GENERAL INFORMATION

Safe operation is a combined responsibility and effort of the ride manufacturer and the owner/operator. This manual provides detailed information on the operation of the ride and provides the operator with important safety information.

All operators must be thoroughly familiar with the contents of this section before attempting to operate the ride. This information must be immediately available to all operators of the ride.

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PERSONNEL REQUIREMENTS

The FULL TILT is designed to operate with a minimum of one person. One person must remain at the controls during entire ride operation. To help alleviate long lines, it may become beneficial to add additional persons during high traffic periods.

If one operator is used without an attendant, all areas of this manual, addressing attendants’ responsibilities become that of the operator. The operation panel key must be with the operator when he/she is away from the control panel.

OPERATOR - SELECTION AND INSTRUCTION

1. Select competent, mature operators, capable of understanding the function, use and control of amusement rides.

2. Do not operate this ride while under the influence of drugs or alcohol.

3. Instruct each operator fully in the proper use and function of the ride he/she is to supervise, including:
   a. Controls and procedures for normal and emergency operation.
   b. Manufacturer’s recommended maximum load.
   c. Any foreseeable misuse of the ride as determined by the manufacturer or owner, or by special conditions such as weather, location or crowds.
   d. Each operator must have immediate availability of the manufacturer’s operation manual for the ride he supervises.

4. Require the operator to inspect the ride he/she supervises before each day of operation.
   a. Determine that no portion of the ride is damaged, missing or worn in such a manner that it is unsafe, or that can develop into an unsafe condition.
   b. Report any irregularities to superintendent or owner.
   c. If any irregularities are found, do not operate the ride until such condition is corrected.

5. Instruct operators to allow no passenger to ride who is visibly ill, pregnant, or under the influence of drugs or alcohol. Handicapped persons should view the ride for potential risks before riding.

6. Instruct operators and attendants on the proper methods of seating passengers in the ride; refer to the “Loading” area in this section of the manual. Do not allow a passenger on the ride that cannot be properly seated due to size. Ensure that only passengers who are a minimum of 52 inches to be seated in the two end seats.
7. Advise the operator against starting the ride while any person (passenger, spectator or employee) is in a dangerous or unsafe position on the ride, within the ride area, exposed to any electrical components, or any other area where injury could occur.

8. Insist that each operator remain in full control of the operating controls during operation of the ride. The operator’s full attention must be given to the ride and its passengers.

9. Instruct the operator to allow no other person, except for another trained operator, to operate the controls of the ride.

10. Advise the operator that factory-installed safety devices must not be tampered with or removed.

11. Instruct operator of owner’s or supervisor’s procedure for assisting ill or injured passengers.

12. Instruct operators to always test run the ride before each day of operation, using the instructions in this manual. Run the ride through at least three (3) complete ride cycles to observe the overall performance of the ride in relation to past performance of the ride and for proper function of all controls and indicators.

13. Operator should have basic training in general safety rules and procedures.

14. Operator should familiarize himself with all controls; i.e. disconnects, control panel, and emergency stop button.

15. Operator should be trained and understand the main power disconnect switches.

CAUTION: OPERATOR MUST GIVE FULL ATTENTION TO THE SAFE OPERATION OF THE RIDE AND THE SAFETY OF ALL PASSENGERS.
OPERATOR’S AND ATTENDANT’S RESPONSIBILITIES

BEFORE OPERATING THE RIDE WITH PASSENGERS:

1. Operator should understand and know where the main power disconnect switches are located. The operator control stand has one key switch for on and off, and a drive enable push button. There are two ways to stop the ride. One, the operator may remove foot from presence switch. Two, engage the emergency stop button. The operator should be familiar with the passenger restraints and safety belts. The ride will not run if the safety belts are not secure in their clasps.

   OPERATOR MUST SEE THAT THERE ARE NO PERSONNEL AROUND OR ON THE RIDE STRUCTURE, EXPOSED TO ANY ELECTRICAL/MECHANICAL COMPONENTS, OR ANY OTHER AREAS WHERE INJURY COULD OCCUR.

2. Test the ride. Operate the ride for at least 3 cycles as a test for all circuits, and operation in general. When all of the above are in proper working order, then the ride is ready for passengers.

3. While test running the ride, listen for unusual noise and watch the gondola as it goes up and down for smooth and normal operation.

   When testing is complete, the ride is ready for passengers.

   CAUTION: OPERATOR MUST BE PHYSICALLY AND MENTALLY ALERT AND IN FULL CONTROL OF THE RIDE DURING LOADING, OPERATION AND UNLOADING OF THE RIDE.

   NEVER LEAVE THE OPERATING CONTROLS WHILE THE RIDE IS IN OPERATION.

   The operator at the control console is responsible for the safety of the passengers as they ride. The operator must know and fully understand all operation and emergency procedures for this ride, and must be at the control console at all times. The ride must have the operator’s complete attention at all time.

4. When the ride is in motion, with the exception of the operator at the control panel, no person including attendants must stand in any portion of the loading or unloading area. An appropriate position for the attendant during the ride cycle would be outside the entrance/exit area.
SET-UP PROCEDURE

POWER REQUIREMENTS

A 208-220 volt AC power supply capable of at least 190 Amps 3 Phase w/ ground and Neutral must be applied to the ride.

LEVELING THE TRAILER

1) Check the set up site for potential hazards
   a. Check all green sites for signs of water logging or oil spillage.
   b. On concrete or asphalt surfaces check for signs of structural failure or loose sections.

   Sufficient Blocking must be used to support the ride. If in doubt about the soil/ground conditions, consult a qualified engineer to determine its load bearing capacity.

   For further blocking instructions, see the “TRAILER BLOCKING CHART” on page 7.

2) Position the ride on the prepared site in its final “set up” location. Place appropriate blocking under trailer jacks & leveling jacks as described above. Remove the towing vehicle and drive it parking position.

3) Connect all required electrical power supplies as described above. Ensure that all connections are in good working condition. If in doubt, consult a qualified electrician to assess the usability of the connections and wiring.

4) When electrical power has been supplied, start the auxiliary hydraulic power pack from the main control panel and put down the three (3) leveling jacks using the manual control levers on the hydraulic spool valve located on the front of the trailer. Using the supplied 4 foot level to check, level the trailer. The recommended way to do this is by placing the level across the top of the tower base and leveling the trailer base on this reading. (See Figure 1) It is helpful to check for level both ways several times to ensure accuracy. Ensure that no blocking becomes dislodged or tips when leveling. NOTE: It is necessary to have two people involved in the leveling process to ensure safe procedure.

   CAUTION: Ensure that fingers and feet are not placed under the leveling jacks at any time.
5) On completion of leveling the ride, unpin & pull out the four side mounted stabilizing outriggers, pin in position and place wooden blocking under each one. Place the outrigger jack base plates under each outrigger screw jack. Tighten the 2 ½” nut with the supplied outrigger nut wrench to the point that they are carrying even load. Be sure that the wooden blocking doesn’t tip, split, or become dislodges during this process.

6) Position wooden blocking below the outrigger screw jacks (located as shown in Figure 2) and the drop-down screw jacks. (located at the front of the trailer) These then can all be tightened down. Again, ensure that no blocking becomes dislodged or tips when leveling.
7) Deflate air suspension progressively using the control lever positioned . Inspect all jacking points to ensure that all of the wooden blocking is secure and stable and of adequate bearing area. Also ensure that all blocking is in good condition and no splintering or splitting has occurred.

**TRAILER BLOCKING CHART**

<table>
<thead>
<tr>
<th>GROUND CONDITION</th>
<th>MIN. SIZE OF BLOCKING REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leveling Jacks</td>
</tr>
<tr>
<td>Soft</td>
<td>1'-6&quot;x1'-6&quot;</td>
</tr>
<tr>
<td>Firm</td>
<td>1'-6&quot;x1'-6&quot;</td>
</tr>
<tr>
<td>Hard</td>
<td>1'-6&quot;x1'-6&quot;</td>
</tr>
</tbody>
</table>

**FLOOR SECTION SET-UP PROCEDURE**

The passenger side floors may now be un-pinned and lowered by hand. Caution must be practiced at all times when lowering the side floors.

1) The side floor jack stand must be unpinned and raised up from inside the outrigger tubes. They can then be pinned in place as shown below.

2) Unpack and place platform jacks at designated points.
3) Unpin & lower the rear most platform.

4) Unpin & lower the center platform.

5) Unpin & lower the double platform.

6) Unfold the front platform & place it on the platform jacks.

7) Unpack and set up the entrance and exit stairs onto the stair brackets. Using the provided stair jacks, level the stairs.

8) Unpack all of the handrail panels and install panels 1 thru 9. Set the remaining panels aside until after the counterweight is bolted in place.

**ARM SET UP**

Caution must be exercised during this portion of erecting the ride to ensure the safety of all involved. Participants must be alert and aware of potential dangers before they occur.

**UNFOLDING THE COUNTERWEIGHT ARM**

**CAUTION:** Ensure that no loose items, such as tools, are lying on the top of the counterweight arm. When the arm is moved they could fall and cause injury during the unfolding procedure.

1) Raise the tower to just above the “level” position using the operational valve on the driver’s side of the trailer.

2) Install the secondary tower cradle and lower the tower onto it.

3) Strap the tower down

4) Remove the counterweight arm travel pin from the provided bracket.

5) Manually unfold the counterweight arm, ensure that the path is clear of all obstructions.

**CAUTION:** Do not allow the counterweight arm to freely swing open. This movement should always be controlled to avoid injury to personnel and damage to the ride.
6) Fit the safety pin & “R” clip into the side bracket provided on the counterweight arm.

7) Install the 4 counterweight arm 1 ¼” nuts and bolts (provided). NOTE: These are not to be torqued until the tower is raised.

8) Unpack and install the center two arm lighting panels using the bolts and clips provided.

9) Make all electrical connections for the arm.

10) Unpack and place the Fence/Lighting Posts in the pockets that match the number on each post. The lighting leads may now be plugged into the proper receptacles. (See Photos below)

11) Unpack and install fence and handrail panels.

POSITIONING THE GONDOLA BEFORE TOWER ERECTION

CAUTION: The safety pin in the hinged arm bracket that secures the arm to the tower must NOT be removed before the tower is erected and the gondola is bolted to the arm. If it is the counterweight end, being heavier than the car end, will rotate down. This could result in serious injury.

1) Attach the extensions to the gondola (car) roller tracks and securely pin them to the now lowered platforms.

2) Release the car from the trailer by unpinning the travel plate from the gondola. (4 pins in 2 locations-see photos below)

3) Roll the car forward until the nylon wheels come into contact with the stops at the end of the roller tracks. (see photos below)

4) Raise the rear end of the car to level it with the front. This is done using the 2 hand cranks at the back of the car.

5) Unpin the hair guard panels from their travel positions.

6) Swing the center Hair Guard Panel upright and install the two posts, pinning them in place with the supplied safety pins and “R” Keys.

7) Repeat this step with the other two hair guards.
**TOWER ERECTION PROCEDURE**

The tower may now be erected and bolted in position. The tower is lifted by a single hydraulic cylinder. The control for lifting the tower is located on the driver's side of the trailer. (See Figure 4 below) The directional valve must remain in the set-up position. Once the tower is lifted vertically and set onto the tower base, five Roto-bolts must be applied to their appropriate bolt block.

![Figure 4](image)

1) This safety check list must be performed before the tower can be raised:
   a) Ensure that the hydraulic cylinder is fully charged with fluid. To do this, operate the down lever (located on the trailer) for 5 seconds.
   b) Ensure that no tools or loose items are lying on the tower. These could fall and cause injury when the tower is raised.
   c) Inspect the counterweight arm to be sure that the arm bolts and safety shear pins are in position. Confirm that all of the arm bolts are tightened to the proper torque.
   d) Ensure that all lighting panels are properly secured to both the counterweight and the main arm section.

2) Remove the strap from the secondary tower cradle.
3) Using the cylinder control lever, raise the tower. This must be done slowly and without pausing. NOTE: No unauthorized personnel are allowed within 30 feet of the ride during this stage.

4) When the tower has reached its vertical position and come to rest on the tower base, install the Main Tower Bolts. Be sure to insert them into the bolt holes with the head of the bolt facing the ground.
   a) Ensure that the “Pusher Ram” (located inside the tower) is fully retracted. To ensure this, no rod should be visible.
   b) Now tighten the 8 Main Tower Bolts to 450 ft. lbs.

5) Torque the 4 bolts on the counterweight arm to 550 ft. lbs.
ATTACHING THE GONDOLA TO THE ARM

1) Using the hand cranks, jack the gondola (car) up until the bolt blocks are approximately ¼” from the mating tapered bolt blocks on the main arm mounting plate.

   **CAUTION:** Always keep hands, and fingers clear of mounting blocks at all times.

   **CAUTION:** Do not take any action to make the car tip.

   **CAUTION:** Do not allow anyone to be directly below the car during this setup procedure.

   **CAUTION:** Do not allow unauthorized personnel within 10 ft of the car during this setup procedure.

2) Adjust the car jacks until the bolt blocks are precisely lined up. Install the 6 supplied 1 ¼” bolts. Hand-tighten and then systematically torque each bolt to 550 ft. lbs. (See Figure 10)

3) Connect all electrical plus-socket from the arm to the car.

4) Remove the roller jack track extensions from in front of the car now. These may be stored in the storage bin below the trailer.
5) Remove the handles from the two car jacks and set aside until ride dismantlement.

6) Now that the car is attached to the arm, the main arm safety pin can be removed from the hinged bracket. Lower the hinged bracket so that it rests against the tower. NOTE: This step should never be performed prior to attaching the car to the arm. Also note that when disassembling the ride this hinged bracket MUST be installed BEFORE the car is unbolted from the arm.

**FINAL SETUP PROCEDURE**

1) Now that all of the main components of the ride are assembled, the Balley Cloth of “skirt” may be unpacked and attached to the ride.

   a. Note that there are two panels to this Balley Cloth. One starts on the start of the goose neck of the Driver’s Side around to the “Exit Stairs”. The next begins there and continues to the driver’s side rear of the trailer. (see Figure 11)

![Figure 11](image1.png)

2) Unpack and install the guard panel on the passenger’s side of the trailer gooseneck (see Figure 12). This guard is attached using the “antiluse” fasteners on top of the gooseneck. (see Figure 13)
3) Unpack and install the ground fence barriers. There are 3 fence panels designated for the front of the trailer and 3 for the rear of the trailer. (for their location see page “vii” of the “INTRODUCTION” section of this manual.

**CAUTION:** Do not operate the ride unless all these barrier fences are in place. These barriers ensure that patrons walking past the ride do not cross the vehicle clearance envelope.

Now the ride is ready for final checks, and test runs. See the section “Operating the Ride” in this manual for complete directions.

## LOADING

**CAUTION:** Do not operate the ride unless all parts of the gondola are in good condition. All safety features must be in good condition.

*Any broken or missing parts must be repaired or replaced immediately.*

**CAUTION:** Passengers must be at least 42” tall to ride.

ONLY passengers that are a minimum of 52” may be seated in the end seats.

Never allow a passenger on the ride that is visibly ill or under the influence of drugs or alcohol.
Pregnant women are not allowed to ride.

Persons who are handicapped should view the ride for potential risks before riding.

**WARNING:** Passengers must be seated in a proper manner and must fit comfortably within the seat and restraint.

**CAUTION:** Never allow the vehicle to become overloaded. Maximum capacity of the gondola is for a maximum combined passenger weight of 2380 pounds.

**CAUTION:** Normal operating speed is 12 rpm. This must never be exceeded. Maximum passenger ride time is 3 minutes. For the comfort and safety of the passengers, this should also never be exceeded.

Attendants are responsible for the safety of the passengers as they wait in line to board the vehicle, as well as during loading and unloading. Attendants should do the following:

1. Control access to the ride through the entrance gates.

2. Make sure all passengers remain behind a gate as they wait to board the ride. Persons waiting in line must not be allowed to hang over the fences or sit on the fences.

3. Make sure that only passengers meeting height and other ride restrictions are allowed to ride.

4. Give safety announcements including, but not limited to:
   - Watch your step when entering or exiting the ride.
   - Remain seated at all times.
   - Secure all loose articles.
   - Do not throw or drop any objects from the gondola.

5. Allow riders to be seated. Ensure that only passengers of a minimum of 52” tall are seated in the two end seats of the car.

6. Allow only one person per seat for a maximum of 14 riders.

7. Ensure that no rider is seated with loose or unsecured items such as foot ware not secured to feet, purses, backpacks, prizes, cameras, mobile phones, hats, keys, glasses, etc….
9. Ensure the passengers are properly seated and fit securely within the restraint. The shoulder restraint should make firm contact with each passenger without causing discomfort.

10. Ensure the over-the-shoulder restraint is locked by pulling on the restraint.

11. Check each safety belt is inserted into their clasps properly.

12. Lower the shoulder restraint to any unoccupied seat and insert the respective safety belt into its clasp.

13. Check that no passenger is showing signs of distress of discomfort before running the ride.

**CONTROL SYSTEM**

**CONTROL PANEL**

Refer to the illustration of the Operator’s Panel on page 16

**Main Breaker Off** – Indicator light showing that the main breaker is switched off

**Emergency** - trips all breakers and removes all power from the ride - to reset, quarter turn to the right and reset breakers

**Circuit Breaker Trip** – Indicator light blinks when circuit breaker is tripped

**Key Switch** – Switches form a manually controlled stop ride cycle to an automatic ride cycle

**Seat Tilt** – Push button inflates the Air Bellows on the car causing it to tilt forward.

**Arm/Car Lights** - Push button to turn the arm and car channel lights on

**Run Ready** – Indicator Light showing that the Foot Switch is pressed and the lap bars are locked.

**Joy Stick** – Directional Joystick to control the movement of the ride

**Compressor** – Push button to turn the Air compressor for the “Tilt” function on the car

**Perimeter Lights** – Push button to control the perimeter flood lights
Lap Bar Lock – Push button that locks the Lap Bars

Drive Enable – Push button to initiate the Drive Motor

CONTROL PANEL LAYOUT

OPERATOR'S PANEL LEGEND:

- **Red Push Button**: Non-Illuminated
- **Red Position Twist Release Button**: On High Button
- **Green Push Button**: Non-Illuminated
- **Green Indicator Light**: On High Button
- **Red Indicator Light**: Non-Illuminated
- **Green Indicator Light**: On High Button
- **3 Position Pointer Switch**
OPERATING THE RIDE

**ATTENTION:** Before daily operation, follow the procedures listed under “Daily pre-operational inspection” in the maintenance section of this manual.

**WARNING:** Before starting the ride, make sure there is no one around the ride structure, close to any exposed electrical components, or any other areas where there is a possibility of serious personal injury.

**CAUTION:** The operator must remain in full control of the operating controls at all times during the operation of the ride. The ride and its passengers must be given the full attention of the operator at all times. Never leave the operating controls while the ride is in operation.

**ATTENTION:** Foot pedal must be depressed for the ride to operate in auto cycle.

**ATTENTION:** Test-run the ride at least 3 cycles before operating with passengers.

1) Ensure passengers are secure in their seats and each lap bar is locked. Also check that each safety strap is buckled in the respective clasp. This must be done even in empty seats for the ride to operate.

2) Check that no members of the public are anywhere on the ride platform.

3) Confirm that all warning lights on the operator’s panel are not lit.

4) Push the “Drive” button to initiate the drive system.

5) Move the Joystick in the desired direction of travel.

6) Repeat the joystick movement in the opposite direction to commence the initial swinging motion of the car. Note that it takes a fully laden car about 10 swings before it goes over the top.
   a) Observe all passengers for any sign of distress of dangerous behavior. If this is apparent, the ride should be stopped. Qualified aid for passengers in distress should be summoned immediately.

7) When the car has gone over the top, hold the joystick in this position to continue the motion of the ride. At the desired moment push the button to allow the seats to tilt forward. Pushing the button again will return the seats to the upright position.
8) To stop the ride: put the joystick in the central or “neutral” position. This will initiate the automatic stop sequence.

9) When the ride has come to a complete stop, switch off the drive.

10) Signal the attendant to release the gates and allow the passengers to disembark.
    a) Ensure that all passengers leave the ride in an orderly manner.

**SAFETY FEATURES**

- The operators control panel is equipped with a key switch so the ride cannot be operated by unauthorized personnel.

- The operator’s control panel is equipped with an emergency stop button which shuts down all power. When the joystick is returned to the “Neutral” position, the car will come to a stop.

- A safety belt has been installed as a secondary passenger restraint. The strap links the lower portion of the over-the-shoulder restraint to the seat structure. It has a limit switch and ride will not start unless all straps are inserted in their clasps properly.

Every effort has been made to conform to the safety codes of many states and the standards of many professional societies, such as AWS, ANSI, NEC, ASTM, ASME, NFPA, ASM, and other national and state standards in effect at the time of manufacture.

Field modification or lack of maintenance may alter the above conditions.

**EMERGENCY PROCEDURES**

In case of the following:
- Electrical Generation fault of failure
- Passenger attempting to get out of the car
- Structural deflection
- Any abnormal noises
- Sudden bad weather ie.: severe wind, hail or lightning.
- Lap Bar failure
- Etc.

Then the ride must be immediately stopped.
In ‘MANUAL’ mode – release the joystick
In ‘AUTOMATIC’ mode – press the ‘STOP’ button
The ride will come to a controlled stop with the car at bottom dead center.
Release the ‘Lap Bars’ and evacuate the passengers.

**RESTRAINT RELEASE**

The following procedure is intended for manually releasing the patron restraint locking mechanism in the event of a power loss condition such as main power loss or failure of an electrical solenoid, etc.

1. Upon any of the mentioned conditions a means of manually releasing each of the passenger restraint locking mechanisms has been provided. This release is located on the top of each of the hydraulic locking mechanisms in the form of a ¼ turn knob.
2. Twisting the knob in a ¼ turn fashion and holding the knob in this position will allow free movement of the over the shoulder restraint. Each manual release is accessible from outside the passenger vehicle. The operator may reach through the nylon brush guard with one hand turning the ¼ turn knob while assisting the patron with his/her other hand in lifting the lap bar. This Release Knob is also accessible through the hole in the back guard panel,
PASSENGER AND WEATHER RESTRICTIONS

THE FOLLOWING RESTRICTIONS ARE FOR THE SAFETY OF ALL PATRONS.

ATTENTION: A sign must be posted in full view of potential riders listing the minimum following passenger and weather restrictions:

PASSENGER RESTRICTIONS

1. Persons must be at least 42” tall to ride.
2. Persons under the influence of drugs or alcohol are not allowed to ride.
3. Pregnant women are not allowed to ride.
4. No food, drink or smoking on the ride.
5. Persons with recent surgery or illness may not ride.
6. Persons with a heart condition may not ride.
7. Persons with high blood pressure may not ride.
8. Persons with back, neck, or bone conditions may not ride.
9. Handicapped persons should view the ride for potential risks before riding.

WEATHER RESTRICTIONS

1. Do not operate the FULL TILT with passengers if the wind exceeds 35 mph.
2. If lightning is present in the area, all patrons and personnel must evacuate the ride immediately.