

This Bulletin covers operation of Skycoasters in the presence of thunderstorms.

WARNING! SERIOUS INJURY OR DEATH CAN OCCUR IF LIGHTNING STRIKES A SKYCOASTER LAUNCH TOWER OR SUPPORT STRUCTURE. RISKS OR SERIOUS INJURY OR DEATH ARE GREATLY INCREASED IF THE TOWERS ARE NOT PROPERLY GROUNDED.

Tall towers act as "lightning rods" for weather based on electrical activity. Since the Skycoaster towers are likely the highest point in the area, they are most likely the first object to be hit. DO NOT WAIT FOR THE CRASH OF LIGHTNING AND THUNDER CLOSE BY — SHUT DOWN THE SKYCOASTER ANYTIME THUNDER OR LIGHTNING IS IN THE VICINITY! THE FIRST STRIKE WILL LIKELY BE TO THE SKYCOASTER TOWERS!

Ground all towers (and cranes on temporary installations) according to local electrical codes. This should be a minimum of two ten foot long ground rods, connected to the towers with "00" copper wire. Metal fences should be grounded separately, at least every 50' of fence length.

During a "shut-down" for lightning, all customers and employees should leave the site. Do not use this opportunity to work on equipment, or remain close to the towers, or metal fences surrounding the towers:

It is diffigult to predict when and where the "first strike" will occur. A thunderstorm can form directly overhead, and the first bolt of lightning could hit your Skycoaster site. There will be no thunder preceding the hit as a warning.

Don't take a chance! Close down in advance!

SB #2 10/25/93 Revised 1/1/97



This Bulletin covers operation of Skycoasters with unauthorized personnel.

It has been brought to our attention that certain Skycoaster owners have been operating the site with Site Controllers that have not been trained by Sky-Fun I, Inc. This is specifically in violation of the Operation Manual. Owners who allow this can be subject to revocation of their license agreement.

Site Controllers may train other crew members, but the Site Controller must be trained by Sky Fun 1, Inc.

If you find that you do not have sufficient Site Controllers to operate your Skycoaster site, then you may arrange with Sky Fun 1, Inc. to factory train additional Site Controllers - either at your site or at another location.

Remember that any deliberate deviation from the procedures outlined in the Operation Manual could subject the Skycoaster Licensee to enormous personal and corporate liability if an accident occurs. While the insurance company would pay the claim for a suit initiated by a customer, the insurance company could then sue the licensee for breach of the agreement.

If you have any questions about crew requirements or training, contact Sky Fun 1, Inc. immediately.





This Bulletin covers Daily Launch Cable Inspequions.

With reference to the Skycoaster Operating Manual, a full length launch cable inspection will be done daily prior to any operations. The procedure is:

- 1. Complete your inspection at the base of the launch tower per the Daily Inspection Log.
- 2. Inspect the area between the nylon pinch roller and the grooved winch drum for foreign objects or debris.
- 3. Clear all personnel away from the winch drum and launch cable, turn the winch ON, shift to manual control, winch UP until the launch cable bumper gently contacts the sheave at the top of the tower.
- 4. Check the position and condition of the UP marker tape flags on the launch cable. Replace as necessary.
- 5. Fold a rag around the launch cable below the marker flags. Hold the two ends of the rag in one hand and slowly lower the launch cable to the DOWN marker tape flag while visually inspecting the launch cable and using the rag to check for any broken wire strands or damage along the launch cable.
- 6. Check for the correct positioning of the DOWN marker flag by standing on the flight boarding platform and pulling on the release as if to connect to flyers. The tension pulled in the launch cable should be approximately twenty-five pounds. If necessary, adjust the amount of launch cable OUT by moving the winch drum UP or DOWN and adjust the tape marker accordingly.
- 7. Disconnect the launch cable from the launch bridle at the Omega 4100 kg carabiner. At this point, allow the counterweight wire, counterweight, and launch bridle to hang freely so that any accumulated twists in the counterweight wire may rotate out.
- 8. Have a crewperson pull tension on the launch cable at the bumper while winching out to within 1,-2 turns remaining on the winch drum. While pulling out, grasp the bumper, not the carabiner, in order that any accumulated rotations or twists in the launch cable will be allowed to relax.
- 9. Walk the launch cable from the bumper to the UP marker inspecting for kinks, broken wire strands or other damage. Replace any damaged launch cable with a new cable.
- 10. Have a crewperson pull tension on the faunch cable at the humper. Use a wooden stick to guide the launch cable on the grooved drum and slowly rewind cable onto the drum using manual control.



- 11. Visually inspect the lower portion of the counterweight wire for condition. Visually confirm that the quick link connectors on the counterweight and launch bridle are closed. Use Loctite medium thread-locking compound on any quick link connector whenever closing. Inspect the launch bridle for condition and closed quick links.
- 12. Re-connect the launch cable to the launch bridle with the Omega 4100 kg carabiner. Securely lock the carabiner.
- 13. Note: Some launch cables at some locations show a tendency to "untwist" or "birdcage" particularly within the first 5'-15' from the nibber bumper. If you see this tendency in your launch cable, you should:
  - Each day during the pullout of your launch cable, he sure to allow any accumulated twists or rotations to come out by allowing the launch cable to rotate freely while pulling out. Hold the rubber bumper, not the carabiper.
  - 2) Prior to reconnecting the Launch Cable to the Launch Bridle, put S-7 rotations in the launch cable in the direction that will "tighten" the manufacturer's twists in the wire.

SB #4 3/31/94 Revised 1/1/97

This Bulletin covers Winch Visibility.

With reference to step 11, page 16 of the Skycoaster Operating manual, it is the responsibility of the Controller and Assistant Controller during winch-up to "focus their attentions on the flyers, the flight area to ensure no unauthorized persons or objects, and the OPERATION OF THE WINCH".

THE WINCH DRUM MUST BE VISUALLY MONITORED BY BOTH THE CONTROLLER AND THE ASSISTANT CONTROLLER DURING WINCH-UP ON EACH AND EVERY FLIGHT.

The Flight Crew must be alert to any misspooling of the launch cable on the drum or any unusual winch operation. The UP flag marker must be monitored to ensure the cable is stopped with the bumper no closer than 6 inches from the sheave at the top of the launch tower.

It was brought to our attention that the T.V. winch monitor was inoperative for a 1-2 week period at one site. We visited two sites where winch lights were non-existent.

IF THE T.V. MONITOR IS INOPERATIVE, THE SKYCOASTER IS INOPERATIVE. IF THE WINCH LIGHTS ARE INOPERATIVE, THE SKYCOASTER IS INOPERATIVE.

Ensure that the flight crew has all the necessary equipment to monitor the winch operation on EACH AND EVERY flight. A T.V. monitor failure during busy operations would dictate that a Site Controller or Controller physically monitor the winch operation from the power unit.

SB #5 3/31/94 Revised 1/1/97

This Bulletin covers Fall Protection and Work Aloft Safety

The Skycoaster Operation Manual is clear that whenever inspection or work above ground is needed, SAFETY FALL PROTECTION IS REQUIRED. All Skycoasters built beginning in 1994 are being provided with two sets of fall protection equipment. If your site has but one set, you should immediately call Sky Fun 1 and order an additional set. Do not wait until someone is in trouble or injured aloft to get your site prepared.

Sky Fun I policy REQUIRES that fall protection equipment be used by ANYONE ascending Skycoaster structures. This includes outside contractors doing work at your site. Your Site Controllers should equip these contractors and instruct them in the proper use of fall protection equipment.

Sky Fun 1 policy requires all tools or other items carried aloft to be securely tethered to the climber and that the area below and around the structures be cleared of all personnel with regard to the danger of falling objects.

Paragraph 12, page 12 of the Skycoaster Operating. Manual indicates "any object secured to the tower must have redundant connections to preclude any danger from falling objects". This means that any lights, speakers, flags, signs, etc., must be securely attached with more than one bolt, clamp or other means. Wire rope "chokers" with a quick link or shackle are convenient devices to provide back up attachments to the towers.

SB #6 3/31/94 Revised 1/1/97



This Bulletin covers Foreign Object Damage (FOD) to Winch Drums

There have been two incidents of damage to nylon pinch rollers and a damaged grooved winch drum which was most likely caused by the presence of a tool or object being pulled into the roller / drum area.

Each day, during the Daily Inspection, and after completing any work in the winch area, inspect the winch drum area for the presence of any foreign objects or debris. Damage of this nature can be very costly but is easily preventable.

SB #7 3/31/94 Revised 1/1/97

This Bulletin covers Skycoaster items taken out of service.

ANY Skycoaster Operational Items, including but not limited to, cables, carabiners & harnesses, that are taken out of service on the Skycoaster are not to be used for any other purpose. They are to be destroyed or returned to Sky Fun 1 for disposal. If you choose to destroy them, please send a letter to Sky Fun 1 detailing what the item is, the reason it was taken out of service, the serial number if any, the date and method of disposal.

SB #8 \$/24/94 Revised 1/1/97



This Bulletin covers the Launch Release Secondary Snap Connectors

Ref: Skycoaster Operating Manual, pg. 15, CARABINERS AND CONNECTING HARDWARE Paragraph 2, Launch release System:

As was discussed at the January Safety Meeting in Orlando, there have been numerous reports of the launch release disconnecting from the launch bridle at the top of the launch tower at the instant of flyer launch. To reduce the danger of persons on the ground being struck by a falling launch release, we are sending all Skycoaster locations four (4) Secondary Snap/Lanyard Connectors to be installed on all launch releases being used on all Skycoasters. This means that all launch releases will be connected to the launch bridle by two (2) independent snap connectors.

On occasion, the spring snap on the connectors may become deformed or bent so that the snap will not stay closed. A connector in this condition must be repaired or replaced before use. Repair by opening the wings of the snap with a screwdriver and lightly oil the hinge pin. A connector with a broken spring must be discarded and not be used for flight.

Upon receipt of this bulletin, the enclosed snap connectors, and photographs showing installation and use, install the secondary connectors on your launch releases immediately.

Complete the enclosed form to certify your receipt and installation of the secondary connectors and return the form to Sky Fun 1, Inc.

SB #9 3/1/95 Revised 1/1/97



This Bulletin changes the required age of Skycoaster Site Controllers:

Site Controller: Responsible for overseeing all operations of site. Shall be versed in all operations, procedures, staffing and training. Ultimately responsible for all actions and processes of SKYCOASTER. Site Controller must be 19 years of age, and will have completed a factory authorized training program and have attended all factory required safety meetings. A Site Controller must be physically present during all Skycoaster operations.

A Site Controller will be in possession of a current and valid factory issued Certification Card.

Certification Cards are valid for a period of one year and will be renewed upon completion of recertification requirements - generally met by participation in a Safety Seminar and completion of a written test.

SB #10 5/08/95 Revised 1/1/97





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Pages:

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# SERVICE BULLETIN

Requires compliance in the next seven days

Ride Manufacturer: Skycoaster, Inc.

Affected Production Dates: All

Ride Name: Skycoaster®

Affected Serial Nos.: All Skycoaster® attractions utilizing the triangulated Flight Bracket Catwalk and Support, including Crane mounted attractions. 1

This bulletin addresses the inspection and maintenance of the triangulated Flight Abstract of Issue: Bracket Catwalk and Support found on various lattice and crane mounted Skycoaster® attractions. Existing maintenance and inspection procedures must be followed, along with an additional inspection underneath certain components within the next seven days and on a monthly basis thereafter.

Reason for Release: A crack formed in a location which was visible, but was not detected before a section of pipe located on the triangulated Flight Bracket Catwalk and Support failed. No injuries resulted from this incident, however failure of this component could adversely alter the flight path of the flyers unexpectedly. Such a failure could have a potential for serious injury. While the incident took place on a crane mounted attraction located in a sea side (potentially corrosive) environment, we are requiring that all rides using the triangulated Flight Bracket Catwalk and Support be inspected.

Action To Be Taken: Currently, the weekly inspection procedures specify that the flight tower structure (among other components) be visually inspected. (See item 28 of the Skycoaster® Inspection Log located at page 52 of your 2004 Owner's Manual.)

<sup>1</sup> If you have any doubt whether this Service Bulletin applies to your attraction contact Skycoaster, Inc. before operating your ride.

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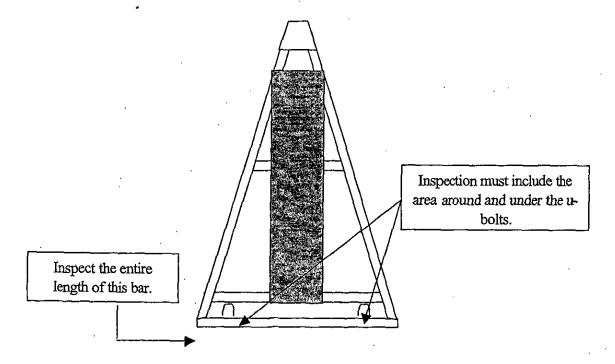
With the introduction of this Service Bulletin, we now require that all lattice and crane Skycoaster<sup>®</sup> sites utilizing the triangulated Flight Bracket Catwalk and Support perform an inspection of the Flight Bracket Catwalk and Support focusing on the support pipe which attaches the Catwalk to the flight tower. Inspect for cracks along the length of the pipe and/or cracks around the u-bolt mounting holes. The u-bolts will have to be loosened or completely removed to perform this inspection. Loosen each u-bolt individually, inspect and retighten before inspecting the next area. Follow all appropriate safety precautions while conducting the inspection.

If any deficiencies are found, immediately take the attraction out of service and contact Skycoaster, Inc. You are required to report the results of your first inspection of these components to Skycoaster, even where no deficiencies are found.

The inspection of these components must be included in each subsequent monthly and annual inspection.

This new inspection procedure is effective immediately and will remain in effect from this day forward.

Please refer to the drawing below for specific areas to be inspected.



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## VERIFICATION OF INSPECTION

Site Location		
Check here if your ride is not equipped with the triangulated Flight Bracket Catwalk and Support		
Check here if your attraction is Crane mounted.		
Date Inspected	_ Inspected By _	· ·
Date Inspected		(Print Name)
Findings of Inspection	·	
·		
Signature	<u> </u>	

If you have any questions, please contact Skycoaster, Inc. at (888) 801-0303.



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# SERVICE BULLETIN

Ride Manufacturer: Skycoaster. Inc.

Affected Production Dates: All Lattice A-Frame and Lattice Arch Skycossier attractions

Ride Name: Skyceaster®

Affected Serial Nos.: All Lattice A-France and Lattice Arch Skycouster® attractions

Abstract of Issue: Skycoaster, Inc. is outlining inspection procedures which must be followed during each weekly tower inspection of a Lattice A-Frame or Lattice Arch Skycoaster<sup>®</sup> attraction. This procedure will identify components which may need to be repaired or replaced.

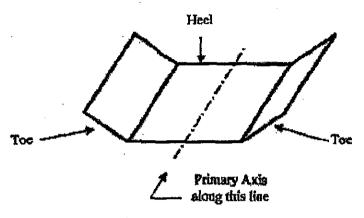
Reason for Release: Skycoaster, Inc. wants to ensure that all Lattice Skycoaster® attractions towers are properly inspected. To do so, it is necessary for all sites to fully understand the correct component terminology and inspection procedures. This Service Bulletin reviews the terminology and lattice structure inspection procedures in detail in order to help facilitate proper inspections.

#### Action To Re Taken:

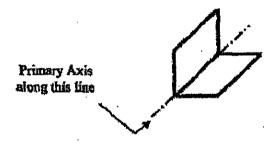
#### Component Terminology

- Primary Axis The centerline along the component. For example, in a steel angle, the
  primary axis is the line along the length of the component at the "V" joint.
- Kink A misalignment of a portion of a u-shaped Toe or angle Leg which is only a few inches long with proper alignment on adjacent portions.
- Bend A permanent deformation from a straight line of the primary axis of a component.
- Lattice Arch Skycoaster® Leg A somewhat flattened "U" shaped component found on the
  outside three corners of the flight and launch towers. In cross-section the Leg has three
  major components one Heel and two Toes. The Heel is the flat area in the middle of the

component and the Toes are the two angled edges on the outside of the component (see diagram below).



- Lattice A-Frame Skycoaster<sup>®</sup> Leg Steel angle vertical component found on the outside corners of each tower (see diagram below).
- Lacing Diagonal piece of steel angle which spans between the Legs of the tower. Lacings
  are manufactured of a thirmer (lighter) material than the Legs.
- Strut Horizontal piece of steel angle which spans between and is essentially perpendicular
  to the Legs of the tower. Lacings are also manufactured of a thinner material than the Legs.



This drawing depicts Legs on a Lattice A-Frame Skycoaster® as well as Lacings and Struts on all Lattice Skycoaster® annactions

NOTE: Lattlee Skycoaster® designs vary slightly from location to location. Although your design may differ from the descriptions above, the inspection procedure remains the same.

#### Inspection Procedure

Lattice A-Preme Skycoaster®

Legs - Inspect the full length of each Leg and document any kinks or bends found. If any single Leg has; a) adjacent kinks in both faces, b) a twist in both faces or, c) if the primary axis is beat, notify Skycoaster, Inc. with details and digital photographs.

Lacings and Struts - Inspect each Lacing and Strut for kinks or bends. If any single Lacing
or Strut has; a) adjacent kinks in both faces, b) a twist in both faces or, c) if the primary axis
is bent, notify Skycoaster, Inc. with details and digital photographs.

#### Lattice Arch Skycoaster®

Logs - Inspect the full length of each Log and document any kinks or bends found. If on any
single Log; a) kinks or bends are found in adjacent toes or an adjacent toe and heel or, b) if
any primary axis is bent, notify Skycoaster, Inc. with details and digital photographs.

Lacings and Struts – Inspect each Lacing and Strut for kinks or bends. If any single Lacing
or Strut has; a) adjacent kinks in both faces, b) a twist in both faces or, c) if the primary axis
is bent, notify Skycoaster, Inc. with details and digital photographs.

If you have any quastions about the inspection procedures, please do not hesitate to contact. Skycoaster, Inc. The toll-free telephone number is (888) 801-0303.