Brake

The zip brake is a white, plastic disk that is easily removed from the cables. It uses friction to slow down participants. Operators stand to the side of the platform to be out of the way of participants. The receiving operator keeps a loose grip on the rope of the brake and may have to adjust their tension on the line depending on the speed of the incoming participant. Holding too tightly to the brake will cause an abrupt stop of the participant, sending them back onto the cables. Once the participant has been safely stopped, the operator should hold onto their zip tether and remove the brake from the cables by twisting it and pulling it up. After the participant's trolley has been moved in front of the brake, replace the brake on the cables. The operator can then proceed to move the participant's trolley through the ribcage and transfer box.

Follow these instructions when setting up the brake:

1. Tie the orange rope into the smaller hole of the UHMW disc brake with a secure knot.
2. Place the UHMW disc brake onto the zip line cables, from beneath, by feeding it between the 2 cables and twisting the brake so that the cables go into the 2 slots of the brake.
3. Make sure the brake is slid out past the end of the receiving platform.
4. Hold the orange rope and pull it through a piece of the railing that is below the receiving operator track.
5. Pull the rope back through the railing so that it is easy for the operator to hold.
6. Tie the end of the orange rope somewhere out of the way so that it does not create a trip hazard for the operator or the participants. Do this to avoid having the brake fall to the ground if an operator were to drop it.

Follow these instructions to use the brake:

1. Before a participant begins zipping, make sure the brake is on the cables past the end of the platform. The operator must hold the rope so that there is no slack. The operator should take care to be out of the way of the trajectory of the zipping participant and should be near the end of the platform. Being at the end of the platform creates more stopping distance. A participant must stop at least 2' away from the ribcage. At no point should the participant be stopped by the ribcage.
2. As the participant's trolley comes into contact with the UHMW brake, the operator must let the rope attached to the brake slide through their hand at a rate that will stop the participant 2' from the ribcage. The operator must not grip the rope too tightly or the brake will have too much resistance, which can cause the participant to swing upwards and then travel back out onto the cables.
3. Once the participant has been stopped, the operator must hold onto the participant trolley so that they do not travel back out onto the cables.
4. While holding the trolley, the operator must remove the UHMW disc brake from the cables by twisting it towards the center and then pulling down or up.
5. Once the brake is out of the way, the operator can transfer the participant's trolley through the ribcage and the transfer box.

Webbing Brake

Follow these instructions when setting up the webbing brake:

1. Place the black webbing brake over both zip cables. Be sure to center the brake between both cables.
2. Slide the brake across both cables until you are near the end of the receiving platform.
3. Secure both orange ropes with 1 hand and be sure to have a firm grip on both handles.

Webbing Brake

Follow these instructions to use the webbing brake:

1. Before the participant begins zipping, center the webbing brake on the cables at the end of the receiving platform with an operator firmly holding both orange handles.
2. As the participant's trolley approaches make sure you are braced and ready for the trolley to make contact with the webbing brake.
3. As the trolley makes contact with the webbing brake, slowly bring the participant to a complete stop. The participant should be stopped 2' in front of the ribcage. At no point should the participant be stopped by the ribcage.
4. Once the participant is stopped, remove the webbing brake by letting go of 1 of the handles and pulling on the other side. Make sure you are a safe distance away from other participants and operators.
5. Once the brake is out of the way, the operator can transfer the participant's trolley through the ribcage and through the transfer box.

ZipStop Brake

Some zip lines may be equipped with a product called a zipSTOP. This product is manufactured by Head Rush Technologies. This brake does not require operators to hold onto anything as a participant is being stopped. As the participant's trolley comes into contact with the brake, webbing is automatically pulled out of the zipSTOP casing, which slows down the participant. Once the participant's trolley is past the brake, the zipSTOP automatically resets itself. The operator just needs to ensure the brake is fully reset. Follow all Head Rush Technologies manufacturing instructions when inspecting and using a zipSTOP.

Participants

Participants who wish to ride on a CTS Zip Line must be outfitted in the correct full body harness and zip tether. A zip tether must be adjusted tighter than a standard ropes course sling line. They are attached in the same way as the standard sling line and slider assembly, but the length adjustment will differ. See the Sky Trail® ***Harnessing*** section for harnessing techniques. Each zip line is slightly different, and specific adjustments will be determined by the RCI instructor.

Participants must follow all CTS Zip Line and Sky Trail® posted rules. See Sky Trail® ***Participant*** section for rules. Participants must also follow any verbal rules told to them by the sending operator.

Additional CTS Zip Line rules:

1. **Must be 48" (122cm) tall to participate.**
2. **Long hair must be tied back.**
3. **Only 1 participant on the CTS Zip Line at a time.**
4. **The redundant sling line must stay in front of and between shoulders at all times.**
5. **No jumping off the platforms, kicking/flailing legs or flipping upside down while zipping.**
6. **Do not touch the overhead zip cable or tamper with safety equipment.**

Inspection

All safety gear and the structure must be inspected on the CTS Zip Line before it can open each day. Much of the inspection is the same as the Sky Trail® ropes course. Follow those procedures when inspecting the zip line. For unique equipment and structural components to the zip line, follow the policies below.

Zip Tether

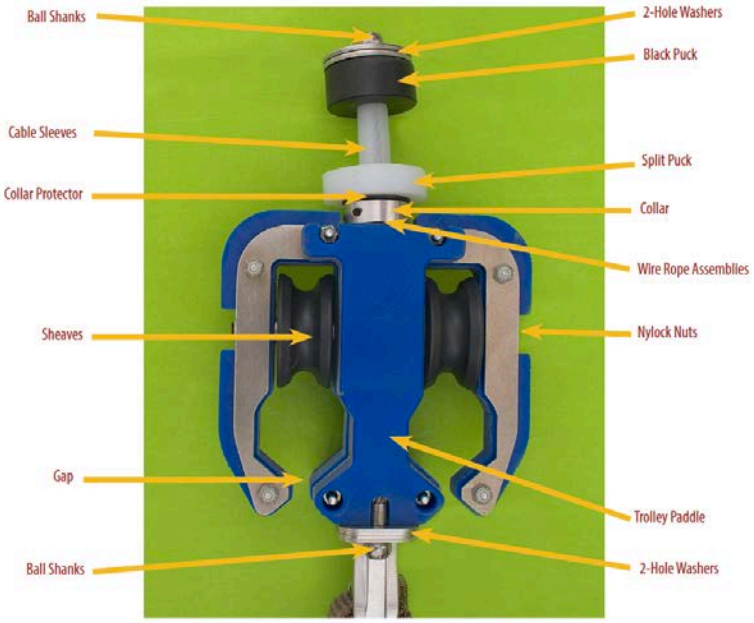
Follow the inspection procedures for sling lines as described in the Sky Trail® ***Inspections*** portion of this training. Regardless of the shape of zip tether, still inspect the webbing, stitching and hardware.

Zip Trolley Assembly

A daily inspection must be performed on each zip trolley before it is put into service for the day. The overall condition of the entire assembly should be examined for deformation. Any deformation found could be an indication of a high impact load or abuse and the trolley must be removed from service immediately. The trolley must also be inspected visually each time it is put into the overhead track before a participant is allowed to ascend up the inclines to the sending platform.

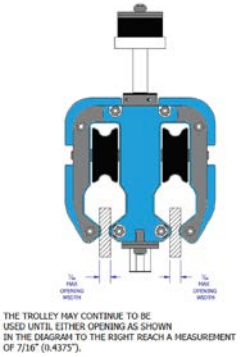
Most RCI zip trolleys have a slider assembly at the top so that the trolley is compatible with the Sky Trail® trollies. These pieces include: ball shanks, 2-holed washer, black puck, split puck, cable sleeves, collar protector and collar. Inspect these parts as described in the Sky Trail® ***Inspections*** portion of this training. For other components, follow the procedures below.

A log should be kept of the daily trolley inspections. If there is any doubt as to the condition of the zip trolley, do not put the trolley into service until deemed safe to use by qualified personel.



Sheaves

1. The sheaves are the rollers within the trolley assembly. Examine the sheaves for wear and a reduction in diameter size.
    a. It is okay for the sheave to "groove" and conform to the wire rope or cable of the zip line.
2. Measure the diameter of the sheaves using a caliper or gauge. A sheave must be replaced when the diameter is 1-1/8'" (3.49cm) or less.
3. The nylock nuts on either side of the shaft must be in contact with the trolley housing paddle. The threads of the shaft must be fully engaged in the nylock insert of the nut with the thread sticking out just slightly or at least flush with the edge of the nut.
    a. Avoid over tightening these nuts as this will compress the sides too much and sheaves will not be able to move freely.
4. Make sure the sheaves spin freely.

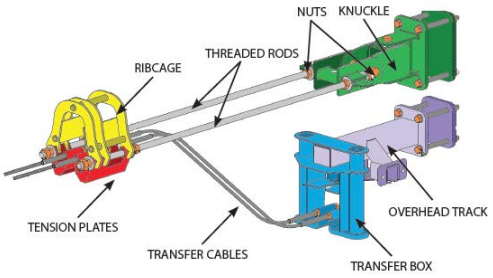


Trolley Paddle

1. Inspect the entire surface of the paddle for any wear, especially at points where there could be metal-to-metal contact.
    a. Bending, cracks or corrosion with severe pitting that penetrates the surface of the metal could all be causes for removing the trolley from service.
    b. Surface corrosion and paint that may be chipping off is not cause for concern, but these areas should be examined closely for any signs of major deformation.
2. Inspect the gaps in the trolley-housing paddle.
    a. The blue UHMW material must be inspected. The maximum allowable gap is 7/16'' (11.11mm). If the gap is larger than 7/16'' (11.11mm), the trolley must be removed from service.
    b. The blue UHMW cannot wear past the point of the metal. When the UHMW wears to the metal, it must be removed from service.
3. Make sure all nylock nuts are in place and engaged on the bolts. Any loose nylock nuts should be replaced with a new nut.

Zip Termination

One of the most important places to inspect on the structure of the CTS Zip Line is the zip terminations. This is where the zip line cables are connected to the zip towers or ropes course. The sending and receiving sides are identical. Refer to the colored diagram to the right when reading about the pieces to inspect.



Note: Colors in parenthesis are referring to the diagram, not the actual color of each piece.

Transfer Cables and Transfer Boxes

The transfer box (blue) is a steel frame box that allows the zip trolley to transfer from the overhead track onto the zip cables.

To inspect:

1. Examine the box for any major deformation such as bends, cracks or rust that penetrate the surface of the metal.
    a. Surface rust should be addressed as soon as possible to prevent further oxidation or deformation.
2. Inspect the transfer cables for any sharp wires or loose nuts. Two cables called transfer cables (dark gray) are connected on either side of the transfer box. The ends of the cable are connected to the box by threaded studs with a single nylock nut. To prevent injury, be sure all cables are properly connected and at least 1-2 threads of the stud are sticking out of the nut.
    a. The 2 cables should be even with each other, which may require occasional tightening or loosening of 1 of the cables to balance them.

Zip Line
Transfer Box

Ribcage

The ribcage (yellow and red) is a steel device that allows the zip trolley to transfer off the tensioned zip line and onto the non-tensioned cables.

To inspect:

1. Look for any deformation such as pitting, cracking at weld joints and that the ribcage is not bent itself.
    a. A straight edge should be used to check if it appears bent.
2. The most critical inspection of the entire CTS Zip Line system is examining the tension plates (red) of the ribcage. The tension plates can be found on the underside of the ribcage between the ribcage pipes.
    a. Look closely for any cracks.

Zip Line Ribcage

Note: If a crack is found, zip line operations should immediately be suspended until the ribcage can be replaced. Please contact RCI should this occur.

Threaded Rod

The threaded rods (light gray) connect the ribcage to the knuckle and help support the weight of the zip cables.

To inspect:

1. Visually check each threaded rod in their entirety. There must not be any cracks or breaks.
2. Inspect all of the nuts attached to the threaded rod (orange) to ensure that they are tight and engaged on at least 1 thread.

Knuckle
The knuckle (green) enables the whole system to move when under load.

To inspect:
1. Ensure that all nuts (orange) are tight and engaged on the threads of the bolts.
2. Examine the steel components for paint damage and/or rust. All paint issues should be dealt with in a timely manner.
3. Check that the welds are still intact and ensure there are no cracks.

Connection to Overhead Track
The connection to the overhead track (purple) is where participants are connected to the standard overhead track.

To inspect:
1. Check for dirt or debris in the track.
2. Check for proper track alignment.
3. Examine all splice connections and all nuts and bolts.

Zip Cables
The zip cables are the cables that stretch from platform to platform.

To inspect:
1. Start at the connection to the ribcage. Ensure that the 2 nuts holding the cables to the ribcage are tight and engaged on the thread of the bolt.
2. Inspect the cables above the platform for any signs of damage or wire breaks. Operators do not need to inspect the entire cable for wire breaks every day.
3. An operator must ride the zip line prior to opening to complete 1 full cycle of the zip line.

Zip Brake
RCI manufactures different styles of zip lines that may require a specific brake. It is important to inspect for excessive amounts of wear on any plastic, metal or rope pieces of the brake. Inspect that all nuts are engaged properly on the threads of the bolt. All moving pieces must function correctly. Some zip lines are installed with a ZipStop, which is manufactured by Head Rush Technologies. Head Rush Technologies has specific inspection criteria for their products and the ZipStop manual must be referenced when inspecting the ZipStop.

Quarterly and Annual Inspections
A quarterly inspection requires the safety equipment to be inspected. A trained person at each facility must examine all RSAs for wire breaks in the wire rope assemblies. Please send each quarterly inspection to the RCI Inspection Department for review.

An annual inspection of a RCI product is a very thorough and detailed examination of all components of the product including safety equipment. Annual inspections must be performed by a certified RCI inspector who has undergone and passed the inspection training. If another individual who has not completed the Sky Trail® inspection training performs the annual inspection, the inspection will be considered void and a course certificate will not be issued. If an annual inspection is not performed, your facility will assume all liability for structure and safety.

Annual inspections are necessary to verify that the RCI product meets the standards set by the government and manufacturer. The inspection is an important step in providing participants a safe experience on the zip line. During use of a zip line, some items become worn and other items will need routine maintenance. It is the responsibility of the inspector to locate and start a plan for the continued safety of the participants.

Rescue and Emergency Procedures

Much like the ropes course, zip lines will also have different levels of rescues. Many of these rescues will take a higher level of skill for the operators. It is extremely important all operators are properly trained in rescue sequences.

Zip Line Retrieval and Rescue Kit Inventory

For Rider Retrieval Rope Inventory:

- 1 Petzl speed trolley.
- 2 quick links.
- 1 diamond braid poly rope (3/8" x 100').

Petzl
Speed Trolley

For Operator Retrieval Inventory:

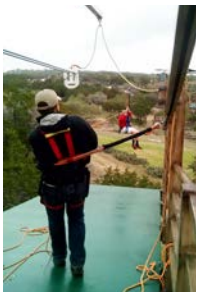
- 1 zip trolley.
- 2 orange slotted webbings.
- 2 aluminium carabiners.
- Gloves.
- Step ladder, secured to platform.

For Lodged Trolley Retrieval Inventory:

- 1 participant trolley with standard sling line set up.

Rider Retrieval

When a participant stops short of the receiving platform and is too far away for the operator to reach out a hand, the rider retrieval rope can be used. This consists of a Petzl speed trolley, 2 quick links to add weight and a light rope. The rider retrieval rope must be kept out of the way on the receiving platform and secured so that it will not fall. Before opening the course the operator should inspect the retrieval rope to ensure that it is not knotted and has not been critically damaged. Knicks in the sheath of the rope are acceptable because this is not a load bearing rope.



Hanging in a harness can be uncomfortable for participants and it is important to retrieve them quickly to avoid discomfort.

In the event that the participant does not reach the platform the receiving operator will follow these steps:

1. Operators must make sure that the zip line brake is out of the way.
2. Attach the speed trolley to one of the zip cables. It has a simple action carabiner that the operator must pull down and then place back on.

3. Once the operator has attached the trolley to the cable and the rope is ready, they will whip the rope out to send it to the participant. It is important that the rope is allowed to run without obstruction, but the very end should be secured so it does not completely unravel off the platform.
4. Once the participant grabs the rope, the operator can pull them onto the platform and operations can continue.
5. Before the next rider is allowed to zip, the catching operator must organize the rider retrieval rope and secure it back to the platform so that it is ready in the event it needs to be used again.

If the rider retrieval rope will not make it out to a stranded participant a ground retrieval may be the next choice.

Follow these steps:

1. The receiving operator will have to get the attention of a staff member on the ground with their whistle, radio or voice. Zip line operators should include this in communication protocol.
2. The rider retrieval rope can be dropped down so that the ground operator can pull the speed trolley to the participant.
3. The bottom operator can then drag the participant to the platform from the ground.
4. The receiving operator can send the participant on their way and organize the rider retrieval rope on the platform.

Some facilities may not lend themselves to performing ground retrievals, such as zip lines over water or other landforms. If going around the obstacle with the rope is not an option, an operator retrieval will be necessary.

Follow these steps:

1. The receiving operator will connect themselves to the operator trolley with both orange slotted webbings.
    a. One of the slotted webbings will act as the operator's zip tether. When connected properly, the operator will be very close to the cables. This ensures they will be high enough to the zip cables to be able to pull themselves back. The other slotted webbing can be connected loosely on the bottom loop of the harness.
2. The operator may choose to wear gloves when traversing the cables.
3. The operator will disconnect from the operator sling line (in the track) and ride out to the stranded participant.
    a. Operators should take care not to run into the participant, as the weight of the participant will create a downhill slope in the cables. Hand brake by placing 1 hand lightly on the cable behind the zip trolley to slow the operator down.
4. Once the operator has reached the participant they will clip their loose orange slotted webbing to the participant's trolley or zip tether. Connecting the webbing closer to the trolley will make pulling the participant back to the platform easier.
5. After connecting the participant to themselves, the operator will use the cables to traverse back to the platform.
6. At the platform, the operator will connect back into the operator sling line before disconnecting the operator trolley.

In the unlikely event that a trolley becomes lodged on the zip cables, the operator will have to traverse the cables and transfer the participant onto a new trolley. Before traversing the cables, the operator must remember to put a pair of scissors in a secure location on their being. The operator will push a new trolley onto the cables ahead of themselves. The new trolley must be fully and properly connected to the participant before cutting the lodged one. After the operator has double-checked the connections they may cut the zip tether. Another operator should be present to go through

checks with the receiving operator. After cutting the trolley, the operator should see if they can dislodge the trolley before traversing back to the platform with the participant. If they cannot get the trolley loose, the zip line will have to be closed until it can be removed.
Another option in place of traversing the cables, connecting the speed trolley and having an operator on the ground pull you out to the participant and then pull you back to the platform after you've performed the rescue. Operators should be prepared to traverse the cables to do a rescue on their own however.

Emergency Procedures
In the case of a medical emergency and a participant arrives at the receiving platform needing medical attention, the following procedures should take place. The receiving operator will get the attention of another operator with a whistle and/or radio. They will then retrieve the emergency take down kit (ETK) located near the zip line. Due to the complex design of many zip towers; participants needing medical attention will be lowered onto the platforms instead of being lowered to the ground. The operator's job is to safely lay them onto the platform and alert medical personnel. EMT's can climb the zip towers and tend to a participant's needs there. To get someone off the cables and lowered to the platform, follow these procedures:

1. Girth hitch the orange loops of webbing onto the zip cables as close to the end of the platform as you can reach. The participant trolley should be between the 2 loops.
2. Connect the ETK to the orange loops with the steel carabiner.
3. Remove the handles of the bag from the carabiner and loosen the drawstring.
4. Drop the rope bag onto the platform.
5. The top operator will remove the scissor from the carabiner and connect the aluminum carabiner to the participant's upper attachment loop of their harness.
6. The operator will then hold the rescue rope. This is called a fireman's belay.
7. They will then go through their checks:
    a. Check 1: The aluminum carabiner are hooked to the participant.
    b. Check 2: The steel carabiner and rescue figure are correct.
    c. Check 3: They are holding firmly to the rescue rope and all slack is out of the system.
    d. Check 4: The rescue rope is not tangled.
8. The operator will then cut the participant's zip trolley and slowly lower them onto the platform.
9. Once on the platform the operator should apply first aid until emergency medical staff arrives to take over.
10. Conduct an internal review of incidents as related to the emergency action plan (EAP).
11. Make sure to follow the site-specific appropriate emergency action plan (EAP).

On Going Risk Management Guidelines
RCI recommends all facilities operating a RCI product maintain records of:

- Maintenance and inspections.
- Incidents and accidents.
- Internal review of incidents as related to the site-specific emergency action plan (EAP).

QUICKjump

The QUICKjump is a free fall simulation device used in conjunction with the Sky Trail® system. QUICKjump is manufactured and produced by Head Rush Technologies. The following lesson contains instructions specific to QUICKjumps attached to a Sky Trail® product. This is not a substitute for the QUICKjump operator manual produced by Head Rush Technologies. All rules and policies written in the QUICKjump operator manual and the RCI training instructions must be followed when operating the QUICKjump.

An operator is tasked with the day-to-day operation of the QUICKjump , which includes all pre-use inspections of the QUICKjump and safety equipment. This includes properly outfits participants, constantly monitors activity on the QUICKjump structures and maintaining a low risk environment. Sky Trail® operators must be willing to become familiar with all aspects of operating the QUICKjump. In order to receive certification as an operator, an individual must attend training conducted by a RCI certified operator trainer as well as pass written and practical testing.

Operator Rules and Responsibilities

1. A minimum of 2 certified operators are needed to operate the QUICKjump.
2. The sending operator must be outfitted in a full body harness and sling line and be attached to the overhead track at all times.
3. Operators are responsible for reciting the rules to the participants and checking participant safety equipment for proper fit before transferring the participant to the QUICKjump. Only operators may transfer participants. Do NOT allow participants to transfer themselves.
4. Never continue operation if the webbing line fails to fully retract. Do NOT pull out any excess webbing line prior to descent. The webbing must be under tension prior to operation.
5. An operator must attend to the landing zone at all times while the QUICKjump is operating.
6. Operators may not send a participant on the QUICKjump until all safety checks are completed.
7. An operator cannot send themselves. A sending and receiving operator must be present to go through all the proper safety checks. An operator jumping must be treated as a participant.
8. Operators must allow webbing to retract without assistance. Do not pull the webbing up.
9. After every 10th jump, the operator should stop the webbing retraction and pull down hard to help keep the webbing tightly re-wound.

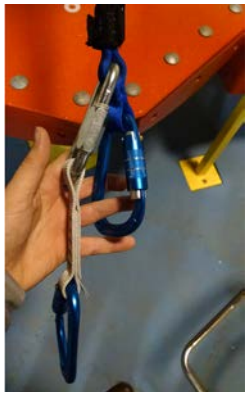
Stations

Any participant who is climbing the Sky Trail® ropes course and fits within the QUICKjump participant parameters may participate on the QUICKjump. Participant outfitting is the same for both the Sky Trail® and the QUICKjump. Participants must traverse the course elements while being attached to the overhead tracking system to reach the QUICKjump platform. Participants wishing to do the QUICKjump will enter a gated platform. One participant is allowed on the platform at a time to avoid crowding. The designated operator will also be present on the platform to properly operate the QUICKjump. Operators operating the QUICKjump must always be connected to the overhead track with the standard orange operator sling line and slider assembly. On the QUICKjump platform, 1 track has been designated as an operator track and the other as the participant track. The track that has a place to remove the redundant slider assembly (RSA) is the participant track. This track must be padlocked when not in use.

Sending

To send a participant, follow these steps:

1. Close and latch the gate. Once the participant has entered the gated area.
2. Check for the proper fit of the participant harness.
3. Attach the QUICKjump webbing to the participant by passing the 2 blue carabiners through the chest loop of the harness, attach the primary carabiner to the top, load bearing loop on the harness, and attach the secondary carabiner to the redundant loop of the harness. This is the same pattern used when attaching a Sky Trail® ropes course sling line to a participant.
    a. Squeeze test the carabiners.
4. Once the auto locking carabiners have been squeeze tested and verified they are connected to the correct points on the harness, the participant's Sky Trail® ropes course sling line can be removed from the participant.
5. Review the rules with the participant.
6. Always keep 1 hand on the participant to prevent the participant from jumping before it is okay for them to do so. Never push someone off platform even if they ask. Serious injury can occur.



Two Blue Carabiners Through Chest Loop

Before the participant jumps, the operator must take care to be fully disconnected from the participant and QUICKjump webbing. At no point in the participant's descent should the operator touch or grab the webbing. Doing so could cause injury to the operator.

Receiving

Staff operating the QUICKjump should be in constant communication with each other, through the use of hand signals or radios while the QUICKjump is in operation. When a participant is jumping, the operators must direct their full attention to the participant. The receiving operator's main job is to keep the landing zone clear for the descending participant. They must take care to stay out of the way as well. If at any point in the checks the landing zone becomes unsafe the receiving operator can cancel the jump by crossing their arms to make an 'X.' If this occurs, the gate on the jumping platform must be closed and the checks will start over.

To receive, follow these steps:

1. Go through the commands with the sending operator.
2. Stand in position towards the back of the landing pad and watch the participant's descent. Do not stand directly under the participant as they descend.
3. As the participant's feet come close to the ground, help them stand by pushing their shoulders gently forward.
4. Act quickly when a participant lands and remove the QUICKjump carabiners.

The sending and receiving operators will go through the QUICKjump commands with each other as shown on the chart.

Speaker	Command	Hand Signal	Action
Sending Operator	"Descending?"	Wave Arm	Participant is ready to jump.
Receiving Operator	"Check 1!"	Hand hold up and out with index finger extended	Sending operator squeeze test both QUICKjump carabiners.
Sending Operator	"Check."	One thumb up	All carabiners are secure and correct.
Receiving Operator	"Check 2!"	Hand held up with index and middle finger extended	Sending operator checks to make sure the participants sling line is no longer attached to the participant.
Sending Operator	"Check."	One thumbs up	The participant sling line is out of the way.
Receiving Operator	"Descend On!"	Sweeping motion with arm overhead	Landing zone is clear and the receiving operator is ready for the participant to jump.

Participants who wish to experience a QUICKjump must be outfitted in the correct TrailPlus harness and sling line. See the Sky Trail® ***Harnessing*** section for proper harnessing techniques. QUICKjumps are attached directly to the course so all outfitting procedures are standard. Participants must follow all posted rules for the Sky Trail® ropes course and the QUICKjump. Participants must also follow any verbal rules told to them by the sending operator.

Participant Rules and Responsibilities

1. Cell phones or cameras are NOT allowed on attraction.
2. Maximum weight is 285lbs (129kg). Minimum weight is 35lbs (16kg).
3. Follow all operator instructions and posted rules signs or stickers.
4. Must wait for operator approval before leaving platform.
5. Do not pull down on the QUICKjump webbing or wrap the webbing around any part of your body.
6. When ready to descend, step straight down off platform, feet first.
7. Do not attempt to flip upside down while descending.
8. Do not sit on the platform prior to descent.
9. Take care when landing and put your feet down.
10. Only 1 person is allowed to jump at a time.

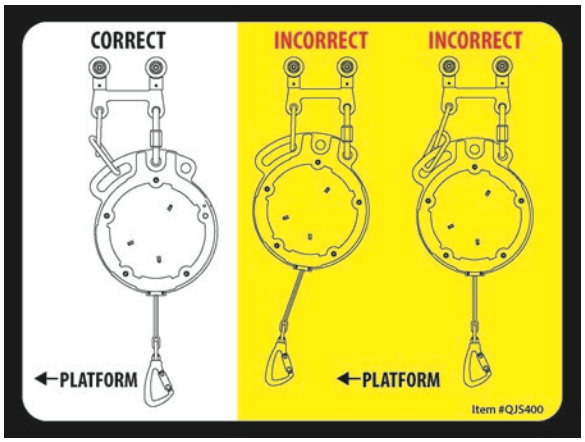
QUICKjump Inspection

The QUICKjump must be inspected daily for correct operation and overall condition. The QUICKjump is mounted on a custom track that allows operators to move it down to the platform so it can be easily and thoroughly inspected. Incline catches are mounted on the track to hold it in place while in operation. To move the device down, first open the incline catch by pulling on the rope. Then use the custom hook to slowly wheel it down the track. This hook must be securely tied off to prevent injury if the operator were to drop it. The QUICKjump weighs approximately 45lbs so the operator must maintain control of the device's descent down the track to avoid injury.

QUICKjump
Incline Catch

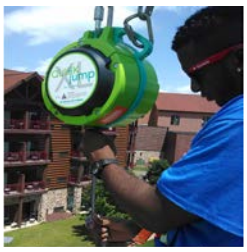
Once the device is in position follow these steps to perform the daily inspection:

1. The QUICKjump is integrated onto the Sky Trail® ropes course with additional overhead tracks, platforms and fencing. Inspect these components as you would any other part of the Sky Trail® ropes course. Also check the functionality of the gates. Ensure that the pins closing 2 track exits are in place and locked. These pins are only allowed to be unlocked when there is an operator present on the QUICKjump platform. During all other times they must be locked.
2. Ensure that the padding is secure at the end of the platform. This padding is a requirement for operations.
3. Inspect the custom trolley that the QUICKjump is mounted to look for signs of wear or gouges. The QUICKjump must be mounted on the trolley correctly. See diagram:



QUICKjump
Certification Label

4. Visually inspect the casing, mounting holes and plastic covers for wear, impact damage, cracking, deformation and corrosion. Replace any damaged items or remove the QUICKjump from service.
5. Check that all safety labels are in place and in good condition.
6. Check that the date on the certification label is current.
7. Inspect the condition of the carabiners.
8. Inspect the exterior condition of the overload protection assembly (OPA) for the following:
    a. Assembly is contained within the jacket.
    b. No excess threads are visible.
    c. OPA has not deployed.
9. Slowly pull out the entire length of webbing from the unit. As webbing is withdrawn inspect for:
    a. Damage, cuts or abrasion to stitching.
    b. Cutting, wear and abrasion to the surface of webbing.
    c. Discoloration, fading or chalking of the surface.
    d. Heat and friction damage such as hard or shiny areas.
    e. Contamination from dirt or chemicals.
    f. Twisting or knotting.



QUICKjump Webbing
Inspection

10. Allow the webbing to slowly retract into the casing to check that the retraction action is strong and smooth. Ensure that the webbing line is fully retracted.
11. Inspect the nozzle and the pin that holds the nozzle in place. There should be no sharp areas.
12. Push the QUICKjump back to its operational position with the hook and ensure that the incline catch is closed.
13. Inspect the landing zone for the QUICKjump, making sure all fencing is secure and there are no hazards to an operator or a participant.

The QUICKjump also requires a weekly inspection. See inspection log provided by Head Rush Technologies. Operators must inspect the interior condition of the overload protection assembly (OPA). Open the jacket and inspect the entire assembly checking that no threads are broken and that the webbing is in good condition. If any broken threads are found, the webbing line must be replaced immediately.

If the webbing is wet, it needs to be stored fully extended and allowed to dry before it is used again.

The webbing on the QUICKjump will typically show excessive signs of wear between 3000–6000 cycles. This number will vary given the modes of operation, climate conditions and other variables. The QUICKjump must be shut down immediately when webbing does not pass inspection.

The webbing can be replaced on-site, on the course by an approved staff member. Please use the QUICKjump manual provided by the manufacturer Head Rush Technologies in the Reference Materials section, when replacing the webbing. Head Rush Technologies also provides an excellent tutorial on their YouTube channel, which explains how to replace the webbing. It is highly recommended that spare webbing be ordered and kept on-hand at the facility in the event that the webbing does not pass inspection.

A QUICKjump product certification is only valid for 1 year. To have the product recertified, it must be shipped back to Head Rush Technologies in the original packaging. For details on shipping the QUICKjump, go to www.freefalldevice.com and click on 'recertification.' You must have the product's serial number for recertification.

Contact RCI's product sales manager by calling (877) 203-0557 or emailing mailto:services@ropescoursesinc.comto order additional webbing. Allow plenty of lead time when ordering.

Rescue and Emergency Procedures

In the event that there is a medical emergency on the QUICKjump platform, an operator will face a few different scenarios. Someone may have a medical emergency while still attached to their RSA. In this situation an emergency take down (ETD) must be initiated as described in the Sky Trail® Operator Training (See **Rescue and Emergency Procedures** section). Completing a take down from the platform is no different than completing a take down from the elements. In the event that someone has a medical emergency after they have been attached to the QUICKjump and removed from their RSA, an operator may have a few options. If the person is still conscious, the fastest way down is via the QUICKjump. The operator should help them off the platform as normal. If the person is unconscious, it may be too difficult to push someone off the platform and this could cause further injury. An operator would need to initiate an emergency take down (ETD) as normal. Do not cut the QUICKjump webbing unless absolutely necessary. Simply pull it down to give slack and remove the carabiner. This step would take place of cutting the participant's sling line. Follow the appropriate emergency action plan (EAP) once the participant is safely to the ground.

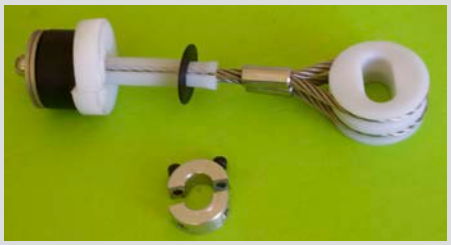
Appendix A

Inspecting the Redundant Slider Assembly

A complete inspection of the cable sleeves is required every time the rope guard is replaced. A complete inspection of the entire stock of redundant slider assemblies at your facility must then follow to ensure that no other broken wires are found.

A complete inspection of the Redundant Slider Assembly is required every 90 days (quarterly). To perform a complete inspection, all the wear components of the assembly, except for the split puck, must be removed to inspect underneath thoroughly. Use the Safety Equipment Inventory and Inspection Sheet on page 105 for your records.

Step 1
Remove the collar by loosening and removing the hex screw by turning counter clockwise 1 of the hex screws using a 5/32" hex key. Partially loosen the second screw until the collar is able to twist open and be removed from the cable sleeves.



Step 2
Slide the collar protector down and off the cable sleeves onto the wire rope. After the collar has been removed grab onto the bottom of the guard opposite of the split, pull down and away, and the guard will come off the wire ropes.

Step 3
The split puck can be removed before or after the split cable sleeves is removed. To remove, use 2 vice grips, 1 on each side of the split. Lightly clamp the vice grips into position and onto the split puck. Too much pressure may deform the puck and cause premature wear. Apply an opposing force (upward and downward) this twist opens the puck enough to release it from the slider assembly. This does not need to be removed for inspection.

Step 4
This image depicts all the parts of RSA; separated for a 90 day inspection.

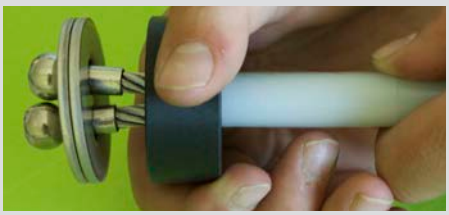
Step 5

To replace the cable sleeves, use the 3/16" hex key to open the split cable sleeves.

Step 6

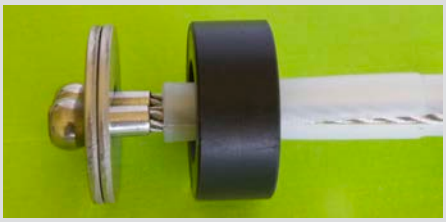
Press the cable sleeves onto the 2 wire ropes.

You may have to slightly twist the guard back and forth to get the wire rope to seat completely as shown.



Step 7

Grasp the black puck in one hand while squeezing the split cable sleeves together, slide the black puck down and over the guard about 1". At this point make sure the washers are properly seated to the ball shanks, so that the bottom of both balls, are resting on the top washer.

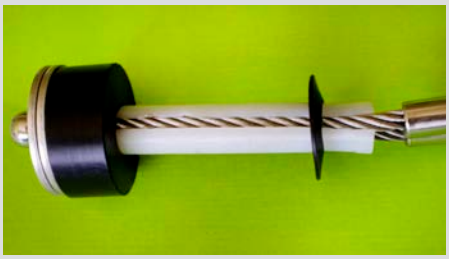


Step 8

Slide the collar protector onto notched area of cable sleeves. The split cable sleeves needs to be positioned about 1/4" below the shank of the ball exposing some of the wire rope to allow for the daily pre-use inspection.

Step 9

Apply lightly Loctite Red #248 to collar screws and replace collar into notched area.



Step 10

Slide the black puck up into position as shown.

Step 11
Before tightening the screws make sure the collar protector is on top of the collar; the split of the cable sleeves and the split of the collar are opposite. Tighten the screws by alternating the clockwise turns between the 2 screws.

Step 12
To reapply the split puck, use 2 vice-grips, 1 on each side of the split. Lightly clamp the vice-grips into position and onto the split puck. Too much pressure may deform the puck and cause premature wear.

Step 13

Rest the body of the split cable sleeves onto the puck between the vice-grips, apply an opposing force (upward and downward) on the vice-grips. This twist opens the puck enough for the slider assembly to drop into the puck. You will need to twist slightly past closed. This past closed twist creates its flat position when the split puck is relaxed. The split puck should be flat as shown after the vice-grips are removed.

Appendix B

Track Stop Device

The RCI track stop device is specifically designed for temporary closing an element that is in need of repair. It can also be used to close a section or path on a Sky Trail®. The track stop is simple and can be inserted anywhere in the track. The track stop should only be used by properly trained operators or trained maintenance staff.

WARNING:
The track stop device is not designed for fall protection. DO NOT use as a slider assembly.

A temporary track stop may be used for locations where the track remains intact and there are no unlocked or unblocked exit points beyond it. Examples are if an element is awaiting exchange (on the day of failure) or if a trail route is shortened for operator manpower. Permanent bolts must be placed into any track that leads to any unlocked, unblocked, or unsupervised track exit, or where any critical safety failure is displayed past the block point. If an element is failing, bolts also must be applied before the next day of operation. Only install these bolts once participants are off of a course. See the diagram on the next page for details on how to install bolts.

To Use Track Stop

The track stop is equipped with a wrist coil to help prevent dropping the device while on the course. Before entering the ropes course place the wrist coil on your wrist or connect to a carabiner that is securely connected to your harness or sling line. First, turn the knob counter clockwise all the way open before you enter the ropes course.

Once you reach the desired location of the track stop device, with the wrist coil on your wrist, insert the top puck fully into the track and slightly shake side to side take out and and while pulling down slowly. This will cause the pendulum puck to swing onto the track surface.

Once the top pendulum puck is in contact with the track, hand tighten knob (clockwise) until the bottom puck is in contact and snug against the track.

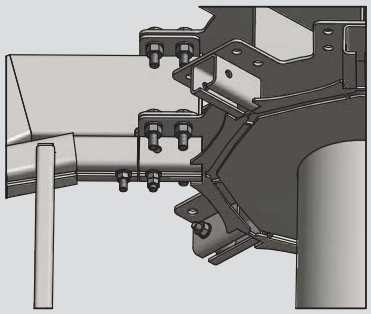
Track Stop

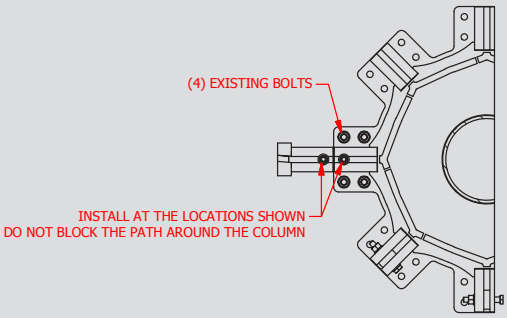
To Remove Track Stop

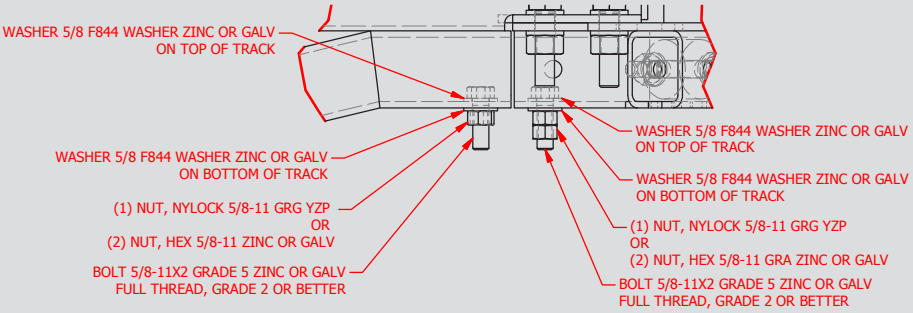
To remove the track stop insert wrist into wrist coil and turn the knob (counter clockwise) all the way open. Push up on the bolt to allow the pendulum puck to swing to vertical. Align puck with track opening and pull out.

Permanent Track Bolt Application

A 5/8" – 11x2 grade 5 zinc or galvanized full thread, grade 2 or better bolt is placed per the diagram below with two 5/8 F844 zinc or galvanized washers, double hex 5/8-aa zinc or galvanized nut or 5/8-11 nylock GRG YZP nut. They are placed into the column ring side and the track side of the track entrance and mechnically tightened.




(4) EXISTING BOLTS
INSTALL AT THE LOCATIONS SHOWN
DO NOT BLOCK THE PATH AROUND THE COLUMN


WASHER 5/8 F844 WASHER ZINC OR GALV
ON TOP OF TRACK
WASHER 5/8 F844 WASHER ZINC OR GALV
ON BOTTOM OF TRACK
(1) NUT, NYLOCK 5/8-11 GRG YZP
OR
(2) NUT, HEX 5/8-11 ZINC OR GALV
BOLT 5/8-11X2 GRADE 5 ZINC OR GALV
FULL THREAD, GRADE 2 OR BETTER
WASHER 5/8 F844 WASHER ZINC OR GALV
ON TOP OF TRACK
WASHER 5/8 F844 WASHER ZINC OR GALV
ON BOTTOM OF TRACK
(1) NUT, NYLOCK 5/8-11 GRG YZP
OR
(2) NUT, HEX 5/8-11 GRA ZINC OR GALV
BOLT 5/8-11X2 GRADE 5 ZINC OR GALV
FULL THREAD, GRADE 2 OR BETTER

Appendic C

Paint Repairs

There are 2 methods for handling paint repairs on your course. The first is a minimum solution option that will temporarily resolve a paint issue until the blemish can be fully addressed. The second is the preferred and RCI recommended method of handling any paint issues on a rope course.

Minimum Method

Within 48 hours of steel exposure:

1. Use a scotch pad or 120 grit sand paper to smooth any rough edges of the blemish.
2. Lightly coat with a rust-inhibiting spray primer. (Rust-o-leum brand color of your choice is acceptable.)

NOTE: When completely repairing the paint blemish at a later time, any rust-inhibiting spray primer applied must first be cleaned off with a light sander or wheel before applying the permanent Epoxy primer and paint color.

Recommended Method

Within 48 hours of steel exposure:

1. Use a scotch pad or 120 grit sand paper and smooth any rough edges of the blemish.
2. Mix the needed amount of Epoxy primer and Activator using a ratio of 4 parts primer to 1 part Activator.
3. Using a fine tip brush; apply Epoxy primer to bare cleaned steel.

NOTE: This step must happen within 2 hours of activating the Epoxy primer. The Epoxy primer will dry ready for paint in about one hour at 70 °F (21°C).

4. Mix the needed amount of Epoxy paint and Activator, again using the 4 parts paint to 1 part Activator ratio, and apply over the dried Epoxy.
5. Clean and seal all cans of unused primer, paint and Activator for future use if needed.

Appendix D

Supplemental Forms

Ropes Courses, Inc. Checklist

Date: _____ Manager: _____

Operators: _____

☐ Indoor ☐ Outdoor Weather: Temp: _____ Wind: _____ Rain: _____ Snow: _____

Type of Structure: ☐ Sky Trail® ☐ Sky Tykes® ☐ CTS Zip Line ☐ Sky Rail™

Pre-Use Inspection:

Inspect All Safety Equipment ☐ Harnesses ☐ Slider Assemblies/Sling Lines ☐ ETK's

Inspect All Parts of the Activity and Surrounding Area ☐ Steel Structure ☐ Nuts & Bolts

☐ Track ☐ Platforms ☐ Additional Structures (ie Quick Jump) ☐ Surrounding Area

Elements *(Please specify which level, additional level form on next page):*

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

☐ _____ ☐ _____ ☐ _____

Notes:_____

Activity Set Up:

☐ All access restrictions removed ☐ Set out harnesses and slider/sling lines

☐ Set up any stored away entrance access ☐ ETK inspected and set up

Outfitting:

☐ Check all participants for harness fit*

* *Shoulder straps snug and don't come down over shoulders.*

* *All buckles properly buckled and snug.*

☐ Attach and adjust slider/sling line

☐ Participants must see operator if they remove their harness

Ropes Course Operational Procedures:

☐ Point out all posted safety rules

Activity Closing:

☐ ETK taken down and stored properly ☐ All access restrictions replaced

☐ Store all harnesses and slider/sling lines ☐ Check area for lost articles

☐ Put up any removable entrance access

Operator Reports:

☐ Accidents/Incidents* ☐ Course maintenance or repair needed

Fill out Safety Report if any accidents are reported.

ROPES COURSES 1300 Lincoln Rd Allegan, MI 49010 | P (269) 673-0016 | F (269) 673-0017 | www.ropescoursesinc.com

Ropes Courses, Inc. Checklist: Elements

(Please specify which level.)

☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________

Notes:____________________________________

(Please specify which level.)

☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
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☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________

Notes:____________________________________

(Please specify which level.)

☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________
☐ ____________ ☐ ____________ ☐ ____________

Notes:____________________________________

Emergency Action Plan Procedures

Evacuation Routes

It is important to know the evacuation routes and procedures for the Sky Trail® ropes course and surrounding area at your facility. Briefly describe the location and/or processes of evacuation during an emergency situation.

Evacuation procedure off the course:

_____

_____

_____

Primary evacuation route from the area:

_____

_____

_____

Weather Procedures

In the event of approaching severe weather, the following procedure is to be followed:

Lightning: _____

_____

Other: _____

_____

Emergency Take Down

Location of ETK's on the course:

Level 1: _____ Level 2: _____ Level 3: _____ Level 4: _____

Location of figure 8 descender: _____

Person is charge of calling 911: _____

Person in charge of notifying managers and other staff: _____

Write a brief description of your facility's plan for executing an emergency take down (ETD) on the course. Include who is responsible for administering first aid (if needed) and who will complete the official paperwork (Accident Report) and submit the report to RCI.

_____

_____

_____

_____

_____

_____

This form must be filled out completely and posted near the ropes course or in a binder easily accessible near the course.

Emergency Action Plan Contacts

Emergency Action Plan

This form is in place to assist in the case of an emergency. At no time should this form be removed or modified without permission from a Course Manager.

Facility Name: _____

Facility Address: _____

_____

Designated Responsible Official On Site:

Name: _____ Contact #: _____

Name: _____ Contact #: _____

Name: _____ Contact #: _____

Emergency Personnel Contact Information:

On Site First Responders:

Contact #: _____ Radio #: _____

Contact #: _____ Radio #: _____

Security: _____ Radio #: _____

Off Site Responders:

Fire Department: _____

Paramedics: _____

Police: _____

Utility Company Emergency Contacts:

Gas: _____

Electric: _____

Water: _____

Any changes made to this form must first be authorized by:

Name: _____ Contact #: _____

Ropes Courses, Inc.
1300 Lincoln Rd. Allegan, MI 49010
P 269-673-0016
services@ropescoursesinc.com

Safety Report

Name of Facility: _____

Primary Operator Name: _____ Operator Phone #: _____

Additional Operators Present:_____

Date of Incident: _____ Time of Incident: _____

Area of Course Where Incident Occurred (i.e. beam, cargo net, platform): _____

Location of course: ☐ Indoor ☐ Outdoor Weather: Temp: _____ Precip: _____ Wind: _____

Participant Name: _____ ☐ Male ☐ Female

DOB: _____ Weight: _____ Height: _____

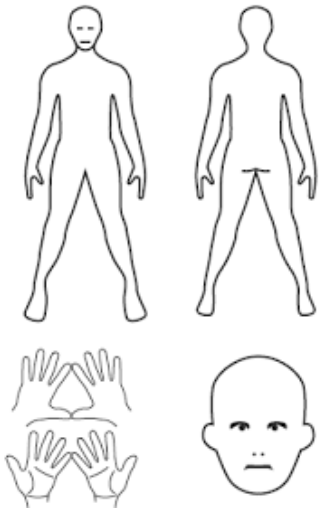
Participant Phone #: _____

Participant Address: _____

Body Parts Injured: _____

Injury Specifics: _____

Parts of body affected *(Shade areas of body affected)*:



Nature of injury *(Check all that apply)*:

☐ Abrasions/scrapes
☐ Amputation
☐ Broken bone
☐ Bruising
☐ Burn (Heat)
☐ Burn (Chemical)
☐ Concussion
☐ Crushing injury
☐ Cut/laceration/puncture
☐ Hernia
☐ Sickness
☐ Sprain/strain
☐ Damage to a body system
☐ Other: _____

First Aid Provided: ☐ Yes ☐ No Ambulance Called: ☐ Yes ☐ No ETD Performed: ☐ Yes ☐ No

Description of First Aid Provided: _____

_____

_____

Cause of Incident *(Describe in detail what happened to cause incident and if any rules were broken.)*:

_____

_____

_____

_____

Safety Report (continued)

Action *(Describe in detail the actions taken by the operators.)*:

_____

_____

_____

_____

Witness Name: _____ Witness Phone #: _____

Witness Signature: _____ Date: _____

Report Prepared By: _____ Date: _____

Reviewed By Course Manager: _____ Date: _____

Date Submitted: _____ ☐ Faxed *(269-673-0017)* ☐ Emailed *(services@ropescoursesinc.com)*

Safety Equipment Inventory and Inspection Sheet

ROPES COURSES
www.ropescoursesinc.com

Note conditions in the following manner: NAD (No Apparent Defect), TOL (in tolerance with some wear), FAIL (failed inspection)

RSA's and Trolleys			Notes	RSA's and Trolleys		
	Description				Description	
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
serial #	Part/Oper	NAD TOL FAIL		serial #	Part/Oper	NAD TOL FAIL
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RCI Inspector — Initials: ____________ Date: ____________

All equipment has been inspected to the best of my knowledge.
Any equipment deemed unsafe has been removed from service and destroyed.

Safety Equipment Inventory and Inspection Sheet

ROPES COURSES www.ropescoursesinc.com

Note conditions in the following manner: NAD (No Apparent Defect), TOL (in tolerance with some wear), FAIL (failed inspection)

Harness		Harness		Harness	
Description		Description		Description	
serial #	NAD TOL FAIL	serial #	NAD TOL FAIL	serial #	NAD TOL FAIL
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serial #	NAD TOL FAIL	serial #	NAD TOL FAIL	ETK	
serial #	NAD TOL FAIL	serial #	NAD TOL FAIL	RSA	Eye Bolt
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RCI Inspector Initials: ____________ Date: ____________

All equipment has been inspected to the best of my knowledge.
Any equipment deemed unsafe has been removed from service and destroyed.

Sky Trail® Operator Certification Written Test

Name: _____ **Date:** _____ **Location:** _____

1. Operators are certified for _____ and must attend _____ update training.
   - A. 6 months / twice a year
   - B. 1 year / annual
   - C. 2 years / bi-annual
   - D. As long as they are employed / no additional

2. 16 year old staff members allowed to _____ for a Sky Trail® attraction and a _____ must train them.
   - A. Work at all stations / Certified operator trainer
   - B. Harness participants / Certified operator trainer
   - C. Load and Unload only / Manager

3. One operator must stay within _____ level(s) of any participant on the course.
   - A. 0
   - B. 1
   - C. 2
   - D. 3

4. Before a participant begins the course, but after they are fully connected to the course, what must the loading operator do? _____

5. How many operators are required to be in a full body harness on the ground during operation? This does not include the operator(s) on the course.
   - A. 0
   - B. 1
   - C. 2
   - D. All operators present

6. A minimum of two certified operators are required to perform an emergency take down and both operators must be outfitted in a full body harness at all times during operations.
   - A. True
   - B. False

7. Describe what a properly fitted harness should look and feel like at different parts of the body. Be specific for each part.
   Shoulders: _____
   Waist: _____
   Legs: _____

8. Participant maximum weight is _____.
   - A. 200 lbs.
   - B. 300 lbs.
   - C. 400 lbs.
   - D. There is no maximum weight

9. Usually only 1 person is permitted on an element at a time. Circle ALL situations where more than 1 person would be permitted on an element.
   - A. A child is being assisted by a chaperone
   - B. A participant is attempting to "bounce" another participant on the element
   - C. A practice or a real emergency take down
   - D. An operator is assisting a participant
   - E. The participants are siblings and cross them together

10. During operational hours for the ropes course loose objects such as cameras, cell phones, and wallets are _____.
    - A. Allowed on the course if the participant asks permission
    - B. Allowed on the course if they are in a backpack
    - C. Not allowed on the course
    - D. Only allowed on the course if they belong to an operator

11. Participants are NOT allowed to _____.
    - A. Engage in horseplay
    - B. Run, jump, or swing in their harness
    - C. Tamper with their harness or sling line
    - D. Touch the overhead tracking system
    - E. All of the above

12. Where can you find out how many total participants are allowed on the course?
    - A. The course data plate
    - B. The daily checklist
    - C. The operator manual
    - D. RCI's website

13. Whose responsibility is it to ensure / check that a participant's harness and sling line are fitted and adjusted appropriately? _____

14. When is it acceptable for an operator or a participant to step foot onto a Sky Trail® unharnessed or not be appropriately connected to the overhead track? _____

15. Which picture shows the correct location of the sling line?
    - A. 
    - B. 

16. A person would not be allowed on the ropes course because _____.
    Circle all that apply.
    A. They are allergic to bees
    B. They have improper footwear
    C. They are more than 300 lbs.
    D. There are no harnesses that they fit safely
    E. They are under the influence of alcohol

17. All daily inspections must be documented on the _____.
    A. EAP
    B. Calendar
    C. Daily checklist
    D. Disclaimer

18. How often are emergency take down kits (ETKs) inspected?
    A. Before every operational day
    B. Once a week
    C. Right before an emergency
    D. Twice a day

19. When you find a harness that has a small rip in the webbing you should _____.
    A. Keep using the harness until it has worn through 50%
    B. Melt the webbing with a lighter so that the rip is fixed
    C. Fix the harness with a needle and thread
    D. Take the harness out of service and give to a manager

20. What is combi-rope?
    A. A regular rope used on elements
    B. A wire rope cable with an outer poly rope used on elements
    C. A wire rope cable with an outer poly rope used in the ETK
    D. Regular rope used in the ETK

21. What does "complete a full cycle of the course" mean?
    A. During the day the operator must traverse each element and incline
    B. During the inspection the operator must traverse each element and incline
    C. During the inspection the operator must walk around the outside of the course
    D. None of the above

22. A pre-use inspection of the ropes course and safety equipment must be completed by someone who _____.
    A. Is familiar with the course
    B. Is physically capable of traversing the course
    C. Has an up to date operator, trainer, or inspector certificate
    D. Works for the company that owns the course

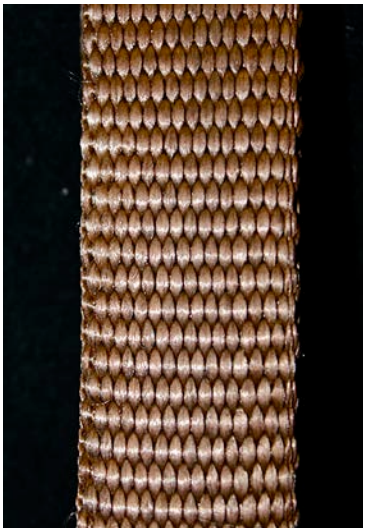
23. - 35. Does the equipment or part of the course pass inspection? Circle yes or no for each picture.

23. Harness Stiching. Yes No

24. Sling Line Webbing. Yes No

25. Base Plate. Yes No

26. Sling Line Webbing. Yes No



Sky Trail® Operator Certification Written Test (page 5 of 8)

27. Column Ring. Yes No

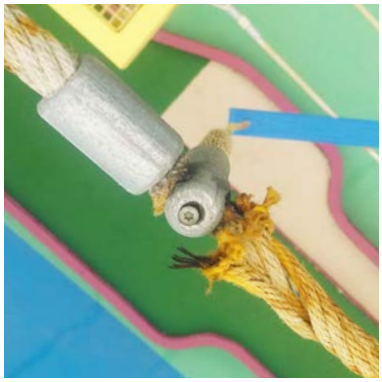
28. Track Connection. Yes No

29. Slotted Webbing. Yes No

30. Track Connection. Yes No

Sky Trail® Operator Certification Written Test (page 6 of 8)

31. Element. Yes No



32. Element. Yes No

33. Black Puck on RSA. Yes No

34. Harness. Yes No

35. Sling Line Webbing. Yes No

36. The black puck on the Redundant Slider Assembly must have a _____ on it in order to pass inspection.

37. List 2 reasons why an RSA would fail a daily inspection.
    1.) _____
    2.) _____

38. You should use bleach when cleaning a harness, sling line, or rope.
    A. True B. False

39. A rescue does not necessarily mean an emergency take down will happen.
    A. True B. False

40. EAP stands for_____.

41. A safety report must be filled out for which of the following reasons? Circle all that apply.
    A. Any injury or illness that required immediate operator attention and/or first aid
    B. If hospitalization is required, recommended, or will be needed at a later date
    C. If the participant or operator was breaking a rule and was subsequently injured
    D. Incidents that did not happen at the ropes course
    E. Participant broke a rule and was not subsequently injured
    F. Participant or operator was injured by the course
    G. Participant was scared

42. All safety reports that have been filled out and reviewed by a manager must be sent to RCI.
    A. True B. False

43. During an ETD, your brake hand must always stay on the _____.
    A. Aluminum figure 8
    B. Part of the rope between the aluminum figure 8 and the loose end of the rope
    C. Part of the rope between the two figure 8s
    D. Your brake hand does not need to stay on the rope

44. Circle the reasons you would NOT perform an ETD.
    A. A person cannot walk down the inclines by themselves or with help
    B. A person is crying on the ropes course
    C. A person pees their pants on the ropes course
    D. A person receives a small abrasion on their knee going across the element
    E. A person is too scared to keep going on the ropes course and wants to get down
    F. A person is unconscious on the ropes course

Sky Trail® Operator Certification Written Test (page 8 of 8)

45. For the following scenario, please fill out a safety report on the next page. Feel free to make up names and other information including the operator's actions.

    A young boy was participating on the ropes course with confidence. He began running across various elements and swinging onto platforms. During one such swing, he scraped his left shin on the platform. The scrape was 5 inches long, 1 inch wide and began bleeding soon after the incident. The boy started crying to gain the attention of the operator.

Please make sure to fill out the Disclaimer on page 125 of this manual and turn in with your test. Failure to fill out the disclaimer prohibits certification as an operator.

Ropes Courses, Inc. Safety Report (page 1 of 2)

Name of Facility: _____

Primary Operator Name: _____ Operator Phone #: _____

Additional Operators Present:_____

Date of Incident: _____ Time of Incident: _____

Area of Course Where Incident Occurred (i.e. beam, cargo net, platform): _____

Location of course: ☐ Indoor ☐ Outdoor Weather: Temp: _____ Precip: _____ Wind: _____

Participant Name: _____ ☐ Male ☐ Female

DOB: _____ Weight: _____ Height: _____

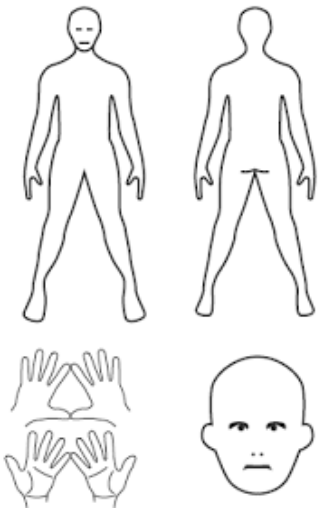
Participant Phone #: _____

Participant Address: _____

Body Parts Injured: _____

Injury Specifics: _____

Parts of body affected *(Shade areas of body affected)*:



Nature of injury *(Check all that apply)*:

☐ Abrasions/scrapes
☐ Amputation
☐ Broken bone
☐ Bruising
☐ Burn (Heat)
☐ Burn (Chemical)
☐ Concussion
☐ Crushing injury
☐ Cut/laceration/puncture
☐ Hernia
☐ Sickness
☐ Sprain/strain
☐ Damage to a body system
☐ Other: _____

First Aid Provided: ☐ Yes ☐ No Ambulance Called: ☐ Yes ☐ No ETD Performed: ☐ Yes ☐ No

Description of First Aid Provided: _____

_____

_____

Cause of Incident *(Describe in detail what happened to cause incident and if any rules were broken.)*:

_____

_____

_____

_____

Ropes Courses, Inc. Safety Report (continued)

Action *(Describe in detail the actions taken by the operators.)*:

_____

_____

_____

_____

Witness Name: _____ Witness Phone #: _____

Witness Signature: _____ Date: _____

Report Prepared By: _____ Date: _____

Reviewed By Course Manager: _____ Date: _____

Date Submitted: _____ ☐ Faxed *(269-673-0017)* ☐ Emailed *(services@ropescoursesinc.com)*

Sky Tykes® Operator Certification Written Test

Name: _____ **Date:** _____ **Location:** _____

1. In order for a participant to go on the Sky Tykes®, they must:
   - A. They must be accompanied by an adult chaperone
   - B. They must be accompanied by a certified operator
   - C. They must be outfitted with a harness and sling line
   - D. A and C

2. If there are participants on the Sky Tykes® an operator must _____.
   - A. Be on the Sky Tykes® course
   - B. Leave the course so long as there is an adult chaperone for each participant
   - C. Stay at the course and monitor constantly
   - D. Stay in the vicinity of the course but can do other things

3. Operators are allowed to sit on the Sky Tykes® course.
   - A. True
   - B. False

4. What is the height maximum for a Sky Tykes® participant?
   - A. 42″
   - B. 4′8″
   - C. 48″
   - D. 72″

5. Are parents or chaperones allowed to harness their own child for the Sky Tykes® course?
   - A. Yes
   - B. No

6. What is the purpose of the lift gate element?
   - A. Creates an extra hard element for a participant
   - B. For parents to access central elements of the course
   - C. For problem solving
   - D. To create a gap for parents to swing their child

7. When attaching the sling line to the Sky Tykes® harness, how many slots on the slotted webbing should an operator count down?
   - A. 0
   - B. 1
   - C. 2
   - D. 3
   - E. 4

8. The designated Sky Tykes® harness can be used for:
   - A. Sky Tykes®
   - B. Sky Tykes® and Sky Trail®
   - C. Any RCI product
   - D. Zip lines only

Sky Tykes® Operator Certification Written Test (page 2 of 2)

9. If a participant does not fit safely in any harness, you _____.
   - A. Let them on without a harness
   - B. Let them on anyways
   - C. Modify the harness in some way to make it fit
   - D. Do not allow them on the course

10. How often must the Sky Tykes®, including all nuts and bolts, track, elements, platforms, and columns be inspected?
   - A. Every 90 days
   - B. Never
   - C. Once a week
   - D. Prior to use

11. How often must the Sky Tykes® safety equipment including all harnesses, sling lines, and carabiners be inspected?
   - A. Every 90 days
   - B. Never
   - C. Once a week
   - D. Prior to use

12. In the event of a medical emergency at the Sky Tykes® course, what must an operator do?
   1.) _____
   2.) _____
   3.) _____

Please make sure to fill out the Disclaimer on page 125 of this manual and turn in with your test. Failure to fill out the disclaimer prohibits certification as an operator.

Sky Rail™ Operator Certification Written Test

Name: _____ **Date:** _____ **Location:** _____

1. How many Sky Rails™ can one operator monitor?
   A. 1 B. 2
   C. 3 D. 4

2. How many emergency take down kits go with each Sky Rail™? _____

3. What are 5 rules that are specific for participants using the Sky Rail™?
   1.) _____
   2.) _____
   3.) _____
   4.) _____
   5.) _____

4. How often should the Sky Rail™ safety equipment including all harnesses, sling lines, Sky Rail™ trolleys, carabiners, and ETKS be inspected?
   A. Every 90 days B. Never
   C. Prior to use D. Once a week

5. If the brake for the Sky Rail™ fails to retract, which option do you take?
   A. Close the Sky Rail™ and contact RCI for assistance
   B. Close the Sky Rail™ until the manager can fix it
   C. Keep using the Sky Rail™, the brake is not necessary
   D. Keep using the Sky Rail™ and have an operator manually stop guests

6. What should you do if a participant stalls on the Sky Rail™?
   A. Get a ladder and get them down
   B. Perform an emergency take down
   C. Use the rider retrieval rope
   D. Zip behind them to give them a push

7. Which of the following would NOT be reason for taking a Sky Rail™ trolley out of service?
   A. The axle for the sheaves is missing the nylock nut
   B. The color of the housing is faded or scratched
   C. There are gouges in the housing that expose the cable
   D. The sheaves do not spin freely

8. A safety report must be filled out and turned into RCI any time there is a near miss or an injury that occurs on the Sky Rail™.
   A. True B. False

9. How many participants are allowed on a Sky Rail™ at one time? _____

CTS Zip Line Operator Certification Written Test

Name: _____ **Date:** _____ **Location:** _____

1. How long is a Zip Line operator certificate valid for? _____

2. How many emergency take down kits go with each Zip Line? _____

3. What are 3 additional rules a participant must follow when participating on the Zip Line?
   1.) _____
   2.) _____
   3.)_____

4. How often should the Zip Line safety equipment including all harnesses, sling lines, Zip Line trolleys, carabiners, and ETKS be inspected?
   A. Every 90 days
   B. Never
   C. Prior to use
   D. Once a week

5. If a participant stalls on the Zip Line, you should _____.
   A. Get a ladder and get them down
   B. Perform an emergency take down
   C. Use the rider retrieval rope
   D. Zip behind them to give them a push

6. Which of the following would NOT be reason for taking a Zip Line trolley out of service?
   A. The axle for the sheaves is missing the nylock nut
   B. The color of the housing is faded or scratched
   C. There are gouges in the housing that expose the cable
   D. The sheaves do not spin freely

7. A safety report must be filled out and turned into RCI any time there is a near miss or an injury that occurs on the Zip Line.
   A. True
   B. False

8. How many participants are allowed on a Zip Line at a time? _____

9. Are participants allowed to zip themselves?
   A. Yes
   B. No

10. Explain why safety checks are performed before anyone is allowed to zip.

_____

_____

_____

CTS Zip Line Operator Certification Written Test (page 2 of 2)

11. An operator may zip across the zip line without another operator there to receive them.
    A. True B. False

12. If one of the ribcages has a crack in the tension plates, the zip line can still be used.
    A. True B. False

Please make sure to fill out the Disclaimer on page 125 of this manual and turn in with your test. Failure to fill out the disclaimer prohibits certification as an operator.

Quick Jump Operator Certification Written Test

Name: _____ **Date:** _____ **Location:** _____

1. Quick Jump is manufactured by which company?
   A. Ropes Courses, Inc B. Head Rush Technologies

2. How many operators are required to operate the Quick Jump? _____

3. What are the 4 additional rules a participant must follow when participating on the Quick Jump?
   1.) _____
   2.) _____
   3.)_____
   4.)_____

4. The Quick Jump must be inspected _____.
   A. Before each operational day B. Every 90 days
   C. Never D. Once a week

5. If the Quick Jump webbing fails to retract, which option do you take?
   A. Close the Quick Jump and contact Headrush Technologies for assistance
   B. Close the Quick Jump until the manager can fix it
   C. Keep using the Quick Jump and pull up the webbing manually
   D. Throw the Quick Jump away

6. A safety report must be filled out and turned into RCI any time there is a near miss or an injury that occurs on the Quick Jump.
   A. True B. False

7. How many participants are allowed on a Quick Jump at a time? _____

8. What is the weight range allowed for the Quick Jump?
   A. 25 – 300 lbs B. 35 – 285 lbs
   C. 45 – 300 lbs D. 16 – 130 lbs

9. To create an extra bit of free fall, you can pull out up to 2 feet of the webbing before having someone jump.
   A. True B. False

10. How long is the product certification of the Quick Jump good for?_____

Quick Jump Operator Certification Written Test (page 2 of 2)

11. As long as the landing platform is clear, you can send a participant without going over the commands with the receiving operator.
    A. True B. False

12. For the following terms write what you are looking for when conducting the daily inspection.

Casing:

_____

_____

_____

Certification Label:

_____

_____

_____

Carabiner:

_____

_____

_____

Overload Protection Assembly:

_____

_____

_____

Webbing:

_____

_____

_____

Nozzle:

_____

_____

_____

Please make sure to fill out the Disclaimer on next page of this manual and turn in with your test. Failure to fill out the disclaimer prohibits certification as an operator.

ROPES COURSES 1300 Lincoln Rd Allegan, MI 49010 | P (269) 673-0016 | F (269) 673-0017 | www.ropescoursesinc.com

Operator Training Disclaimer

I, _____ (your name), acknowledge and agree to the following (initial each):

_____ I have read the sections in this manual that pertain to the course I work for and understand all warnings, policies, procedures, rules and contents as written in this manual.

_____ I will not reproduce or transmit by any means electronic, mechanical, photocopy or otherwise, this manual without the prior written consent to RCI.

_____ I agree that I will not distribute any portion of this manual to any other person who has not completed the required training for operator certification.

_____ I promise to follow all policies and procedures to the best of my ability.

_____ I have received the proper amount of training and confident that I can perform the responsibilities required of me when operating a Sky Trail®.

_____ I have completed at least 5 emergency take down procedures in training.

_____ I know it is my responsibility to report any unsafe activity involving the Sky Trail® to the manager and RCI.

_____ I received a 2016 Operator Manual from RCI.

Training session start time: _____ Training session end time: _____

Name of trainer: _____

Operator Information

Name: _____ Date of birth: _____

Address: _____

Phone: _____

Organization: _____

Position in organization: _____

I, _____ , certify that the above information is correct.

Signature: _____ Date: _____

Operator Training Evaluation

Course instructor: _____Date: _____
Course name: _____

We appreciate your input. Please take a moment to fill out the information below as completely as possible. This information will help us decide what is effective and areas which may need improvement.

Please rate the following aspects 1-5; 5 being most effective.

1. Overall training session.	1	2	3	4	5
2. The manual and training materials are easy to understand and use.	1	2	3	4	5
3. The instructor was knowledgeable in the course subject.	1	2	3	4	5
4. The instructor presented the materials and information in a clear manner.	1	2	3	4	5
5. I feel prepared and confident that I can perform my job as a ropes course operator.	1	2	3	4	5
6. I had fun.	1	2	3	4	5

Please give some examples of the training session that you feel went well, or you enjoyed.

_____
_____
_____

7. Please give some areas that you think may need improvement.

_____
_____
_____