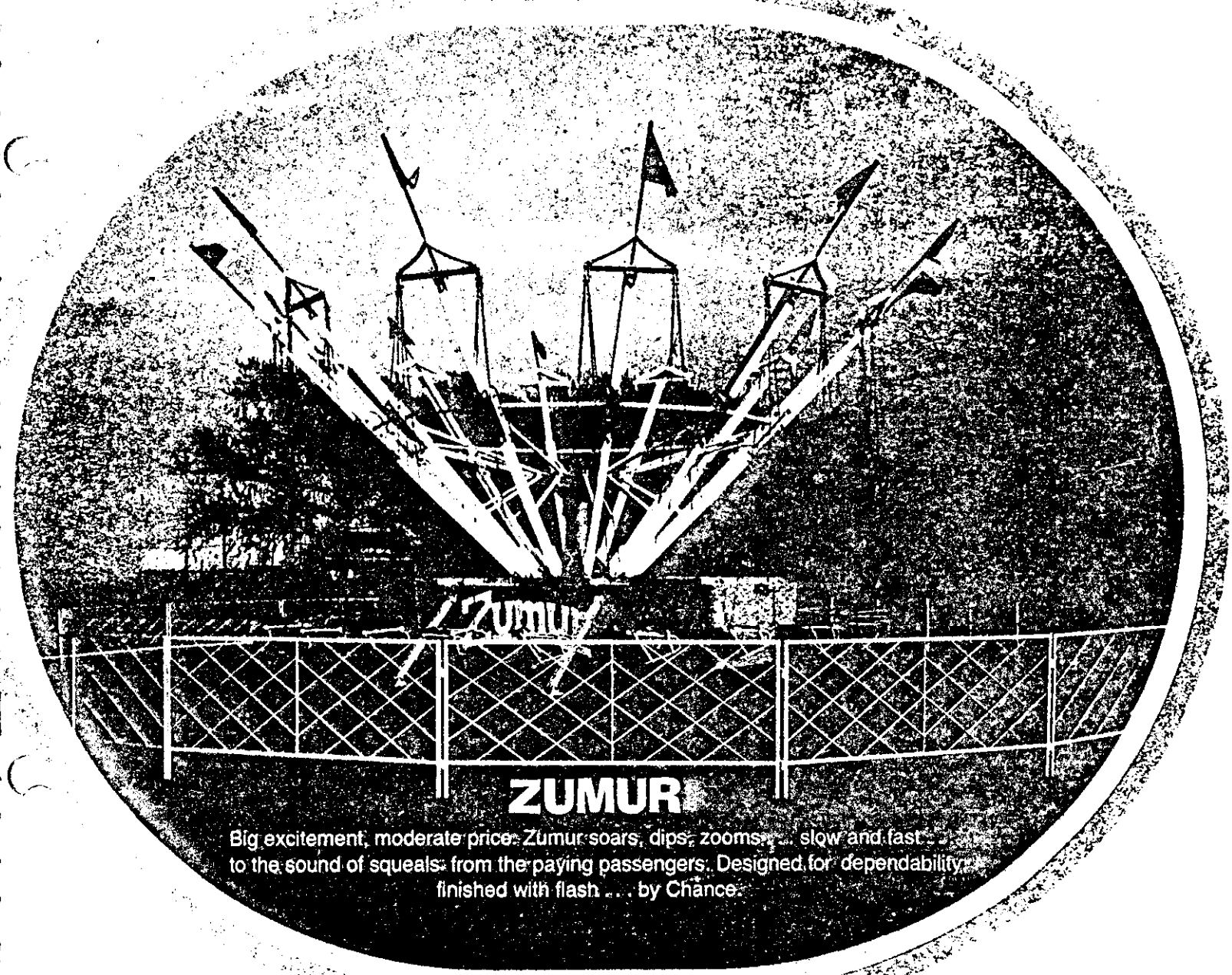


ZUMUR

Big excitement, moderate price. Zumur soars, dips, zooms . . . slow and fast . . . to the sound of squeals from the paying passengers. Designed for dependability . . . finished with flash . . . by Chance.

Chance

THE BIGGEST NAME IN AMUSEMENT RIDES FOR ALL AGES!

CHANCE MANUFACTURING CO., INC.

Box 2397
Wichita, Kansas 67201
(316) 942-7411

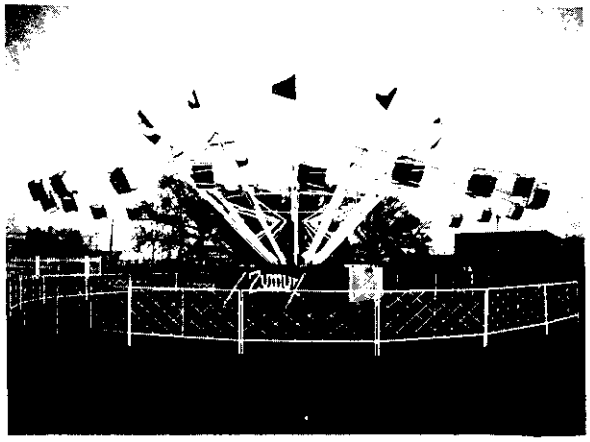
Sales Office: 1103 Ross Avenue
Dallas, Texas 75202
Mack Duce, Manager
(214) 742-3802

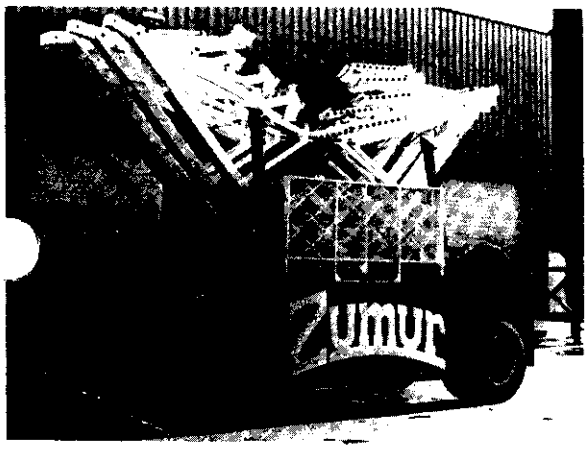
ZUMUR

1. Inspect blocking and leveling
2. Inspect lock nuts on leveling jacks
3. Inspect hydraulic valves for leveling jacks
4. Inspect for proper grounding - per local code
5. Inspect all fences and panels for proper installation
6. Inspect sweeps and hub for structural cracks
7. Inspect lap bars, crotch straps and seat belts (Bulletins A65-0264-00 and B65-0266-0A)
8. Inspect condition of seat hangers, chains, shackles and bolts (Bulletins B65-0266-0A and B65-0285-00)
9. Inspect for double X-brace installation.
10. Inspect seats for proper ground clearance - 24"
11. Inspect for proper timer operation - 2 minute cycle
12. Inspect for smooth braking action
13. Check speed of ride - 18 RPM maximum
14. Inspect ride for excessive vibration
15. Inspect structure for cracks, bad welds, etc.
16. Inspect electrical circuit for short circuits, bad wires, etc.
17. Inspect for hydraulic leaks
18. Inspect the overall appearance of the ride for cleanliness and general external upkeep
19. Inspect operating controls

SPECIFICATIONS

This ride conforms with all applicable ASTM amusement ride standards in effect on the date of manufacture.





SEATING

Number of seats 24
Maximum number of passengers per seat 1
Maximum passenger weight per seat . . . . . 170 lbs.
Maximum total number of passengers 24
Maximum total passenger weight . . . . . 4,080 lbs.
Minimum passenger height . . . . . 42 inches (unaccompanied by adult)
Loading . . . . . All seats simultaneously
Maximum unbalance . . . . . 6 adults (1,020 lbs.)

PERFORMANCE

Direction of travel . . . . . Counter-clockwise
Ride speed (maximum) . . . . . 18 rpm
Ride duration (maximum) . . . . . 2½ min.
Ride duration (recommended, programmed) . . . . . 2 min.
Maximum wind speed (operating) . . . . . 20 mph
Maximum wind speed (static) . . . . . 80 mph

MAXIMUM RIDE WEIGHT (empty) . . . . . 16,600 lbs.

DRIVE . . . . . Electro-Hydraulic

POWER REQUIREMENTS

Total . . . . . 20 kW
Motor . . . . . 15 kW
Lights . . . . . 5 kW
Minimum/Maximum line voltage 208/230

MOTOR

Type . . . . . 208 Y/460 volt, 3 phase, 60 Hz
Horsepower rating 20

LIGHTING . . . . . 110 volt incandescent and fluorescent

STANDARD LEAD-IN CABLE

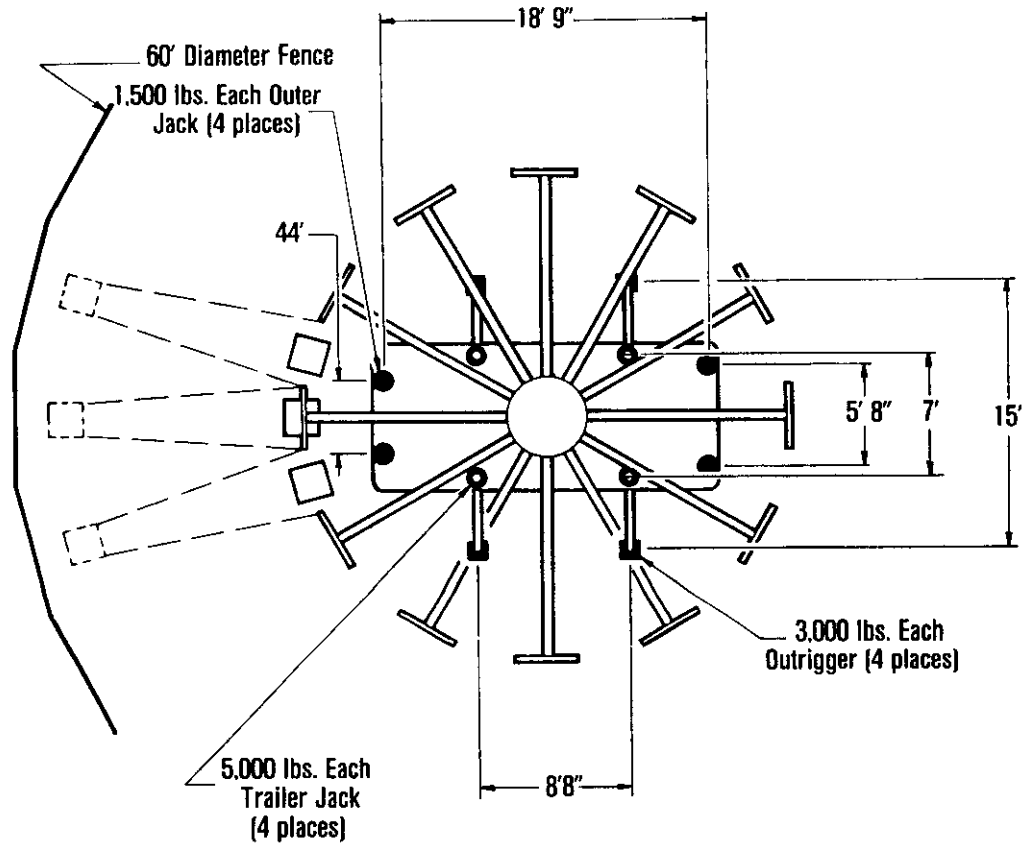
Size . . . . . 4/4 type G
Length . . . . . 50 ft.

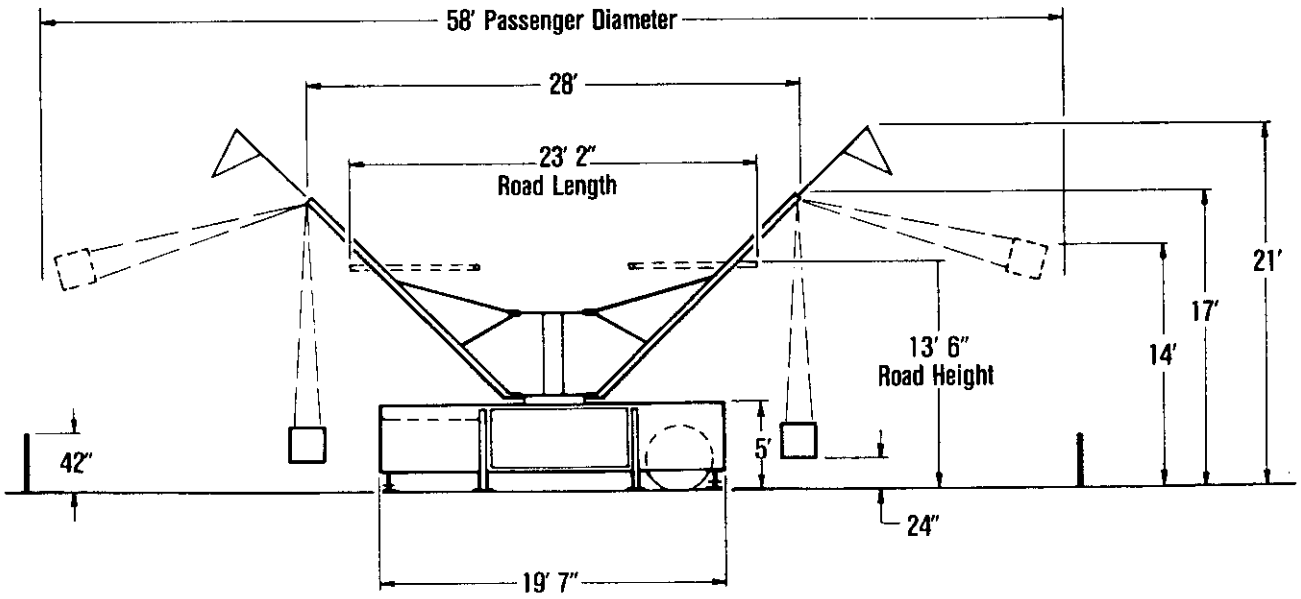
TRAILERING

Height . . . . . 13 ft. 6 in.
Width . . . . . 8 ft.
Length . . . . . 23 ft. 2 in.
Total weight . . . . . 16,600 lbs.
Rear axle weight . . . . . 10,300 lbs.
Kingpin weight . . . . . 6,300 lbs.
Tire size . . . . . 10:00 x 20 (12-Ply)

ZUMUR

Specifications are effective as of publication date. Because we try to improve every Chance Rides product, these specifications are subject to change without notice.





RIDE CLEARANCE DIMENSIONS

Ground Diameter	62 ft. frontage
Height	23 ft.

ZUMUR

Ride Serial Number _____ Owner _____ Date _____

FIELD INSPECTION POINTS

1. ( ) Inspect blocking and leveling

2. ( ) Inspect lock nuts on leveling jacks.

3. ( ) Inspect hydraulic valves for leveling jacks.

4. ( ) Inspect cable leads, electrical connections and grounding per local code.

5. ( ) Inspect fences and panels for proper installation.

6. ( ) Inspect sweeps and sweep hub for structural cracks.

7. ( ) Inspect condition of seat belts, crotch straps and lap bars (Bulletins A65-0264-00 and B65-0266-0A).

8. ( ) Inspect condition of seat hangers, chains, shackles and bolts (Bulletins B65-0266-0A and B65-0285-00).

9. ( ) Inspect for double X-brace installation.

10. ( ) Inspect for 24" ground clearance of seats.

11. ( ) Check for smooth timer operation - 2 minute cycle.

12. ( ) Inspect for smooth braking action.

13. ( ) Check speed of ride - 18 rpm maximum.

14. ( ) Check ride for excessive vibration.

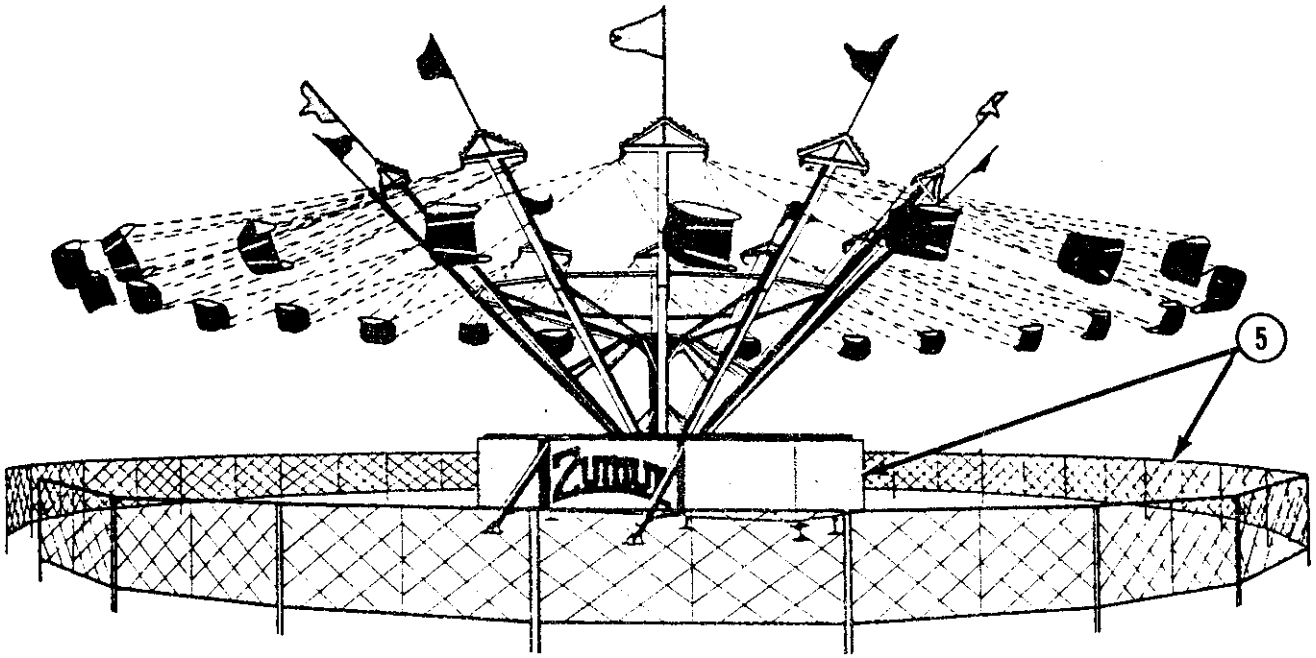
15. ( ) Inspect structure for cracks, bad welds, etc.

16. ( ) Inspect electrical circuit for short circuits, bad wires, etc.

17. ( ) Inspect for hydraulic leaks.

18. ( ) Inspect overall appearance of ride for cleanliness and general overall upkeep.

19. ( ) Inspect operating controls.



1. ( ) Inspect blocking and leveling

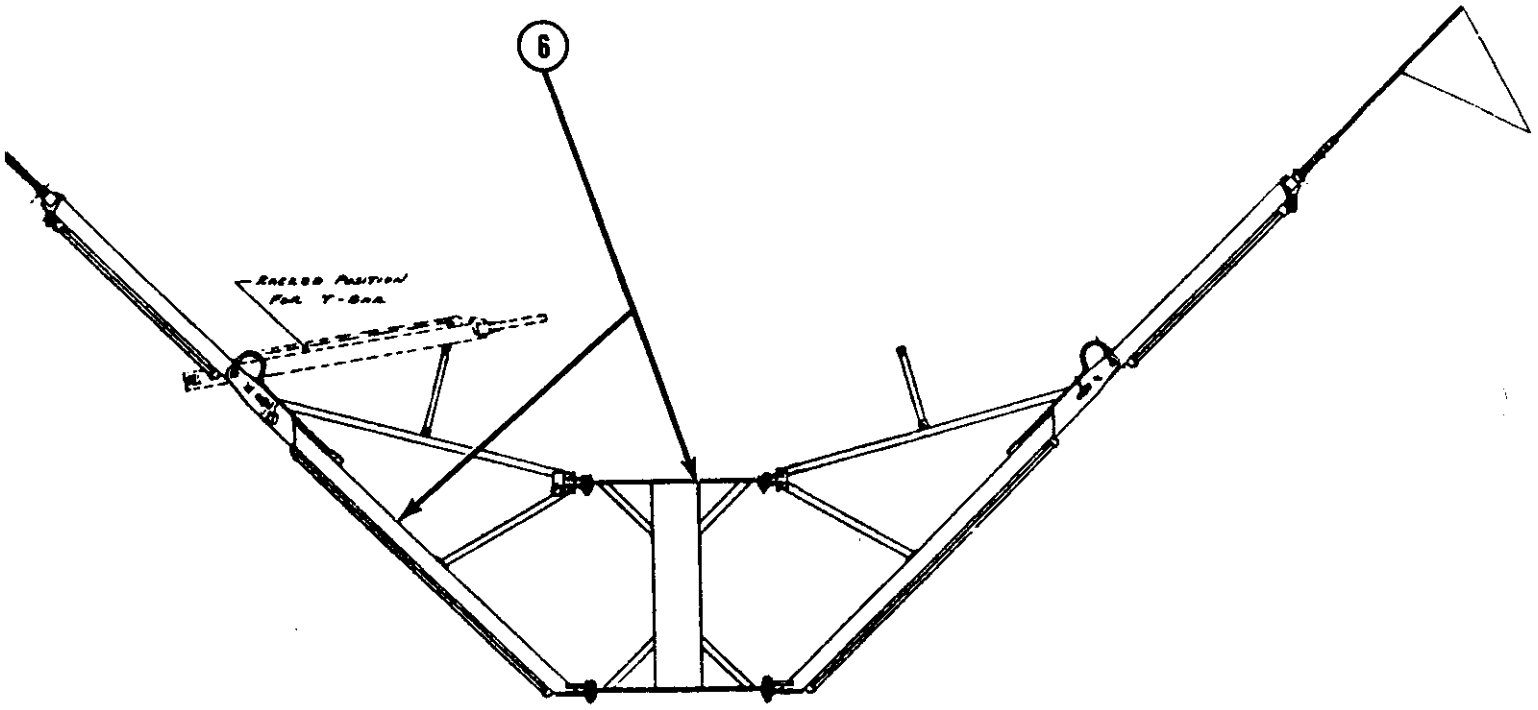
10. ( ) Inspect for 24" ground clearance of seats.

11. ( ) Check for smooth timer operation - 2 minute cycle.

12. ( ) Inspect for smooth braking action.

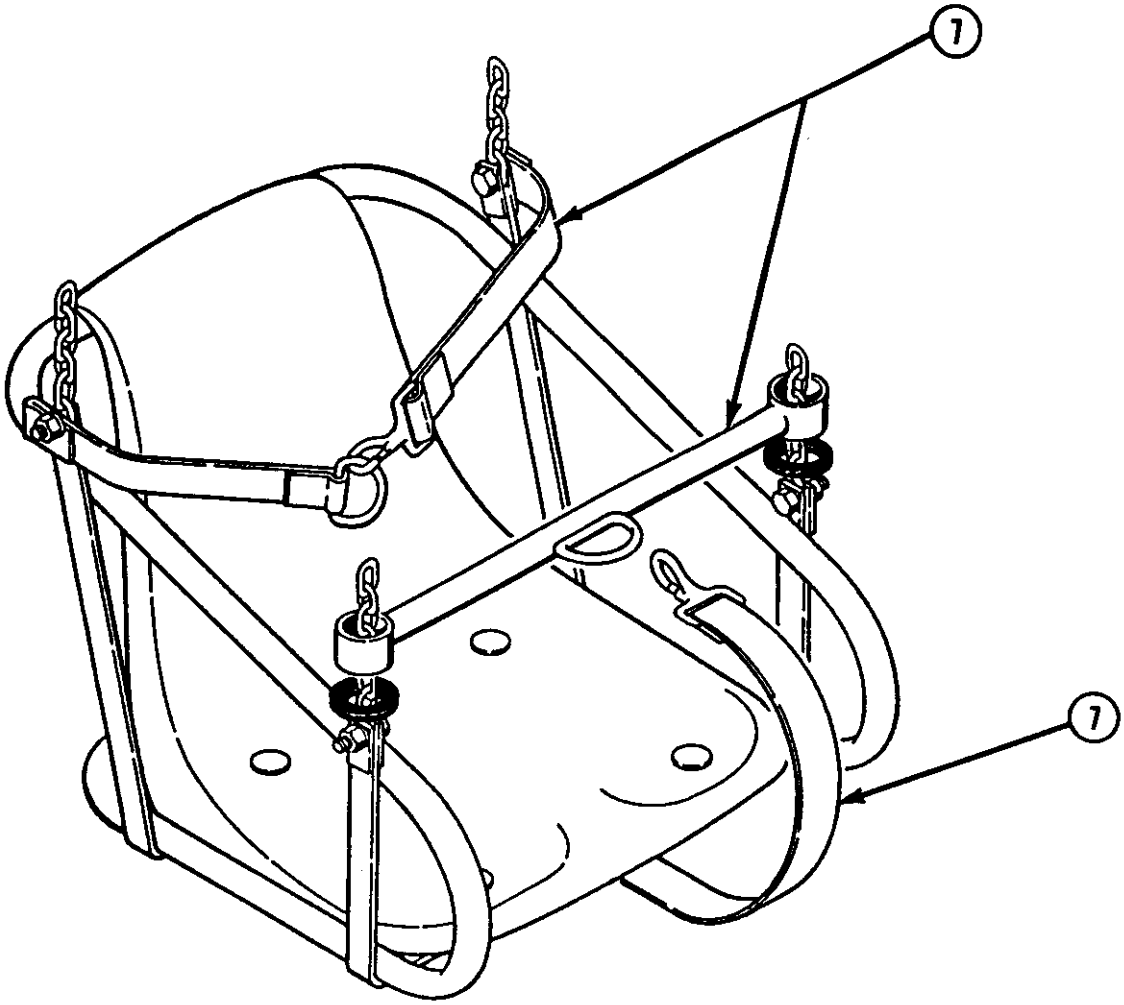
13. ( ) Check speed of ride - 18 rpm maximum.

14. ( ) Check ride for excessive vibration.

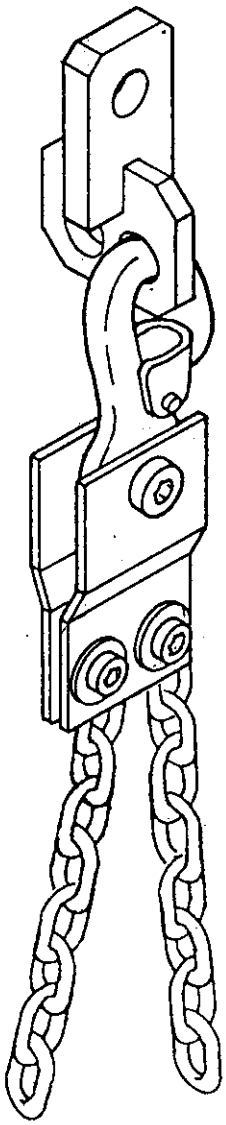


6. ( ) Inspect sweeps and sweep hub for structural cracks.

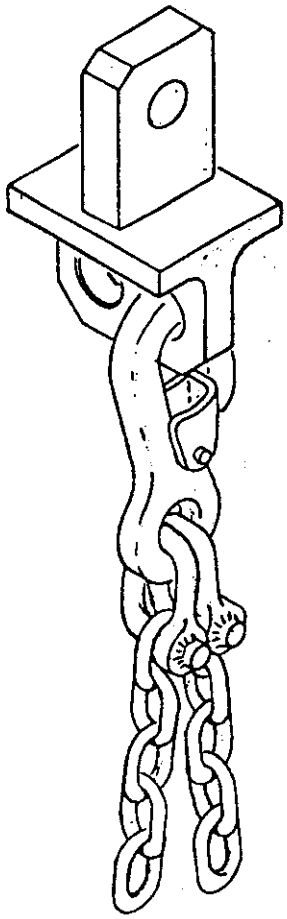
9. ( ) Inspect for double X-brace installation.



7. ( ) Inspect condition of seat belts, crotch straps and lap bars (Bulletins A65-0264-00 and B65-0266-0A).

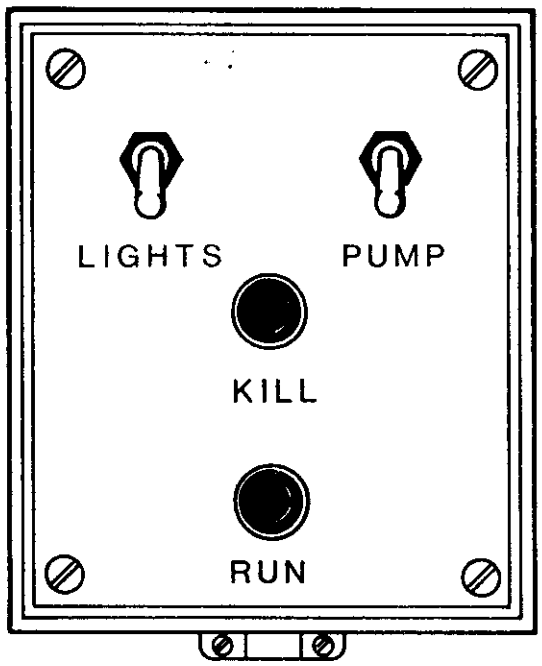


NEW STYLE



OLD STYLE

8. ( ) Inspect condition of seat hangers, chains, shackles and bolts (Bulletins B65-0266-0A and B65-0285-00).



11. ( ) Inspect operating controls.

Number: A65-0264-00

Date: February 20, 1985

Supersedes:

America's Largest Manufacturer of Amusement Rides

SAFETY ALERT

Effective Serial Numbers: All Units

Ride: ZUMUR

Subject: Lap Bar Kit

CHANCE MANUFACTURING CO., INC. has become aware of at least one accident involving the ZUMUR amusement ride. The passenger apparently was pulled by another passenger and/or slid forward under the lap bar and out of the seat while the ride was in motion.

CHANCE MANUFACTURING has developed a new lap bar which increases passenger safety. The new lap bar design incorporates a crotch strap, which secures the lap bar in the lowered position. The existing chest strap must be used in conjunction with the new lap bar to complete the passenger restraint system.

ALL OWNERS OF ZUMUR RIDES ARE REQUIRED TO REPLACE THE EXISTING LAP BARS WITH THE NEW LAP BAR SYSTEM.

Order kit number K65-0264-00, which includes the new style lap bars, crotch straps and all necessary hardware for one complete ride (24 seats). Install the kit using the instructions on the reverse side of this bulletin. Fill out and return the attached Certification of Compliance for installation of the kit within seven (7) days from receipt of the kit.

PARTS LIST

Components of Kit No. K65-0264-00

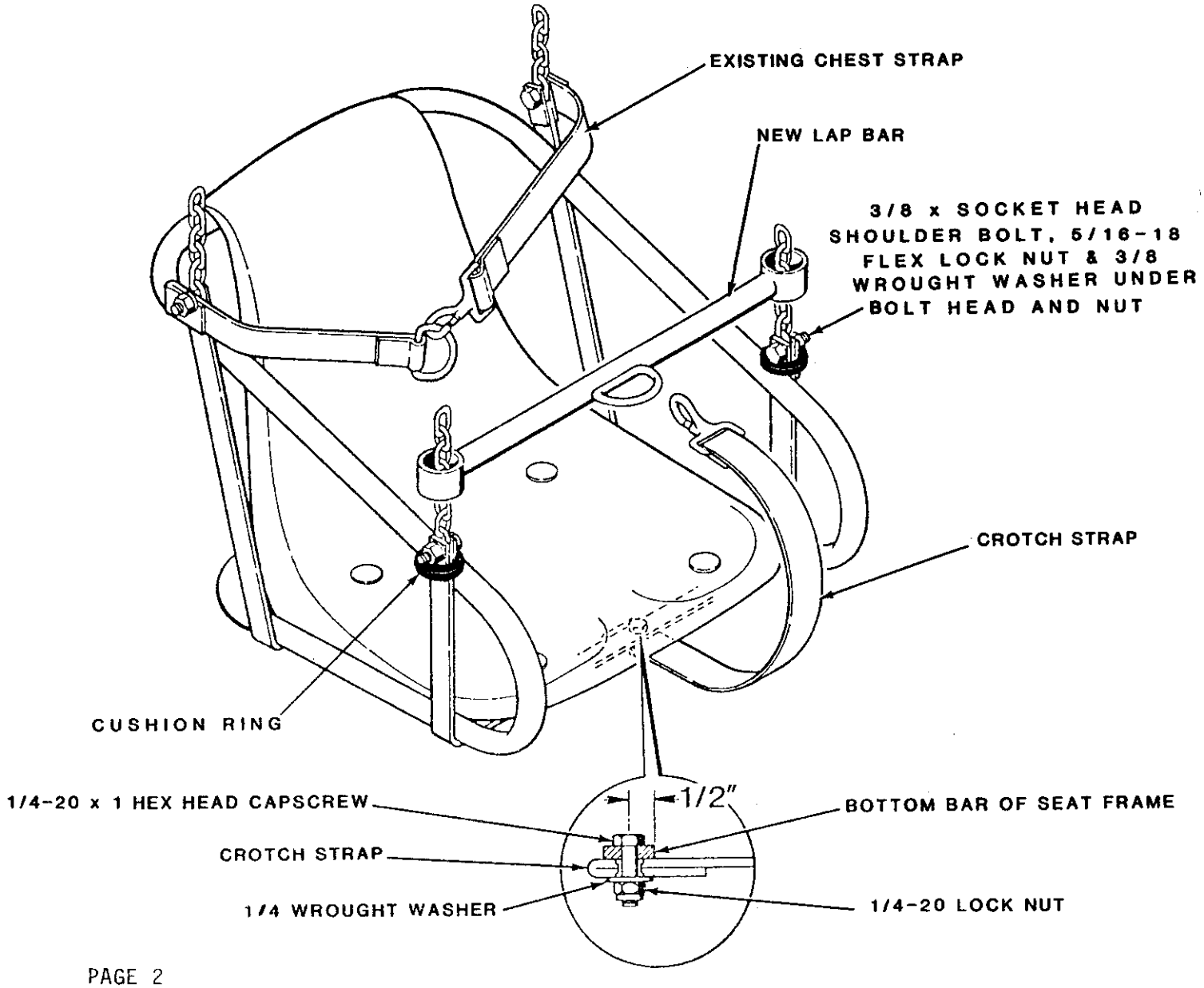
Part No.	Description	Quantity
361-04043	Lap Bar	24
261-05443	Crotch Strap	24
686-07004	Bolt - Hex Head Capscrew (1/4-20 x 1)	24
696-85300	Washer - Wrought (1/4)	24
691-47808	Lock Nut - Full Nylon Insert (1/4-20)	24
686-12232	Shoulder Bolt - Socket Head (3/8 x 1)	48
691-48044	Flex Lock Nut (5/16-18)	48
696-85308	Washer - Wrought (3/8)	96
261-85602	Cushion Ring	48

Installation Instructions

All work must be performed by competent mechanics, capable of understanding the function of the parts and their proper installation.

Read these instructions thoroughly and make sure you understand them before installing the kit. Identify all parts by checking them against the parts list. If any parts are missing, contact CHANCE MANUFACTURING immediately. Do not substitute an inferior grade of material or part.

1. With the ride stopped and the master circuit breaker in the "OFF" position, remove the two front chains from any seat. Remove the lap bar.
2. Inspect all four chains for wear per Service Bulletin B61-0265-00.
3. Install a cushion ring over each front upright on the seat frame.
4. Install the new lap bar on the chains with the D-ring toward the front of the seat. Install the new hardware with the bolts pointing out from the seat as shown. Torque the nuts to 13 lb-ft.
5. Drill a 1/4-inch hole through the bottom bar on the seat frame, on the centerline of the seat as shown. Be careful not to drill into the plastic seat.
6. Install the crotch strap and hardware as shown. Torque the nut to 72 lb-in.
7. Repeat Steps 1 through 5 on all remaining seats.



Number: B65-0266-0A

Date: 4-15-86

Supersedes: B65-0266-00
(2-20-85)

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Numbers: All Units

Ride: ZUMUR

Subject: Chain and Seat Inspection

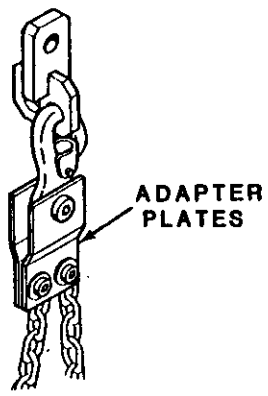
As a safety precaution, CHANCE MANUFACTURING CO., INC. recommends that the following inspection be performed on all ZUMUR amusement rides at every set-up or weekly, whichever occurs first.

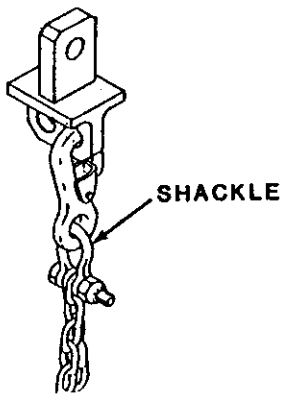
The inspection must be performed by competent personnel, capable of understanding the function of the parts and their proper installation. A parts list is included for identification of parts and as a convenience for ordering any necessary parts.

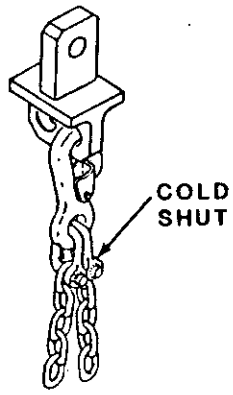
Inspection Points

1. CHAIR HANGER - Inspect for damage or wear in the holes for the snap hook.
2. SNAP HOOK - Check the inside of the hook for damage or wear. The spring catch must operate freely and close the hook completely.
3. ADAPTER PLATES AND ATTACHING HARDWARE -

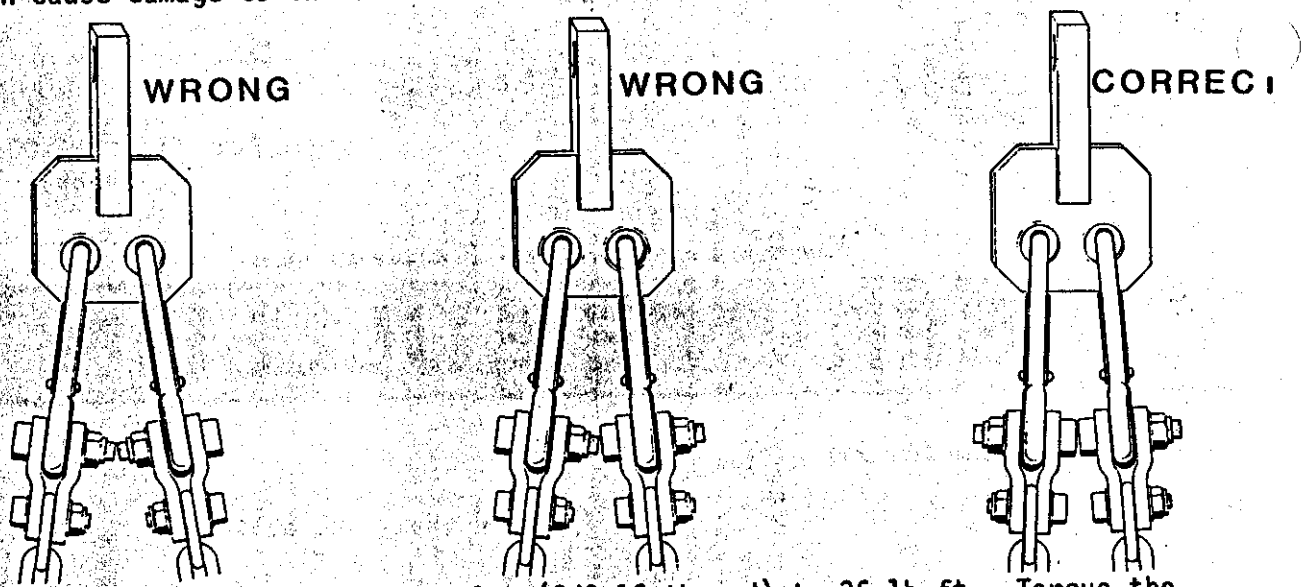
   NOTE: Early production rides were equipped with either shackles or cold shuts to attach the chains to the snap hooks. Inspect these for damage or wear, and refer to Service Bulletin No. 94. If your ride is equipped with either shackles or cold shuts, go to Step 4.







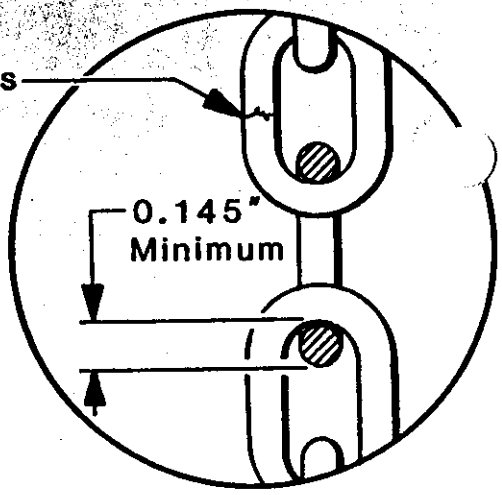
Check the position of the hardware which secures the chains and snap hooks to the adapter plates. The heads of the shoulder bolts must be to the inside of each chair hanger as shown. Contact of the threaded ends of the shoulder bolts can cause damage to the fasteners.



Torque the 1/2-inch shoulder bolts (3/8-16 thread) to 36 lb-ft. Torque the 3/8-inch shoulder bolts (5/16-18 thread) to 17 lb-ft. DO NOT SUBSTITUTE HARDWARE.

4. CHAINS - Carefully inspect all chains for wear, damage or broken welds on links. Measure chain wear on links near the seat as shown. The minimum acceptable dimension is 0.145 inch. If replacement is required, use only 3/16-inch proof coil chain. DO NOT SUBSTITUTE CHAINS. DO NOT SPLICE OR OTHERWISE ATTEMPT TO REPAIR CHAINS.

   If end links are worn, up to three links can be removed to shorten all four chains by the same amount. ALL FOUR CHAINS FOR EACH SEAT MUST BE THE SAME LENGTH (12 ft. 1-3/8 in. minimum).



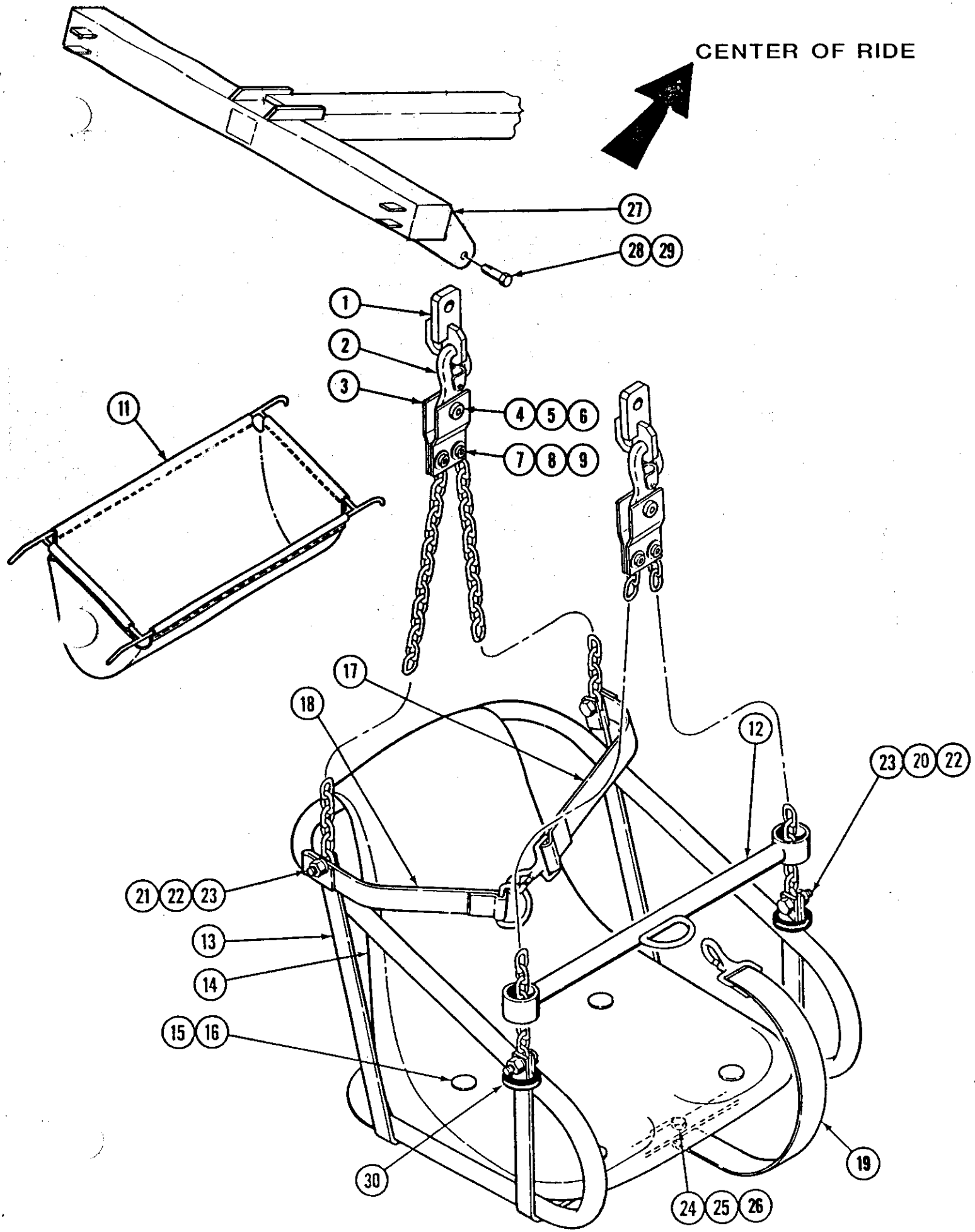
5. SEAT ATTACHMENT HARDWARE - Make sure that all bolts point out from seat. Torque the nuts to 13 lb-ft. DO NOT SUBSTITUTE HARDWARE.

6. SEAT AND SEAT FRAME - Check for cracks in the plastic seat. Inspect the seat frame for damage or wear in the area where the lap bar rests.

7. CHEST STRAP, CROTCH STRAP AND LAP BAR - All seats must be equipped with the complete passenger restraint system as shown. Replace any worn, damaged or missing parts.

8. OVERALL INSTALLATION OF CHAINS AND SEATS - All seats must be facing in the same direction - forward in relation to ride rotation. Each seat must be suspended from two chair hangers. DO NOT ATTACH BOTH SNAP HOOKS FOR A SINGLE SEAT TO THE SAME CHAIR HANGER. Snap hooks must be installed in the chair hangers toward the center of the ride as shown. Make sure the chains are not twisted.

If you have any questions or need replacement parts, contact the CHANCE CUSTOMER SERVICE DEPARTMENT.


CENTER OF RIDE
27
28 29
1
2
3
4 5 6
7 8 9
11
17
18
12
23 20 22
21 22 23
13
14
15 16
30
19
24 25 26

Parts List

Ref. No.	Part No.	Description	24 Seats Per Ride Qty. Reqd. Per Seat
1	361-32706	*Chair Hanger (376-209-001)	1
2	290-69296	Snap Hook	2
3	361-53843	**Adapter Plate (376-118-001)	4
4	690-12267	Shoulder Bolt - Socket Head (1/2 x 1, 3/8-16 Thd)	2
5	696-85310	Washer - Flat (3/8)	2
6	691-48046	Nut - Flexlock (3/8-16)	2
7	686-12232	Shoulder Bolt - Socket Head (3/8 x 1, 5/16-18 Thd)	2
8	696-85304	Washer - Wrought (5/16)	2
9	691-48044	Nut - Flexlock (5/16-18)	2
10	265-15233	Chain (3/16 Proof Coil x 12 ft. 4 in. long)	4
11	361-15290	Chain Bag (376-914-001)	1
12	361-04043	Lap Bar Weldment (376-111-001)	1
13	361-29215	Seat Frame (376-110-001)	1
14	361-64993	Seat (376-113-001) Specify Color: Black, Red, Navy Blue or Sand	1
15	686-12219	Carriage Bolt (1/4-20 x 1-1/4)	4
16	691-47808	Lock Nut - Full Nylon Insert (1/4-20)	4
17	261-05443	Chest Strap (376-114-002)	1
18	261-05442	Chest Strap (376-114-001)	1
19	261-05443	Crotch Strap (376-114-002)	1
20	686-12232	Shoulder Bolt-Socket Head (3/8 x 1, 5/16-18 Thd)	2
21	686-12233	Shoulder Bolt-Socket Head (3/8 x 1-1/4,5/16-18 Thd).	2
22	696-85308	Washer - Wrought (3/8)	8
23	691-48044	Nut - Flexlock (5/16-18)	4
24	686-07004	Bolt - Hex Head Capscrew (1/4-20 x 1)	1
25	696-85300	Washer - Wrought (1/4)	1
26	691-47808	Lock Nut - Full Nylon Insert (1/4-20)	1
27	365-04068	Tee Bar With Lights (380-1211-001)	12/ride
28	686-09526	Bolt - Hex Head Capscrew (3/4-10 x 3-1/4 Grade 5)	24/ride
29	691-47836	Lock Nut - Full Nylon Insert (3/4-10)	24/ride
30	261-85602	Cushion Ring	2/seat

* The chair hanger shown is interchangeable with the chair hangers originally equipped on early production rides.

** Early production rides were equipped with either shackles or cold shuts, which are no longer provided for this application. When replacing these parts, order items 3 through 9 in the quantities specified.

Number B65-0285-00

Date 5/25/86

Supersedes:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Numbers: ALL UNITS

Ride: ZUMUR

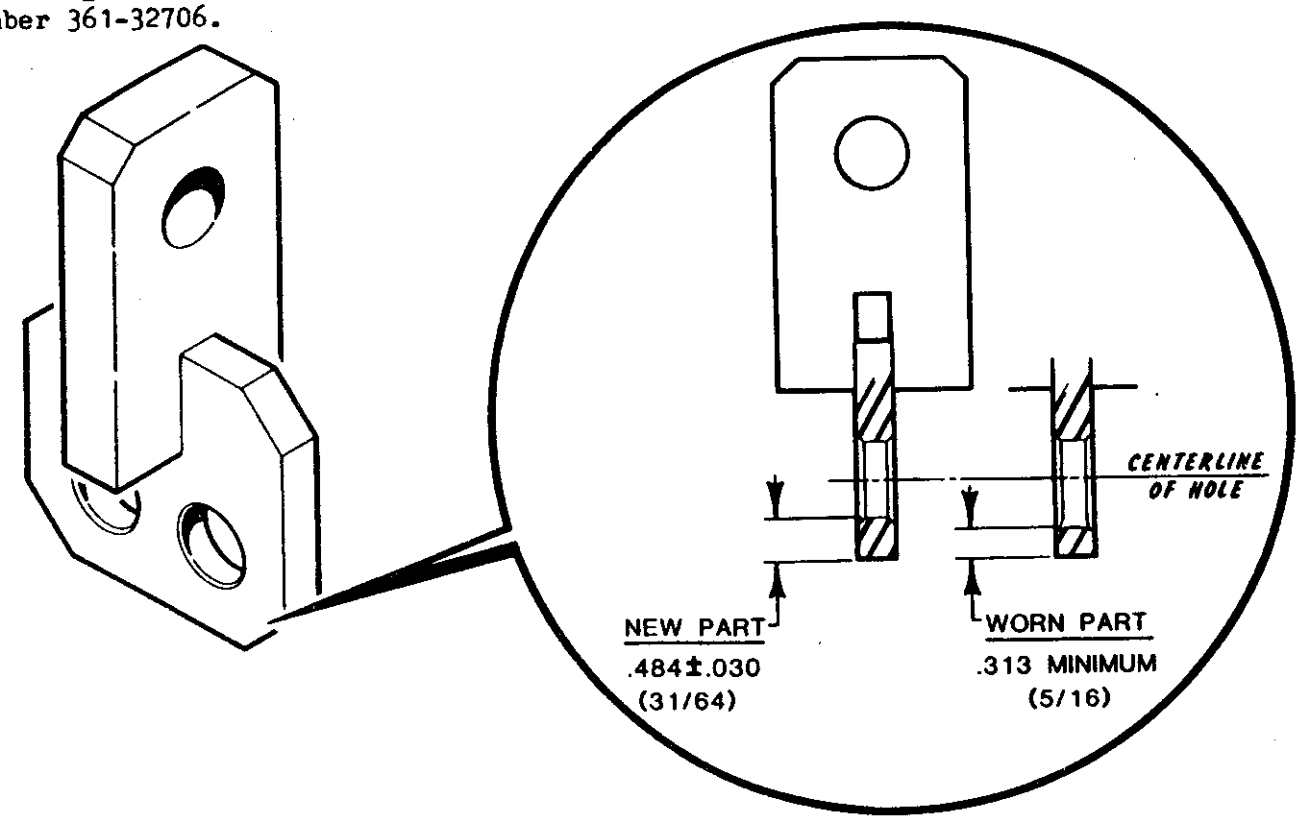
Subject: Chair Hanger Wear Limits

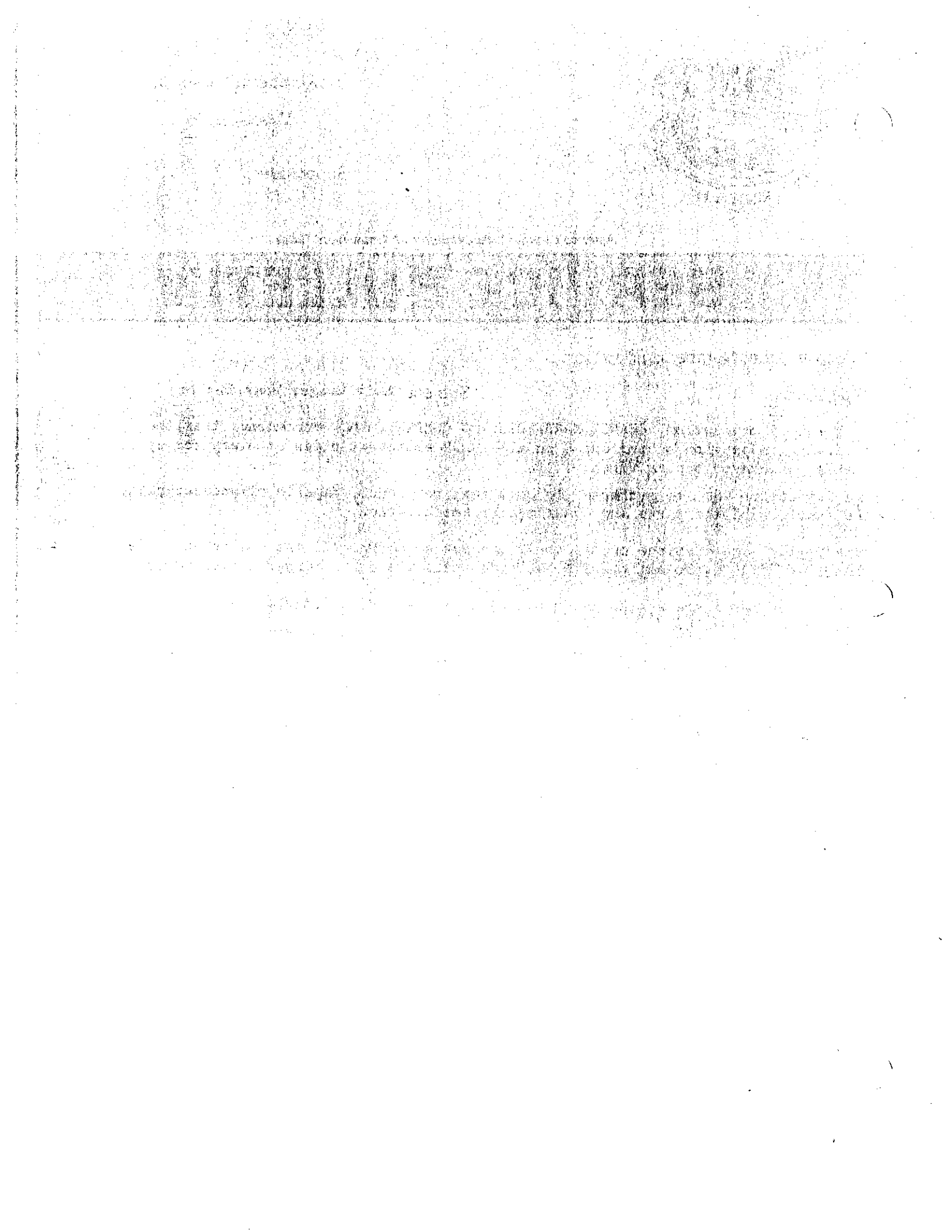
As a safety precaution, CHANCE MANUFACTURING COMPANY, INC. recommends that the following inspection be performed on all ZUMUR amusement rides at every set-up or weekly, whichever occurs first.

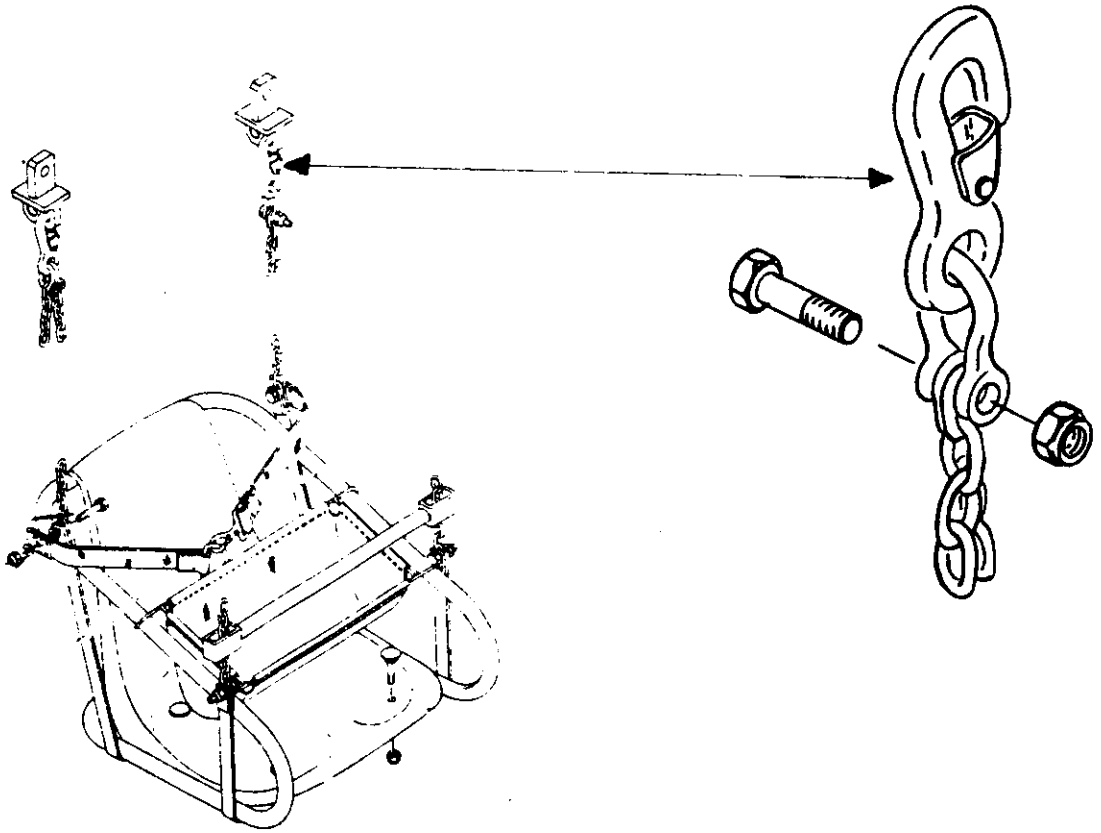
The inspection must be performed by competent personnel, capable of understanding the function of the parts and their proper installation.

Measure the edge distance on all chair hangers as shown. If the dimension is less than .313 (5/16"), do not operate the ride until the chair hanger is replaced.

New chair hangers are available from CHANCE MANUFACTURING COMPANY, INC. Order part number 361-32706.

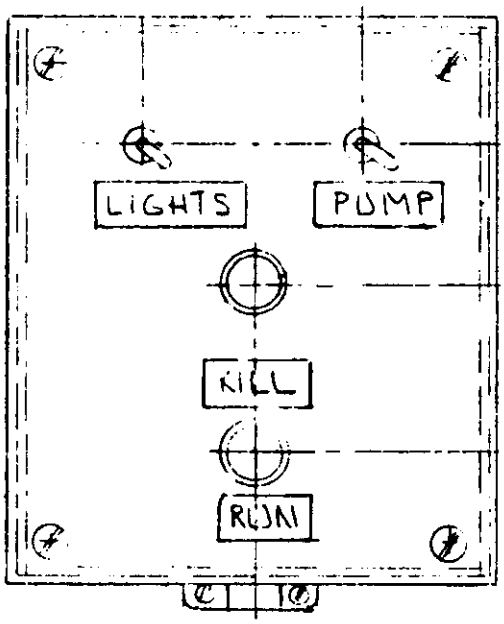






8. INSPECT SEAT HANGERS AND CHAIN FOR WEAR

ZUMAR



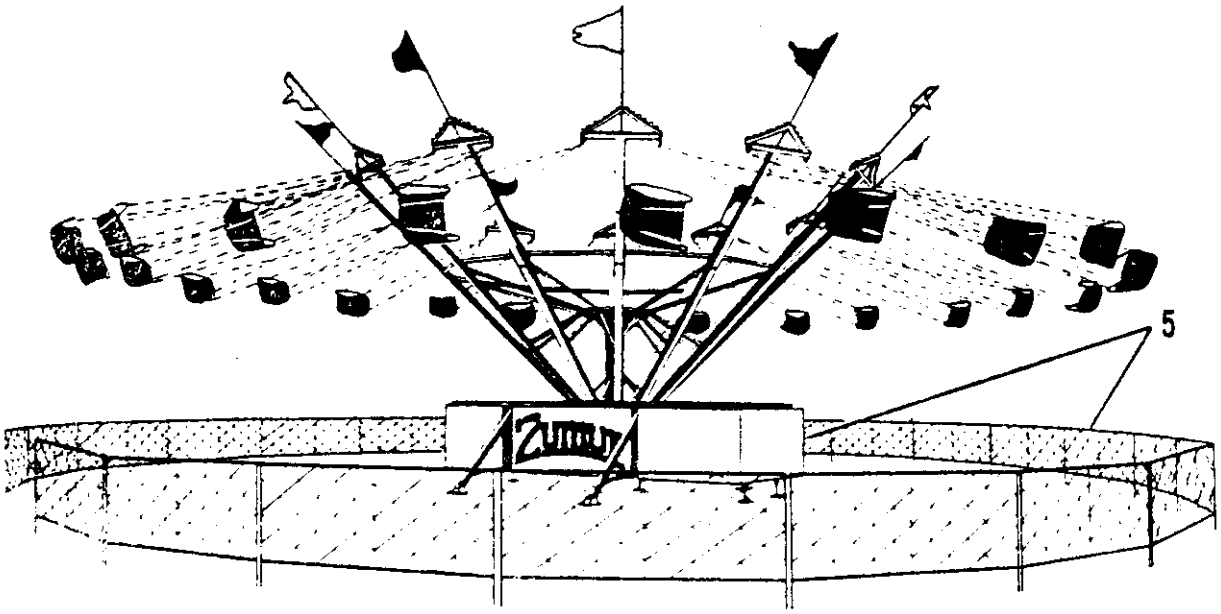
ZUMUR

ZUMUR INSPECTION RECORD

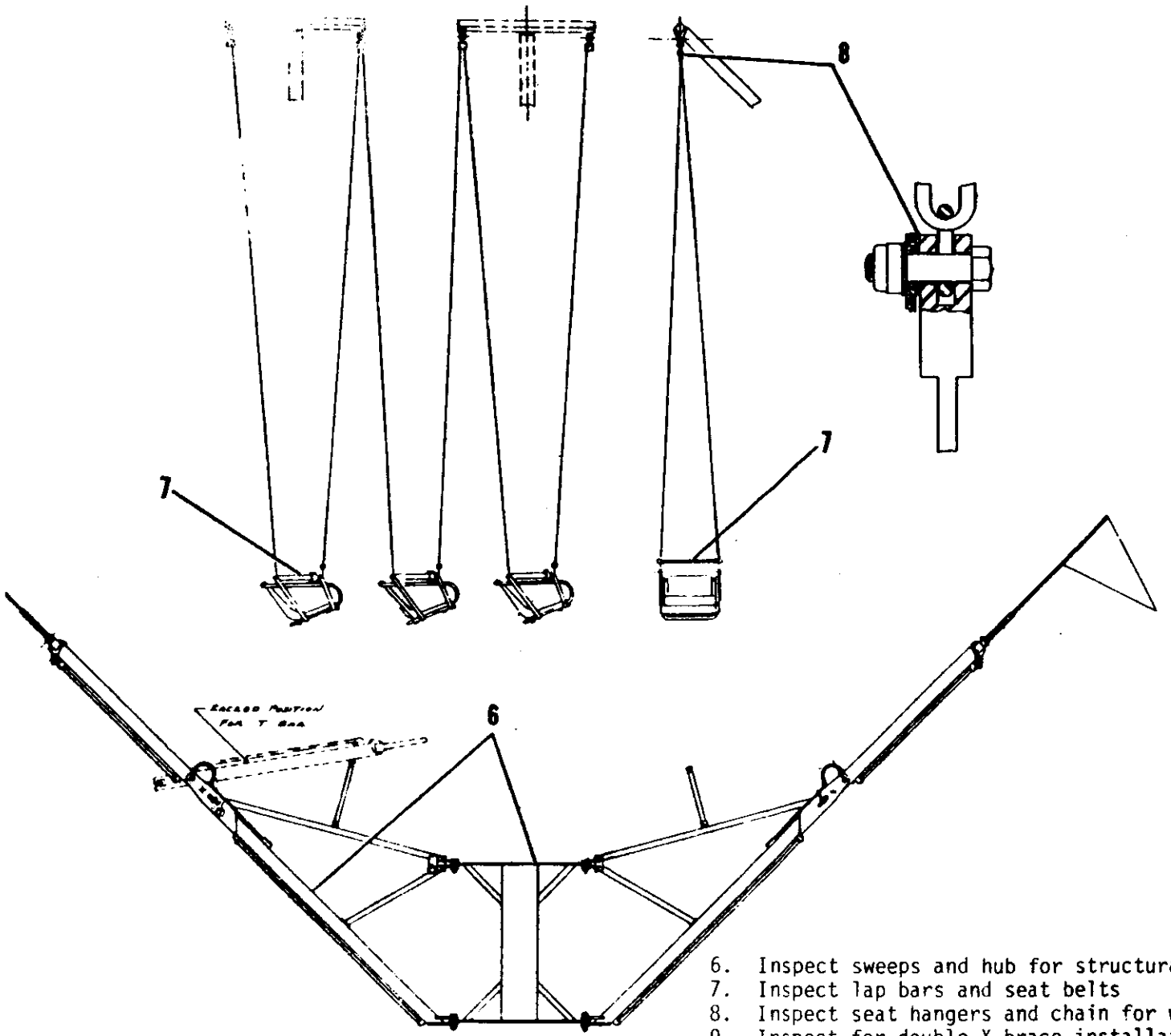
RIDE SERIAL NO._____ OWNER_____ DATE_____

FIELD INSPECTION POINTS

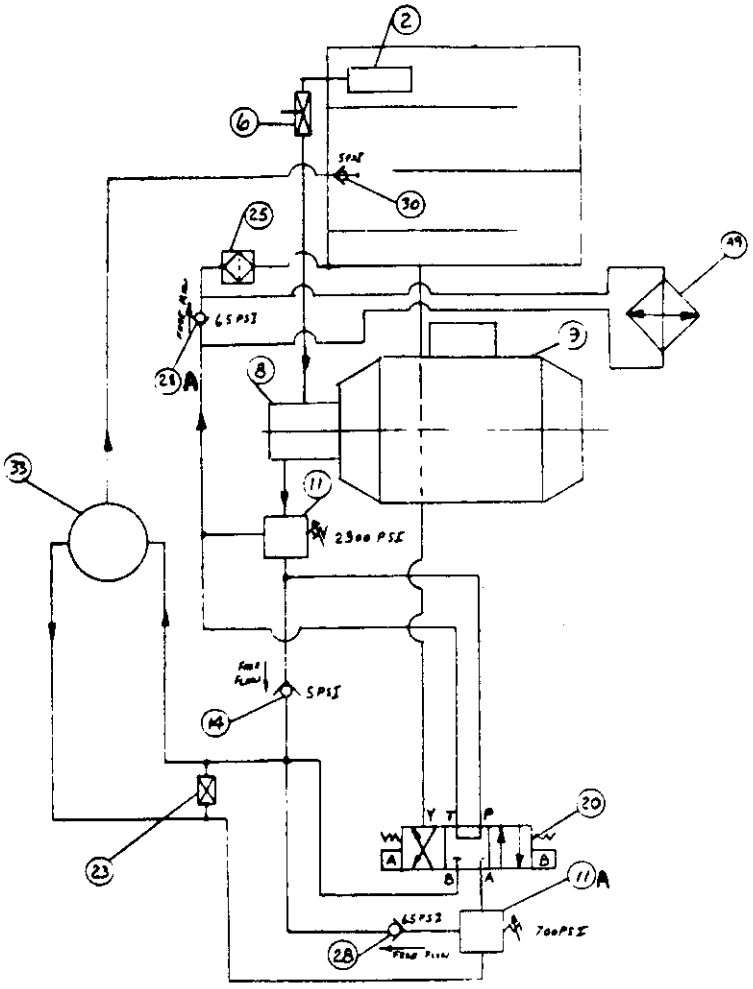
1. Inspect blocking and leveling
2. Inspect lock nuts on leveling jacks
3. Inspect hydraulic valves for leveling jacks
4. Inspect for proper grounding - per local code
5. Inspect all fences and panels
6. Inspect sweeps and hub for structural cracks
7. Inspect lap bars and seat belts
8. Inspect seat hangers and chain for wear
9. Inspect for double X-brace installation
10. Inspect seat for proper ground clearance - 24"
11. Inspect for proper timer operation - 2 minute cycle
12. Inspect for smooth braking action
13. Inspect RPM of ride: Maximum - 18
14. Inspect ride for excessive vibration
15. Inspect structure for cracks, bad welds, etc.
16. Inspect electrical circuit for shorts, bad wires, etc.
17. Inspect for hydraulic leaks
18. Inspect rides' overall appearance for cleanliness and general external upkeep



10. Inspect seat for proper ground clearance - 24"
11. Inspect for proper timer operation - 2 minute cycle
12. Inspect for smooth braking action
13. Inspect RPM of ride: Maxumum - 18
14. Inspect ride for excessive vibration



6. Inspect sweeps and hub for structural cracks
7. Inspect lap bars and seat belts
8. Inspect seat hangers and chain for wear
9. Inspect for double X-brace installation



HYDRAULIC SCHEMATIC

HYDRAULIC SYSTEM

The ZUMUR hydraulic system is an open type system rather than a closed loop system. Open type hydraulic systems do not have to be purged of air if a component is removed for repairs. Any air in the system will simply be pumped through with the oil and will float out upon reaching the tank.

All of the plumbing where possible is constructed of steel tubing to eliminate unnecessary hoses.

HYDRAULIC OIL

See specifications in Maintenance Sect.

REPLACEMENT PARTS

Individual parts for pumps or valves, etc. can generally be obtained sooner by contacting the nearest representative for the product.

Hard tubing can usually be obtained locally or hoses can be substituted.

Chance Mfg. does not stock repair parts for pumps, etc. other than Seal Kits or normal replacement parts. These parts will be obtained however, should they be requested, but they cannot be shipped immediately.

REPAIR OF COMPONENTS - GENERAL

When removing any component from hydraulic system, plug the ends of any lines, etc., that are left exposed, so that dirt, etc. cannot enter.

Label all parts and lines, etc., as well as component parts if disassembled.

Place parts in a logical order so they can be assembled correctly.

COMPONENTS

Some of the components may not be used on all rides. Refer to the Hydraulic Schematic that covers the correct Ride Serial Number.

The number beside the component description will match the number on the Hydraulic Dwg. 380-600

HYDRAULIC RESERVOIR (36)

The hydraulic reservoir has a capacity of 52 gallons with a working oil capacity of 45 gallons. Maintain the fluid level at approximately 48 gallons. Observe Sight Gauge on side of reservoir for fluid level. With the ride set up and running, the fluid level should be visible in lower half of Sight Gauge.

OIL STRAINERS (2)

Inside the reservoir are two strainers attached to the pumps suction lines. Remove cover plate from top of tank. Unscrew strainers, and wash them throughly in solvent. This should be performed at regular intervals.

When removing the strainers, feel the bottom of the tank. If there is sludge built up on the bottom, drain the tank and clean it.

BREATHER & FILL CAP (34)

The breather and fill cap on top of the reservoir should be cleaned with solvent at regular intervals. This cap should be kept tight at all times to prevent foreign matter from entering reservoir.

FILTER (25)

The hydraulic filter is one of the most important components in the system. All of the oil in the system passes through the filter element, and is cleansed of foreign particles. The removal of these particles from the system greatly prolongs the life of the other components in the system. The filter element should be replaced at least semi-annually, or if system becomes contaminated between changes.

SHUT OFF VALVE (6)

These valves simply shut off the supply of oil from the tank to the pumps.

Valves must be fully open or pumps will cavitate.

CHECK VALVE (28)

Prevents pressure from being put into the tank side of the Brake Relief Valve. If check does not seat adequately, oil will leak through Relief Valve resulting in the ride running slower than normal.

CHECK VALVE (28A)

Keeps 65 lbs. pressure in line to force part of the oil through the Cooler (49).

PUMP

The pump supplies oil at 13.5 G.P.M. to run the Rotation Cycle.

HYDRAULIC PUMP MOTOR (9)

Pump motor is a 220V, 60 cycle, 3 phase, 1800 R.P.M., 25 H.P. electric motor. The motor end shafts couple directly to the hydraulic pumps.

Motors are normally supplied with shielded ball bearings packed by the bearing manufacturer with Chevron BRB No. 2 Grease (-20° F. to Plus 329° F.) or equivalent, and do not require periodic greasing. If motor is taken apart and bearings are replaced make sure they are the same type packed with this grease. Repack chamber in end bell behind bearing with same type of grease. Bearings on special application motors may be supplied with grease fittings. These applications require the addition of a small amount of ball bearing grease every 1000 operating hours.

RELIEF VALVES

(11) Limits pressure going to Hydraulic Motor for acceleration.

(11A) Governs back pressure on Hydraulic Motor to provide a smooth braking.

DIRECTIONAL CONTROL VALVE (20)

This valve is a spring centered, solenoid controlled and pilot operated two-way valve with a three position spool, the center position being open pressure to tank.

A solenoid controlled pilot is used to control the shifting of the spool. In other words, when the solenoid is activated it allows a small amount of fluid to pass through a pilot passage in the valve to the back side of the spool. The fluid then is actually what causes the main spool to shift to control the main flow.

Since the solenoids in the valve control the action of the valve, they should be the first things checked if the component does not function

(20) Controls the flow to the Hydraulic Motor which rotates the ride.

NEEDLE VALVE (23)

"Open" the Needle Valve forms a loop between the pressure and return lines going to the Hydraulic Motor. This allows the head section to be rotated manually during erection.

CHECK VALVE (30)

This check simply keeps enough oil in Hydraulic Motor to prevent damage to the seals.

HYDRAULIC MOTOR (33)

See Staffa bulletin T-15.

CHECK VALVE (14)

Replenishing check to allow oil to flow to motor during braking so motor will not cavitate.

OIL COOLER (49)

The oil cooler acts as a car radiator would, only it cools the hydraulic oil instead of water.

TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	CORRECTIVE ACTION
Complete loss of electrical power	Tripped main breaker Poor connections at power supply tie in	Reset or replace breaker Check and tighten connection
Isolated loss of electrical power	Tripped circuit breakers in main panel box Malfunctioning contactor SEE ELECTRICAL SECTION	Reset or replace breaker (See Electrical Section) Replace contact points or coil
Complete loss of hydraulic power	Pumps not functioning Pumps rotating in wrong direction	Check motor and pump (See Hydraulics Section) Reverse two of the 110 volt lines at power supply tie in
Pumps excessively noisy	Pump cavitation (low on hydraulic fluid)	Replenish fluid (See Lubrication Chart)
Pump cavitation	Air leaks between reservoir and pump Clogged tank strainers Shut off between tank and pump partially closed	Reseal or replace lines Remove and clean Open shut off
Ride will not rotate	Malfunctioning pump Needle valve not closed Hydraulic motor locked up Main bearing frozen Directional Valve not Shifting	Remove and repair Close valve Replace motor Pump full of grease and rotate by hand until it turns freely Replace coil or free Main Spool
Directional Valve not Shifting	Switch on timer cam not closing to complete circuit to Directional Valve Timer Relay not functioning	Repair or replace Cam or Switch Replace

TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	CORRECTIVE ACTION
Ride accelerates too slowly or runs too slowly	Relief valve pressure too low	Adjust pressure
	Main bearing attempting to freeze	Lubricate bearing
	Needle valve partially open	Close valve
	Check valve partially open	Remove and clean or replace
	High rate of leakage in motor such as blown seals	Remove and repair (See Damage Hydraulic Motor) See Staffa Bulletin T-15
Ride does not stop fast enough or stops too harshly	Relief valve out of adjustment	Adjust pressure setting
	Stuck spool in Directional valve	Remove end cap and free spool
Damaged hydraulic motor	Foreign matter in hydraulic oil	Drain and flush system Thoroughly clean tank
	Damaged or dried out seals from lack of oil when stored	Inspect Check valve for seating

MAINTENANCE AND LUBRICATION CHARTS

MAINTENANCE CHECK

COMPONENTS	PERFORM	FREQUENCY
Hydraulic Filter Element	Replace	Semi-Annually
Hydraulic Tank Strainer	Clean	Semi-Annually
Hydraulic Reservoir Fluid	Check	Weekly
Hydraulic Reservoir Fluid	Replace	Annually or if Contaminated
Bolts and Nuts	Check	Monthly (For tightness)
Sweep & Spreader Bar	Check	Weekly (For tightness)
Pins and Hair Pins	Check	Daily
Electrical Components	Check	Monthly/Weekly (See Electrical System)
Trailer Tires (80-85 P.S.I.)	Check	Weekly

RECOMMENDED LUBRICATION

FOR ALL ZERK FITTINGS:

Lube - Plate 630AA
Mobil - Gargoyle - BRBI
Standard Oil - Nakta No. 1
Texaco - Marfax No. 1
Gulf - Gulf Precision No. 3

LUBRICANT FOR PIVOT POINTS WITHOUT ZERK FITTINGS.

A good multi-purpose machine oil 20W.

HYDRAULIC FLUID:

10 Weight Non-Detergent Motor Oil - M.S. Quality
DTE - 24 Mobil
10-10W Universal Hydraulic Fluid

LUBRICANT FOR ROLLER CHAIN.

"STP" Oil Additive

The following lubrication intervals are to be used as a guide only. Lubrication needs will vary greatly according to area climate, time of year, etc., and usage of ride.

LUBRICATION CHART

Coastal Areas

If the ride is to be operated in a coastal area, lubricate the ride daily. Include all hinge pins, etc., even though they only move during erection or tear down of the ride. Ride should periodically be washed down with fresh water to remove corrosion-causing elements deposited by salt sea air.

DWG. NO.	LOCATION	LUBRICATION	FREQUENCY
380-300	Main Hub Bearing	Grease	Weekly
380-300	Drive Pinion Gear	Grease	Weekly
380-200	Sweep Hinge Points	Oil	Each Set-Up or Weekly
380-800	Outrigger Pivots	Oil	Each Set-Up or Weekly
380-1002	Timer Shafts	Oil	Monthly
380-1002	Timer Gears	Light Grease or Petroleum Jelly	Monthly

DAILY START-UP & CHECK LIST

Turn on Master Circuit Breaker, Pump Switch and Light Switch.

Check lights and replace as necessary.

Install ladder on rear of trailer for observation purposes. Inspect Sweep Ends, "T" Bars, Chair Chain, Hooks and Bolts for wear or possible fatiguing, etc. Make sure all Pins, Hair Pins, Cotter Pins and Bolts are installed properly and in Serviceable Condition.

Inspect attach points for seats. Turn chair over and inspect bottom side for loose or missing nuts.

Inspect seat belts for wear such as fraying or cuts. Replace them if worn. Latch belt and pull on it to be sure it locks in position.

Tie a rag on one seat. Run ride and count RPM's. Ride should turn approximately 16-18 RPM. If ride turns more than 18 RPM, do not operate.

While ride is in motion, remove one panel from around trailer. Position yourself under trailer and observe Jack Stands, Leveling Jacks.

Check all of these components to make sure nothing works loose.

Make sure trailer is not rocking back and forth.

Check levelness of trailer as shifts in the soil can occur. This holds true even under asphalt or concrete.

Check duration of ride cycle total of approximately 120 seconds and should include following:

18 sec. Initial Acceleration
44 sec. of "Off and On"
6 - 4 sec. "Off"
5 - 4 sec. "On"
32 sec. Acceleration
26 sec. Deceleration to Stop
120 sec. Total Ride Time

If ride does not perform the prescribed sequence, repair or replace timer cams.

Test "Emergency Stop" or "Kill Switch". Ride should stop in approximately 26 seconds. After testing, reset timer relay button which is located on the side fo the Main Electrical Box.

Observe sight gauge on oil tank to insure there is an adequate oil supply. Oil level should remain in limits of sight gauge. When ride is running, the oil level should appear in the lower portion of the sight glass.

Also, be aware of any color changes in the oil, as they can be signs of impending trouble.

Visually inspect hydraulic components and hoses for leaking or loose connections.

Chair and "T" Bar Check