

Inflatable Amusement Device Training

DEPARTMENT OF LABOUR AND ADVANCED EDUCATION

Disclaimer

- ▶ This course does not suggest it can address all the health and safety concerns associated with inflatable device use.
- ▶ It is the responsibility of the participant to follow manufacturer specifications and guidelines and apply appropriate health and safety practices according to Occupational Health and Safety legislation and regulations.

Overview

- ▶ The program will provide participants with guidance to achieve a minimum training standard for inflatable devices.
- ▶ You will be required to complete and pass the quiz at the end of this presentation to meet the required training standard.

Course Layout

- ▶ Provincial Regulations
- ▶ Setting Up: Manufacturers' Specifications, Layout and Installation, and Potential Hazards (Key elements to consider)
- ▶ Inspections: Pre-use Inspection & Rider Safety
- ▶ Emergency Planning: Sudden Storms, Evacuation & Incident reporting
- ▶ Maintenance & Take Down

Objectives

- ▶ Appreciate the importance of Amusement Devices Safety Act and General regulations in day to day operations
- ▶ Have an understanding of OH&S regulations, roles and responsibilities
- ▶ Gain familiarity with the adopted codes and references in other standards. CSA Z267, CEC, and provincial safety acts and references to inflatable devices in the ASTM F2374 and the NBCC
- ▶ Recognize Safety hazards for inflatable rides

OH&S Regulations

Internal Responsibility System

- ▶ Everyone shares responsibility for the health and safety of persons at the workplace
- ▶ Responsibility for a safe workplace is based on parties' authority and ability to make it safe

As An Employer

- ▶ Take reasonable precautions
- ▶ Train, supervise, and provide information
- ▶ Provide and maintain safe equipment, machines, and materials
- ▶ Consult and cooperate with the health and safety committee or representative
- ▶ Establish a policy and a program

Worker

- ▶ Direct responsibility for yourself and others
- ▶ Follow rules, use procedures, cooperate
- ▶ Correct hazards within your control and ability
- ▶ Report hazards that are not within your control to mitigate
- ▶ Consult with health and safety committee and/or representative

Due Diligence

Keywords:

Reasonable

Foreseeability

Preventability

Control

Degree of Harm

IRS and Due Diligence

Internal Responsibility System

- Philosophy that all share the responsibility for the health and safety of persons at the workplace
- Framework for Participation

Due Diligence

- Reasonable precautions taken by workplace parties to prevent workplace illness and injury
- What am I actually doing

Health & Safety

You have a **RIGHT**

To **know** about anything that could affect your health and safety in the workplace

To **participate** in making the workplace safer

To **refuse** work you think is not safe

Health & Safety

You have a RESPONSIBILITY

To work safely

To follow safe work guidelines

To use machinery & equipment properly

To report any unsafe acts or conditions

AMUSEMENT DEVICES SAFETY ACT AND REGULATIONS

Powers of Inspectors

- ▶ Under the Amusement Devices Safety Act, an inspector may:
 - ▶ at all reasonable times enter, inspect and examine an amusement park and the amusement devices and structures contained therein or thereupon;
 - ▶ require the production of any license, certificate, notice or document required by this Act or the regulations to be kept and to inspect, examine and make a copy of or extract from it;
 - ▶ make such examination and inquiry as the inspector considers necessary to ascertain whether the provisions of this Act and the regulations are being complied with, with respect to the amusement park and the amusement devices and structures therein and the persons employed in respect thereto;

Powers of Inspectors

- ▶ Under the Amusement Devices Safety Act, an inspector may:
- ▶ exercise such other powers and authority as may be necessary or incidental to the carrying out of his functions under this Act. R.S., c. 12, s. 10.

Direction By Inspector

- ▶ An inspector may give directions orally or in writing to any person for the carrying out of any matter or thing regulated, controlled or required by this act or the regulations and may require that his directions be carried out within such time as the inspector specifies.
- ▶ Orders shall be completed, signed off and returned to inspector before ride is used.

Duty Of Owners/Operators

- ▶ Ensure all required equipment, material and safeguards are maintained in good condition.
- ▶ Ensure an amusement device is operated by a competent person.
- ▶ Ensure a licensed amusement device is given a daily inspection by a person who holds a certificate of competency under the Amusement Devices Safety Act.

Duty of Owner

- ▶ Must have a minimum of \$1 000 000 Liability insurance coverage for each amusement park.
- ▶ Licensed amusement devices are required to have a daily inspection by a mechanic

Duty of Owners/Operators

Operators must submit a daily inspection report for each inflatable device and proof of insurance to the Nova Scotia Technical Safety, Elevators lifts and Amusement Inspection Services Division prior to the start of the amusement season or annually.

Duty of Owners/Operators

- ▶ Ensure a licensed amusement device is constructed, installed, altered, repaired maintained, serviced and tested by a mechanic.
- ▶ Ensure a copy of the Act, regulations and the latest safety standard are available to the mechanic and other employees in the amusement park/site.

Adopted Codes

CAN/CSA Z267 the Safety Code for Amusement Rides and Devices

CAN/CSA- C22.1 Canadian Electrical Code Part 1

Other Codes

ASTM F 2783 Code

NBCC

Adopted Codes

- ▶ CAN/CSA-Z267-00 Safety Code for Amusement Rides and Devices
Section 5.4.6 Air-Supported Structures
- ▶ The following requirements shall apply:
- ▶ (a) Air-supported structures shall be designed and manufactured with flame-resistant materials that meet or exceed a 2s flame-out standard.

Adopted Codes

- ▶ (b) Hold-down provisions shall be designed for the structure to allow operation of the ride or device within the wind conditions specified by the manufacturer.

Adopted Codes

- ▶ (c) Provision shall be made to ensure that patrons cannot conceal themselves from the operator's view.

Adopted Codes

- ▶ (d) Enclosed structures shall have adequately lighted emergency exits within 30 m (100 ft) of the normal egress.

Adopted Codes

- ▶ (e) Deflation of an air-supported structure due to power failure shall not increase the risk of injury to anyone on the ride or device.

National Building Code of Canada Requirement



National Building Code of Canada

NBCC 3.1.6.5. Flame Resistance

- 1) Every tent and air-supported structure and all tarpaulins and decorative materials used in connection with these structures shall conform to CAN/ULC-S109, "Flame Tests of Flame-Resistant Fabrics and Films."

100

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- A collage of various international certification logos, including SA, ETL, FM, MET, UL, NSF, Nemko, QAI, TÜV, UL, UL, UL, ULC, entela, SGS, USTC, ESA, MET, SGS, N, and QAI.

Adopted Codes

Blower fans are handled regularly, the certification label can wear off. Keep a record of the certification number.

Proof of certification for blowers is an inspection requirement for the Amusement Inspector.

Setting Up

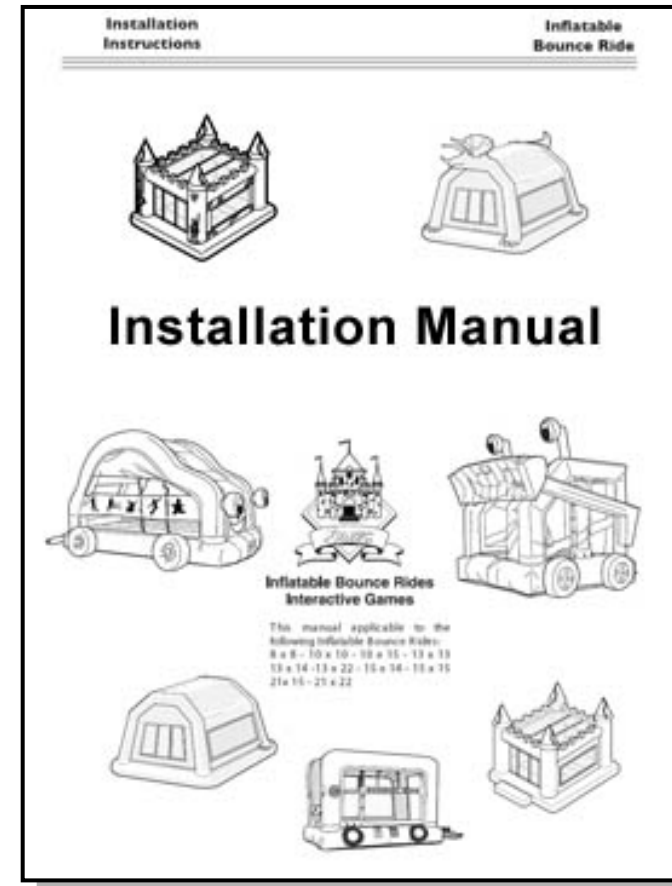
Manufacturer specifications

Layout and Installation

Potential Hazards: Key elements to consider

Manufacturer's Manual

- Always refer to the [manufacturer's guidelines](#) for ride:
 - ✓ set up
 - ✓ operation
 - ✓ emergency procedures
 - ✓ maintenance
 - ✓ storage



Site Layout

- Always insure there is **adequate clearance** around and above the inflatable.
- Look for **tree limbs** and **electrical wires** which may pose a hazard.
- Some trees can **stain the ride** if too close.



Minimum Clearance

6 meters or 20 ft

Site Layout

- Follow the owner/operator's manual for site layout, inflation procedures, ropes, tethers, tie-downs, anchors, operating temperature range, maximum number of riders, size of riders, electrical codes, daily operation, daily inspection, washing, repair, deflation, drying, storage, and transportation

Site Layout

- Before staking rides into the ground **obtain marking and location information** from utility companies when there is a possibility of striking underground utilities.



Site Layout

- Ensure there are no underground irrigation **pipes**, electrical **wires**, gas **lines**, **septic lines** or **telephone cables** that a utility company or property owner (past and present) may have installed.



Site Layout

- Make sure that the area selected has been **thoroughly cleaned** of debris.
- Sharp objects, rocks, branches, glass, etc. can all **damage the inflatable**.



Site Layout

- Place the **ground liner** over the installation site after all debris has been cleared.
- Unroll and position the Inflatable on the ground liner, if required, with the **inflation tube located to the rear** of the Inflatable.



Installation

1. Always anchor rides per manufacturer's requirements and instructions

The on-ground weight used for various inflatable rides range from 75 pounds (for bounce-type rides) to 500 pounds (for slide-type rides) for each recommended anchor position. This weight range strongly indicates that an inflatable ride's operator should follow the ride manufacturer's recommendations for proper anchoring and placement or certain stake types

Installation



2. Place and use anchors at all of the manufacturer's required positions, at all times, for both indoor and outdoor use. These anchors can be straight stakes, screw stakes, ground weights or sandbag ground anchors. Straight stakes to be used range from 30 inches to 42 inches in length with at least 75% or more of the length in the ground (this length will be dependent on surface where set up). The ends of the stakes should be covered to prevent a tripping hazard and for protection.

Installation

3. Anchor ropes, tethers, or tie-downs should be attached to a secure device or permanent structure and attached so that they cannot slip off the top of the stake during use. DO NOT attach anchors to motor vehicles.

Installation

4. Ropes, tethers, and tie-downs should be sufficiently strong to resist breakage during use.

Identify and use the number and location of tie-down specified by the manufacturer. DO NOT use non-load bearing positioning loops as tie-downs or anchor points

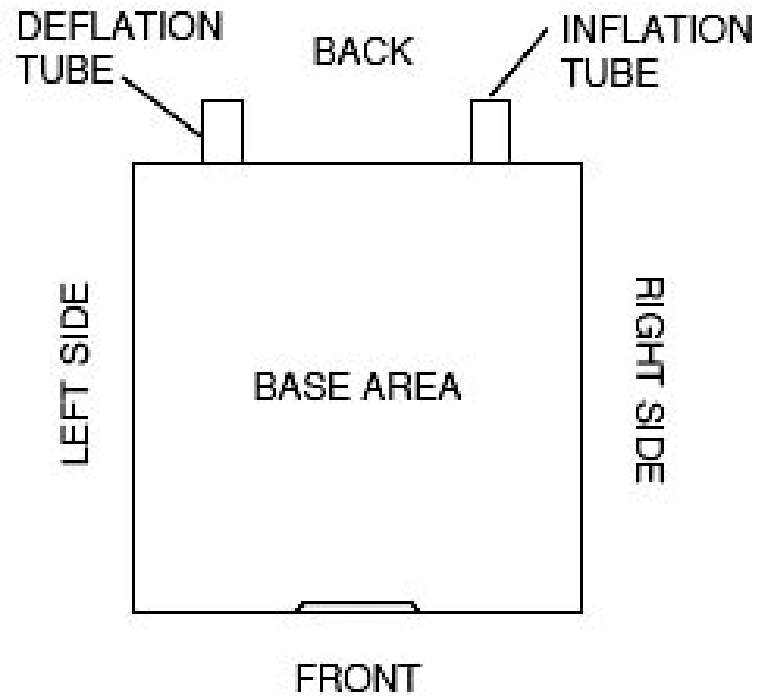
Installation

- ▶ Watch for **any fraying** on the tie down straps.
- ▶ Straps **must be replaced** if worn or frayed.



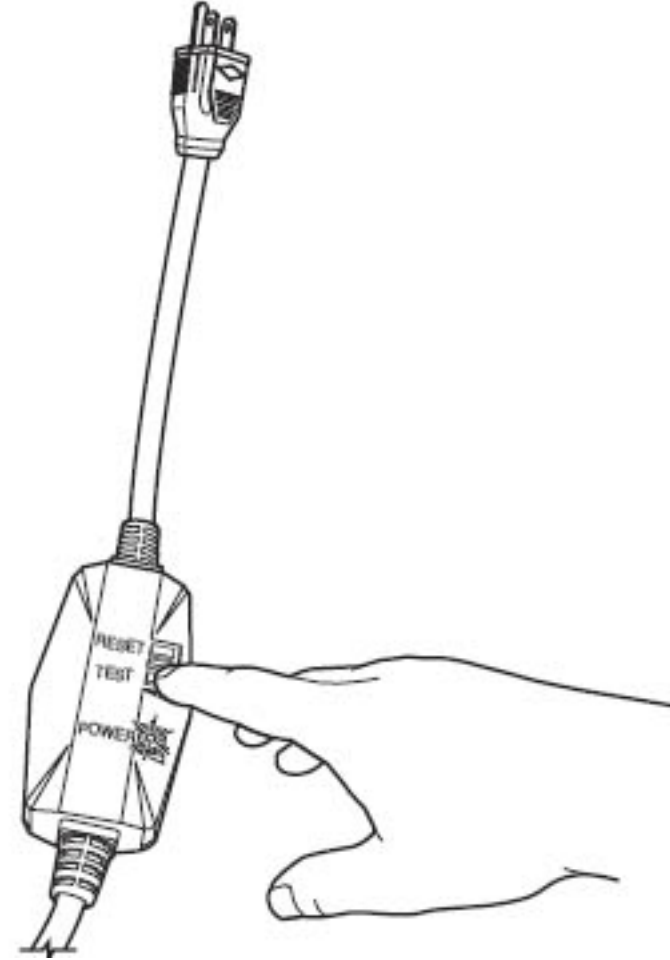
Installation

- ▶ Place the blower fan on a [dry flat surface](#) and connect to the inflation tube.



Installation

- ▶ Connect a **properly sized extension cord** (minimum 12 gauge for 50 ft.) to the inline GFCI, then plug into the power source.
- ▶ Flip switch to the "On" position and **check the GFCI** for proper operation.
- ▶ Do Not Use Blower Fan Without Using GFCI!



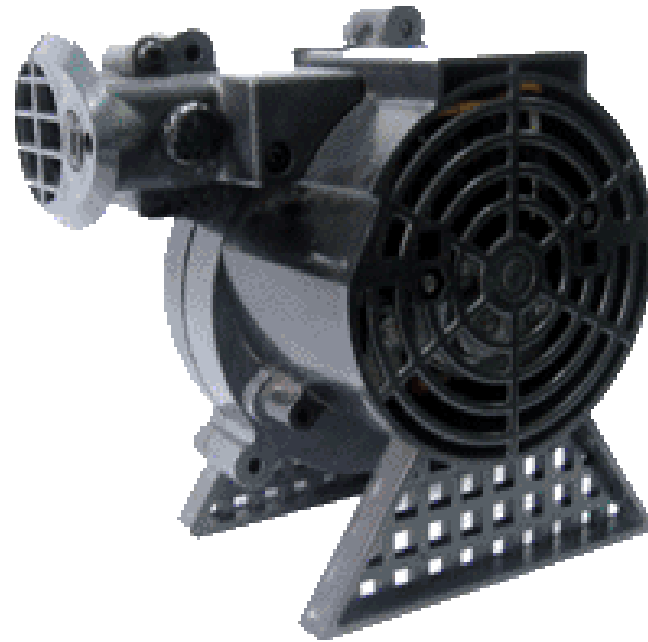
Installation

- ▶ Check the inflation tube to ensure that it is properly attached to the blower fan.
- ▶ The inflation tube must be properly closed around the fan outlet to prevent excessive air leakage.



Installation

- ▶ Do not place **fingers or hands** into the fan inlet, outlet, or the fan motor housing while the fan is in operation.



Installation

- ▶ Do not allow anyone in the rear of the ride or near the electric blower fan, power source or extension cord while in operation.



Wind Safety Rules

- Do not use the inflatable ride above winds speeds that exceed the manufacturer's recommendation. Various manufacturers recommend maximum wind speeds from 15 to 25 mph depending on the ride, however, unload and deflate any inflatable ride when the wind speed exceeds 25 mph.



Wind Safety Rules

- ▶ It is important to understand that [weather conditions](#) have an adverse effect on a ride and must be taken into consideration.
- ▶ The [Beaufort Scale](#) provides a rudimentary method of determining wind speeds.
- ▶ Using this system, and the [Beaufort Number "5"](#), the ride should be evacuated and deflated.

BEAUFORT SCALE

BEAUFORT NUMBER	NAME	WIND SPEED		DESCRIPTION
		MPH	KPH	
0	calm	<1	<1	calm; smokes rises vertically
1	light air	1- 3	1- 5	direction of wind shown by smoke but not by wind vanes
2	light breeze	4- 7	6- 11	wind felt on face; leaves rustle; wind vane moves
3	gentle breeze	8- 12	12- 19	leaves and small twigs in constant motion; wind extends light flag
4	moderate breeze	13- 18	20- 28	wind raises dust and loose paper; small branches move
5	fresh breeze	19- 24	29- 38	small-leaved trees begin to sway; crested wavelets form on inland waters

Wind Safety Rules

- ▶ Proper **anchoring** is critical for rider safety!
- ▶ Always follow **manufacturer's specifications**!



Working Safely

List of general safety rules:

- ▶ All work must be performed by competent, qualified **persons**, capable of understanding the proper installation and operation of the inflatable ride.
- ▶ Inspect the ride before each day of operation to determine that no portion of the ride is damaged or worn in such a manner that unsafe conditions can develop. A final inspection before operation shall be completed by a mechanic certified under the Amusement Device Safety Act.

Working Safely

List of general safety rules:

- ▶ Perform the manufacturer's recommended maintenance procedures and checks at the intervals and in the manner specified in the operation and maintenance manual.
- ▶ Study each job carefully to determine all hazards so that necessary safety precautions can be taken.

Working Safely

List of general safety rules:

- ▶ Examine safety devices (tools, ladders, etc.) before they are used to make sure they are in good condition. Use only approved safety items.
- ▶ Use the proper tool or equipment for each job. All hand electric power tools must be properly grounded.

Working Safely

List of general safety rules:

- ▶ Wear close fitting, comfortable clothing when working on or near moving parts or live electrical circuits. Avoid finger rings, jewelry or other articles which can be caught in moving parts or come in contact with electrical circuits.
- ▶ Protect your, eyes by wearing approved safety glasses or goggles.

Working Safely

List of general safety rules:

- ▶ Wear a hard hat at all times. When working in elevated areas, use a safety belt.
- ▶ Where work performed is hazardous, never work alone.
- ▶ If guards are removed from equipment, make sure they are replaced before leaving the job.

Working Safely

List of general safety rules:

- ▶ Clean up after each job, disposing of surplus materials.
- ▶ Keep a record of part replacement or repairs.
- ▶ Inform the manufacturer of any replacement requirements which are frequent or cause unsafe conditions.

Power Distribution (CEC)

2-200 General

Electrical equipment shall be **installed and guarded** so that adequate provision is made for the **safety of persons and property** and for the protection of the electrical equipment from mechanical or other injury to which it is liable to be exposed.

Power Distribution (CEC)

66-300 Service equipment

- ▶ Service equipment shall be of a size suitable for the connected load.
- ▶ Where accessible to unauthorized persons, enclosures for service equipment shall be lockable.
- ▶ Generators shall not be accessible to unauthorized persons.

Power Distribution

- ▶ Diesel or gasoline engine driven power units must be located to [allow proper maintenance](#).
- ▶ Power units must be located so as not to present a [fire hazard](#) to adjacent buildings or other combustible items.
- ▶ Units must be [guarded by fencing](#) or [enclosures](#) to prevent hazard to the public and to secure the equipment.
- ▶ [Warning signs](#) must be posted.

Power Distribution

- ▶ Electrical junction boxes are to be **secured** during the time when the general public is in the area.

Twist Lock Connectors



Wiring Methods and Equipment

- ▶ Cords, cables, conduits, and other electrical equipment **must be protected** from physical damage.

Wiring Methods and Equipment

- ▶ Flexible supply cords shall be of the extra-hard-usage type and:
- ▶ if exposed to the weather, be designed for outdoor use.

Wiring Methods and Equipment

- ▶ No broken, frayed or bare wiring may be used.
- ▶ Any wiring repairs must be done to applicable codes.



Dangerous - Insulation Cracked

Extension Cords & Plugs

- Use an adequate three wire extension cord, minimum 12 gauge for 50'
- Never cut or remove the round grounding pin from the cord.
- Always connect a GFI (GFCI) extension cord adaptor to any extension cord before plugging into a power source.
- Check the GFI operation at least once per event.

Extension Cords & Plugs

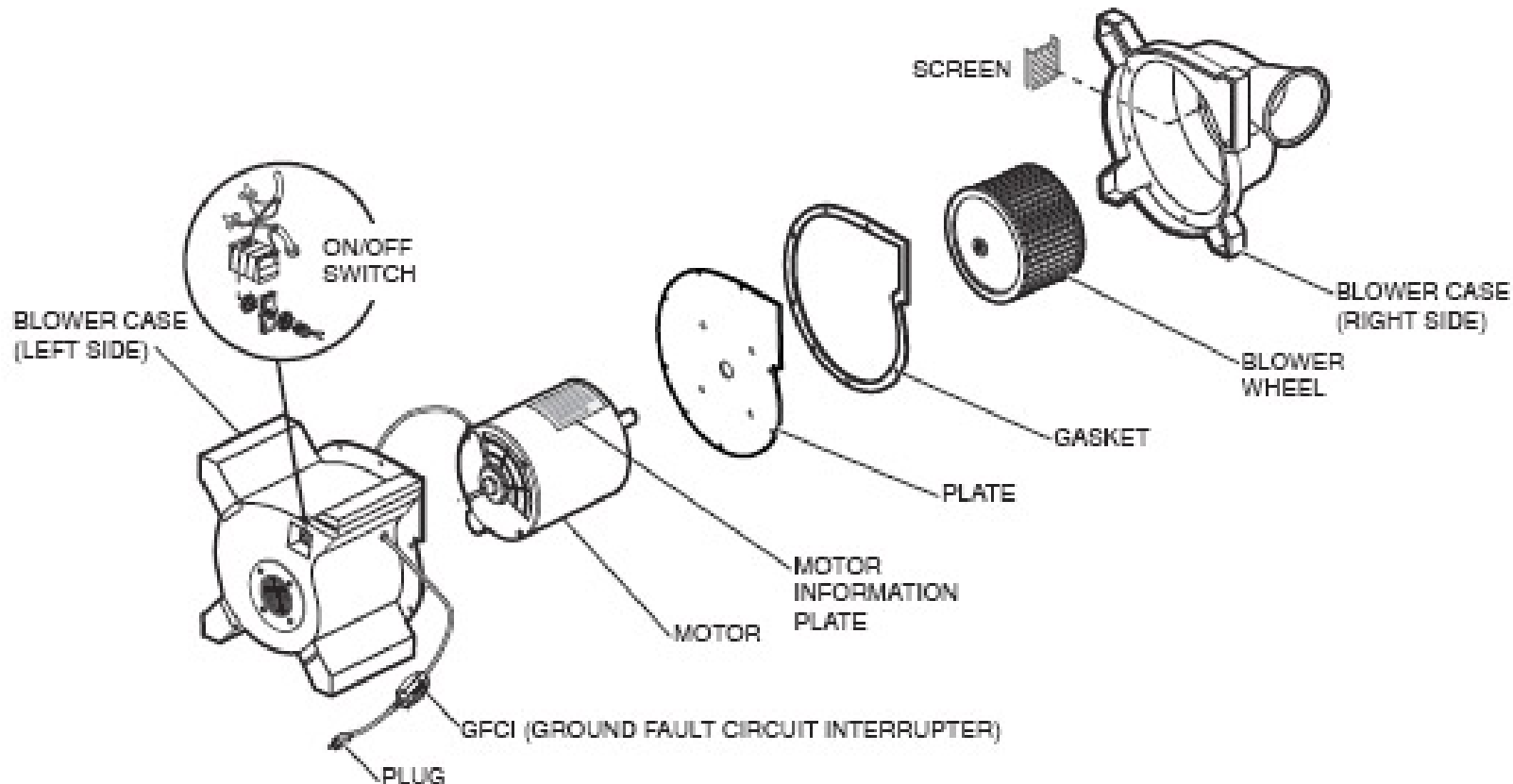
- ▶ Make sure the extension cord is the correct size and length.
- ▶ Check the condition of the cord and ensure that there are no cuts or splices.
- ▶ Check the male plug's condition and ensure that there is no black soot, gouges or spots of metal welded to the plug blades.
- ▶ Check the female receptacle to ensure that it is free from dirt or internal soot, gouges or spots of metal welded to the internal receptacles.

Fan Specifications

- ▶ Systems are designed to operate with standard household 15-amp, 125-volt, single phase, 60hertz receptacle.
- ▶ The circuit should have a minimum of a 20-amp breaker or fuse.
- ▶ Running amperage when the fan is plugged directly into the receptacle, in most applications, is approximately 13 to 15 amps.
- ▶ Once the unit is inflated the amperage will drop to approximately 7 - 9 amps.

Fan Specifications

- ▶ Most blower fans are manufactured with protective guards to prevent you from contacting the moving parts while in operation, however it is required that no one be allowed in this restricted area.



Fan Specifications

- ▶ Access to extension cords or electrical outlets must be restricted at all times and all cords must be secured to prevent a tripping hazard.
- ▶ Most Blower Fans are provided with a Ground Fault Circuit Interrupter (GFCI) which helps protect the circuit from the GFCI back to the motor. It does not protect the electrical lines from the GFCI back to the electrical source.
- ▶ The inline GFCI (provided on some units) will protect the extension cord when installed at the power source.

Fan Specifications

- ▶ The **Motor Code** or KVA Code is used to determine the size generator required to start and operate the blower fan.
- ▶ This code will be **on the name plate** of the blower fan's electric motor.
- ▶ Letters from “A” through “V” identify the number of watts required to start the electric motor.
- ▶ The higher the Code Letter the **larger the generator required** to start the blower fan's electric motor.

Fan Specifications

- ▶ Code E for 1.5 HP -
Requires a 7700-Watt
Generator to start
the motor.

- ▶ Code D for 1.0 HP -
Requires a 4600-Watt
Generator to start
the motor.

Motor Code	Starting Wattage	
	1.0 HP	1.5 HP
C	4100	6000
D	4600	6900
E	5100	7700
F	5700	8600
G	6400	9700
H	7200	10,900
I	8200	12,000
K	9200	14,000

Generator Example

- ▶ Delivers 6000 watts surge, 5000 watts continuous.
- ▶ 13 HP 4-cycle OHV air-cooled engine.
- ▶ Produces 15A at 120V, 25A at 240V, 60Hz.
- ▶ Runs 9 Hrs. at full load on 5.5 gallons of fuel.
- ▶ Two 120V outlets.
- ▶ One 120/240V twist lock outlet.
- ▶ One 12V DC outlet at 8.3A.



Location & Connection

- ▶ **66-502 Location (CEC)**

- ▶ Motors shall be installed **only in dry locations** unless they are a type specifically marked for the location or are suitably protected.

- ▶ **66-504 Portable motors**

- ▶ Connections to portable motors shall be permitted to be made with flexible cord that shall have a serviceability not less than **Type SOW for outdoor use**.

Generator Operation

- ▶ Proper ventilation is vital to its use and your safety; make sure that it is placed in an open outdoor space.
- ▶ A gas electrical generator must be placed on a firm, level surface and kept dry.
- The generator should be located so that exhaust fumes cannot enter a building through windows, doors or other openings including the inflatable amusement device



Generator Operation

- ▶ Gasoline is **extremely flammable and is explosive** under certain conditions.
- ▶ Never fuel generator while in the **back of a vehicle!**



- Unit **must be grounded** to avoid static discharge and possible explosion.

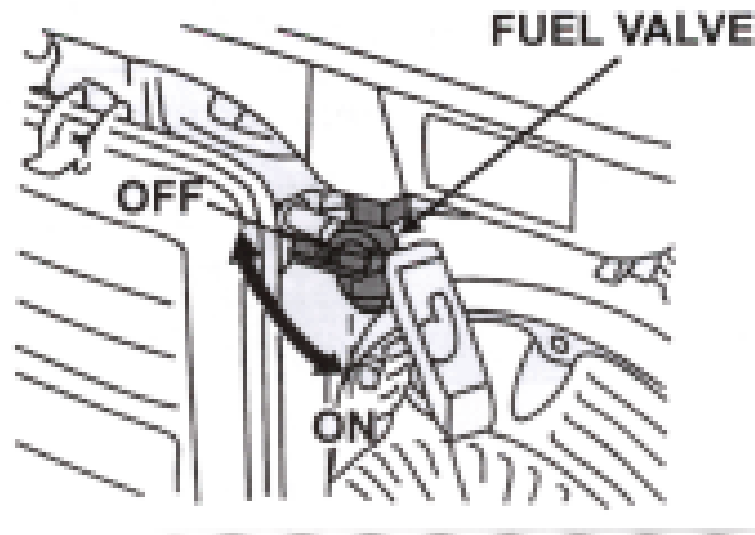
Generator Operation

- ▶ Do not refuel the generator while it is running.
- ▶ Turn the generator off and let it cool down before refueling.
- ▶ Do not over fill, and make sure that any spilled fuel has been wiped off before starting the generator.



Generator Maintenance

- ▶ When transporting or storing the generator, be sure to **turn the fuel valve OFF**.
- ▶ If left on, gasoline may **get into the engine crankcase** and dilute the engine oil causing severe engine damage.



Testing & Inspection

Information Plate

- ▶ A manufacturer-issued information plate, printed in English, shall be permanently affixed to the ride or device in a visible location and shall be designed to remain legible for the expected life of the ride or device.

Information Plate

The manufacturer plate shall include:

- ▶ Ride or device serial number: a manufacturer-issued unique identifying number or code affixed to the ride or device in a permanent fashion;
- ▶ Ride name, manufacturer, location by city, province or state, and country;
- ▶ Ride or device model number;

Information Plate

The manufacturer plate shall include:

- ▶ Date of manufacture: the date (month and year) met required construction specifications;

Information Plate

The manufacturer plate shall include:

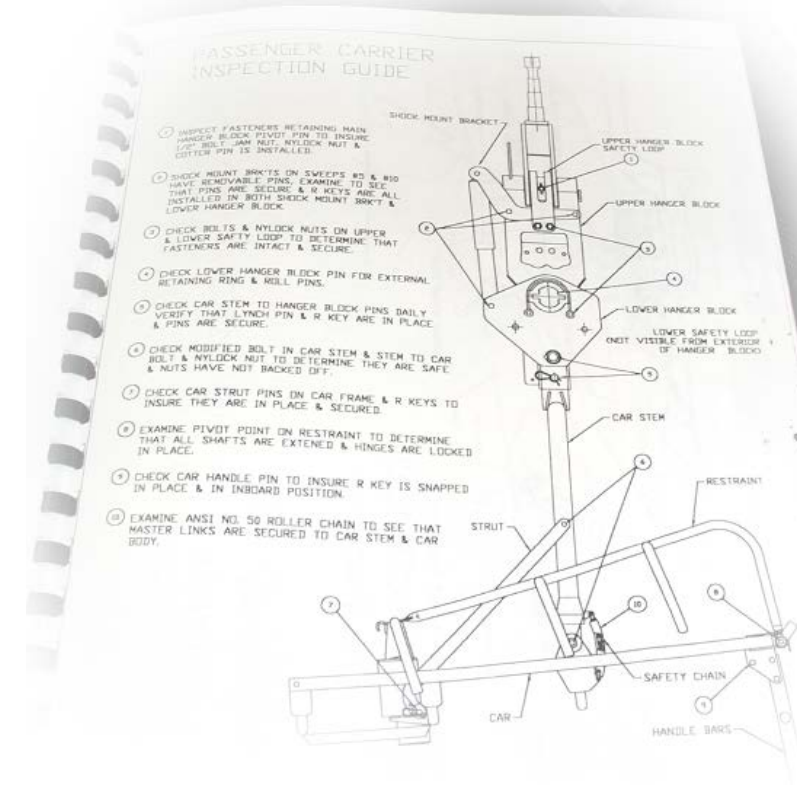
- ▶ Passenger capacity by weight: total passenger weight in kilograms (pounds) per passenger.
- ▶ Passenger capacity by number: total number of adult or child passengers per position and per ride.

Ride Inspection

- ▶ Most manufacturer's service manuals and bulletins will pinpoint specific areas where problems have been found and indicate the corrective action necessary

Ride Inspection

- ▶ Manufacturer information is not exclusive other problem areas may develop over time. The operator is responsible for repairs and the overall safe condition of the ride.



Ride Inspection

- ▶ The manufacturer shall provide a description of the recommended :
 - ▶ daily pre-opening inspections,
 - ▶ procedures for maintenance, and
 - ▶ an identification of special care areas.

Inflatable Bounce Ride	Installation Instructions
Pre-Operator Check List	
Date: _____ Person making checks: _____	
1. Ride is inflated to manufacturer's specified air level. a. No visible air leaks. b. No visible air leaks - pressure gauge. c. No visible air leaks - pressure gauge. d. No visible air leaks - pressure gauge. e. No visible air leaks - pressure gauge.	_____ _____ _____ _____ _____
2. Ride is properly secured to the ground with all required anchoring devices and proper tie-down technique.	_____
3. Ride is properly secured to the ground with all required anchoring devices and proper tie-down technique.	_____
4. Ride is properly secured to the ground with all required anchoring devices and proper tie-down technique.	_____
5. Ride is properly secured to the ground with all required anchoring devices and proper tie-down technique. a. Use proper tie-down technique. b. Follow proper tie-down procedure. c. Use proper tie-down technique.	_____ _____ _____ _____ _____
6. Ride is properly secured to the ground with all required anchoring devices and proper tie-down technique. a. Check proper tie-down technique. b. Check proper tie-down technique. c. Check proper tie-down technique. d. Check proper tie-down technique.	_____ _____ _____ _____ _____
7. Check all visible structural components for proper installation and proper tie-down technique.	_____
8. Be sure the ride is properly secured to the ground with all required anchoring devices and proper tie-down technique.	_____
9. Separate ride by weight of all riders and proper tie-down technique.	_____
10. Operator (operator/ride) a. Read/Sign (operator/ride) b. Read/Sign (operator/ride) c. Read/Sign (operator/ride)	_____ _____ _____ _____
Inspected By: _____ Date: _____	

Ride Inspection

- ▶ All Rides shall be registered with Nova Scotia Technical Safety, Elevators, Lifts and Amusement Inspection Services.
- ▶ A unique Identifying number will be assigned to each ride and shall be written in **Black** marker on the inflation tube.
- ▶ All records in relation to a ride must refer to the assigned registration number.



Ride Inspection

- ▶ The owner must keep a complete list of records and manufactures manuals for all rides in their operation.
- ▶ Records shall include the daily checklist for each day the ride was in use.
- ▶ Repairs
- ▶ Any corrective action to address a manufactures bulletin



Ride Inspection

The following information shall be recorded:

- ▶ The daily examination check list shall be recorded for each amusement device.
- ▶ Alteration, repairs and replacements of key components in accordance with the CSA-Z267 Safety Code and manufacturer's specifications.

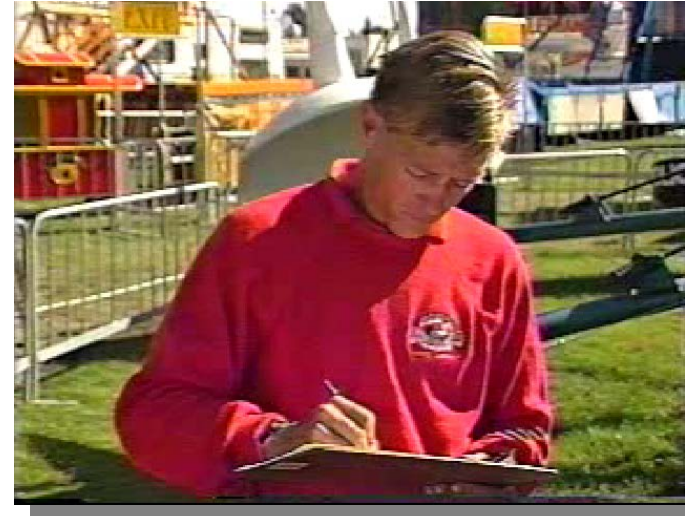
Ride Inspection

The following information shall be recorded:

- ▶ Unusual occurrences involving passengers and equipment, any accident or equipment failure that could have resulted in personal injury.

Pre-opening Inspection

- ▶ Before a ride or device carries passengers, a mechanic shall carry out a daily pre-opening inspection.
- ▶ The procedure must be documented and signed.



Daily Inspections

Ride Inspection

The following information shall be recorded:

- ▶ The name of the amusement device and or serial number and manufacturer.
- ▶ The Technical Safety Inflatable Device Number of the amusement device.
- ▶ Inspections and tests required by the manufacturer and the CSA-Z267 Safety Code.
- ▶ The complete examination by a competent person during the erection of the amusement device shall be recorded as per the CSA-Z267 Safety Code.

Ride Inspection

The following information shall be recorded:

- ▶ All work performed by the assigned competent maintenance personnel shall be recorded and signed.
- ▶ Dates, hours and location of operation.

Rider Safety

- Remember: inflatable ride games require a certain amount of **physical exertion**.
- Operators must **judge a child's ability** to participate.



Visible Signage

- You should not participate in these inflatable games if you have any of the following conditions:
 - ✓ current or previous injury to the back or neck,
 - ✓ any respiratory conditions, including, but not limited to asthma or bronchitis,
 - ✓ pregnancy,
 - ✓ chronic knee or other joint conditions,
 - ✓ any heart or circulatory conditions.

Visible Signage

Do the following for rider safety:

- ✓ Remove all loose and dangling jewelry and/or clothing.
- ✓ Remove rings, bracelets, watches and earrings.
- ✓ Remove shoes.
- ✓ Follow the supervisor/attendant's instructions closely.
- ✓ Do Not allow entry if an attendant is not present!

Rider Safety

- ▶ All inflatable rides with a single entry/exit must have a **minimum of one (1) operator** located near the entry/exit to monitor all activities.
- ▶ It is the operator's responsibility to:
 - ▶ control any unwise actions,
 - ▶ prevent riders from participating under the influence of alcohol or drugs, and
 - ▶ to assist riders in case of emergency.

Pre-Ride Use Inspection

- Do not operate if the wind exceeds 25 MPH (40 KM), or in temperatures below 40 F (4.44 C) degrees.
- Check all buckles on the fan ensure it is in good working condition before using it.
- Check that all tie-down straps, and buckles are attached correctly stakes, anchors, or weights.
- Remove all debris from inside the inflatable prior to allowing people in for the next ride.

Rider Safety

- Minimum number of operators on an inflatable slide is two (2).



Rider Safety

- Bounce inflatables are designed for children and adults.
- Only people of a similar size group may be in the inflatable at the same time.



Ride Capacity Example

Inflatable Size	Usable Sq. Ft.	Average Number of Riders			Capacity Weight (lbs.)
		5- Year Old	8 - Year Old	Older	
8' x 8'	30.75	3	N/A	N/A	250
10' x 10'	68.45	7	N/A	N/A	350
10' x 15'	105.63		6	4	1000
13' x 13'	114.17		7	5	1250
13' x 22'	178.88		11	7	1750
15' x 14'	116.48		7	5	1250
15' x 15'	167.92		10	7	1750
21' x 15'	223.08		13	9	2250

Rider Safety Example

- ▶ Height is not the most important factor; **weight is the most critical issue** and is the basis for all measurements.
- ▶ **Square footage required** for bounce riders:
 - ▶ 5-Year-Old 3' x 3' Square 9 Sq. Ft.
 - ▶ 8-Year-Old 4' x 4' Square 16 Sq. Ft.
 - ▶ Older 4.75 x 4.75 Square 22.56 Sq. Ft.

Rider Safety

- ▶ Riders height and weight is based on maximum weight and minimum height for each age category.

Age	Height	Weight
5 years	40"	52 lbs./24kg
8 years	47"	80 lbs./36kg
Older	60"	210 lbs./95kg

- ▶ Older is calculated based on an average weight of 250 lbs./113kg to obtain the maximum weight allowable on the ride.

Rider Safety Example

- ▶ All children must be separated into groups where the weight of each individual is approximately the same.
 - ▶ **Example:** The ride is a 13 x 13 Fun House for seven (7) riders eight years old .
 - ▶ All riders weigh approximately 80 lbs./36kg each but vary in height from 40" to 54".
 - ▶ This is "OK" because more concerned with weight (mass) than height.

Rider Safety Example

- ▶ A 13 x 13 Fun House which allows seven (7) riders. All riders weight varies.
- ▶ Four (4) riders weigh 30 lbs./14kg each and two (2) riders weigh 90 lbs. each and one (1) rider weighs 50 lbs./23kg Is this OK?
- ▶ No, this is not an acceptable situation and the riders must be broken out into two groups.
- ▶ Group 1 would consist of the four (4) 30 lb./14kg riders and the 50 lb./23kg rider. Group 2 would only have the two (2) 90 lb./41kg riders.

Rider Safety

- ▶ The reasoning behind this grouping is that the 50 lb./23kg rider is closer in weight to the 30 lb./14kg riders than the 90 lb./41kg riders.
- ▶ Even though the area is more confined, it will still provide a safe jumping distance.

Rider Safety

- ▶ Under no circumstances should you exceed 250 lbs./113kg per rider.
- ▶ The maximum weight is based on the ride's capacity and not on its structural integrity.
- ▶ Many rides can carry additional weight, but it would be unsafe for its occupants.
- ▶ Under no circumstances should the maximum capacity be exceeded.

Rider Safety

- No more than the specified maximum number of riders may be in the inflatable at one time.
- This number is posted on the inflatable on a permanent sign; restrict to this number.

Walls & Weights

- Rides are engineered to be safe when riders' **weights are distributed throughout** the inside jumping surface area.
- Know the weight restrictions and **never exceed this weight**; safety is based on weight distribution.
- This information is **permanently printed** on each inflatable unit.

Rider Safety

- No one may enter or use the inflatable wearing shoes, eyeglasses, or sharp objects in their hair or clothing.
- Take a pro-active approach to supervision in the inflatable for children's safety.

Rider Safety

After being warned, anyone breaking the rules must leave the inflatable:

- ✓ no flips,
- ✓ no piling on (climbing on top of each other,)
- ✓ no wrestling,
- ✓ no bouncing against the side walls,
- ✓ no grabbing the net,
- ✓ no bouncing close to other children.

Rider Safety

- Take the time to [show the safety signs](#) to anyone before they enter the inflatable.
- It is best to have all children in one group so you can [review the rules](#) with them before they enter the inflatable.
- Keep all [spectators outside](#) the inflatable.
- Spectators must remain a [minimum of 5 feet](#) away from the sides of the unit (whenever possible).

Rider Safety

- Watch and listen for signs of deflation such as:
 - ✓ no sound from the blower,
 - ✓ sagging, wrinkling, or other distortion in inflatable unit.
- If any deflation is suspected ask all the people in the inflatable to sit down.
- Then unload them in a calm and orderly manner.

Rider Safety

- Check stakes/anchor weights regularly.
- Check the blower/inflation tube for leakage.
- Check GFI at least once after initial set-up.
- Prohibit roughhousing by occupants.
- Enforce maximum occupancy rules.
- Keep clean and dry between use.

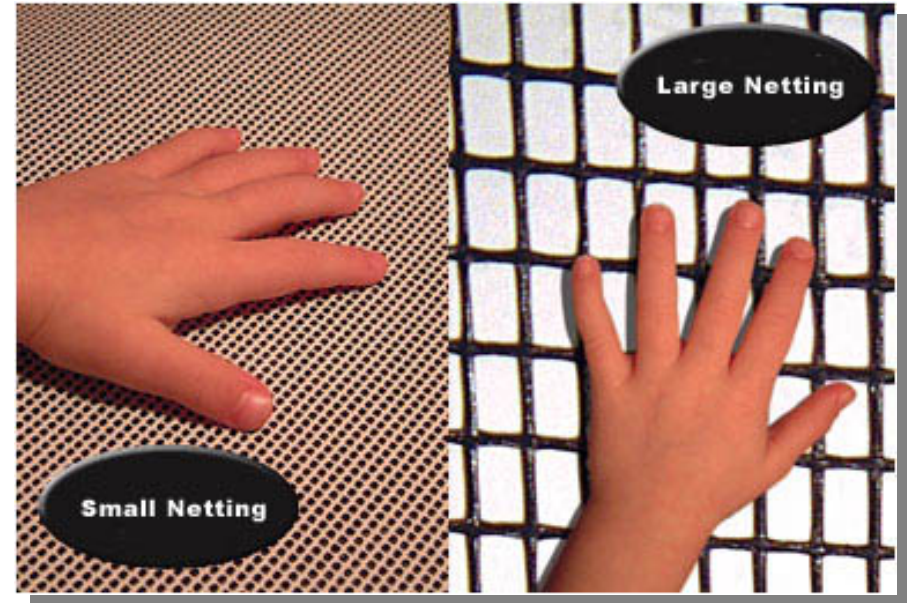
Netted Window Benefits

- All units should have secure **Safety Netting** to keep bouncers safely inside.
- Integrated netted windows allow **children inside the unit to be visible**.
- Generous use of high-quality netting and thread, results in **safe, well ventilated ride**.



Netted Windows

- Children's fingers and teeth have become **entangled on webbing**.
- **Never** allow children to **hold the netting** while jumping.



Safety Step

- The children may need to **climb onto the safety step** and into the low doorway to enter the unit.
- When exiting, they must **sit on the step** and can get off in a controlled, safe manner.



Safety Step

- Some slides do not have safety steps because they are **lower to the ground** and thus may not require any steps.



Power Failure

- Another electrical appliance plugged into the same line may blow the circuit.
- In this situation get the children out calmly, but quickly and THEN solve the problem.
- The top of the unit will fall down within seconds, so some children will be coming out when the top is already down.
- Remain calm and the children will also.

Warning!

- The first sign there is a problem will probably be a change or **SUDDEN DROP IN SOUND** (blower shuts off).
 - ✓ as soon as you recognize the sound has stopped, or
 - ✓ notice that there is a distortion in the unit,
 - ✓ place your ride specific evacuation plan into action, and then
 - ✓ have the children exit in a quick, but orderly way through the door.

Safety Roof

- Many rides have a special roof which can also function as an emergency exit.
- There are usually clips or Velcro on one side of the roof.
- Make sure that during the safety check you have noted where the clips are located.
- In an emergency you can quickly unclip the roof so the children can exit.

Exits

- Inflatable amusement devices, which are designed and manufactured to be operated as totally enclosed structures without clear visibility of the surrounding exterior areas, shall provide exits that meet all local or federal requirements as applicable to inflatable amusement devices or structures, or both.

Jump on the air pillow

- Remember, side walls are not constructed to support people bouncing off the walls.
- They are designed to keep children and adults safely inside.
- Make sure no one bounces off the walls.
- Keep participants at a safe distance from all other jumping riders.

Thunderstorms

- Wait thirty (30) minutes after you hear the last thunderclap before inflating the ride again (provided it is not raining).
- Weather must be carefully monitored and can change quickly.
- If you are in doubt, DO NOT PUT ON THE EVENT or Shut Down until the weather clears up!



Thunderstorms

- Thunderstorms are very dangerous and can quickly create high winds and electrical discharge (lightning).
- When lightning flashes or you hear the thunder, the ride must be evacuated and quickly deflated.



Ride Evacuation

Manufacturers and operators should consider that the inflatable ride should not collapse onto the riders if the power to the blower(s) inflating the ride should unexpectedly fail.

The CSA Z267 5.4.6 requirement D

Deflation of an air supported due to a power failure shall not increase the risk of injury to anyone on the ride or device



Ride Evacuation

Inflatable rides need a sealed chamber to prevent the rapid collapse of ceilings and walls onto the riders if the electric power to the blower(s) fails.

Inflatable slides over 15 feet tall should not deflate and collapse, so that they dump riders to the ground



Ride Evacuation

The design shall provide safety measures if the inflation air supply is interrupted.

Deflation shall be prevented or minimized by, but not limited to, the use of a non-return valve or flap fitted to the blower or inflatable device, and by placing the inflation tube to the lowest part of the structure.



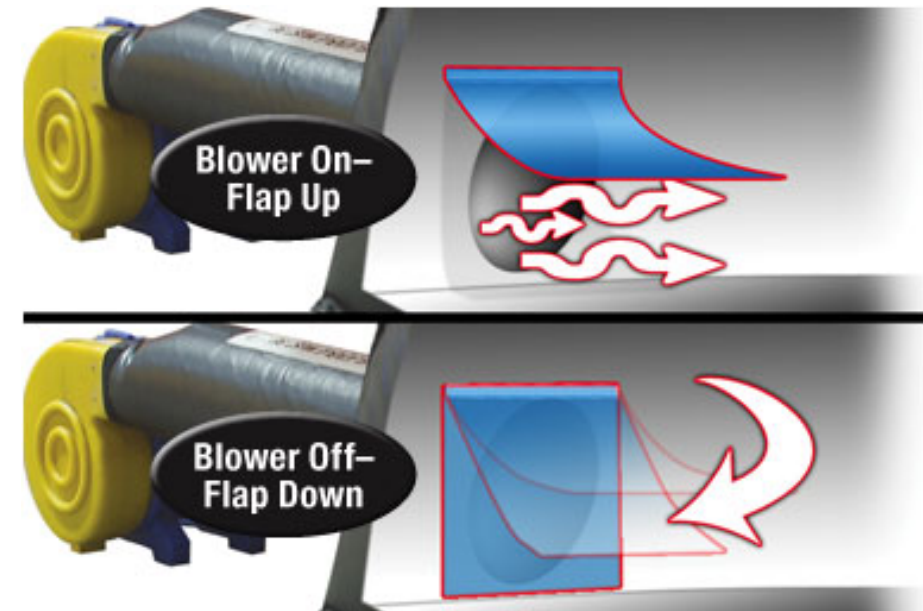
Deflation Rate

- ▶ Deflation Rate is based on **Maximum Load Capacity** - Units produced prior to Jan 1, 2003 will experience a faster deflation rate.
- Deflation rates are affected by **temperature**, **humidity** and **altitude**.
- Units with protective **one-way** air restriction flaps have slower deflation rates.



Deflation Rate

- ▶ Some **rides** have a simple **vinyl flap** that is designed to close if air flow is interrupted to slow deflation.
- ▶ Newer **blowers** incorporate a similar **flap system**.



Deflation Rate

- ▶ Remember, young children do not have your experience in emergency situations!



What Do I Do?

Deflation Rate Example

Bubba's Castle

Size W x L	Length A	Width B	Height C	Foot Print W x L	Weight lbs.	Deflation Rate (Sec.)
8 x 8	8 ft.	8 ft.	8 ft.	13'x13'	83	19
10 x 10	10 ft.	10 ft.	10 ft.	15'x15'	114	14
13 x 13	13 ft.	13 ft.	16 ft.	18'x18'	212	28
15 x 15	15 ft.	15 ft.	17 ft.	20'x20'	263	27
21 x 15	15 ft.	21 ft.	15 ft.	26'x20'	350	32

Deflation Rate

- ▶ Systems are available that **monitor air flow** and will go into alarm during an interruption.



Improving Performance

- ▶ As blower systems get older they tend to lose power.
- ▶ A second inflation tube can be used to improve performance.



Incidents

- ▶ Blow-overs and collapses due to equipment failure or improper setup can, and do, cause catastrophic accidents.
- ▶ Inadequate supervision increases the danger of broken bones and dislocations. Allowing younger children to jump with older children is the most common safety hazard.

Incident Reports

- If someone is **injured** on the ride investigate what happened so that it can be prevented from happening again.
- An incident investigation report must be completed as soon as possible after an incident and **submitted to the Chief Elevators, Lifts and Amusement Inspector**

Incident
Report

Reporting Incidents

General Inquiries and Reporting

Toll-free: 1-800-952-2687 (24 hours)

Halifax Metro: 902-424-5400 (Monday to Friday 8:30 a.m. - 4:30 p.m. only)

E-mail: ohsdivision@novascotia.ca

Device Maintenance

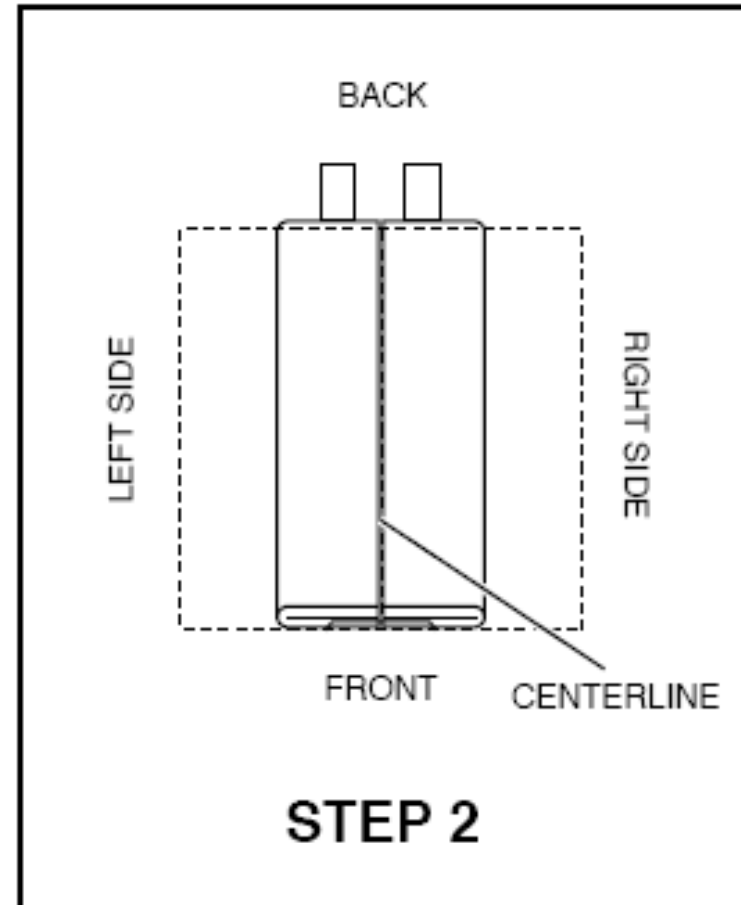
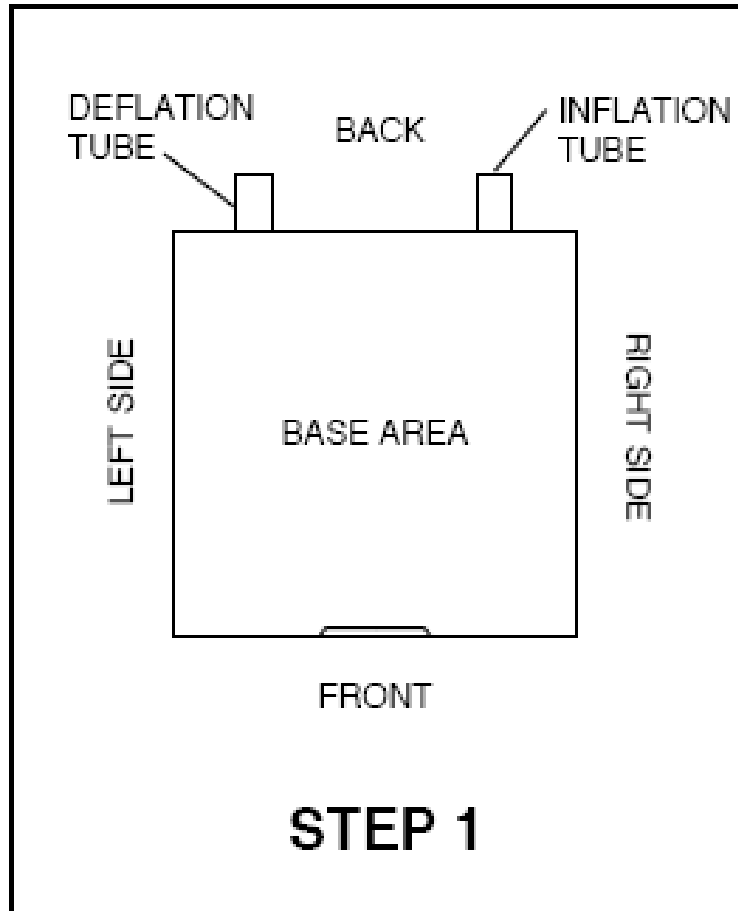
Take Down Instructions

- ▶ Inspect for any damage to the Inflatable and mark for repair before the next event.
- ▶ Clean and dry unit. Blow baking soda, talcum powder, or baby powder through, if necessary, to remove odors.
- ▶ Buckle all plastic snaps to reduce the possibility of entanglement in the mesh.

Take Down Instructions

- ▶ Turn off Blower Fan Switch or unplug the electric blower fan at its power source.
- ▶ Loosen inflation/deflation tube strap and pull it straight away from the Inflatable so that all the air is discharging.
- ▶ While the Inflatable is deflating remove all stakes and wipe clean, put the blower fan away and store extension cord.
- ▶ The front has the doorway in it. Fold all columns, sides, inflation and deflation tubes (except the tubes at the rear of the unit) into the base area.

Take Down Instructions



Take Down Instructions

