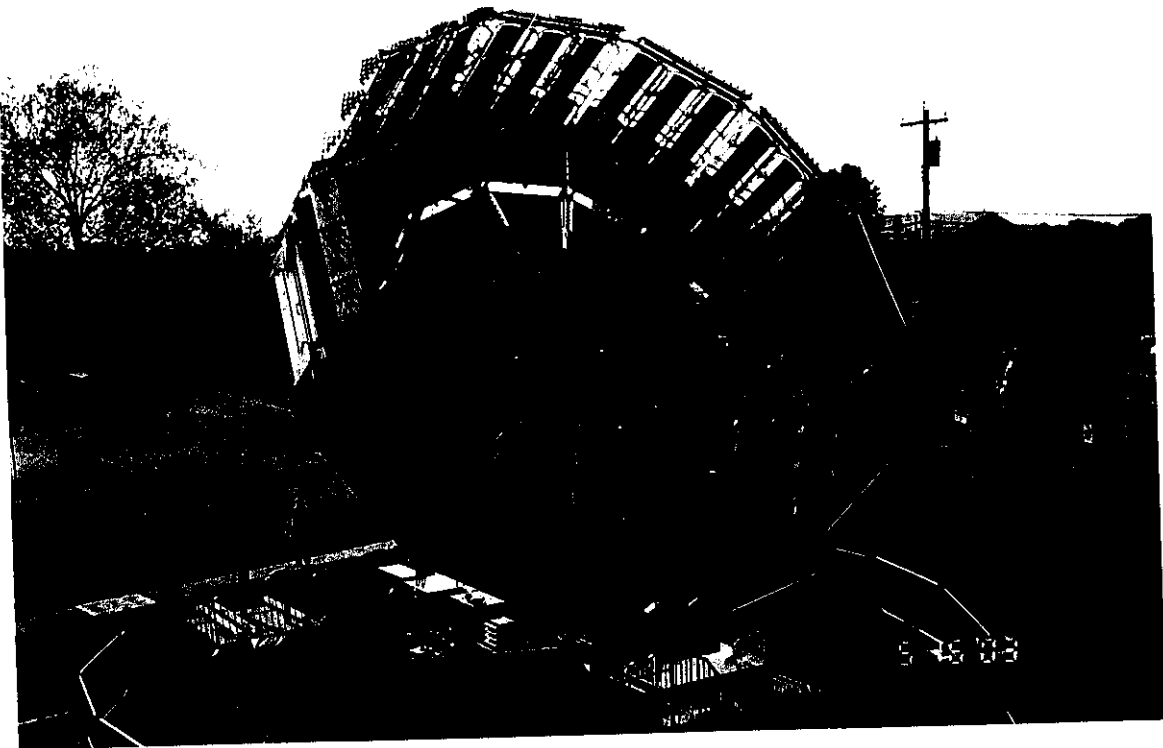


ZERO GRAVITY

OPERATION AND MAINTENANCE MANUAL



Dartron
INDUSTRIES, INC.

2725 19th Street S.E.
P.O. Box 13114
Salem, Oregon 97309

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1 Introduction

This manual is intended to be used as a general guide for the operation and maintenance of your ride. Dartron Industries, Inc. is constantly striving to improve performance, efficiency and safety; therefore, certain improvements may not be reflected in the text of the manual. Any major revisions or additions to the manual will be sent to you free of charge. Specially engineered features purchased for individual rides may not be incorporated in this manual.

2 Manufacturer's Limited Warranty

Dartron Industries, Inc. warrants that purchased property is free from all defects in material and workmanship at the date of delivery and for 12 months thereafter. Dartron Industries, Inc. does not warrant that purchased property will meet or exceed federal, state and local design criteria or electrical codes. Dartron Industries, Inc.'s liability is hereby limited to the repair or replacement of any equipment, accessory or part, which is defective due to material failure or workmanship. The cost of returning defective parts to Dartron Industries, Inc. and the cost of transportation of repaired or replaced parts to Purchaser shall be born by Purchaser. Dartron Industries, Inc. shall not be liable for down time or loss of operating revenue or any other commercial consequential damages. Losses resulting from improper maintenance or failure to observe Dartron Industries, Inc.'s operating instructions are expressly excluded from this warranty.

It is expressly understood between Dartron Industries, Inc. and Purchaser that all warranty is void and Dartron Industries, Inc. disclaims any and all liability or responsibility for failure, loss or damage if device is assembled, maintained or operated other than as recommended in the Manual provided with each device or is loaded or operated in excess of the operator's operating criteria set out in the appropriate manual.

THIS WARRANTY, AND THE OBLIGATIONS AND LIABILITIES OF DARTRON INDUSTRIES, INC. HEREUNDER ARE IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, CONDITIONS OR LIABILITIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND SHALL NOT BE EXTENDED, ALTERED OR VARIED EXCEPT BY WRITTEN INSTRUMENT SIGNED BY DARTRON INDUSTRIES, INC. AND PURCHASER.

3 Non-Authorized Modifications

Any modification on a Dartron ride that was not recommended in writing by Dartron Industries, Inc. is considered an unauthorized modification. Dartron Industries, Inc. specifically disclaims any liability for losses associated with any unauthorized alteration and/or modification of its product.

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4 Zero Gravity Operating Specifications

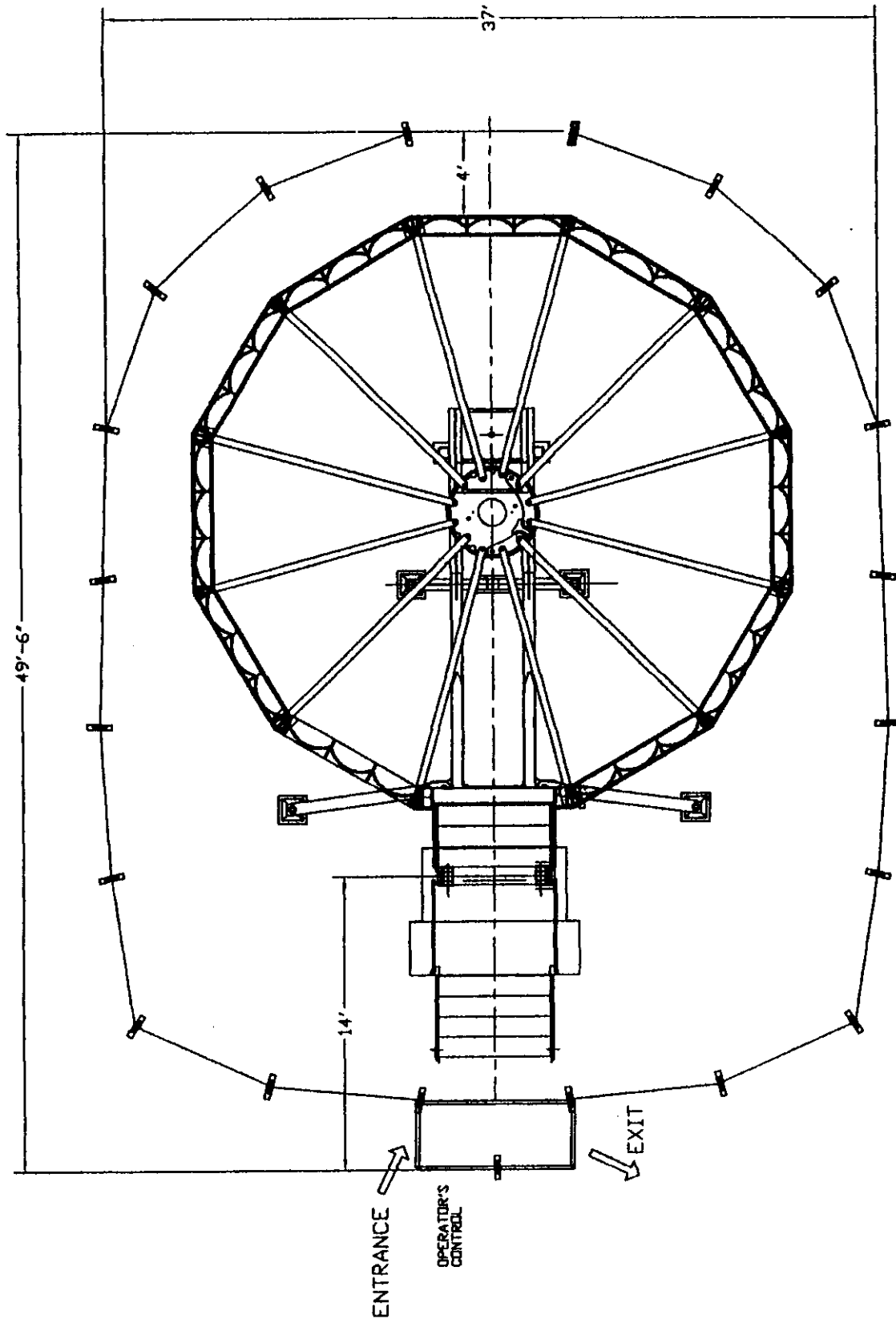
Passenger Minimum Height Requirement	Guests must be 42 inches tall or taller; guests less than 42 inches tall cannot ride the Zero Gravity.	
Restrictions On Riders	See Page 7	
Capacity	625-750 customers per hour	
Maximum Load	5,940 lbs	
Capacity	11 passenger cages for 3 adults or children. Total capacity of 33.	
Direction Of Rotation	Counter Clockwise	
Ride Speed	20 rpm empty Maximum, 19 rpm Minimum	
Ride Duration	Minimum 115 seconds, Maximum 140 seconds	
Balanced Ride	Balanced loading is required.	
Maximum Wind Speed	40 mph with passengers.	
Environmental-Conditions	In winds over 40 mph the boom must be lowered to the boom rest, and the ride must not be operated. It can be operated in rain. Ambient heat should not effect the operation of the ride. No hydraulic component should be operated until hydraulic fluid temperatures are 50 F or above. Without a reservoir heater the ride should not be started if ambient temperatures are below 32 F.	
Load Distribution	Maximum Individual Vertical Loads per Footing assuming full load and 40 mph Winds.	
	Side Outriggers	9,300 lbs
	Front Outriggers	22,000 lbs
	Front Screw Jacks	4,000 lbs
	Rear Landing Gear	17,000 lbs
	Front Landing Gear	11,000 lbs
Space Required For Fence Minimum Overhead Clearance Trailer	See Pages 6; Frontage width 37', depth 49' 6" 44' Operating height is 40' Length 26'6", Width 8' 6", Ht.13'6"	

5 Zero Gravity Electrical Specifications

Lighting	Strobes 750w- 3ct Sweep lights 10w ASL - 288 ct Bow lights 10w ASL - 540 ct Center Ornament 10w ASL- 147 ct Cage 10w - 576 ct Floods 300w Metal Halide- 4 ct
Electric Motor	30 hp, 1750 rpm,
Power Required	45 KW
Voltage	220 v 3-phase with ground
Power Source Breaker	Recommend 125-amp circuit breaker
Electrical Lead Wires	Five individual wires with type W insulation. Three phases #2 size. Neutral & ground wires are #4 size.

CAUTION: Failure to supply an adequate ground to the frame can cause serious electric shock. Proper grounding prevents the metal parts of the Zero Gravity from being energized with high voltage in the event of a short circuit. The leads supplied with the Zero Gravity contain a ground wire that must be connected to ground at the power supply. Another means of grounding is with a ground rod. Check local regulations for ground rod requirements.

ZERO GRAVITY PORTABLE MODEL FENCE DIAGRAM



MINIMUM SPACE REQUIRED
 DEPTH 49'-6"
 WIDTH 37'
 HEIGHT 44'

THE ZERO GRAVITY MUST HAVE A CLEARANCE OF 44 FEET OVERHEAD. THE PASSENGERS MUST NOT BE ABLE TO REACH OUT AND TOUCH TREES, BUILDINGS, LIGHT OR TELEPHONE POLES, SIGNS OR POWER LINES AT ANY POINT DURING THE OPERATION OF THE RIDE.

DARTRON IND., INC.				SPACE & FENCE DIAGRAM				MINIMUM SPACE REQUIRED			
DATE	SCALE	BY	CHK'D	DATE	SCALE	BY	CHK'D	DATE	SCALE	BY	CHK'D
9753	1/1	A									
DARTRON IND., INC.				DARTRON				DARTRON			
1000 N. 10TH ST. SUITE 100				1000 N. 10TH ST. SUITE 100				1000 N. 10TH ST. SUITE 100			
DARTRON, MINN.				DARTRON, MINN.				DARTRON, MINN.			

7 Signage Required

At all times when the Zero Gravity is operating, signage including the information below must be posted in a manner that it is clearly visible and easy to read by guests before they enter the ride. This signage can include additional restrictions or warnings but must include the following:

7.1 Restrictions on Riders

Guests Are Advised This Activity May Include:

- Strong Centrifugal Forces
- Rapidly Changing Heights

Do Not Ride The Zero Gravity If You Have:

- Heart irregularities or suffer from seizures. The Zero Gravity should not be ridden by people with physical ailments, which may be aggravated by the motion of this ride.

It Is Necessary That You:

- Enter and exit this activity slowly and carefully.
- Be aware that the walking surfaces may be slippery.
- Watch where you are walking to avoid tripping on any uneven surface.

If You Are Under The Influence Of Drugs Or Alcohol You Should Not Ride The Zero Gravity.

Guests who are unwilling or not competent to decide to remain within the restraints **MUST NOT** ride the Zero Gravity.

7.2 Height Restrictions

Guests must be **42 inches** tall or taller; guests under **42 inches** cannot ride the Zero Gravity.

8 Safety Rules for Amusement Ride Operation

8.1 Rules For The Ride Operator

- 8.1.1 When the Ride Operator leaves the operators console the key switch must be placed in the off position, the key must be removed and must remain with the ride operator.
- 8.1.2 All guests must have their restraint fastened before the Zero Gravity operates.
- 8.1.3 The Zero Gravity door must be latched in five different places before the Zero Gravity can operate. The latch on the left side of the door must be latched and each wing handrail must be folded inboard and latched to the stairs. The swing-down tab must be in the down position overlapping the wing handrail.
- 8.1.4 Guests must face forward in the cages and keep their feet on the floor.
- 8.1.5 If a guest is misusing the Zero Gravity, shut it down until the condition is corrected.
- 8.1.6 Intoxicated persons must not be allowed on the Zero Gravity.
- 8.1.7 If any unusual noise or condition develops while the Zero Gravity is operating, stop the ride and notify the maintenance department.
- 8.1.8 Guests waiting for the next ride must be kept outside the fence.
- 8.1.9 The Zero Gravity must be operated in accordance with the instructions found both on pages 17, 18 and 19 and inside the lid of the operator's console.

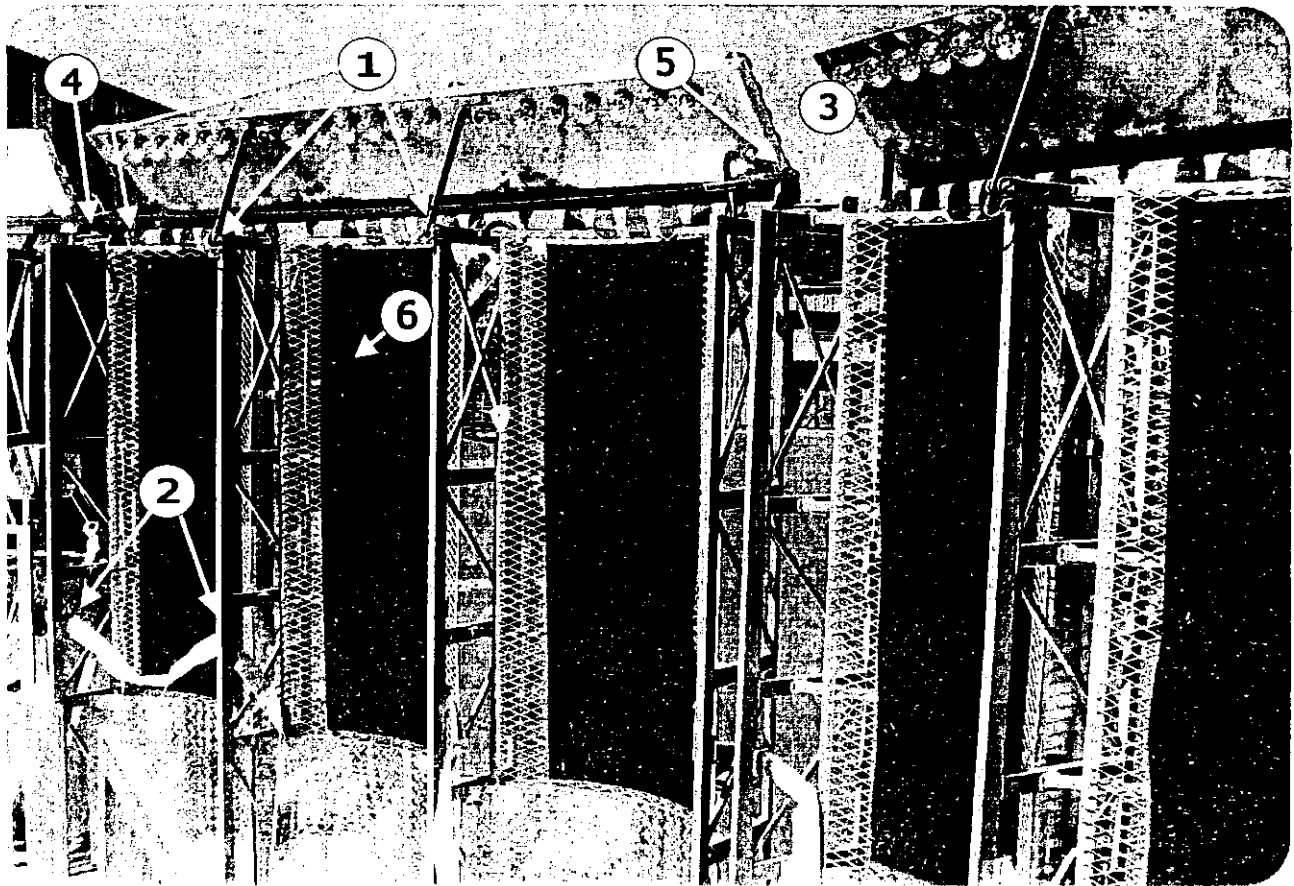
9 Daily Inspection Of Zero Gravity

9.1 Daily Inspection Performed By Operator Before Allowing Passengers On Ride

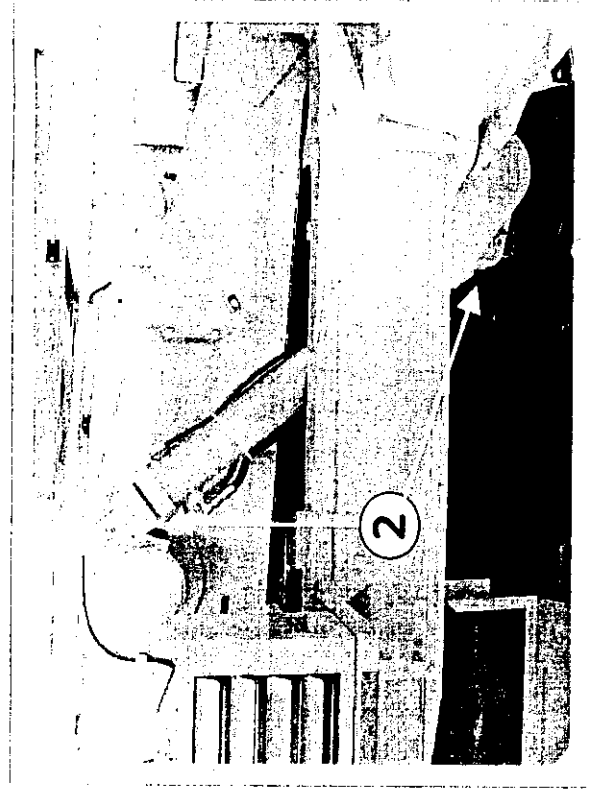
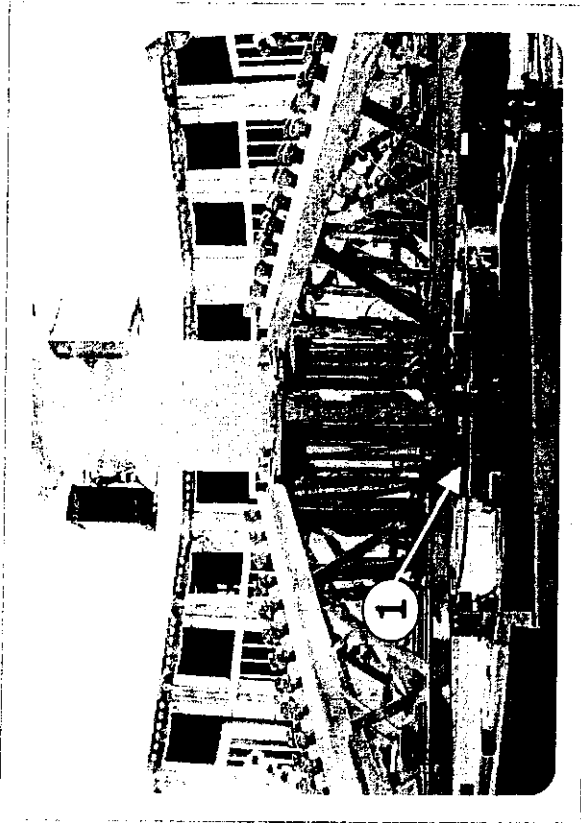
- 9.1.1 Visually inspect all cages and brace cables from inside the wheel as shown on Page 12. Inspect for the presence and correctness of "R" keys, lynch pins, pins and bolts.
- 9.1.2 Inspect fasteners found on the hub, boom lift cylinders and pillow blocks as shown on Page 13. Inspect for correct torque, fasteners and inspect for cracks.
- 9.1.3 Inspect pins between the cages and the sweeps, torque bars and split wing pins as shown on Page 14. Inspect for correct pins, "R" keys and fasteners.
- 9.1.4 Inspect perimeter fence to ensure that all pieces are in place and are located a minimum of 4' from the wheel.
- 9.1.5 Inspect entry and exit gates, signage and all ride clearances.
- 9.1.6 Inspect following components for structural integrity, cracks, attachment to other component, presence of fasteners and any other problems:
- | | | |
|------------|-------------|---------------------|
| Center Hub | Cages | Pillow Blocks |
| Boom | Cage Lights | Torque Braces |
| Cables | Trailer | Entry Stairs |
| Outriggers | Screw Jacks | Stair locking wings |
- 9.1.7 Lubricate bushings, bearings, and other components as specified in the Lubrication Chart on Page 23.
- 9.1.8 Inspect hydraulic hoses for leaks.
- 9.1.9 Inspect the level of hydraulic fluid in the reservoir. Fluid level must be at least to the middle but not above three-fourths of the sight gauge. If overfilled, the tank could overflow onto the ground.
- 9.1.10 Inspect all blocking. Tighten all screw jacks and ensure that blocks cannot be moved.
- 9.1.11 Go to entry cage stairway and close and then open all latching devices. Check to be sure all primary and secondary latches function correctly.
- 9.1.12 From operator's console start electric motor. Allow hydraulic fluid to reach operating temperature. Operating temperature is achieved when pump becomes quiet.
- 9.1.13 Test ride rotation by operating ride at least one full cycle.
- 9.1.14 Raise the boom to its full UP position.

- 9.1.15 Test electrical power loss emergency shut down system. Push in **Stop Pump** button. Ride will shift into a free wheel mode and coast to a stop. The boom will return to the boom rest.
- 9.1.16 Once monthly test the emergency power loss system by pushing in the Emergency Stop palm button and immediately pull palm button back up. (a) Shunt in main panel will trip breaker. (b) Ride will shift into a free wheel mode and coast to a stop. This procedure will reduce wear and tear on the contacts in the main disconnect breaker. Before restarting electric motor, be sure the Emergency Stop button is UP, turn the Key Switch OFF. Reset breaker handle on outside of main electrical panel.
- 9.1.17 With hydraulic pump operating and the Brake switch in the Park position, test hydraulic braking system. Attempt to move the wheel forward in its circle by hand.
- 9.1.18 This procedure is for the first six (6) units built. Serial numbers 0301201-5R, 0302102-5R, 0303103-5R, 0303244-5R, 0307245-5R and 0310092-5R. Check the entry cage stairway lockout switch by attempting to start a ride cycle with the stairway in the up position and the left side railing wing in the open position. If the boom moves up **stop immediately** and repair the lockout system.
- 9.1.19 For all rides with serial numbers not included in section 9.1.18 check the entry cage lockout switches by first attempting to start the ride cycle with the stairway in the closed position and the left side wing in the open position. Then close the left side wing and open the right side wing. Again attempt to start a ride cycle. If the boom moves up with either of the wing railings open **stop immediately** and repair the lockout system.
- 9.1.20 If the ride fails any of the steps detailed in section 9 (Daily Inspection of the Zero Gravity) repairs must be completed immediately before the ride can be operated.

PASSENGER CAGE INSPECTION GUIDE



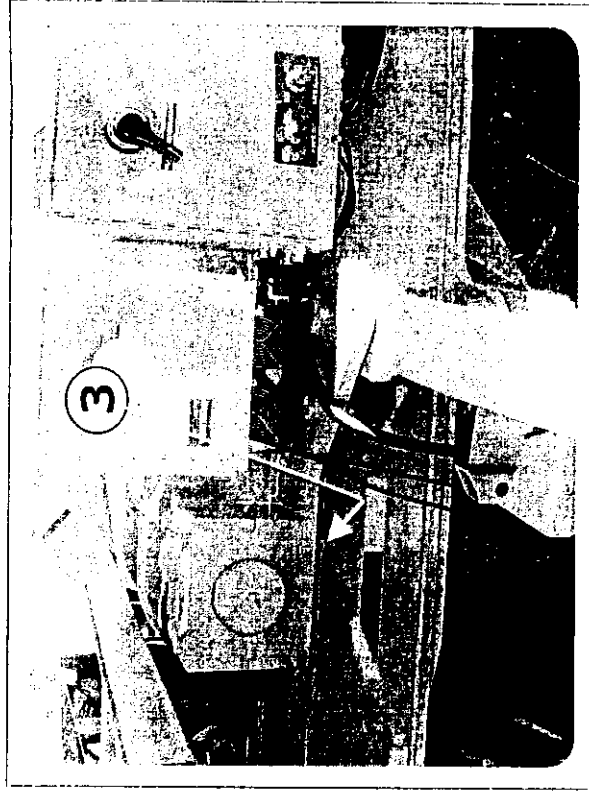
- ① INSPECT FOR THE PRESENCE OF A 3/8" BAIL PIN IN THE 3 LIGHT BAR SUPPORT STRUTS.
- ② INSPECT THE ANCHOR BOLTS AND THE CONDITION OF THE PASSENGER RESTRAINT STRAP.
- ③ INSPECT THE REMOVEABLE CAGE CONNECTION PIN WITH R-KEY.
- ④ INSPECT THE PERMANENT CAGE CONNECTION PIN WITH COTTER KEY.
- ⑤ INSPECT THE CAGE CABLE END PIN WITH R-KEY.
- ⑥ INSPECT BACK PAD FASTENERS FOR ANY DEFECTS.



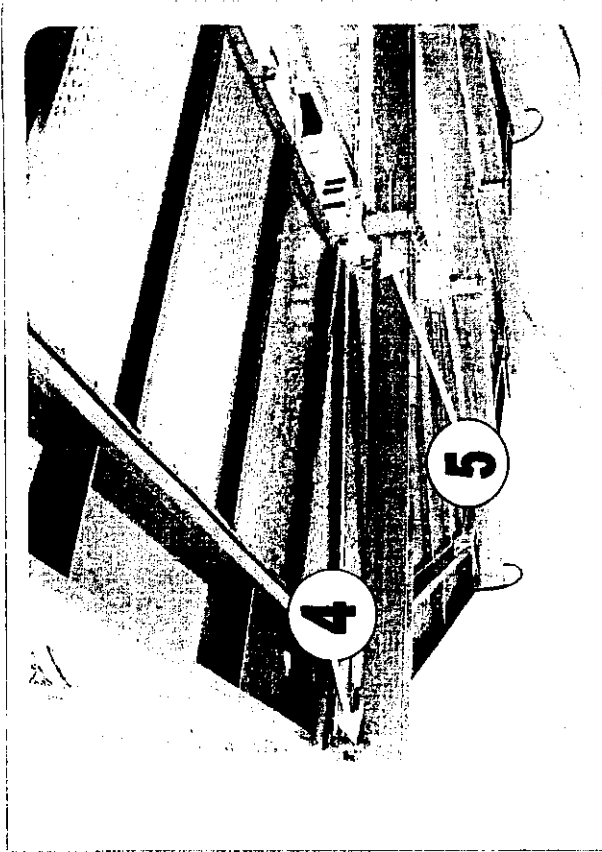
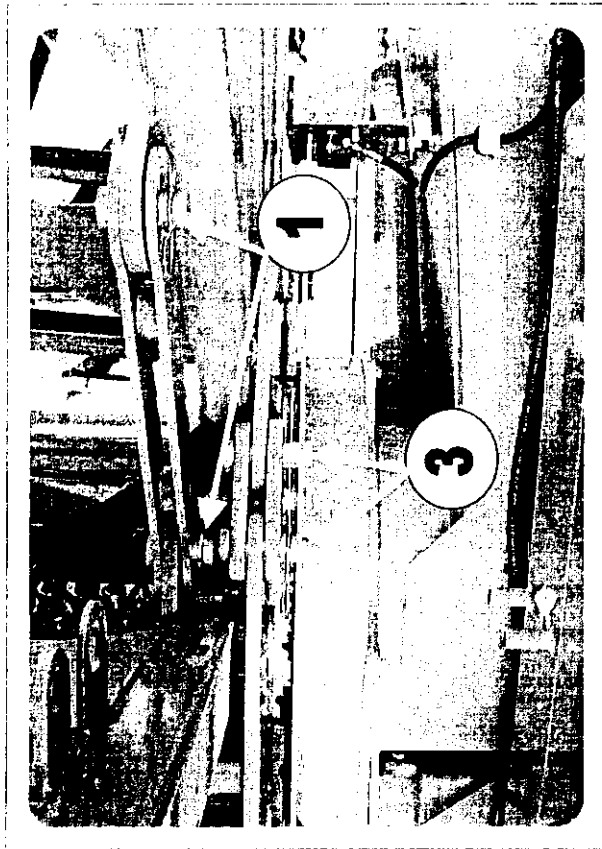
1 INSPECT BOLTS & NUTS ON HUB TO INSURE THEY ARE TIGHTLY SECURED. LOOK FOR TORQUE PAINT SEPERATION OR MOVEMENT IN FASTENERS. RE-TORQUE AT ANY INDICATION OF MOVEMENT.
(REFER TO TORQUE CHART FOR TORQUE SPEC.)

2 CYLINDER ANCHOR PINS SHOULD BE EXAMINED DAILY. CHECK BACKUP BOLT & NYLOCK NUT. CHECK CYLINDER LUG & BOOM LUG FOR WELD CRACKS OR FATIGUE.

3 INSPECT BOLTS & NUTS ON PILLOW BLOCKS TO INSURE THEY ARE TIGHTLY SECURE. LOOK FOR TORQUE PAINT SEPERATION OR MOVEMENT OF FASTENERS. RE-TORQUE AT ANY INDICATION OF MOVEMENT.
(REFER TO TORQUE CHART FOR TORQUE SPEC.)



TRAILER, BOOM, HUB INSPECTION GUIDE



① ②

TORQUE BRACES

INSPECT ALL 6 TORQUE BRACES FOR PROPER INSTALLATION AND THE PRESENCE OF CORRECT PINS AND PIN RETAINERS.

③

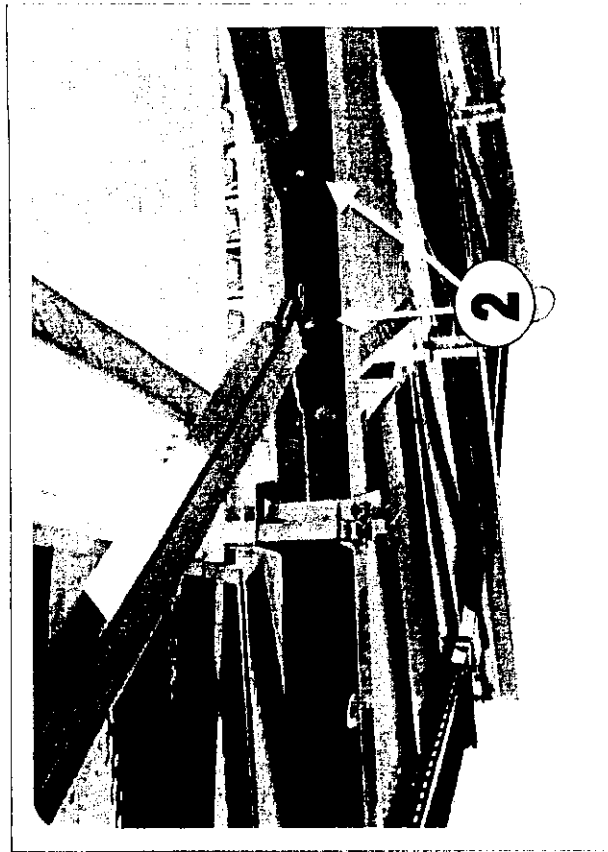
SPLIT WINGS

INSPECT THE TOP AND BOTTOM PLATES OF THE SPLIT WINGS ON THE CENTER HUB FOR THE PRESENCE OF CORRECT PINS AND PIN RETAINERS.

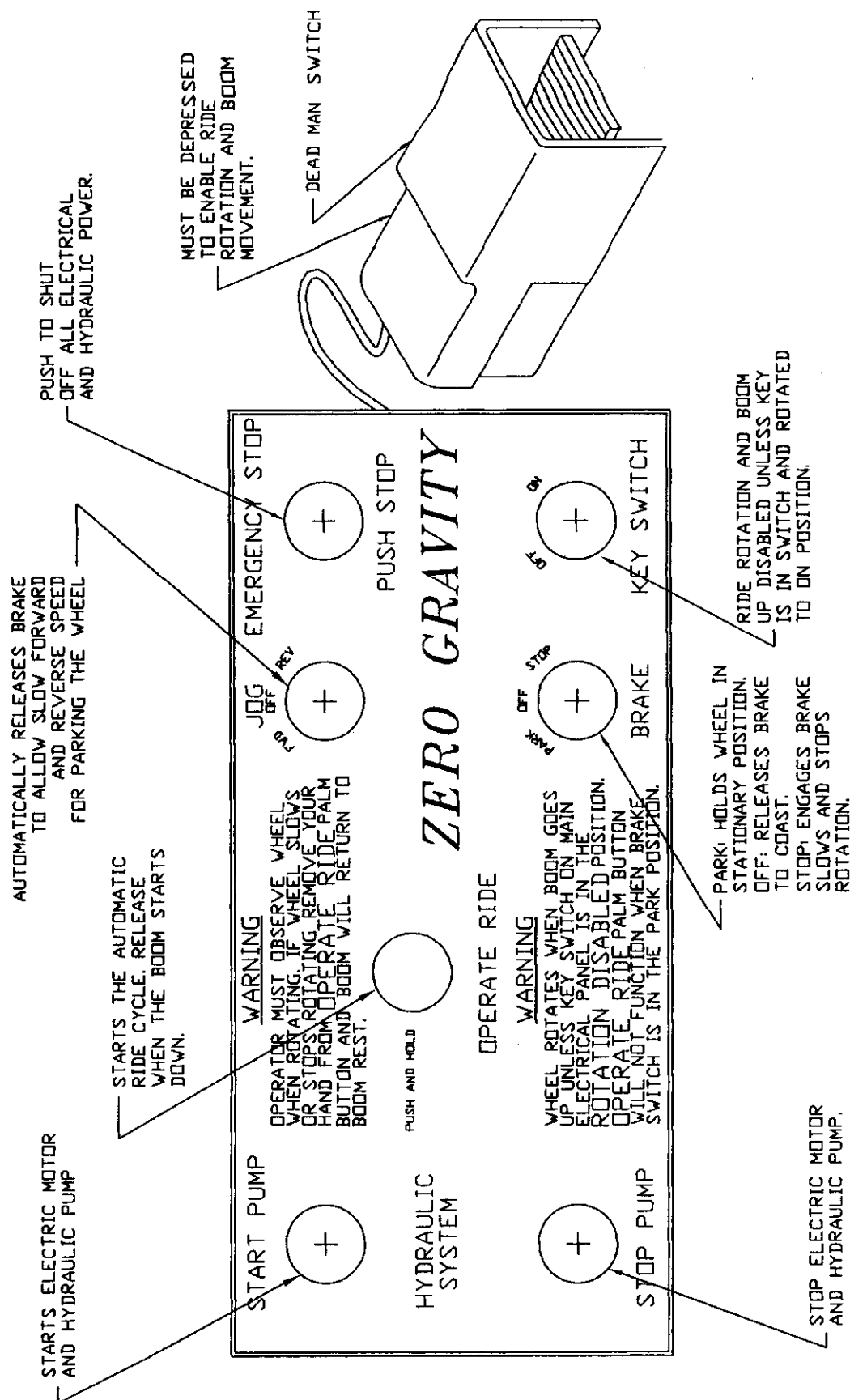
④ ⑤

CAGE TO SWEEP CONNECTION & INNER FENCE

INSPECT FOR THE PRESENCE OF CORRECT PIN AND PIN RETAINER ON ALL 12 SWEEP TO CAGE CONNECTIONS AND ALL INNER FENCE LEGS.



SPLIT WING, TORQUE BRACE, CAGE/SWEEP, & INNER FENCE

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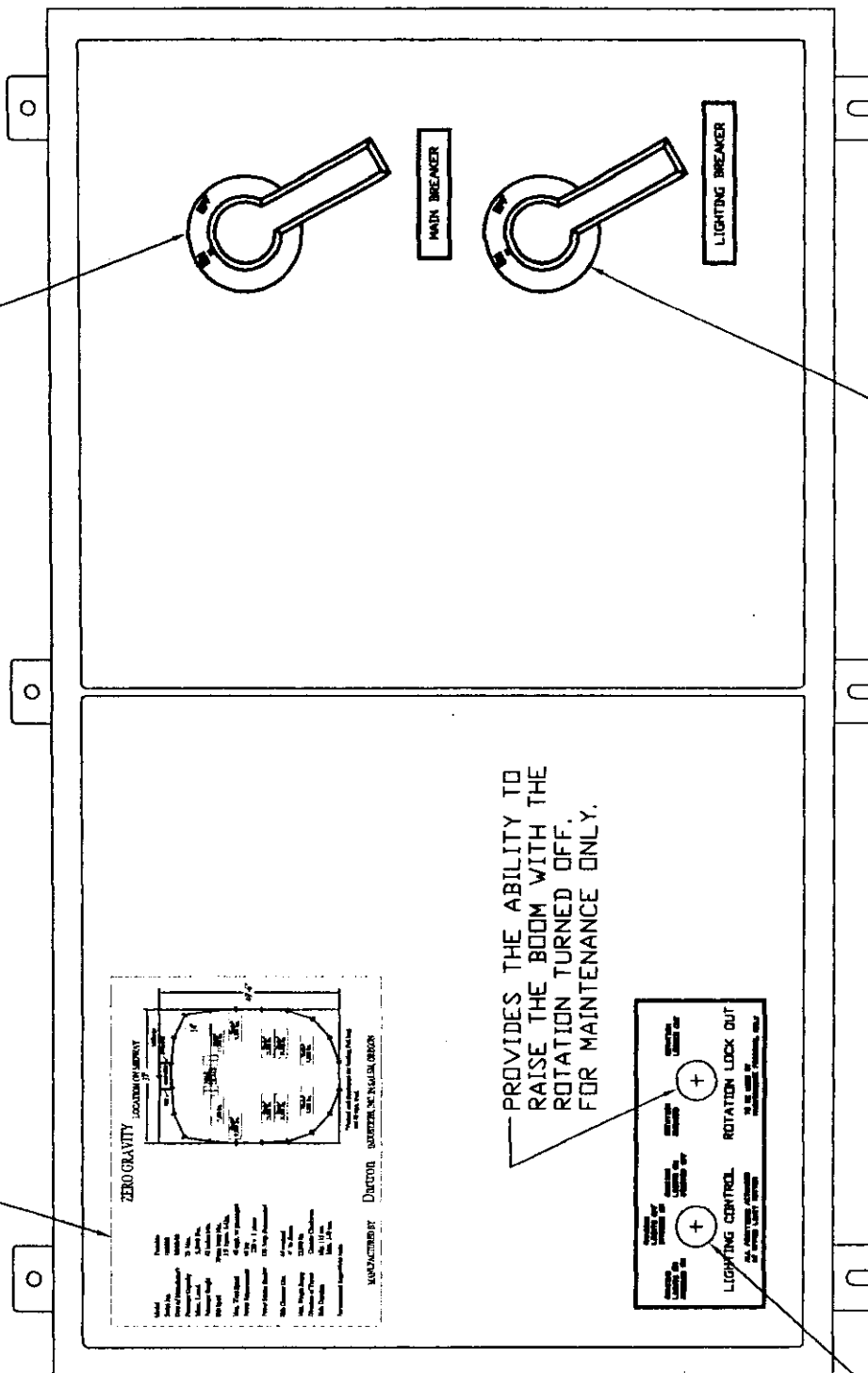
PLACARD PROVIDES BASIC INFORMATION AND SPECIFICATIONS.

MAIN ELECTRICAL DISCONNECT BREAKER. TURNS OFF ALL ELECTRICAL POWER TO RIDE.

PROVIDES THE ABILITY TO RAISE THE BOOM WITH THE ROTATION TURNED OFF. FOR MAINTENANCE ONLY.

PROVIDES THREE DIFFERENT LIGHTING CONTROL FUNCTIONS.

MAIN SWITCH TO TURN LIGHTS ON AND OFF.



DARTON IND., INC.		TELEPHONES		VALUES		REVISED		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON		REVISION		DATE		BY		REASON	
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15 Opening, Operating And Closing Instructions

15.1 Pre-opening Instructions

- 15.1.1 Wipe and clean back pads in passenger cages.
- 15.1.2 Check that the ride is free of any slip, trip, or fall hazards for the guests.
- 15.1.3 Check that the Daily Inspection (Pages 9 - 12) has been performed.
- 15.1.4 Make sure that skirt cloth is in place.
- 15.1.5 Check all passenger areas for damage or sharp edges.
- 15.1.6 Turn on power to ride and check to make sure that all lights are working.
- 15.1.7 Check that safety signage is in place.
- 15.1.8 Check that the fencing, handrails and gates are in place and there is proper clearance from the ride to the perimeter fence.
- 15.1.9 Check to ensure ride is clear of any obstacles.

15.2 Rules Concerning Zero Gravity Guests

- 15.2.1 Do not allow guests under 42 inches tall inside the fence even when accompanied by an adult.
- 15.2.2 A guest must be able to stand comfortably in the passenger cage.
- 15.2.3 Do not allow any passenger on the ride that cannot be properly secured because of passenger size or condition.
- 15.2.4 Guests under the influence of drugs or alcohol must not be allowed to enter the ride.
- 15.2.5 Operators and attendants must instruct guests to secure loose articles that may fall while riding.
- 15.2.6 The operator or attendants must visually check the restraint on each passenger and be sure they are attached.
- 15.2.7 After all the guests have entered the ride area, the operator must close and lock the entrance gate.

- 15.2.8 The ride operator must be at the Operator's Console and remain in full control of the operating controls at all times while the ride is in operation.
- 15.2.9 During the ride, the operator must observe the passengers. Check for passengers riding incorrectly or for sick or rowdy passengers. If these conditions are observed bring the passengers back to ground level and correct the problem.
- 15.2.10 If a guest refuses to follow the safety guidelines, the guest must be required to leave the ride.

15.3 Operating The Ride

(See Operators Console Diagram on Pages 13 and 14)

- 15.3.1 To start motor and hydraulic system push button labeled **Start Pump**.
- 15.3.2 Allow system to warm up until the temperature of the hydraulic system reaches 50° F.
- 15.3.3 Hydraulic fluid will warm up before temperature gauge indicates 50° F because the gauge is exposed to the open air. The pump will quiet down when fluid is warm enough.
- 15.3.4 Operator must visually check each passenger restraint to ensure it is attached.
- 15.3.5 The Zero Gravity door must be latched in five different places before the Zero Gravity can operate. The latch on the left side of the door must be latched and each wing handrail must be folded inboard and latched to the stairs. The swing-down tab must be in the down position overlapping the wing handrail.
- 15.3.6 Turn operators console **Key Switch** to **On**.
- 15.3.7 Depress the dead man switch and hold it for the entire duration of the ride. Letting up on the dead man switch will cause the ride to stop running.
- 15.3.8 Place **Brake** in **Stop** position.
- 15.3.9 Push down green palm button labeled **Operate Ride**. **WARNING: If boom is up and wheel rotation slows or stops remove your hand from the palm button. Boom will rapidly return to the boom rest.** As the boom starts down from the top release the green palm button.

15.3.10 When boom returns to the rest, the operator must park the wheel with the entry/exit cage lined up with the stairway. The operator can turn the brake off to let the wheel coast and pulse the brake on an off to park the wheel. Use **Jog Fwd** to position entry/exit above the stairs. Always leave the brake switch in the stop position when using the **Jog function**.

15.3.11 If entry/exit cage stops past stairs use **Jog Rev** to correctly position entry/exit cage.

15.3.12 There is a visual position indicator located on top of the boom on the disc brake housing. Line up the color stripe on the hub between the two colored stripes on the disc brake housing. After correctly positioning entry/exit cage place **Brake** in **Park** position. **Note: Use the park function only after the wheel is correctly positioned.**

15.3.13 Turn off key and remove key from **Key Switch**.

15.3.14 Open entry/exit cage door.

NOTE: The Zero Gravity is equipped with a keyed lock out system. To allow the ride to function the key switch located on the operators console must be in the on position. When maintenance is being performed or when the operator leaves the operators console for any reason the key switch must be placed in the OFF position and the key placed where it can not be accessed by UNAUTHORIZED persons. This process avoids a guest or another employee starting rotation while guests or maintenance workers are in the path of the ride.

15.4 Closing Procedures

15.4.1 Return the boom to the boom rest.

15.4.2 Turn the hydraulic pump off by depressing the Pump Stop button on the operator's console.

15.4.3 Remove the key from the key switch at the operator's console and close the lid.

15.4.4 Place the key where unauthorized persons cannot access it.

15.4.5 Shut off all power to the ride by placing the circuit breaker handle labeled main breaker on the outside of the main distribution panel in the **OFF** position. (See Main Electrical Panel Diagram on Page 14)

15.5 System Override And Emergency Procedures

15.5.1 Electrical or hydraulic power is interrupted while wheel is in up position.

When electrical or hydraulic power is interrupted, the ride will automatically shift into a free wheel mode and coast to a stop. The boom will return to the boom rest.

15.5.2 Ride occupant creates a situation requiring the ride motion to be stopped immediately.

The operator should remove his hand from the Green Palm Button. This action will cause the wheel to stop rotating and the boom to return to the boom rest.

15.5.3 Ride operator observes an electrical problem that requires the ride to be stopped and electrical power to be interrupted.

Push down mushroom head button labeled **EMERGENCY STOP**. Main breaker for all electrical power is tripped allowing wheel to rotate in a free wheel mode and return to the boom rest. To operate ride after using emergency stop button, the **EMERGENCY STOP** button must be pulled up, then the main breaker must be reset to its original position.

15.5.4 Ride appears to slowdown.

If boom is up and wheel rotation slows or stops remove your hand from the green palm button. Boom will rapidly return to the boom rest.

16 Preventive Maintenance

16.1 Steps That Must be Taken Before Performing Maintenance

- 16.1.1 Before performing maintenance, study each job carefully to determine all hazards so that necessary safeguards can be taken.
- 16.1.2 Examine ladders and tools to be sure they are in good safe condition.
- 16.1.3 Protect your eyes by wearing approved safety glasses or goggles.
- 16.1.4 When working in elevated areas, use a safety harness and follow fall arrest procedures.
- 16.1.5 Prior to any employee performing any service or maintenance activity where the unexpected rotation or upward boom movement could cause injury, he/she should be sure ride rotation cannot be started with the key removed.
- 16.1.6 Remove the key and keep it with you while performing service or maintenance tasks.
- 16.1.7 If you need to use the **Rotation Lock Out** switch to check ride operation and must leave the key in the **Key Switch**, move the control next to the electrical distribution panel so it will be easier to observe and it will be obvious that the ride is not ready to be operated.

16.2 Lubrication Instructions

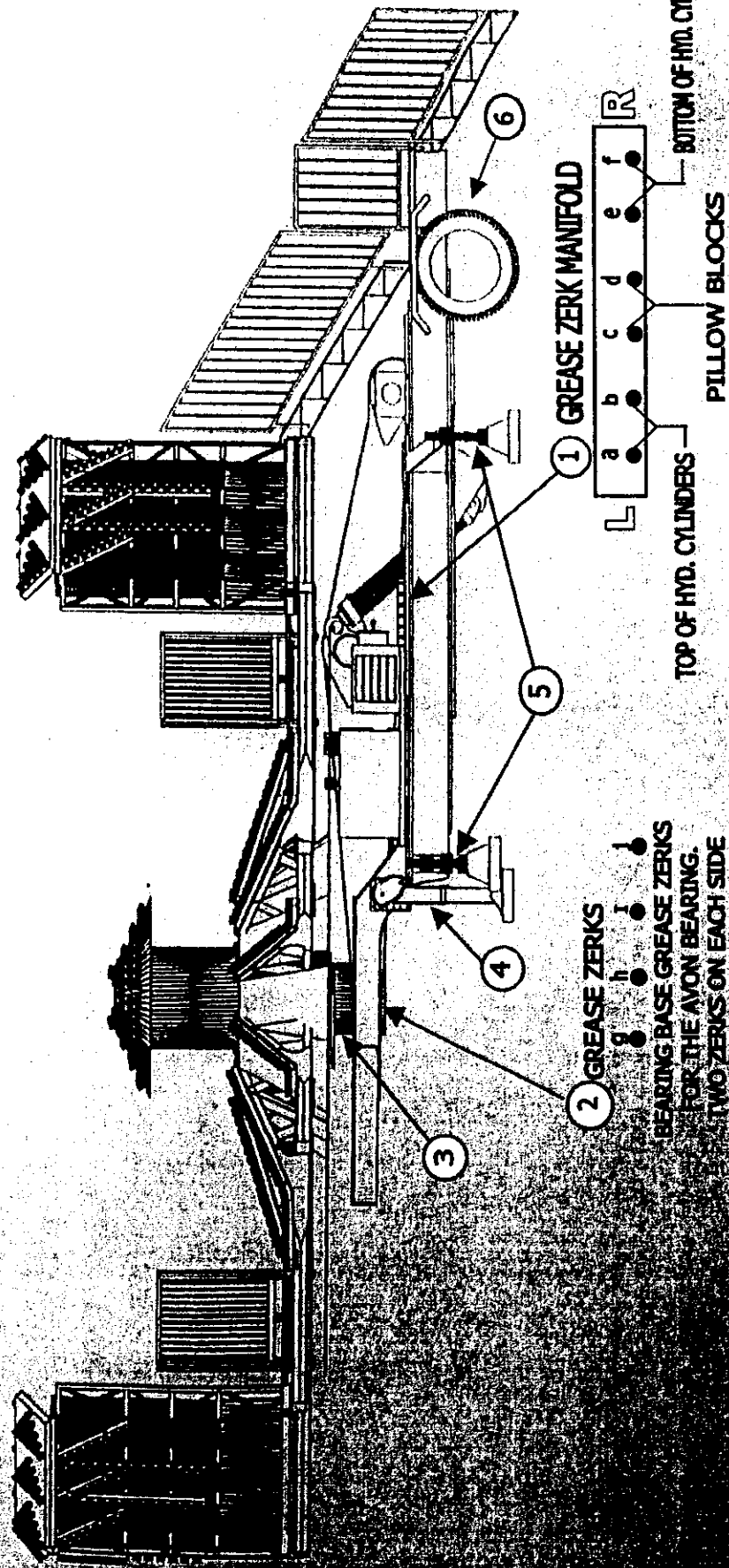
- 16.2.1 It is the responsibility of the operator to lubricate bushings, bearings, and other required components. A lubrication manifold with hoses to many components has been provided. When using this manifold, the operator must insure that grease is actually flowing into the component. If not, the problem must be rectified. Dartron specifically disclaims any liability for losses associated with failure of the lubrication manifold and tubes to route grease into bushings and bearings.

16.3 Lubrication Maintenance Schedule

(Refer to Lubrication Chart, Page 23)

<u>Number</u>	<u>Item</u>	<u>Type of Lubricant</u>	<u>Frequency</u>
1 c & d	Boom pillow block bearings (2)	Grease	Daily
1 e & f	Lower cylinder mount bushings (2)	Grease	Daily
1 a & b	Upper cylinder mount bushings (2)	Grease	Daily
2 g, h, i, j	Avon bearing center ball track (1)	Grease	Daily
3.	Avon bearing ring gear & pinions	Grease	Weekly
4.	Front & rear landing gear	Grease	Monthly
5.	Outrigger & front screw jack threads	Grease	Monthly
6.	Brake slack adjustors & "S" cams	Grease	Yearly
	Replace fluid in hydraulic reservoir	Hydraulic Oil	Yearly
	Change filters in hydraulic system		Twice Yearly
	(1) In-tank return line		
	(2) Tank breather		
	(3) Closed loop high pressure		
	(4) Charge pump high pressure		

Zero Gravity Lubrication Chart



BEARING BASE GREASE ZERKS
FOR THE AVON BEARING.
TWO ZERKS ON EACH SIDE
OF BEARING BASE

IMPORTANT: 8 PUMPS OF GREASE FOR
EACH ZERK- DAILY

IMPORTANT: 3 PUMPS OF GREASE EACH ZERK- DAILY.

16.5 Recommended Lubricants

Brand	Grease	Pinion Grease	Hydraulic Oil	Gear Oil
Chevron	Ultra Duty EP 2	Open Gear Lubricant	150 46	RPM Universal 80W90
Texaco	Starplex 2	Texclad 2	Rando Oil HD 46	Multigear 80W90
Mobil	SCH 460	N/A	DTE 15M	Mobil Lube HD 80W90
Pennzoil	Pennlith Ultra	N/A	Pennzbell AW 46	#4092 80W90
B.P.	N/A	N/A	HLP HD 46	Transgear 80W90
Valvoline	N/A	N/A	043	#838 80W90
Amsoil (Synthetic)	Multi- Purpose GLC	N/A 15046	AHO 7890	AGR 80W90

N/A = Not Available

17 Fasteners

17.1 Torque Requirements

Cap screws must be tightened to the torque value listed in the torque chart. When the threads are lubricated, use 10% less torque to tighten the cap screw. Do not tighten the cap screw over the recommended torque. Always use a torque wrench. Torque wrenches must be checked for accuracy twice each operating season.

<u>Location</u>	<u>Diameter</u>	<u>Length</u>	<u>Thread</u>	<u>Fastener</u>	<u>Torque</u>
Pillow Block Anchor bolts (8)	1 1/8"	14"	N/C	Std. Nut	1000 ft. lbs.
Teardrop ear of 2 1/4" link pin anti-rotation bolts (4)	5/8"	1 1/2"	N/C	Tapped hole	158 ft. lbs.
Hub to Avon bearing retaining bolts (24)	7/8"	6 1/2"	N/C	Tapped hole	454 ft. lbs.
Base to Avon bearing (21)	5/8"	6 1/2"	N/C	Std. nut	454 ft. lbs.
Base to Avon bearing (2)	5/8"	7 1/2"	N/C	Std. nut	454 ft. lbs.
Boom lift cylinder pin teardrop ear (4)	5/8"	2"	N/F	Tapped hole	179ft. lbs.

18 Set-Up Zero Gravity

18.1 Locate the Zero Gravity on the Midway

- 18.1.1 For reference measurements use the space diagram found on Page 6, or on the placard located on the main electrical panel of the ride.
- 18.1.2 Before locking the brakes on the trailer or lowering the landing gear dollies, release the air from the suspension air bags on the trailer. Push in the black knob on the valve labeled "air suspension dump" located directly above the driver side front landing gear.
- 18.1.3 Remove two 16" square blocks from the possum belly and place under the front landing gear shoes.
- 18.1.4 Disconnect and remove the tractor.

18.2 Level The Trailer

- 18.2.1 Remove two 16" x 24" blocks from the possum belly and place under the rear landing gear dollies. Transfer most of the weight of the trailer from the tires to the rear dollies. **DO NOT** lift the rear of the trailer more than necessary to transfer weight and level from side to side.
- 18.2.2 Level the trailer side-to-side and front to rear. Stow the landing gear crank handles.

18.3 Erect Vinyl Bally Support Frame

- 18.3.1 Locate the three bally panel support braces on each side of the trailer. Remove the angled leg with an extendable foot from the top brace and set on the ground about 10" out from the side of the trailer.
- 18.3.2 Remove the pin holding the three braces under the hydraulic rack and swing out until they are nearly straight out from the trailer. Attach the bottom brace to the angled leg and extend the foot until the brace is level.
- 18.3.3 Attach the middle brace to the angled leg and connect the kicker between the two braces. Readjust the support foot if necessary. Connect the top brace.
- 18.3.4 Repeat on the other side.

18.4 Erect Trailer Outriggers

- 18.4.1 Remove the lead cord from the rack on the curbside and route to the power source. Remove the lead cord rack from the outrigger and stow rack under the ride. Swing out the outrigger and pin in place.
- 18.4.2 Remove the operators console from the driver side outrigger and place it on the midway line in front of the ride. Swing the outrigger out and pin in place.
- 18.4.3 Under the outrigger screw jacks install a 16" square wooden block and a galvanized sand shoe located on the side of the outrigger.
- 18.4.4 Tighten these two screw jacks until some of the weight of the trailer is transferred from the landing gear to the screw jacks.

18.5 Unload Perimeter Fence, Railings, Entry/Area and Vinyl Panels

- 18.5.1 Unload the perimeter fence feet from the possum belly and distribute around ride in accordance with the fence diagram found on page 6.
- 18.5.2 Remove the perimeter fence from the gooseneck and place into the fence feet.
- 18.5.3 Stage gates and the stairway railings behind rear bumper.
- 18.5.4 Remove vinyl bally cloth, rear trailer skirt cloth and entry canopy from the gooseneck storage compartment.
- 18.5.5 Install on trailer and bally frames.
- 18.5.6 Remove the entry/exit frame parts from the trailer frame next to the boom on the driver side. The arch supports for the entry are in the driver side gooseneck storage compartment. Assemble the entry with the canopy and install in front of the ride on the midway line.

18.6 Erect The Rear Tip Stability Braces And Flood Light Frames

- 18.6.1 Rotate down the two vertical legs in the middle of the gooseneck.
- 18.6.2 Install 16" sq blocking under their screw jacks. Snug but do not tighten the screw jacks as they are for tipping stability.
- 18.6.3 On the rear of the trailer remove bail pins and swing out flood light frames 180°. Reinstall the bail pins in the posts.

18.7 Set Up Wheel

- 18.7.1 Climb up on the rear deck of the trailer and remove the bracing tie bar that connects the tops of the cages together. Place the pins that are removed in the pipe rings located on the vertical frame tube of the cage approximately 8" down from top.
- 18.7.2 Climb up on the sweeps and remove the front brace from the top of the cages and rack the pins in the pipe tubes.
- 18.7.3 Lower the cage support rack on the rear deck of the trailer all the way down. Lower the sweep support on the boom all the way down and remove the cross beam.
- 18.7.4 Locate the split wing braces, which connect the main hub to the split wings. The braces are above the gooseneck deck. Remove the split wing braces and put the pins on the center hub plates that connect to the split wings. The pins from the outboard ends of these braces go on the top plates.
- 18.7.5 Disconnect the safety tie bar between the boom and the outboard sweep on the curbside and pin the tie bar back to the boom.
- 18.7.6 Rotate the two outboard sweeps and the split wing around until the bottom pin can be installed. **DO NOT** install the top pin at this time. Repeat for the three outboard sweeps on the driver side.
- 18.7.7 Fan out the remaining sweeps.
- 18.7.8 Remove the cage support beam.
- 18.7.9 Locate the two stairway support stands in the driver side gooseneck compartment. Rotate down the stairway on the rear of the trailer and support the corners with the adjustable stands. Level the stair treads. **DO NOT** allow the stairway to hang from the hinge.
- 18.7.10 Walk up the stairway and onto the top of the boom. Locate the first torque brace to be installed between sweeps # 12 and # 1. It is the shortest and is attached to two vertical ears on the side of sweep # 12 near the hub. Remove this brace from its rack and install between sweep # 12 and # 1 on the first set of horizontal ears. Move the sweeps back and forth until the holes line up.
- 18.7.11 Swing the next torque brace out from the side of sweep # 12 and pin it to sweep # 1.
- 18.7.12 Install the third horizontal brace.
- 18.7.13 Locate and remove the rotation lock pin from the main hub. It is accessed from the gooseneck deck and pins the hub to the bearing base between the two hydraulic drive motors. Place the rotation lock pin in a storage box.
- 18.7.14 With one person on the boom and one on the rear trailer deck proceed to pin the cages to the sweeps. On sweep # 1 locate the travel pin through the cage bottoms near the sweep pivot pin. Remove the travel pin and place it in the pipe sleeve provided on the cage frame. Pivot the cage pair around until the ends can be pinned to sweep # 2 and # 12.

- 18.7.15 Turn the wheel clockwise and repeat for the cages on sweep # 2. Make sure the ears at the top of the cages on sweep # 2 are over lapped properly. **DO NOT** climb up and pin the top at this time.
- 18.7.16 Locate the special sweep support jack extension tool in the driver side gooseneck storage compartment. Install it on top of the driver side sweep support jack.
- 18.7.17 Turn the ride clockwise until the # 5 sweep is above the support jack extension tool. Lift up under the # 5 sweep with the support jack until the holes in the upper split wing line up with the center bracket. Install the upper split wing pin. Lower the support jack. Rotate the cage pair on sweep # 5 and pin the cage to sweep # 4. **DO NOT** pin the cage to sweeps # 6 at this time.
- 18.7.18 Rotate the wheel clockwise until sweep # 7 is above the sweep support jack. Lift sweep # 7 and install the second upper split wing pin. Lower the sweep support jack and stow the extension tool. **WARNING:** Do not operate the Zero Gravity with the extension tool on the sweep support jack.
- 18.7.19 Install the three torque braces between sweep # 6 and # 7 starting with one near the hub.
- 18.7.20 Pin the cage end to sweep # 6.
- 18.7.21 Continue to turn the wheel clockwise and pin cage pairs until the circle is complete.

18.8 Erect Inner Platforms And Inner Fence

- 18.8.1 Stand on the boom inside the wheel and locate the two bail pins that attach the inner fence assembly to the cage frame. Remove the bail pins and rotate the platform deck down. When it is nearly flat rotate the aluminum inner fence to vertical and stab the legs of the fence through the brackets on the sides of the sweeps.
- 18.8.2 Turn the wheel and continue until the stairway is reached. This platform is held in place with a crossbar. Remove the crossbar and rack it across the top of the cage frame under the light bar. There are two ears provided.

18.9 Tip Up Light Bars On Top Of Cages

- 18.9.1 At the same time the platforms are being erected a second person can be setting up the cage top light bars and installing the cage top connector pins in every other pair of cages.
- 18.9.2 Pull the two bail pins at the top of the two middle cage frames and rotate the light bar up until the support struts can be repined. Install the bail pin in the safety strut in the far left corner of the light bar.
- 18.9.3 Remove one of the two pins hanging in the pipe sleeve 8" down from the top of the cage frame above the even numbered sweeps and install it in the cage top connector bracket.

18.10 Install The Cage Brace Cables

- 18.10.1 Climb on the center hub and pull one cable at a time from the top of the ornament.
- 18.10.2 Hand the free end of the cable to a helper who will attach the clevis of the cable to the corresponding ear on the top corner of the cage frame. If the cable won't reach, release the cable-tensioning lever by pushing sideways on the latch release. The latch release is a small tab sticking out of the ornament below and between the 6" diameter holes. **NOTE:** Install all of the cables before lowering the tensioning levers inside the ornament top.
- 18.10.3 After installing all cables tension the cables by lowering the tension levers. Two levers can be reached through each of the 6" diameter holes. Pull each lever down until the striker pin in the end of the lever locks into the latch.

18.11 Install Vinyl Closeout Panels Between Sweeps

- 18.11.1 Remove the lid from the storage box on the curbside top of the gooseneck neat the hub. Stand on the curbside front storage box lid and remove the cloth panels one at a time and install them between the sweeps. The cloths have alternating colors.
- 18.11.2 The short pipe, clips into the rails at the top of the sweep near the hub. The center pipe hangs below the cloth and clips into the rails in the middle of the sweeps. The long pipes go in the channel brackets sticking out from the inner fence posts.
- 18.11.3 A helper on the ground pulls the cloth snug and installs the bail pins.
- 18.11.4 Turn the ride counter clockwise and install the remaining vinyl panels.
- 18.11.5 As vinyl panels are installed, rotate down a sweep light bar into its position flat on the sweep.

18.12 Install Hand Railings

- 18.12.1 Install the two largest handrails onto the stairway at the rear of the trailer.
- 18.12.2 Install the two smallest railings on the rear trailer deck.

18.12.3 Turn the wheel until the entry cage centers up with the rear deck. Unlock the wing railings on the door/stairway by rotating up the green paddle above the wing. Reach behind the wing and trip the release tab on the latch. Hold onto the wing as it swings out. **DO NOT** let it slam.

18.12.4 Locate the stairway safety latch release, 5" down from the latch in the upper left corner. Push down on the finger tab and pull out on the stairway.

18.12.5 Lower the stairway all the way down. **DO NOT** let the stairway drop. Install the railings on the entry stairs with the angled ends down toward the trailer. Install keeper pins in the posts.

19 Tear Down Zero Gravity

19.1 Prepare to tear down

19.1.1 Remove the cloth panels from between the sweeps one at a time. Roll each panel up starting at the large end and store them in the top storage compartment on the curbside gooseneck deck.

19.1.2 After removing each cloth panel, tip up and pin one sweep light bar into its vertical position.

19.1.3 Remove bally panels and trailer skirt. Fold and store in the front left side gooseneck compartment.

19.1.4 Tear down bally panel frames. Place the outrigger brace in the side gooseneck compartment. Fold the long bones back beside the trailer temporarily. Place the end frame near the rear wheel of the trailer. Remove stairway railings and place them near the front of the trailer.

19.1.5 Climb up on the center hub and release the tension on the cage brace cables. The release for the latch on each tensioning arm is the small tab sticking out of the ornament column between the 6" diameter holes.

19.1.6 Disconnect each brace cable from the ear on the cage top. Leave the pin in the ear on the top of the cage **NOT IN THE CABLE END**. Insert the loose end of the cable into the ornament column through the 6" diameter holes. Feed all of the cable into the ornament until the cable can be inserted into the spring clip. The cables will criss-cross.

19.2 Tear down the wheel.

19.2.1 Start with the split wing hub directly over the trailer gooseneck. Walk around the inside of the wheel and drop down to the flat position all of the cage top light bars. At the same time pull out every other cage top connector pin and insert the pin into the pipe ring provided to be used later. Pipe ring is on the rear cage upright tube 8" down from the top.

19.2.2 Stand on top of the boom, disconnect the inner fence from the sweep and pull it up. Lay the inner fence down on the platform. Rotate the platform up against the cage frame and fasten it in place with two bail pins. Turn the wheel and rack all of the platforms. The crossbar that holds the platform up in the entry cage should be located on top of the cage frame under the light bar.

19.2.3 Start with the cage pair on sweep # 1. Un-pin the cage end on sweep # 12. Rotate the cage out until it is straight in line with its mate on sweep # 1 and install the travel pin through the base in

between the cages. Turn the wheel clockwise and un-pin the cage on sweep # 2. Rotate the cage pair on sweep # 1 clockwise until it is parallel with the sweep.

19.2.4 Turn the wheel clockwise and repeat for the cage pairs on sweep # 3 and # 5.

19.2.5 Locate the special sweep support jack extension tool in the driver side gooseneck storage compartment. Install it on the driver side sweep support jack.

19.2.6 Locate sweep # 5 over the sweep support jack tool and lift sweep # 5 just enough to un-weigh the pin in the upper split wing plate. Remove only the upper split wing pin at this time. Lower the sweep support jack.

19.2.7 Turn the ride clockwise and un-pin the other cage end from sweep # 6. Rotate the cage out and install the travel pin. Disconnect and rack the three torque braces between sweep # 6 & # 7.

19.2.8 Lift under sweep # 7 with the sweep support rack and remove the second upper split wing pin.

19.2.9 Continue until all cage pairs are racked. When sweep # 12 is again pointing straight to the rear, install the hub rotation lock pin through the hub and drive plate between the hydraulic motors. Rack the three torque braces between sweep # 1 & # 12. The shortest torque brace is removed and placed on the vertical ears on sweep # 12. Rotate the rear stairway up and store the leveling feet in the curbside gooseneck compartment. Install the cage support beam over the rear stairway.

19.2.10 Swing sweep # 11 to the rear and align the cage up with its station on the cage support beam. Swing sweep # 10 to the rear and locate the end plate under the cage on sweep # 11. Lifting the cage on sweep # 11 from the rear of the trailer may be required. Swing sweep # 9 to the rear.

19.2.11 Rotate sweeps # 7 & # 8 toward the gooseneck. Remove the lower split wing pin on the curbside. Rotate the split wing and # 7 & # 8 sweep to the rear. Install the lower split wing brace between the split wing center plate and the wing when it is fully extended. **NOTE:** Failure to install the split wing brace at this time could make it impossible to complete subsequent steps. Swing sweep # 7 & 8 is to the rear and connect the safety tie bar between the side of the boom and sweep # 7. Repeat for the driver side split wing.

19.2.12 Remove the sweep support jack extension and rack it in the curbside gooseneck storage compartment. Install the sweep support beam across the jacks and raise it until it contacts most of the sweeps. Raise the cage support until it contacts most of the cages. **DO NOT** raise these two support beams up to full extension until the top cage separator braces are installed. Moving cages around on sweeps may still be required.

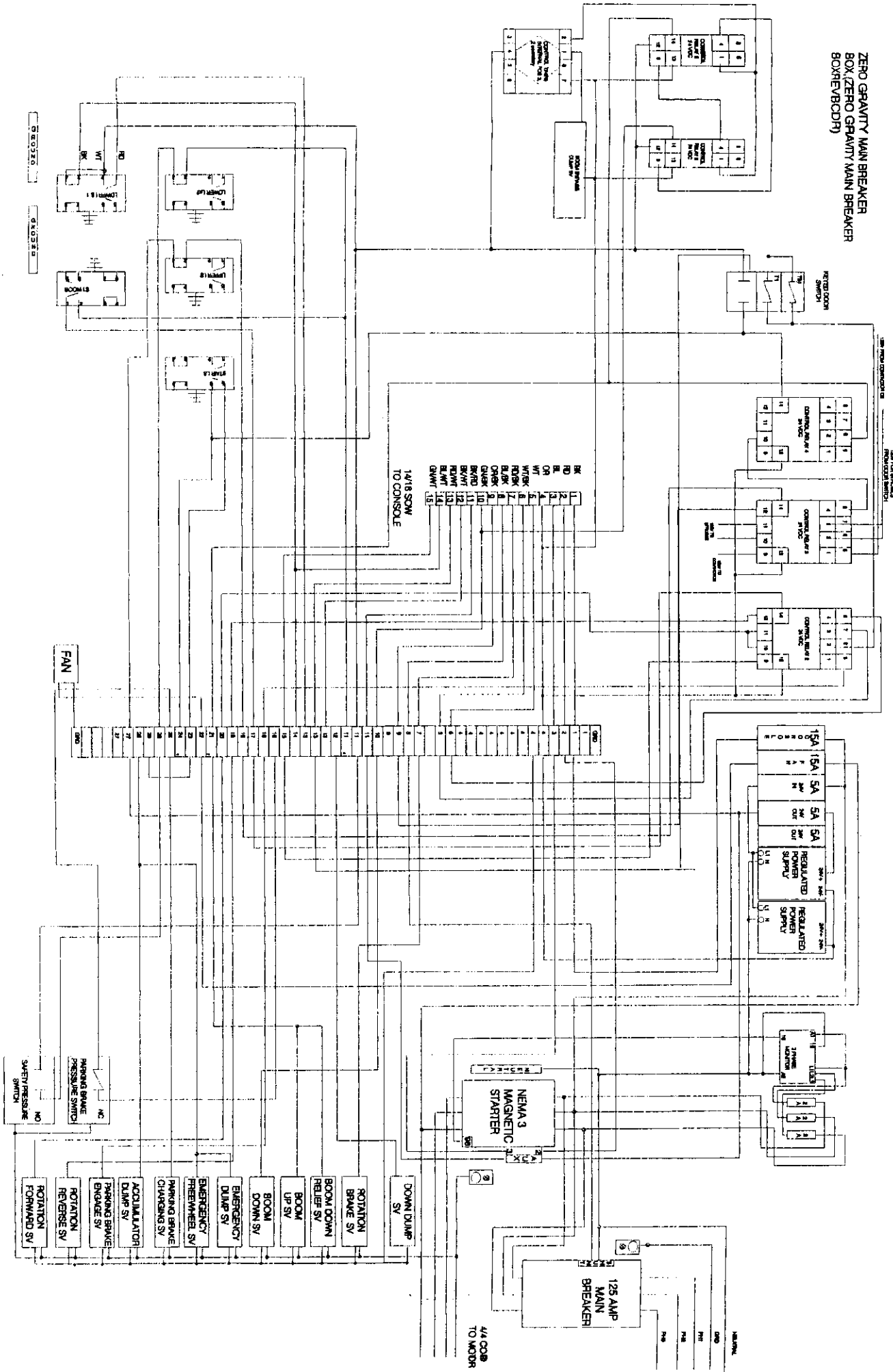
19.2.13 Install the front and rear cage separator braces between the top cage ears. Use the pins hanging in the pipe rings near the top of the cages.

19.2.14 Raise the sweep support and cage support racks up until the indicator holes show they are at the correct height for transport.

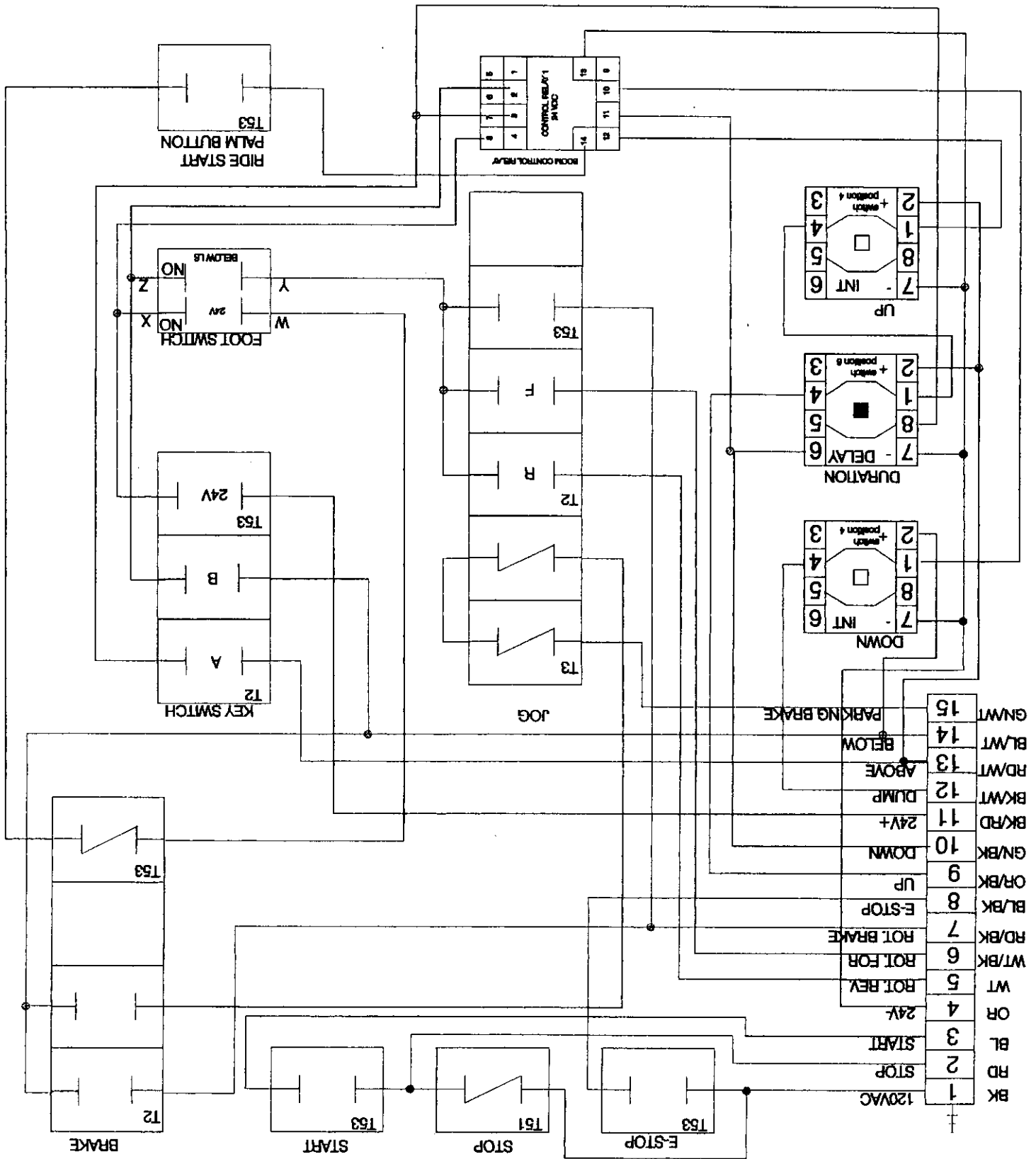
19.3 Finish Racking

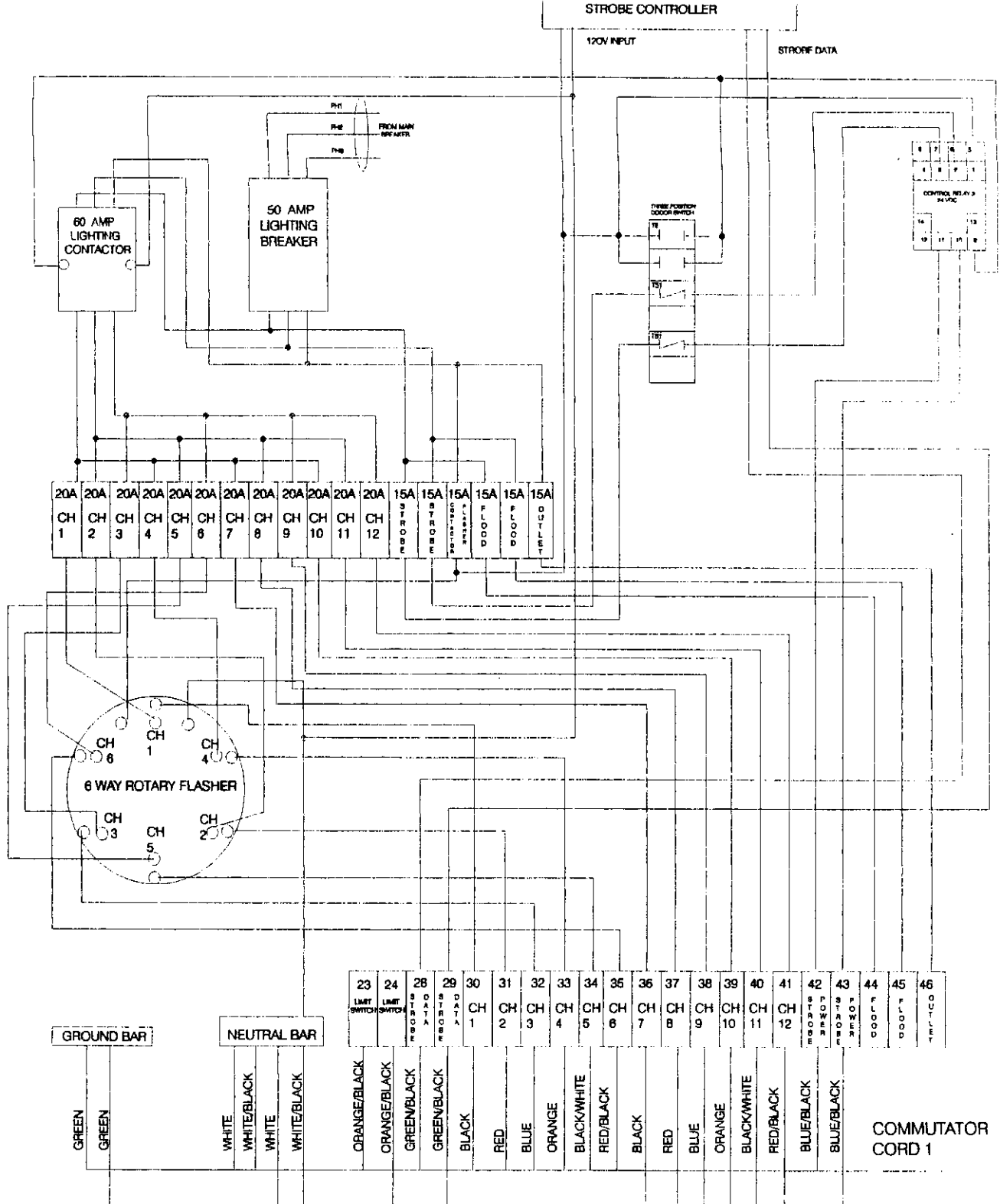
- 19.3.1 Swing the floodlights on the rear of the trailer in over the stairway and pin place.
- 19.3.2 Install the lead cord rack on the curbside outrigger.
- 19.3.3 Lift up all of the trailer support jackscrews and put the safety chains through the screws. Rack the sand shoes on the sides of the outriggers.
- 19.3.4 Rotate the front support legs up vertical. Tear down the entry canopy frame. The arched canopy supports go in the curbside gooseneck storage compartments; the long canopy rails go on the driver side trailer main frame in vertical pipe sockets. The canopy goes in the front gooseneck storage compartments.
- 19.3.5 Rack the perimeter fence, entry gates and the stairway railings on the front rack. Load fence feet and blocking into the possum belly.
- 19.3.6 Rotate the curbside outrigger into the trailer and pin in place. Roll up console cord and lead wire onto the wire rack. Swing bally frame rails around and pin to the hydraulic rack. Rack bally panel and frame on the pins provided on the underside of the top bally panel frame rail.
- 19.3.7 Rack the control console on the driver side outriggers, rotate the outrigger in and pin in place. Swing the bally frame rail around and pin to the hydraulic rack. Pull out the air suspension dump valve located above the driver side front landing gear. Rotate down the handle of the lift cylinder manual dump valve located on the rear face of the hydraulic tank.

ZERO GRANTY MAIN BREAKER BOX (ZERO GRANTY MAIN BREAKER BOX (REV BCDP))



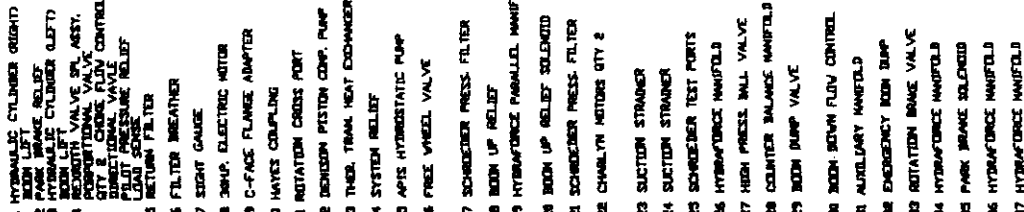
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ZERO GRAVITY OPERATORS CONSOLE		USE THIS DRAWING IN CONNECTION WITH THE DARTTRON INDUSTRIES 00000000000000000000	
DATE	SCALE	DRAWN BY	REVISION
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REVISION ONE THREE FOUR		DRAFT NO. 2	
1/1		REVISION	





CHANNEL ONE = FIRST CHANNEL BOWS 1-6 AND SWEEPS 7-12 AND ORNAMENT
 CHANNEL TWO = SECOND CHANNEL BOWS 1-6 AND SWEEPS 7-12 AND ORNAMENT
 CHANNEL THREE = THIRD CHANNEL BOWS 1-6 AND SWEEPS 7-12 AND ORNAMENT
 CHANNEL FOUR = FIRST CHANNEL BOWS 7-12 AND SWEEPS 1-6
 CHANNEL FIVE = SECOND CHANNEL BOWS 7-12 AND SWEEPS 1-6
 CHANNEL SIX = THIRD CHANNEL BOWS 7-12 AND SWEEPS 1-6
 CHANNEL SEVEN = CAGE LIGHTS AND BOTTOM BOW LIGHTS 1 AND 2
 CHANNEL EIGHT = CAGE LIGHTS AND BOTTOM BOW LIGHTS 3 AND 4
 CHANNEL NINE = CAGE LIGHTS AND BOTTOM BOW LIGHTS 5 AND 6
 CHANNEL TEN = CAGE LIGHTS AND BOTTOM BOW LIGHTS 7 AND 8
 CHANNEL ELEVEN = CAGE LIGHTS AND BOTTOM BOW LIGHTS 9 AND 10
 CHANNEL TWELVE = CAGE LIGHTS AND BOTTOM BOW LIGHTS 11 AND 12

DARTRON INDUSTRIES PO BOX 13114 SALEM, OR 97308		ZERO GRAVITY LIGHTING DISTRIBUTION		DATE 8/5/03	SCALE 1/8"=1"	DRAWN BY JC
DARTRON		CNO NO 0701 (REV 1)	SHEET 1/1	PROVISION RIDES ONE THRU FOUR		



DARTRON INC., INC. P.O. Box 1086 BIRMINGHAM, AL 35202	NO. OF PARTS IN KIT		QTY	UNIT PRICE	TOTAL PRICE
	SERIALS	PARTS			
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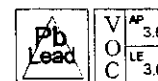
V3756MV Cost Code: H **CENTARI 5000 3.5**

Alt:

Car: CORONA BEER COMPANY

Code: Year:

Color: CORONA BEER YELLOW



MIX YIELDS 3/4 CAN (EXCEPT FULL GAL)

ADD INGREDIENTS IN SAME ORDER AS ABOVE WHILE

MIXING THOROUGHLY

MIXED BY: CARQUEST OF SALEM/COMMERCIAL 01/12/2005

Tinting Guide		Mix Size: 96.0oz (Gallon)
773A	C5000 BINDER	955.5
569H	HS ORANGE	958.3
501H	HS BLACK TONER	962.7
577H	ADDITIVE	1214.8
510H	HS YELLOW	2053.5
503H	HS LT YELLOW	2977.9
516H	HS WHITE	3991.3
8685S	REDUCER	4173.5



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**NON-CUM Guide		Mix Size: 96.0oz (Gallon)
773A	C5000 BINDER	955.5
569H	HS ORANGE	2.8
501H	HS BLACK TONER	4.4
577H	ADDITIVE	252.1
510H	HS YELLOW	838.7
503H	HS LT YELLOW	924.4
516H	HS WHITE	1013.4
8685S	REDUCER	182.2



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CARQUEST OF SALEM/COMMERCIAL
V3756MV CC: H CENTARI 5000 3.5 Alt:
MIX SIZE: 96.0oz (Gallon) Ref. Cost: \$153.55

10:50:48 AM Rx Date: 12/03/1997

773A	C5000 BINDER	955.5
569H	HS ORANGE	958.3
501H	HS BLACK TONER	962.7
577H	ADDITIVE	1214.8
510H	HS YELLOW	2053.5
503H	HS LT YELLOW	2977.9
516H	HS WHITE	3991.3
8685S	REDUCER	4173.5

01/12/2005 MIXED BY: _____

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Data Version 1172



GS227HN Cost Code: M **IMRON 5000 3.5**

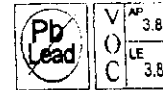
Alt:

Car: SPECTRAMASTER

Code:

Year:

Color: SPECTRAMASTER GREEN



MIX YIELDS 3/4 CAN (EXCEPT FULL GAL)
ADD INGREDIENTS IN SAME ORDER AS ABOVE WHILE
MIXING THOROUGHLY

MIXED BY: CARQUEST OF SALEM/COMMERCIAL 01/12/2005

Tinting Guide

Mix Size: 96.0oz (Gallon)

573H	BINDER	1122.6
577H	ADDITIVE	1176.6
506H	HS GREEN	1445.3
516H	HS WHITE	1990.3
551H	HS YELLOW	2987.1
8685S	REDUCER	3227.9



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**NON-CUM Guide

Mix Size: 96.0oz (Gallon)

573H	BINDER	1122.6
577H	ADDITIVE	54.0
506H	HS GREEN	268.7
516H	HS WHITE	545.0
551H	HS YELLOW	996.8
8685S	REDUCER	240.8



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CARQUEST OF SALEM/COMMERCIAL
GS227HN CC: M IMRON 5000 3.5 Alt:
MIX SIZE: 96.0oz (Gallon) Ref. Cost: \$304.20
10:50:30 AM Rx Date: 03/15/1994

573H	BINDER	1122.6
577H	ADDITIVE	1176.6
506H	HS GREEN	1445.3
516H	HS WHITE	1990.3
551H	HS YELLOW	2987.1
8685S	REDUCER	3227.9

01/12/2005 MIXED BY: _____ ** MSDS LEAD-FREE **
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