FARROW AMUSEMENT

Typhoon

00981

This Manual has been prepared by **TIVOLI ENTERPRISES LTD.** for use by Owners and Operators of the **ORBITER AMUSEMENT RIDE.** It is our recommendation that this manual be read and understood so the Orbiter can be operated economically and safely.

The information in this manual is to used in guiding the Orbiter in daily inspection and maintenance procedures. Since it is the intent of **TIVOLI ENTERPRISES LTD.** to always upgrade and improve their product, some specifications may be different from previous equipment. If this situation arises, please contact Manufacturer for additional information and / or upgrade.

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SECTION 1

SET UP INSTRUCTIONS

NOTE

Tivoli Enterprises in an effect to meet each operators needs, offers certain Customized Features to the Ride Platform Scenery and Fence. These Set Up Instructions are general instructions not including Customized Features. If there are any questions that arise, which are not answered in this manual please contact the manufacturer for more information.

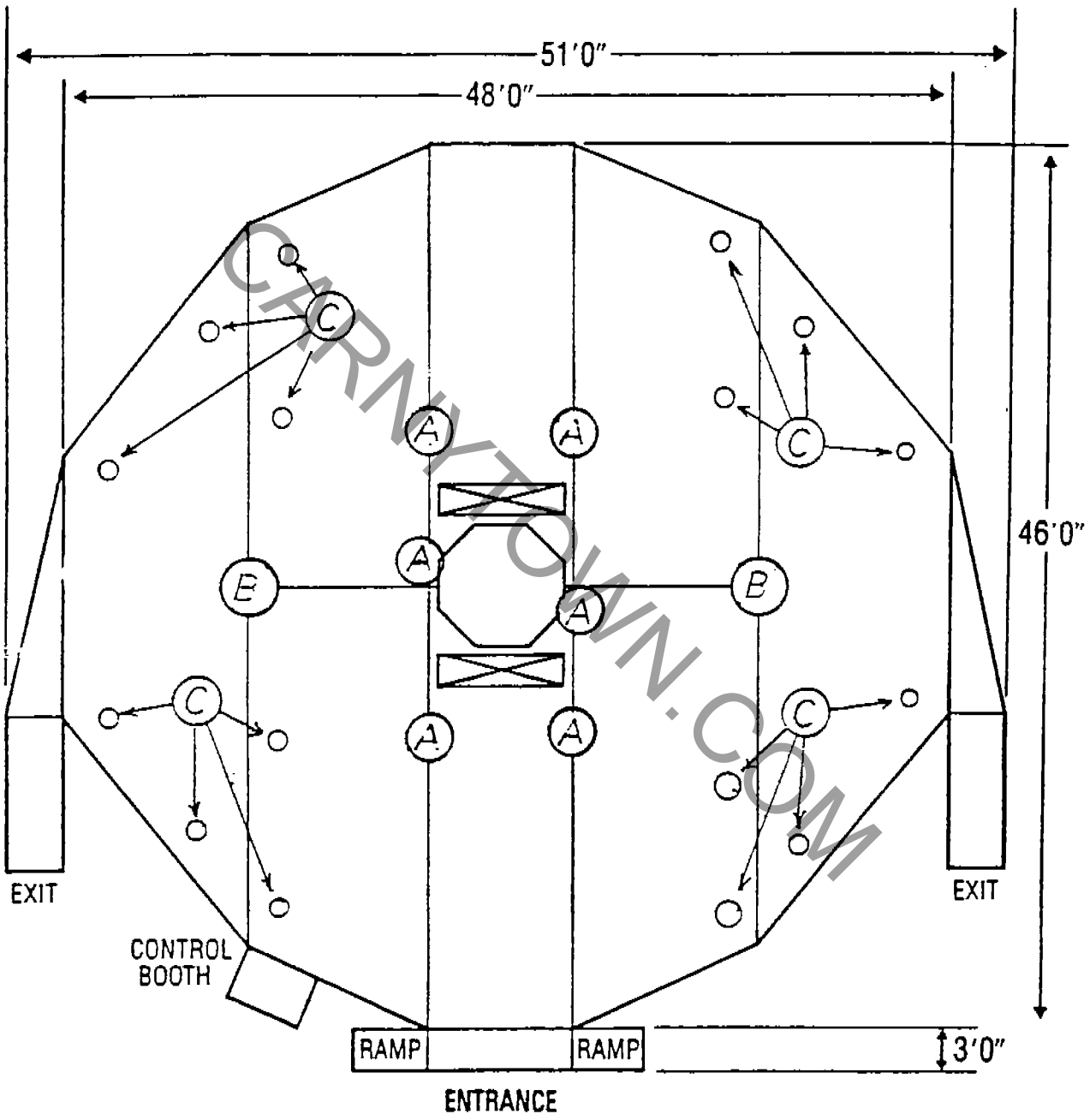


FIGURE 1

SET UP INSTRUCTIONS

STEP 1: Locate trailer on as level an area as possible. Front of trailer should be located Approximately 3 feet from midway edge. **See clearance specifications, Figure 1.

STEP 2: While tractor is still attached to trailer, install power and control leads into provided camloc and control connections. Connectors are located under center of trailer. Extend control box 115V outlet to area where control cabin will be located.

For rides equipped with remote pump start control see set up supplement S:100 .

STEP 3: Connect control cable to control console located in operator's booth on gooseneck of trailer. With power on, activate hydraulic pumps with switch on console (control lock out key is not necessary at this point.) Check motor rotation.

STEP 4: Swing leveling jack controls outward. These are located at center of curb side of trailer. Remove lock wedges from gooseneck hinge point (two (2) places). Remove security chains for leveling jacks from trailer frame.

STEP 5: Unpin and swing two (2) main outriggers into operating position (located at center sides of trailer) perpendicular to trailer. **This must be done before raising or lowering trailer.**

STEP 6: Lower front jacks until major portion of trailer weight is supported by jacks.

STEP 7: Disconnect locking mechanism from tractor's fifth wheel. Drive tractor forward until king pin is clear of fifth wheel lock mechanism, but weight of gooseneck is still on fifth wheel.

STEP 8: Using forward jacks only, raise front of trailer until gooseneck becomes straight with trailer and starts to lift off tractor. Remove tractor at this time and lower front of trailer until approximately level with back of trailer.

For rides designed to operate with trailer wheels attached see Set Up supplement S: 101

STEP 9: Using rear jacks only, raise trailer until majority of weight is off tires. Remove pin on rear axle locking device. Using large block of wood, knock latch open (both sides of trailer).

STEP 10: Disengage air lines from rear axle frame.

IMPORTANT

When using the leveling jacks, please note that both front and back have two (2) hydraulic cylinders: one curb side and one driver's side of trailer with separate controls. Special attention should be given to see that both of these cylinders work evenly keeping the trailer level so as not to excessively tilt trailer. It is possible to tilt trailer over if jacks are misused. It is recommended by the manufacturer to practice operating jacks up and down while the wheels are still attached, in order to understand the system, before operating with trailer axles removed.

STEP 11: Raise rear of trailer until trailer lifts off and clears axle frame locking pins. Pull rear axle frame out from under trailer. Make sure there is clearance of rear bumper. Roll out axle frame completely.

NOTE:

With air ride / maxi brake axle sets, an extension hose must be installed between service line of trailer and service line of axle frame. Re-hook tractor service line to trailer. This will allow the maxi brakes to disengage, allowing the wheels to turn.

STEP 12: Lower rear of trailer approximately level with front. Using both jack controls, simultaneously, lower both jacks being careful to keep both leveling cylinders on each jack even, so as not to tilt trailer. Lower both front and rear of trailer until trailer frame is approximately six (6) inches from ground.

STEP 13: With trailer six (6) inches above ground, block and level trailer in six (6) places (refer to Figure 1, Point A), using preferably a 2" X 12" plank (s). It is recommended that at least a two (2) foot square on the initial layer is needed with additional layers installed in a crib fashion. Plywood shims can be used to bring to proper level.

NOTE:

If the surface on which the ride is setting is relatively level , then the ride can sit on the steel jack pads provided. Completely retract hydraulic level jack cylinders so trailer frame rest on jack pads. When level add blocking under trailer "I" beam at center.

STEP 14: After trailer is level, block solidly outside end of outrigger (one (1) each side) (refer to Figure 1, Point B). Swing out secondary platform support from main outrigger, level and block solidly. This is to be done on both sides of trailer. Turn off main pump.

On rides equipped with platform support outriggers, see Set Up supplement S:102

STEP 15: On units built after 1991 install 2 platform support outriggers to each side, block & level.

STEP 16: Remove exit platforms racked on rear sides of trailer and locate outside limits of outriggers. Remove gooseneck platform spacer and insert into holes provided.

On rides equipped with platform support outriggers, see Set Up supplement S:102

STEP 17: Unpin hanging portion of ride platform by sliding up and turning "U" pins located inside each end of platform (two (2) per platform). Attach 3/4" rope to center bottom portion of hanging platform; rope must be at least thirty (30) feet long. Extend rope outward until it clears both primary & secondary outriggers.

IMPORTANT

BEFORE PROCEEDING TO STEP 19 - READ THE FOLLOWING CAREFULLY.

UNDER NO CIRCUMSTANCES SHOULD ANY PERSON BE UNDERNEATH THE PLATFORMS WHEN THEY ARE UNDER THE SUPPORT OF THE WINCH CABLE. IT IS NECESSARY TO ATTACH A ROPE TO PLATFORM AND PULL PLATFORMS OUT FROM A SAFE DISTANCE OUTSIDE THE RIDE PERIMETER. FAILURE TO ABIDE BY THIS NOTIFICATION COULD CAUSE SEVERE INJURY.

STEP 18: From a position on the top center of the ride, plug winch hand control into winch and assure power cable leads are connected on side of ride hub. Connect clamps to well charged 12 volt battery. With units supplied with 24 volt power supply. Turn ride car lights on to provide power to 24 volts transformer.

On Rides equipped with hydraulic winch see Set Up supplement T:103

STEP 19: Inspect winch cable for proper roll-up. Check cable to assure it is running through pulleys on both platforms and cable hook is securely attached, with safety clip to ride center. Inspect winch cable for any defects (flattening, breaks, frays, etc. - see supplement) and replace if necessary.

STEP 20: With winch hand control, operate winch and wind cable until taut. Unbolt and remove platform lock brackets **on side being lowered only**, using electric wrench supplied with ride. **To insure proper cable roll up, platform on winch side should be lowered first and raised last (during disassembly).**

STEP 21: With at least three (3) people pulling on platform rope described in Step 18, pull out platform while operator on top center of ride simultaneously extends winch cable. Person operating winch must watch cable closely to insure cable does not become slack as platform starts to fold out.

STEP 22: When hanging platform rollers start to roll on outrigger freely without assistance to pull ropes, have persons holding the rope release it, and allow winch to lower platform until completely down.

STEP 23: Release tension on cable. Remove platform pulley and shaft, and store. Rewind cable on winch, making sure cable rolls up evenly and smoothly on winch drum.

STEP 24: Rewind cable until taut.

STEP 25: For opposite platform lowering procedures, follow Steps 17 through 24.

STEP 26: Using electric impact wrench, level platform eight (8) places each side, (Figure 1, Point C-) use appropriate blocking under each platform jack. Leveling is accomplished by inserting wrench through access hole in platform and turning nut clockwise to lower platform and counter clockwise to raise platform.

STEP 27: Unplug electrical control cable from control box. Extend under platform from trailer to desired location of control cabin. Control cabin can be located at any position around ride except trailer ends.

STEP 28: Using electric impact wrench, level platform eight (8) places each side. (Figure 1, Point C.) use appropriate blocking under each platform jack. Leveling is accomplished by inserting wrench through access hole in platform and turning nut clockwise to lower platform and counter clockwise to raise platform.

STEP 29: Unpin, fold and lower front entrance platform or step, install fence racked on gooseneck (on platform) in provided slots. Block sloped entrance ramps until firm.

STEP 30: Control cabin installation; Using provided handles on cabin, lift and pull cabin out of cabin support platform. Roll cabin to desired location around edge of platform.

STEP 31: Remove cabin support platform from gooseneck. Install in desired location using fence mounting holes. Block and level.

STEP 32: Roll control cabin onto support platform with front pointing towards ride, until cabin wheels drop in alignment holes. Reinstall electrical control cable on control console through access hole outside of cabin.

STEP 33: Unrack and install fence in provided mounting holes around platform.

STEP 34: Unrack and move to outside edge of platform, four (4) seats which are to immediate right and left of hanging turret arms.

STEP 35: Unpin and erect top ornament on the top center of ride.

NOTE:

Assure all threaded pins for sweeps and vehicles are coated with a light film of grease before installation

STEP 36: Assure that threaded sweep pins stored in holes on main sweeps at center hub are removed and laying on top of hub. Remove racking blocks pinned to turret arm vehicle mounting brackets. Swing out each sweep into position, insert two threaded pins when holes align and install with impact wrench, continue until all four (4) folding sweeps are in place. When threading in pins, install one pin 1/2 way first and then install other pin in completely and finish first pin. This will keep pins from getting in a bind when installing.

STEP 37: On rides equipped, install front platform fiberglass scenery panels and rear canvas bally around platform.

STEP 38: With two (2) persons holding vehicle, set three (3) seats per turret arms, using threaded pins. Insert pins, and start threads by hand, then while person lifts lightly on outside of seat, thread one pin half way down , then thread second pin all the way down, finish by threading the first pin down completely.

IMPORTANT

When installing vehicle pins lift on outside of vehicle and install first pin only half way before installing second pin. If first pin is run completely down before 2nd it can result in the gualding, requiring it to be replaced.

STEP 39: After all seats are installed, plug in car light cord.

STEP 40: Disconnect power leads for winch center hub transformer box, switch transformer selector switch to lights position. (Make sure power is off to transformer box, car lights before switching)

STEP 41: Install exit platforms by inserting triangle platforms in fence holes at desired location. Block and level out side edge. Install ramp and block until sturdy. Insert fence railings.

STEP 42: Check to assure all fence and addition racks have been removed from platform and platform is clear of obstruction.

STEP 43: Inspect all car pins, sweep pins, fence and platform to assure all have been correctly installed.

STEP 44: Do all pre- opening check and maintenance prior to test run of ride.

Test Run Ride
Before Operating with Patrons.

TEAR DOWN INSTRUCTIONS

This ride is designed to tear down opposite from the set - up . There are some differences and these are noted below.

1.) Assure that the ride winch electrical power cables are connected from the transformer box to the center hub and the winch selector switch on the transformer box is in the correct position for winch.

2.) When the ride is in operation the center lift cylinders do not completely retract, to assure they stop on a cushion of oil. Prior to tear down, it is necessary to manually retract cylinders completely down before disassembly.

3.) In models produced in 1991 and later, it is necessary to turn the jacks / ride selector hand lever to the jacks position for tear down. This valve is located above the oil cooler next to the hydraulic pump filters.

4.) Prior to removal of vehicles align sweeps so winch is on passenger side of trailer. Turn cars on fixed sweep so that one vehicle points directly to center of ride.

5.) Raise platform opposite winch first.

6.) Assure road wheel's are installed and loaded before attaching tractor.

7.) Remove and rack gooseneck platform spacers before attaching tractor.

Set Up Supplement S:100

Rides equipped with remote pump start switch

All rides produced after 1991 have been equipped with a remote pump switch located near the hydraulic leveling jack controls. This control allows the starting of the hydraulic pump without having to connect the control cable between the center control box and the control cabin. In addition to the pump start buttons is a selector switch. This switch must be turned to "remote" in order for the remote pump start buttons to work and to the" pay box" position before the pump can be controlled from the operators control panel in the control cabin.

Set Up Supplement S:101

Leveling procedure for rides designed with trailer wheels permanently attached to trailer

STEP 1; Using Jack control levers move in and out slightly to relive pressure on locking pins of adjustable jack pads. Remove locking pins from all four jacks.

STEP 2; Install adequate blocking under each jack pad. Using air ride control lever, release air from air bags until frame of trailer is approximately two inches from top of tires.

STEP 3; Lower rear jacks until trailer starts to lift, level across back of trailer. Adjust front jacks and bring length of trailer level. After trailer is level, pin jacks to closest aligned pin hole. Relive pressure in cylinders so weight is completely on jacks.

STEP 4; Install screw jacks under center of trailer "I" beam, one each side tighten securely.

STEP 5; Install screw jacks on outriggers, There are two (2) screw jacks on each side of trailer. Tighten securely. It will be necessary to level secondary outrigger when installing screwjack.

Important

The hydraulic supply for the leveling jacks is controlled by a diverter valve located beneath the main hydraulic manifold. This valve must be switched over before ride is put into operation. The valve must be turned back before platform and raised at tear down so leveling jacks will operate.

Set Up supplement S:102

Instructions for rides equipped with platform support outriggers

On all rides manufactured from 1991 are equipped with platform support outriggers. These should be installed as follows;

STEP 1; Remove platform support outrigger from racked position on side of trailer.

STEP 2; Install in two (2) square socket receptacles on each side of trailer. Make sure the jack socket is pointing toward the ground.

STEP 3; Remove two (2) pole jack stands, one with wide base and one with small base from storage area under goose neck of trailer. Pin in place wide base jack stand to outer most socket of outrigger, adjust and level outrigger then pin jack stand in place. Install the small base jack stand in center of outrigger and pin.

STEP 4; Complete this procedure for all four outriggers. Assure all outriggers are level and perpendicular with trailer before platform is lowered.

Set Up Supplement S:103

Winch operation on rides equipped with hydraulic winch

OPERATING of WINCH

STEP 1. On top of center hub to right of winch, through an access hole is a "T" lever. This lever must be pushed "in" completely in order for winch to operate.

STEP 2. Operate winch with hydraulic control lever located to the left of winch. Let platforms out as described in previous instructions. Winch side platform must be first lowered for set up and 2nd up during tear down.

STEP 3. After platforms are down and winch cable is rolled up move "T" lever to the completely pulled out position.

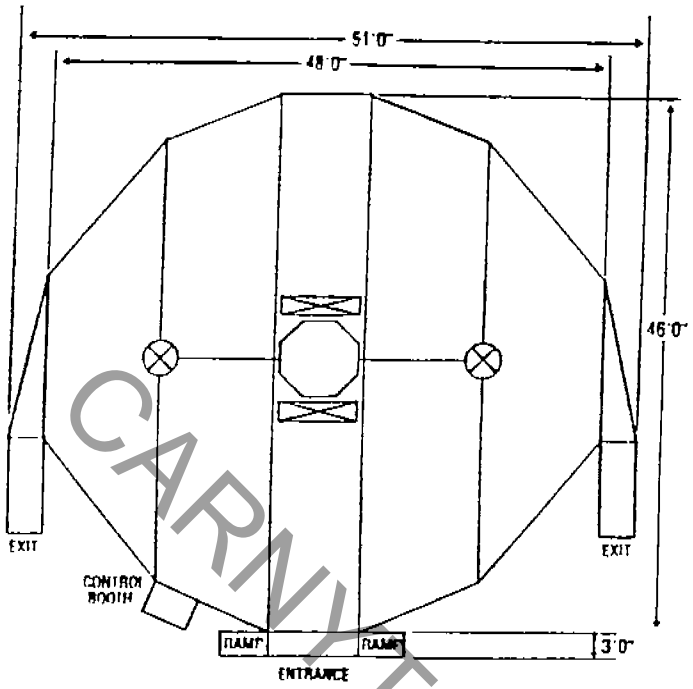
Important

The "T" lever must be in the pulled out position in order for the tilt out cylinders and vehicle rotation to operate.

SECTION 2

OPERATING PROCEDURES AND SPECIFICATIONS

Specifications



PERFORMANCE

Vehicles ..... 18 x 2 Passengers
Passengers ..... 36 Adults
Capacity ..... 720 Approximately Per Hour
Ride Duration ..... 60 Seconds Recommended

POWER

Voltage ..... 208 / 230 3 phase 60 Hz
KW (Motive) ..... 60 KW Approximately
(Lights) ..... 25 KW Approximately
Amperage ..... 250 Amps Approximately
Lighting ..... Incandescent and Quartz

CARS

Lighting ..... Incandescent and Quartz
Restraint Type ..... Lap Bar / Spring Pin Latch

OPERATING DIMENSIONS

Height ..... 26 Ft. 0 In.
Width ..... 51 Ft. 0 In.
Depth ..... 48 Ft. 0 In.

TRAILER DIMENSIONS

Height ..... 13 Ft. 6 In.
Width ..... 8 Ft. 6 In.
Length ..... 48 Ft. 0 In.

TRAILER WEIGHTS

Kingpin ..... 23,000 Lbs.
Rear Two Axles (10 ft spread) ..... 37,950 Lbs.
Gross ..... 60,950 Lbs.

These specifications subject to change without notice.

Tivoli Manufacturing Ltd.

ORBITER

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ON-DESTRUCTIVE TESTING AND SAFETY MODIFICATIONS POLICY FOR TIVOLI, LTD.

All Tivoli manufactured Amusement Rides are designed to the highest degree of safety and quality. Indepth engineering and design analysis has been incorporated into all equipment produced. Tivoli, Ltd. ,therefore, requires no scheduled testing by non-destructive means for the engineered life of the components, unless listed below, issued to customer in the form of a service or safety bulletin, or indicated in Operation Manual.

It should also be understood that this policy is based on the operator/owner exercising proper maintenance and care procedures of all components according to the manufacturers' specifications, along with routine visual inspection of all structural components for any unusual circumstances. Any unusual circumstance must be reported to the manufacturer immediately.

In the event that a fault or potential safety problem is discovered through our own testing or field experience requiring an annual test or modification, information concerning these tests or modifications will be made available immediately to the owner of the equipment.

Below are listed all current safety service bulletins or equipment modification bulletins.

BULLETIN NUMBER	RIDE	CONCERNING	EFFECTIVE DATE
00102	ORBITER	LAP BAR	APRIL 24,1987
00120	ORBITER	CAR ATTACHMENT PINS	DEC. 10,1990
T0190	ORBITER	REPORT KIT	FEB. 05, 1990
T00104	ORBITER	STAR DELTA TIMER	JULY 11, 1990

Trailer Information

Dimensions:

Length:	46ft. 0in.
Height:	13ft. 5in.
Width:	8Ft. 6In.

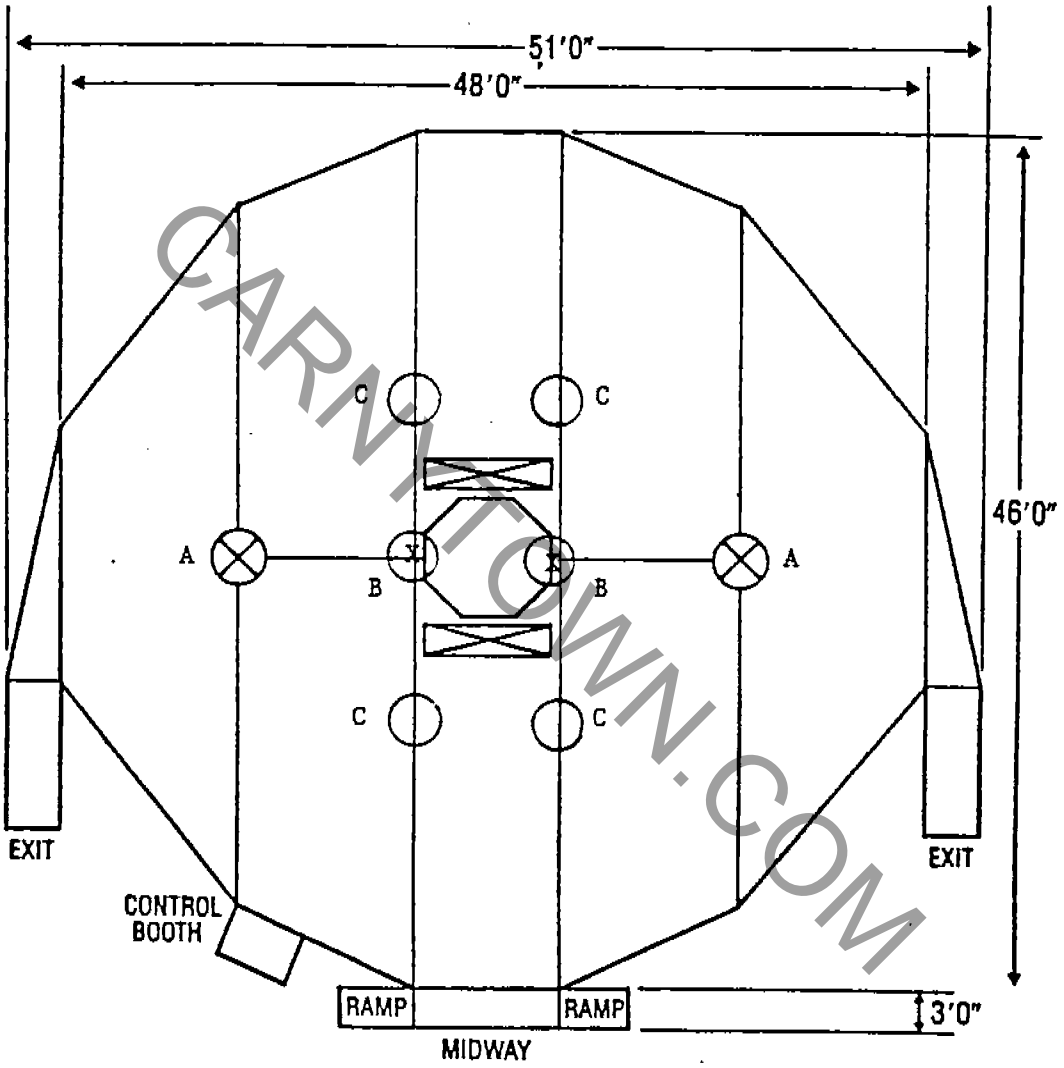
Weight, Standard Orbiter: 72,000 lbs Gross. (Approximately)

King Pin:	29,000 lbs.(Approximately)
Back Axles:	43,000 lbs.(Approximately)
Axles:	3
	8.25 x 15 Tires
	Spring or Air Ride Suspension

Weight, Orbiter Lite: 62,000 lbs. Gross (Approximately)

King Pin	24,500 lbs. (Approximately)
Back Axles:	37,500 lbs. (Approximately)
Axles:	2 (10 ft. Spread)
	22.5 in. Low Profile Tires
	Air Ride Suspension

Static and Dynamic Loads



A- 8,000 lbs. Maximum **B**- 24,000 lbs. Maximum **C**- 12,000 lbs. Maximum

Operating Specifications

RIDE NAME: ORBITER
OTHER NAMES: TYPHOON PREDATOR

MANUFACTURER:
Tivoli Enterprises Ltd.
Howfield Lane
Chartham NR, Canterbury, Kent
CT4 7HG England

U.S. REPRESENTATIVE:
Amusement Technologies International, Inc.
3306 N. Main St.
Cleburne, Texas 76031

Date of Inception and Completion of First Unit:	1977
Number of Rides Operating in U.S.A.	42 as of 1993
Number of rides Operating Worldwide	60

OPERATING SPECIFICATIONS

All Dimension Approximate

Static: (No Clearance)		Dynamic:
Height:	10' 0"	Height 26' 0"
Width:	51' 0"	Width: 51' 0"
Depth:	49 0"	Depth: 19 '0"

Total Weight Static:	73,000 Pounds Approximately) Light Version 62,000
Ride Speed:	20 RPM Center 26 RPM Vehicles
Passenger Capacity:	36 Adults or 36 Children
Number of Vehicles:	18
Estimated Capacity/Hour	800

OPERATING RESTRICTIONS

Passenger Height Restriction	48"
Passenger Age Restriction Unless Accompanied by Adult	7 Years
Recommended Ride Duration	1.0 Minute
Passenger Load Balancing Requirements	Yes
Maximum Wind Speed for Operation	N/A
Minimum Temperature for Operation	32°F

ELECTRICAL REQUIREMENTS

Voltage	230 Maximum / 208 Minimum	
Type	3 Phase, 60 hz	
Maximum Power	85 Kw	250 Amps
*Maximum Lighting Power	25 Kw	75 amps

*Actual lighting power will vary according to light package supplied.

OPERATIONAL REQUIREMENTS

1. Personal Requirements:

The Orbiter Amusement Ride requires a minimum of two (2) persons to operate and monitor the ride during operation. One (1) operator must be at controls at all times with the controls situated so that he/she has viewing access of the ride as well as the second operator. The second operator must be located at an entrance and has the duties of controlling the entrance, exit, assisting patrons, and monitoring ride. Extra personnel could be added during high traffic times.

2. Passenger Restrictions:

The Orbiter is an Amusement Ride designed to accept 36 patrons, two (2) patrons per vehicle. This number should not be exceeded for any reason. Due to the design of the vehicle, there is a hump in the center of the seat bottom to separate the two (2) patrons. Do not allow a person to sit on this hump. It could cause injury. All patrons should be notified of the following rules of operation. The Orbiter restriction sign should be posted so that it is easily read by all patrons. It should include the following:

This is a High Speed Thrill Ride. Riders will experience an Excess of 2 G's during operation of the ride.

1. No riders under 7 years of age unless accomplished by an adult.
2. No riders under 48 inches tall.
3. No food or drink allowed on ride.
4. Remove all loose articles before riding.
5. Anyone under medical care, with back and / or neck trouble should not ride.
6. Pregnant women are not allowed on ride.
7. Only two (2) passengers per vehicle.

It is the Responsibility of the Operator, to Evict any Rider Acting in an Unsafe Manner.

3. Ride Cycle:

When operating the Orbiter Amusement Ride for patrons, the operator must see that the following steps are followed before, during, and after each ride cycle.

1. Allow a maximum of 36 patrons (2 persons per seat) to enter ride. Check all passengers to assure they meet passenger requirements.
2. Check all seats to assure passengers are seated and lap bars are closed.
3. Check to make certain all entrance and exit gates, chains, are closed and all non-riding patrons are behind the fence. **NO PERSONS ARE ALLOWED ON PLATFORM DURING OPERATION.**
4. Start ride in slow speed first. During one revolution, check all passengers to see if they are properly seated and lap bars are latched.
5. Start ride in fast speed.
6. Monitor ride during operation.
7. After ride cycle is over, ride center is completely down, and arms are fully retracted, apply brake. Wait until ride as come to a complete stop.
8. After ride has come to a complete stop, assist passengers in exiting the ride. Only when passengers have exited, allow new patrons to enter.

OPERATIONAL SAFETY CHECKS AND INSPECTIONS

This section deals with visual inspections and safety checks of the Orbiter Amusement Ride. They are designed to assist the operator in the control of the operation of the ride. The inspections and checks should be accomplished by a qualified technician capable of understanding the functions of the components. This equipment has been designed and built to handle normal wear and tear of every day operation. It is always necessary to inspect all components and structures on a regular basis and to note or investigate any irregular conditions. In the event that any abnormal condition which is capable of causing a future failure of any component is found, it should be reported to necessary personnel and if necessary the factory should be consulted.

DAILY INSPECTION OF ORBITER BEFORE OPERATING RIDE WITH PATRONS

1. Inspect all blocking and level of main frame and platforms. Repair, reassemble, or re-level any loose blocking if necessary.
2. Check all fencing for security. Check condition of gates or chains.
3. Inspect platform for obstructions, loose floor panels, and/or tripping hazards.
4. Inspect each seat lap bar and latch for proper operation.
5. Inspect vehicle attachment pins. These pins must be down flush with car attachment frame. It is not necessary to torque.
6. Assure that daily maintenance procedure have been completed.
7. Check all wiring on sweeps and center. Repair any loose or hanging wires.
8. Check hydraulic fluid levels.
9. Test operation of ground fault detectors.
10. Operate ride, check for any unusual noises or actions (investigate, if necessary).
11. Test emergency system.
12. Report any problem or concerns to proper personnel.

All of the above checks should be completed along with normal daily maintenance as outlined in this operator's manual.

BI-WEEKLY OR PRE-OPENING INSPECTIONS

A. All daily checks.

B. Check extension of center lift hydraulic cylinders in automatic sequence. Cylinder should not top out or bottom out during operation.

C. Check condition of main center column key and bronze slides clearance between slides and key should not exceed .059" (1.5mm).

D. Check operation of lift and drive valves. They should shift smoothly, not with a sudden jerk. Adjustments can be made through a choke block located between pilot and main valve.

E. Check RPM of ride-20RPM; Center - 26 RPM Turrets.

F. Check hydraulic fluid levels. Reservoir should be completely full. If it is below slight glass, fill immediately.

G. Check operation of disc brake pads. Replace pad if worn below 1/8".

H. Check extension of tilt arms. Should not exceed approximately 75°. Adjust via relief valve. (Pressure 650 psi - 850 psi)

L Check operation of cooling fans. Check oil filters. If bypass indicator is red, on filter, change immediately.

J. Inspect electrical panel. Assure all connections are tight and relays are functioning properly and all indicator lamps are working.

K. Inspect incoming supply wiring. All connections should be tight. (5 wires) 3 phase, neutral, ground.

L. Check to see if proper lubrication procedures were followed as outlined in manual.

M. Inspect all hydraulic lines for leaks. Repair if necessary.

EMERGENCY OR POWER FAILURE PROCEDURES

In case of an emergency or power failure, the Orbiter Amusement Ride is designed to come to a self-braking stop in the raised position. This is to prevent any additional problem in the case of any obstructions on the platform. After the ride comes to a complete stop, investigate the condition causing the emergency stop or power outage. If for any reason, the ride cannot be restarted, it will be necessary to use a ladder to unload patrons. (It is necessary to restart pumps and controls in order to lower ride.) The ride seats will be approximately five feet above floor.

Please report to proper authority anytime the emergency system is used. The ride should not be operated again until the condition causing the emergency stop is investigated, and any problem rectified.

Restart procedure after emergency system has been used.

After all checks of ride has been completed, lower ride and restart, follow steps listed below;

A. Pull out emergency button on control console and remote panel
B. Re-start hydraulic pumps.
C. Manually lower ride center
D. Turn control key to on position.
E. Press reset button on control console.
F. Ride is ready for operation.

PASSENGER RESTRAINT SYSTEM

Each vehicle is equipped with a stainless steel lap bar. This bar locks by the insertion of a plunger rod into socket attached on vehicle. The plunger actuator handle must be protected by a stainless steel guard (see service bulletin) to prevent accidental unlocking of bar. All springs, handles, and plungers must be operating at all times.

OPERATION OF ORBITER AMUSEMENT RIDE

1. RIDE CONTROLS

The Orbiter Amusement Ride is controlled via a control console located in the control booth. The following controls are located on this panel.

1. **Pump Start and Stop Buttons-** These buttons control the main hydraulic pump electric motor. It is only necessary to start the pump at the beginning of the operating day. The pump should be left on until the ride is closed. On models manufactured after 1991 an additional pump start button is located on the trailer frame near the jack handle.

2. **Ride Timer-** This timer should be adjusted to the desired ride time. Suggested time is 60 seconds. Please note that the timer starts when the fast speed button is pushed and the time expires when the ride begins to lower and decrease in speed.

3. **Slow Speed Button and Indicator Light-** When green light is lit, ride will operate in slow speed, by depressing the button.

4. **Fast Speed Button and Indicator Light-** When green light is illuminated, fast speed button can be depressed starting automatic timer ride cycle.

5. **Brake Button-** This button activates disc brake to allow the ride to slow to a stop more quickly (during high traffic times) than normal hydraulic braking. Brake button should not be pressed before all hanging turret arms are in complete down position.

6. **Light Switch-** This switch turns on all lighting for the ride.

7. **Light Switch (Optional)-** For additional lighting if applicable.

8. **Emergency Stop-** This button is to be used only if an emergency arises that ride must be stopped during mid cycle. Please note that when this button is used, ride will stop in raised position.

9. **Reset Button-** This button is used to rest the emergency system if used. This is done by first removing key from key switch and resetting. When key switch is turned back on, ride will lower to loading position.

10. **Key Switch-** This key switch is designed to keep an unauthorized operator from starting ride. Ride will not start until the key is inserted, pushed in and turned on.

11. **Power on Indicator-** This light indicates that main power switch is on and current is to control panel.

12. **Overload Indicator-** This light indicates an overload in the motor circuit. When the light is on, motor will not operate until overloads are reset. Before resetting and restarting pump motor, investigate the source of the problem.

13. **Arms Out/In Switch-** This switch is used to control the extension of the turret arms. When the switch is turned to the "in position" arm will tilt out only as far as centrifugal force will allow. In the "out position", arm will be tilted out further by the hydraulic cylinders. This switch must be either in or out during a ride cycle. If it is switched back and forth during ride cycle this can cause damage to the hydraulic system.

14. **Stop Ride Button-** This button will stop ride during and operating cycle. This will bring the ride to a normal stop, just as if the time expired.

SECTION 3

MECHANICAL

AND

STRUCTURAL INSPECTIONS

IMPORTANT !!!

WHENEVER WORKING UNDER CENTER OF ORBITER, KEEP CENTER IN DOWN POSITION. REMOVE SCENERY PANELS TO GAIN EASY ACCESS TO ALL PARTS OF CENTER. IF IT BECOMES NECESSARY TO LIFT CENTER FOR MAINTENANCE OR REPAIR OF RIDE, A STEEL PROP CAPABLE OF HOLDING ENTIRE WEIGHT OF CENTER (EXCESS 15 TONS) SHOULD BE INSTALLED.

NEVER UNDER ANY CIRCUMSTANCES ALLOW A PERSON BETWEEN CENTER OF COLUMN AND GROUND WHEN CENTER IS IN UPPER POSITION.

MECHANICAL AND STRUCTURAL INSPECTIONS

Daily visual inspection of the Orbiter Amusement Ride is a necessary part of normal maintenance operations. It is recommended that ride is always monitored for unusual sound or actions, they should be investigated, problems determined and rectified. This practice is important to keep the small problems (oil leaks, loose wires, loose bolts, etc.) from becoming a major problem. Below is a list of some of the most important areas of the Orbiter that must be inspected on a daily basis, before ride is put into operation. It is essential that all portions of ride undergo a daily inspection.

Trailer and Platform Blocking

Check all blocking under ride; if sinking, broke or loose, repair or re-block immediately. If ride is unleveled or improperly blocked, stresses that are not usually apparent can cause structural problems on ride. Please check Step 2 of Set-Up Section for proper blocking instructions.

Seat Latches

Check condition and operation of all seat lap bar latches before starting daily operation. Check lock plunger for easy movement in lap bar tube; make sure release handles is tight and operable. Check lap bar hinge bolt and all mounting bolts; inspect spring condition. If any part is found to be defective, replace immediately.

Seat / Turret Attachments Pins

Inspect both pins on each seat; be sure that each is threaded down completely. (Please **note** that these threaded pins are not intended to be tightened, they are only to be threaded down to where the head of the pin is flush with base metal. These pins have a very low tolerance fit (To reduce wear). The threads are used only for installing and releasing from this fit and are not designed to be used as a bolt.

Turret Pivot Pins

These pins, located on the top of the turret arm, are to be inspected on a weekly basis for lockplate security and excessive shaft or bushing wear. The locking plates are designed to keep the shaft from moving either in or out, in respect to the bushings and can be turned over for use on the other side in case of plate wear. These plates also keep shaft from turning on hanging turret frame.

If for any reason during an inspection, the person conducting the inspection determines that improper maintenance procedures have been followed or there is excessive wear (there should be only a very small, less than 1/4", side to side at bottom of hanging turret) in pin or bushing, the shaft should be removed and inspected for wear. If wear in shaft or pin exceeds 0.5 mm (.020 inches), it should be replaced. If these pins have not previously been inspected the factory recommends that they be removed and visually inspected for wear approximately every (5) five years.

Sweep Hinge Lock Pin

Sweep lock pins, two (2) per sweep must be checked daily to assure that they are threaded completely down so head of pin is flush with base metal. These pins work on the same principal as do the seat pins explained above and should be treated in the same way.

Center Column Key / Bronze Slide Bushings

The center column key prevents center column from turning when ride is in operation. Bronze slides are installed for a bearing surface on this key during raising and lowering of center. Inspect the slides daily for proper lubrication and fit. Wear between slides and key should not exceed 1.5 mm (.059 inches). If this is noted, remove slide housing via (2) bolts on side of center column support and replace slides.