Electrical and lighting inspection

1. Check the boom limit switches, located at the boom pivot. One switch is actuated when the boom is raised approximately 45°. The other switch is actuated when the boom is fully raised. These switches must be adjusted properly, and MUST NOT BE BY-PASSED.

2. Check cable leads, electrical connections and grounding per local code.

3. Test the operator controls, including emergency stop switch, operator presence switch and power switch.

4. Check the electrical jumpers at each vehicle.

5. Inspect all quartz flood lights for installation of special clear tape on outside of lens[7].

Hub & sweep inspection

1. Check the installation of all spreader bars, pins and lynch pins.
2. Inspect the installation of two sets of cross rods between the sweeps and hub. The cross rods must be in tension, with the turnbuckles snug.
3. Inspect all sweeps for cracks, bends and other damage.
4. Check the shoulder bolts which attach the sweeps to the hub. These are special heat-treated fasteners, tightened to 350 ft-lbs. torque.
5. Check capscrews that attach the center hub to the bearing turntable on the boom[1]. These are Grade 8 hex head capscrews with hardened washers under the heads (28 places). Verify the hardened washers fit flush to the hub. These capscrews must be tightened to 110 ft-lbs torque (dry) or 90 ft-lbs torque (lubricated threads).

Boom and tilt head inspection

1. Check the tower head pivot pins for installation of locking hex head capscrews and capscrew retainers. The tabs on the retainer must be bent over the pin and the capscrew to prevent the capscrew from becoming loose.
2. Check the operation of the manual boom release valve, located on the roadside of the manifold block mounted immediately in front of the hydraulic pallet. The check valve on the boom lift cylinder port block must be opened before using the manual boom release valve. Check for installation of the safety decal for this valve, which is applied to the diagonal brace near the base of the boom lift cylinder.
3. Inspect the boom and tilt head structures for visible cracks or damage.

3. Stop the ride and manually release the secondary restraint bar on only one vehicle.

4. Carefully close the secondary restraint bar, engaging the right hand latch first, then the left hand latch. Listen for two audible "clicks" as the left hand latch engages in two positions. The lap bar indicator light must not come on until the left hand latch reaches the second, fully engaged position.

5. Repeat Step 4, but close the left hand latch first, then observe the indicator light as the right hand latch is engaged.

6. If the indicator light comes on before EITHER secondary restraint bar latch is completely engaged, adjustment or repair of the passenger restraint bar interlock system is necessary.

   DO NOT ALLOW ANYONE ON THAT VEHICLE UNTIL REPAIRS ARE MADE.

7. Proceed to the next vehicle and repeat Steps 4, 5 and 6 until all vehicles have been tested, ONE AT A TIME.

Passenger restraint and interlock system operational check

An interlock system prevents the ride from being started if any of the secondary restraint bars is not down and locked. The following check must be made daily to ensure the proper operation of the pasenger restraint bar interlock system

WARNING: Never load passengers into a vehicle unless ALL passenger restraint bars on that vehicle are in good working condition, and the passenger restraint bar interlock system is operating correctly.

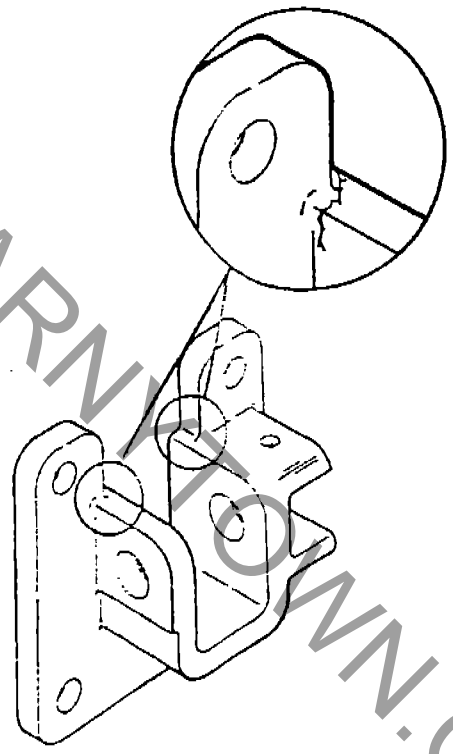
Do not tamper with or attempt to defeat the purpose of the passenger restraint bars or the passenger restraint bar interlock system. Serious injury to passengers can result.

1. Lower and lock all lap bars and secondary restraint bars. All white lap bar indicator lights must be on.

2. Start the ride. It should start and run normally. Stop the ride.

WARNING: When testing the passenger restraint bar interlock system, use only the JOG BUTTON. If the ride starts with the passenger restraint bar unlatched, STOP THE RIDE IMMEDIATELY to avoid serious injury to the passenger.

5. Visually inspect all vehicle hangers for cracks in the areas shown in the illustration below. If cracks are found DO NOT OPERATE THE RIDE. This visual inspection must be done daily, prior to operation of the ride.



WARNING: Inspect all vehicle hangers every day before operation of the the ride. Never operate the ride unless ALL vehicle hangers are in good condition. Serious injury to passengers and/or bystanders can result from vehicle hangers which are broken, cracked or otherwise damaged.

6. Inspect the vehicle frame structures for cracks, bends and other damage.

Vehicle inspection

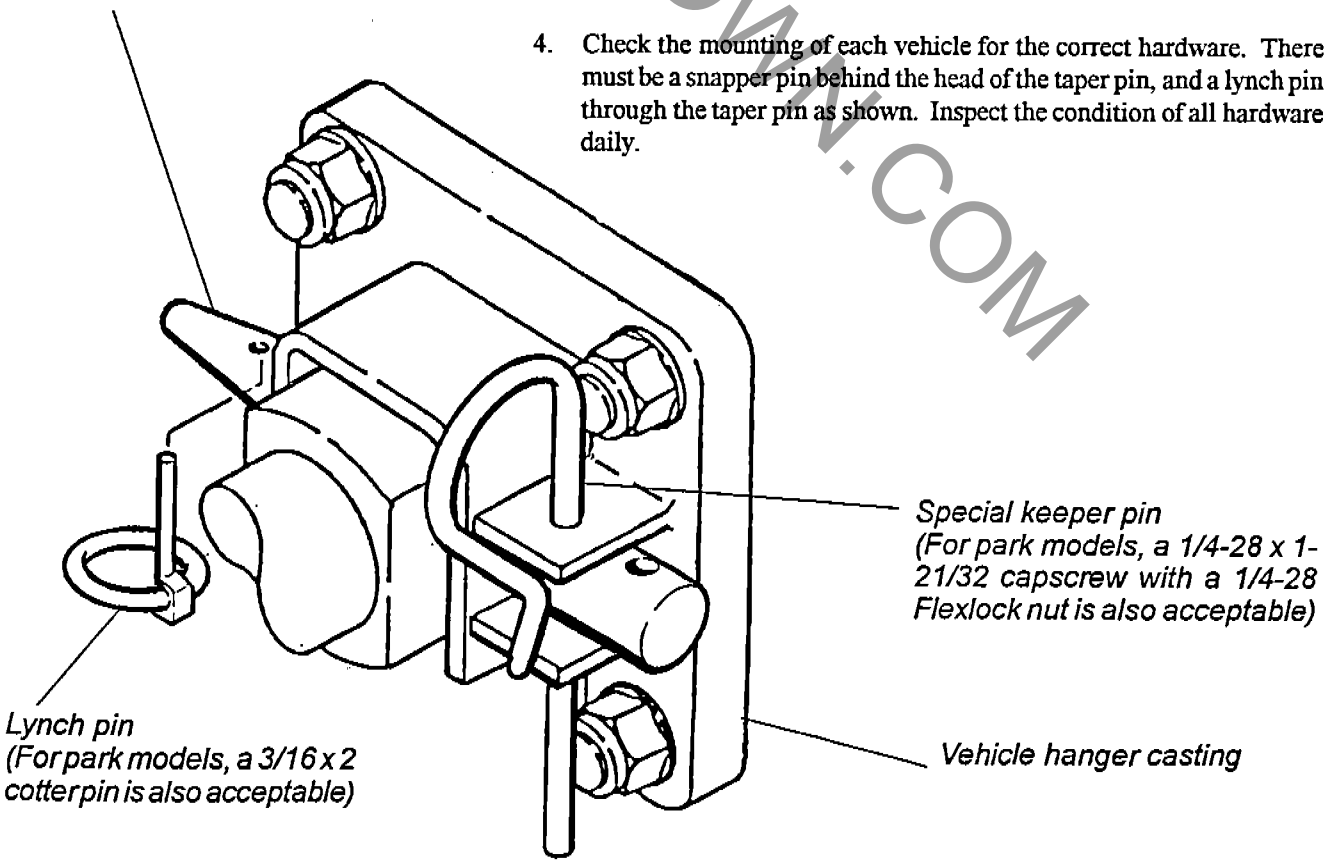
1. Each vehicle is equipped with an two stage passenger restraint system:
   - An electrically operated locking over-the-shoulder lap bar
     and
   - An electrically operated secondary restraint bar which closes over the lap bars.

   Check the operation and locking of every lap bar and secondary restraint bar daily. A detailed description of this procedure is given in the following topic, "Passenger Restraint and Interlock System Operational Check".

2. Check the operation of the lap bar interlock system using the procedure described in the following topic.

3. Check the overall condition of each vehicle. Inspection points include, but are not limited to, anti-slip material on the seat floors, lap bar padding and head rests.

4. Check the mounting of each vehicle for the correct hardware. There must be a snapper pin behind the head of the taper pin, and a lynch pin through the taper pin as shown. Inspect the condition of all hardware daily.



General safety guidelines

The following is a list of general safety rules to which everyone should adhere.

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

2. Inspect the ride before each day of operation to determine that no portion of the ride is damaged, missing or worn in such a manner that unsafe conditions can develop.

3. Perform the manufacturer's recommended maintenance procedures at the intervals and in the manner specified in the operation and maintenance manual.

4. Study each job carefully to determine all hazards so that necessary safety precautions can be taken.

5. Examine safety devices (tools, ladders, etc.) before used to insure they are in good condition. Use only OSHA approved safety items. Ladders must be clean and unpainted.

6. Use the proper tool or equipment for each job. All hand electric power tools must be properly grounded.

7. Wear close fitting, comfortable clothing when working on or near moving parts or live electrical circuits. Avoid finger rings, jewelry or other articles which can be caught in moving parts or come in contact with electrical circuits.

8. Protect eyes by wearing approved safety glasses or goggles.

9. Wear a hard hat at all times. When working in elevated areas, use a safety belt.

10. Where work performed is hazardous, never work alone.

11. If guards are removed from equipment, make sure they are replaced before leaving the job.

12. Clean up after each job, disposing of surplus materials.

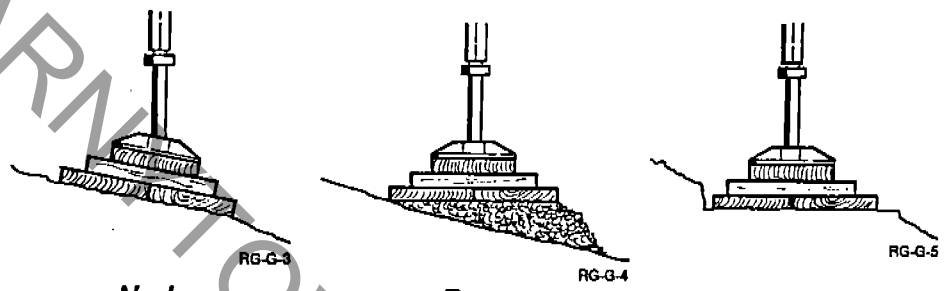
13. Keep a record of parts replaced and the date of replacement. Inform the manufacturer of any replacement requirements which are frequent or cause unsafe conditions.

14. Make modifications and additions only as outlined in manufacturer's service and safety bulletins.

3. Inspect blocking for proper contact with ground.

4. Level ground under blocking by digging where possible, instead of filling. Fill dirt will be soft and allow settling.

Blocking on a slope
Level the ground beneath blocking by digging where possible. Don't fill; the fill dirt will be soft allowing the ride to tilt

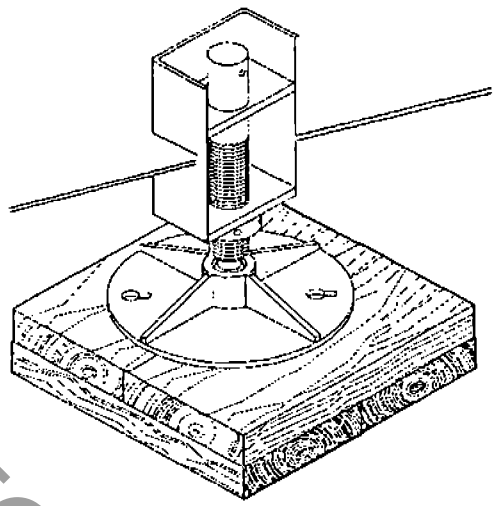


5. Inspect hydraulic leveling jacks for leaks at every set-up. The hydraulic jacks are for leveling purposes only. Make sure that all four screw jacks are on solid blocking and the jack nuts are tightened. Retract the jacks completely and close the shut-off valves so the entire weight of the ride is on the screw jacks.

6. Check the jack nuts on screw jacks for tightness.

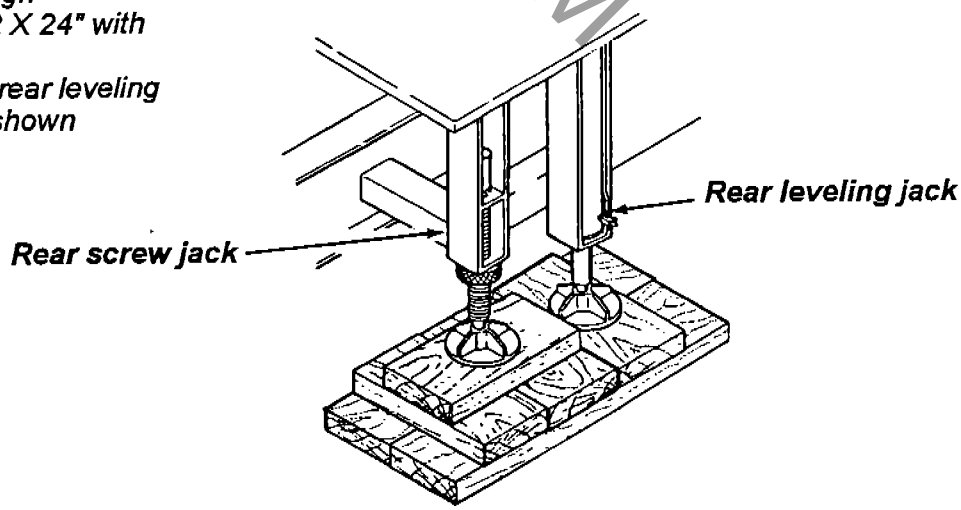
Center screw jack blocking

- *Minimum two blocks high*
- *3 X 12 X 24" with 9" steel jack pads*
- *Cross block as shown*



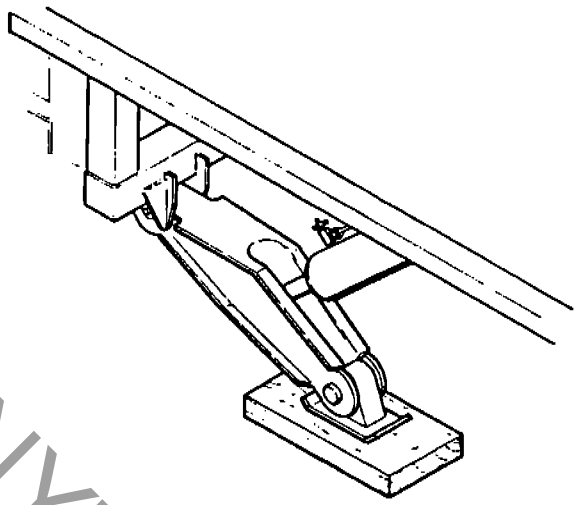
Rear leveling jack and screw jack blocking

- *Minimum three blocks high*
- *3 X 12 X 48" and 3 X 12 X 24" with 9" steel jack pads*
- *Stagger blocking under rear leveling jack and screw jack as shown*



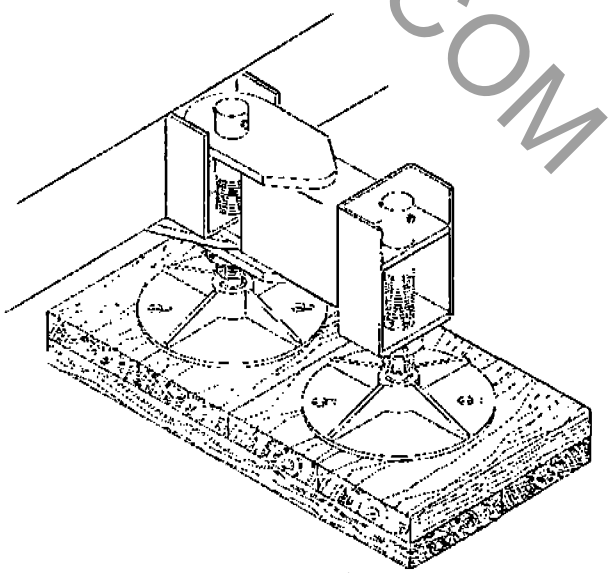
Front leveling jack blocking

- *One block 3 X 12 X 48" minimum*



Front screw jack and outrigger blocking

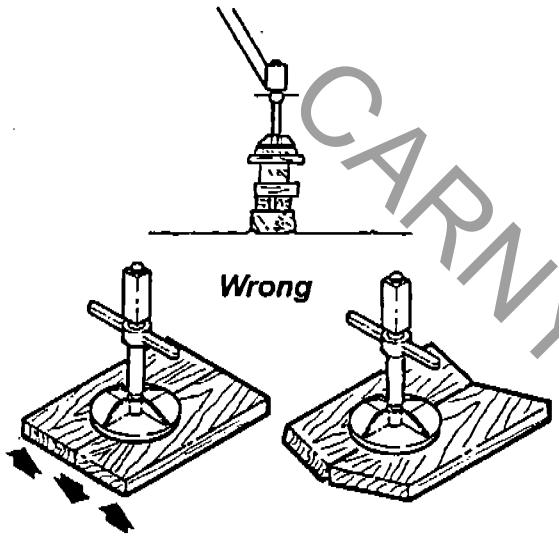
- *Minimum two blocks high*
- *3 X12 X48" and 3 X 12 X24" with 18" aluminum jack pads*
- *Stagger blocks as shown under both front screw jack and outrigger jack*



Leveling and blocking

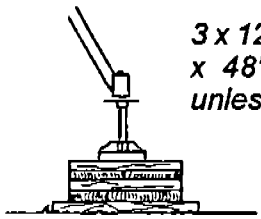
1. Inspect leveling and blocking at each set up and at the start of each day (rides erected in soft locations require more frequent inspection).

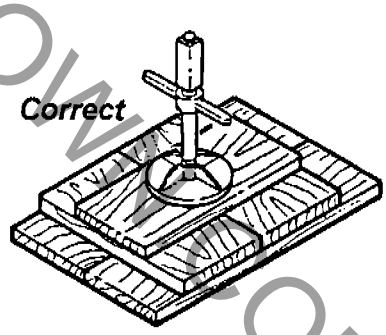
2. Inspect for proper cross blocking at each jack location. Cross blocking distributes weight evenly.



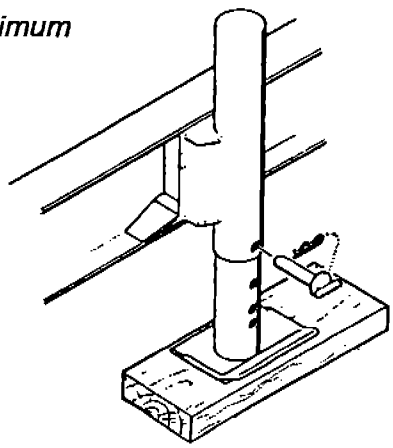
Always cross block
Cross blocking distributes weight evenly.

3 x 12 x 24", 3 x 12 x 36" and 3 x 12 x 48" blocking is recommended unless otherwise instructed.





Support leg blocking
- *One block 3 X 12 X 36" minimum*



4. Physical damage such as kinking, crushing, "bird caging", or any other damage resulting in distortion of the cable structure;

Kinking

Crushing

RG-G-2

Bird caging

5. Damage due to heat of any kind;

6. Reductions from the nominal cable diameter of more than any of the following:

NOMINAL CABLE DIAMETER	MAXIMUM REDUCTION
5/16" and smaller	1/64"
3/8" to 1/2"	1/32"
9/16" to 3/4"	3/64"
7/8" to 1-1/8"	1/16"
1-1/4" to 1-1/2"	3/32"

Cable inspection[6]

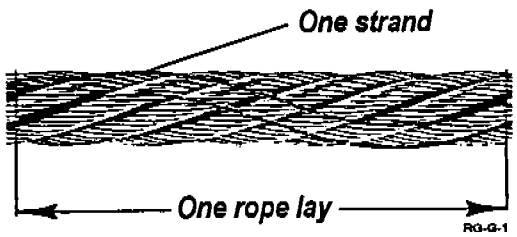
Reference standards:

·OSHA 1926-550 Subpart N
Cranes, derricks, hoists, elevators and conveyors

·ANSI B30.5
5-2.4.3 Rope Replacement
5-2.4.4 Rope Maintenance

Chance Rides, Inc. recognizes the above listed standards with regards to cables (wire rope) used for rigging, slings, and hoists for the purposes of setup and/or tear-down of an amusement ride. It is further recognized the no precise rules can be given to determine the exact life expectancy of any given cable, due to the variables to which that cable may be subjected. Continued use of a cable depends on the judgement of the individual who is authorized to evaluate the cable.

Chance Rides, Inc. requires that prior to each setup or tear-down of an amusement ride, the owner's authorized representative inspect and evaluate all cables. Cables must be replaced if any of the following conditions exist.



"Lay" as a unit of measure

1. Six randomly distributed broken wires in one lay;

2. Three broken wires in any one strand in one lay;

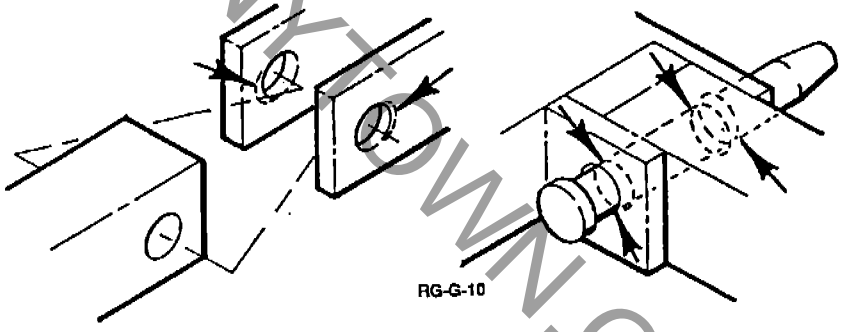
3. Wear of one-third the original diameter of outside individual wires;

Inspection

Joint inspection

Some joints will appear to wear rapidly on new rides. This is usually a result of the holes not aligning in the mating parts. When this condition occurs it results in "point contact". A joint with this condition will generally wear rapidly until the load is distributed evenly over the fastener and the parts. If in doubt about the condition of a bolt, pin or hole on a new ride consult CHANCE RIDES, INC., and replace as required.

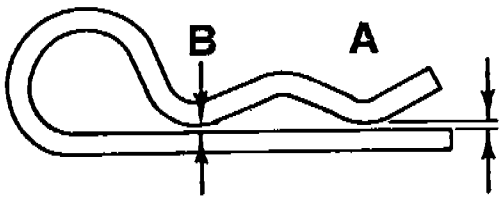
1. Inspect stationary joints for "egg-shaped" wear and loose pins.



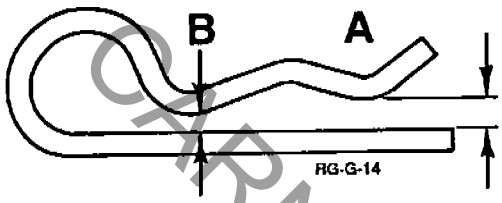
Stationary joint wear

Stationary joint-misaligned holes resulting in point contact

2. Inspect moving joints for wear and lubrication.
3. Inspect welded structural joints for cracking or fatiguing.
4. Inspect bolted structural joints for cracking, fatiguing and proper bolt tightness.
5. Inspect pins and keepers on all pin joints for wear and proper installation.
6. Inspect all pins for proper CHANCE identification marks.



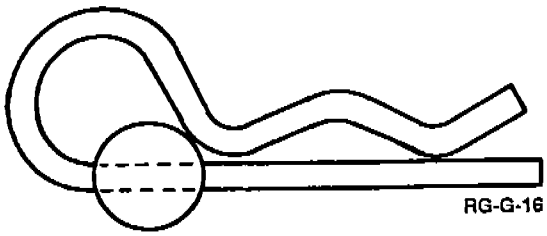
Acceptable hair pins
Dimension "A" equals dimension "B" in a relaxed position



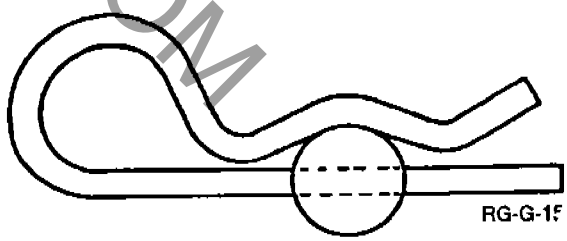
Unacceptable hair pins
Dimension "A" is greater than dimension "B" in a relaxed position

NEVER ATTEMPT TO BEND A HAIR PIN BACK INTO SHAPE. REPLACE IT WITH A NEW PART.

The correct installation of a hairpin is shown. Incorrectly installed hairpins are more likely to fail, and will distort after only a few uses.



Incorrect



Correct

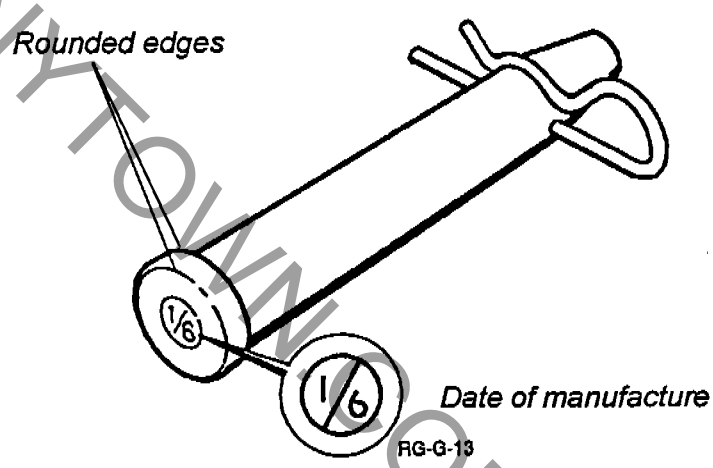
CHANCE RIDES, INC. recognizes and recommends the safety procedures specified in *ASTM Standards F770 Operation Procedures for Amusement Rides and Devices and F853 Maintenance Procedures for Amusement Rides and Devices.*

Pins[3]

Tapered pins used on amusement rides are subject to deterioration due to improper use and wear. CHANCE RIDES, INC. specifies certain pins for certain applications on amusement rides. These pins have been developed over a period of years, taking into account size, design, material and hardness characteristics.

Use only the pins specified by CHANCE RIDES, INC. These pins are identified as shown in the following illustration. Always use the correct hairpin.

Pin identification

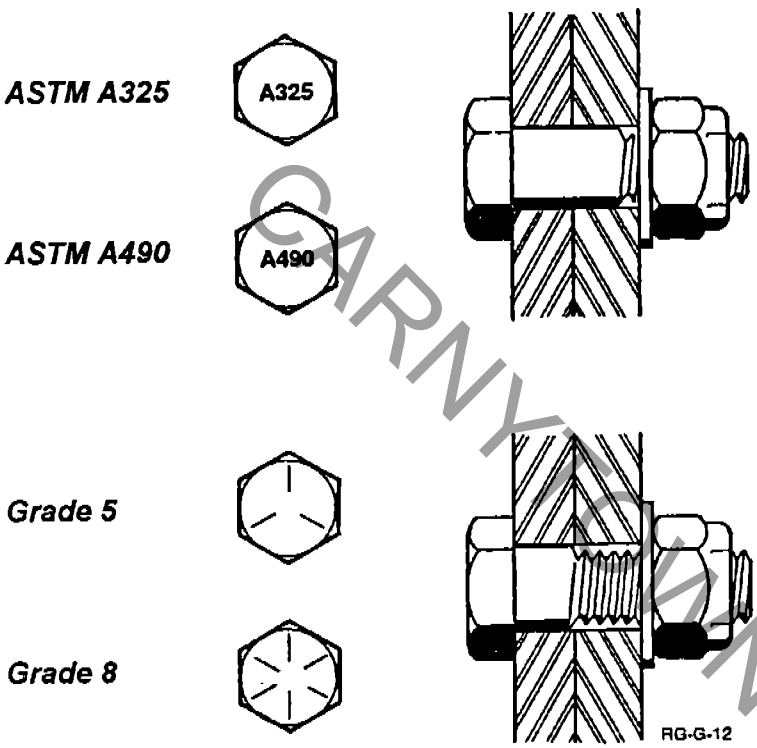


Use care when installing and removing tapered pins. Since these pins are hardened (as are hammers and punches) care must be taken to strike the pin straight on. Striking a pin at an angle can cause the pin to chip, resulting in personal injury. For this reason APPROVED SAFETY GLASSES OR GOGGLES MUST BE WORN AT ALL TIMES when tapered pins are being installed or removed. If a tapered pin is chipped, bent, or "mushroomed" on either end, discard it and replace it with a new pin.

Pin keepers

All keepers (R-keys, hair pins, lynch pins, etc.) must be inspected for wear. If a keeper is bent out of shape or "sprung", it must be replaced.

Hairpins are expendable parts. After repeated use, they become worn and "sprung" as shown.



Capscrew comparison
ASTM A325 and A490 capscrews have longer shanks and shorter threads then Grade 5 and Grade 8 capscrews of the same size.

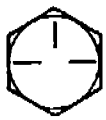
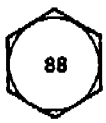
Replacement of capscrews and locknuts
When permanently installed capscrews and locknuts are disassembled for repair or adjustment, they must be replaced if they have been in service over five (5) years, or corrosion, or other damage requires over-torquing for removal. If a torque wrench is not used to measure excessive removal torques, the capscrews and locknuts must be replaced.

Capscrews and locknuts which are frequently disassembled for portability must be replaced each operating season. If the capscrews and locknuts become damaged, corroded or require excessive torque for removal, they must be replaced. If a torque wrench is not used to measure excessive removal torques, the capscrews and locknuts must be replaced.

CHANCE RIDES, INC. requires the use of cold-formed hex head capscrews with rolled threads. Hex bolts and hot formed hex head capscrews are not recommended because they may have machined threads and can have die seams along the shank.

NEVER REPLACE CAPSCREWS OR NUTS WITH PARTS OF A LESSER GRADE, OR DIFFERENT LENGTHS THAN THOSE SHOWN IN THE CHANCE PARTS CATALOG.

Grade markings for functional load carrying capscrews
Manufacturer's identification symbols must be present on all capscrews

Correct markings	Examples of unacceptable markings
 **SAE J429** Grade 5 Medium carbon 81,000 yield	 **Grade 5.1** Low carbon  **Grade 5.2** Low carbon martensitic
ASTM A325 Type 1 Medium carbon Longer shank and shorter thread length than Grade 5 81,000 yield  **ASTM A325 Type 3** Corrosion resisting Longer shank and shorter thread length than Grade 5 81,000 yield 	 **ASTM A325 Type 2** Low carbon martensitic RG-G-11
SAE J429 Grade 8 Medium carbon 130,000 yield 	 **ISO R898** Class 8.8 Medium carbon 92,000 yield 
ASTM A490 Alloy steel Longer shank and shorter thread length than Grade 8 130,000 yield 	 **ISO R898** Class 10.9 Alloy steel 130,000 yield 

Size Diameter - Threads/inch	Foot pound torque range (see notes 1 and 2) with locknut and hardened washer	
	SAE J429 Grade 5 ASTM A325	SAE J429 Grade 8 ASTM A490
1/4 - 20	5-6	7-8
1/4 - 28	6-7	8-10
5/16 - 18	11-13	15-18
5/16 - 24	12-15	17-21
3/8 - 16	19-24	27-33
3/8 - 24	22-27	31-38
7/16 - 14	30-35	45-55
7/16 - 20	35-40	50-60
1/2 - 13	50-60	65-80
1/2 - 20	55-65	75-90
5/8 - 11	95-115	130-160
5/8 - 18	105-130	150-180
3/4 - 10	165-200	235-285
3/4 - 16	185-225	260-320
7/8 - 9	270-325	380-460
7/8 - 14	295-360	415-505
1 - 8	400-490	565-690
1 - 12	440-535	620-755
1 1/8 - 7	495-600	800-975
1 1/8 - 12	555-675	900-1095
1 1/4 - 7	700-850	1135-1380
1 1/4 - 12	775-940	1255-1525
1 1/2 - 6	1215-1480	1975-2395
1 1/2 - 12	1370-1660	2220-2700

Torque chart

Torques for functional load carrying cold finished hex head capscrews with dry rolled threads, used with locknuts (see note 3), and tightened with an ASTM A325 hardened washer under the capscrew or locknut head (whichever is accessible for tightening).

This torque range will develop 60% to 70% of proof load.

Refer to ***Replacement of capscrews and locknuts*** *for conditions requiring replacement*

NOTES

1. Use anti-seize lubricant on capscrew shank when tightened from head end.

2. Use 10% less torque when anti-seize or other lubricant is used on threads.

3. Use same torque range for holes tapped in steel.

Capscrew grades

CHANCE RIDES, INC.uses only grade 5 or better capscrews and grade 8 locknuts, with A325 hardened washers for functional loads. The *Grade markings chart* shows the capscrew markings to be found on CHANCE rides. The manufacturer's identification symbols must be present on all functional load carrying capscrews.

Fasteners

Capscrews

Capscrews used by CHANCE RIDES, INC. are classified as functional load-carrying capscrews if:

· They are used as tension members in the erection or operation of the ride

and/or

· The are required to resist shear through friction-type connections in the erection or operation of a ride.

Capscrews are selected with consideration to grade, size and quantity, using joint capacities based on tightness torques of 60% rated yield and group joint efficiencies of 62.5%

Torque requirements[4]

Capscrews must be tightened to the torque values listed in the torque chart. These values were selected to produce a tightening torque range of 60% to 70% of proof load, when tightened with a hardened washer under the nut or capscrew head (whichever is accessible for tightening). When the capscrew is tightened from the head end, apply anti-seize lubricant to the shank end of the capscrew. When the threads are lubricated, use 10% less torque to tighten the capscrew.

DO NOT TIGHTEN CAPSCREWS OVER THE RECOMMENDED TORQUE. This can damage the capscrew, due to variances in coefficients of friction and torque wrench accuracy.

Always use a torque wrench. It is impossible to accurately measure the tightness of a capscrew by other methods. Torque wrenches must be checked for accuracy
twice each operating season.

Non-destructive testing[2]

REFERENCE STANDARD
1. *ASTM-F24 Standard On Amusement Rides And Devices*
   a. *F846-86 Testing Performance Of Amusement Rides*
   b. *F853-86 Maintenance Procedures For Amusement Rides And Devices*
   c. *F893-87 Inspection Of Amusement Rides And Devices*

CHANCE RIDES, INC., at the time of design and manufacture, determines by calculations and testing of a prototype amusement ride the appropriateness for use, of not only the parts, but the entire system of a newly designed ride. These calculations and tests are utilized to, as feasibly as possible, determine the requirements for expected design life of major components. Based on this design criteria, CHANCE RIDES, INC. does not identify critical components on amusement rides to be singled out for non-destructive testing.

If through field experience, there is an indication that a structural or mechanical problem may develop on rides currently operating, CHANCE RIDES, INC. will notify owners by bulletin of the recommended procedures to inspect and correct the possible problem. Any possible defect which could affect the continued safe or proper operation of the ride should be reported immediately to the manufacturer by the owner/operator. This information is necessary so that a determination can be made for either the repair or replacement of the possible defective parts.

Field repairs should not be undertaken without the approval and proper instructions from the manufacturer and should be performed by qualified personnel. These persons should have a complete understanding of both the component's function and the manufacturer's instructions.

It is the responsibility of the individual inspector to thoroughly inspect the ride as he deems necessary based on his knowledge and field experience and manufacturer's recommendations. If the inspector finds an area or component that could be a problem, structural or otherwise, the factory should then be notified. It is then the responsibility of the inspector to ensure that the manufacturer's recommendations for repair, replacement or otherwise have been completed and are in compliance with the required specifications.

Load testing is a destructive form of testing and is not recommended by the manufacturer, as per previous topic "Field performance testing of amusement rides."

Documented field performance and operational testing
Documentation and certification shall be performed by a person who by demonstrated education and field experience is knowledgeable with construction, erection, operation, maintenance and repair of amusement rides.

Operational load testing
Any operational test including load testing performed on a ride shall be completely non-destructive in nature. Overload testing exceeding the rated limits listed on the information plate, operation manual, field inspection guide or specification sheet shall be deemed inappropriate. Where maximum total passenger weight is not readily available, passenger capacity multiplied by 170 pounds per adult and/or 90 pounds per child may be used.

Non destructive testing with inert loads can be accomplished only with special care as to placement of the load so that it is centered both vertically and horizontally as would be the load of the passenger it replaces. Extra seat reinforcement must be used to offset any load concentration created. Such tests shall be documented and certified as non-destructive by the person making the test and the agency requiring it. Results of all load tests shall be communicated to the factory upon completion by the certifying agency.

Conducting a non-destructive operational load test assures the testing agency only that it will carry a given load in a given way at a given moment and in no way assures future safety of the ride.

Conducting a destructive load or overload test also assures the testing agency that it will carry a given load in a given way at a given moment and in no way assures future safety of the ride. However, it also introduces the probability of inflicting serious irreparable damage to the ride that may or may not be apparent at the time of the test.

CHANCE RIDES, INC. considers inert load testing of any nature appropriate only for situations requiring experimental development of stress-strain testing during prototype development. A certificate of load test on the prototype and certification that each production ride met the design criteria when it was manufactured is available from the factory upon request.

General inspection and testing

Testing

Field performance testing of amusement rides[1]

The following specifications conform with ASTM F846 standard guide for *Testing Performance Of Amusement Rides And Devices*, in effect on date of ride manufacture.

Erection or installation testing

Each erection or installation of a ride shall be given an inspection prior to carrying passengers that shall include but not be limited to the following:

a. Determine that ride has been erected according to the set-up procedures in the operations manual.

b. Inspect field inspection points listed in the *Field Inspection Guide*.

c. Visual check of all passenger carrying devices including restraint devices and latches, and the pins and capscrews securing them.

d. Visual inspection of entrances, exits, stairways and ramps and devices securing them.

e. Test of all communications equipment necessary for operation of the ride or device.

f. Operate the ride to determine that direction of travel conforms to the information plate, ride manual field inspection guide of specification sheet.

g. Operate the ride for a minimum of three ride cycles to determine that the ride speed does not exceed the speed specified in the information plate, ride manual, field inspection guide, or specification sheet.

Daily pre-opening inspection

This inspection shall include a daily inspection of all items as specified in the previous item (erection or installation testing).

1. B090R1002-0 May 14, 1986

Operating the ride (test cycle)

The operating procedure is provided on a decal, mounted in the cover of the operator's control console. Make sure teh decal is legible. Test the operation of all controls. Throughout the ride cycle, check for correct speed and boom angle, and proper operation of all limit switches.

Check the overall performance of the ride based on previous operating performances of the individual ride.

Safe rider policy[8]

Chance Rides, Inc. anticipates that is may be possible for a rider sitting in the seat on this amusement ride to intentionally turn sideways in the seat, removing his/her legs from underneath the lap bar. If a rider does this, he/she is not properly secured and personal injury could result. In order to reduce the possibility of an unsafe condition occurring, Chance Rides, Inc. highly recommends that all owners/operators of this ride adopt and enforce an operational policy that inhibits such misuse of the ride.

One such policy which can help inhibit the misuse of the ride is a "no single riders" policy. Chance Rides, Inc., however, recognizes that this type of policy may not be practical or suitable in all circumstances. It is therefore up to the individual owner/operator to develop their own operational policy which best meets their own needs, while maintaining the safe operation of the ride.

All owners/operators must realize that horseplay or other behavior on the part of the rider, that leads to an unsafe condition must not be tolerated. All operators of amusement rides must follow the manufacturer's guidelines in giving pre-operational instructions and warnings, then giving undivided attention to the ride and its passengers at all times when the ride is in motion. As stated in the operation/maintenance manuals, the operator must immediately stop the ride if anyone is in a dangerous or unsafe position on the ride.

16. **Operator Presence Switch (not shown)** - This foot-operated switch is located at the base of the control pedestal. The switch must be engaged to operate the START or JOG SWITCHES. If the switch is released, the drive program is interrupted and the ride will come to a normal, programmed stop, after which the BOOM JOG SWITCH must be used to lower the boom for unloading of passengers.

11. **E-stop switch** - This switch interrupts the drive program. The ride will come to a normal, programmed stop, after which the BOOM JOG SWITCH must be used to lower the boom for unloading of passengers.

12. **Start switch** - Use this switch to start the programmed ride cycle. The following conditions must exist for the ride to operate:
    - MAIN POWER INDICATOR LIGHT must be on.
    - OPERATOR PRESENCE SWITCH must be engaged.
    - READY LIGHT must be on
    - CONTROL PANEL POWER INDICATOR LIGHT must be on.
    - FAULT INDICATOR LIGHT must be off.

13. **Lap bar switch** - Use this switch to lock or release the lap bars and secondary restraint bars. See "Safety Equipment" in this section for more detailed information.

    NOTE: *A white indicator light is located on the center of each vehicle near the passengers' feet. The indicator light is on when both lap bars and the secondary restraint bar on that vehicle are down and locked.*

    All passenger restraint bars must be down and locked before the READY LIGHT will come on.

14. **Rotation Jog switch** - Use this switch after the programmed ride cycle has ended to jog the ride either clockwise (REV) or counter-clockwise (FWD). This feature allows the operator to precisely locate a specific vehicle for loading and unloading of passengers. The jog feature operates only when the OPERATOR PRESENCE SWITCH is engaged. This switch is inoperable during the programmed ride cycle.

15. **Reset switch** - Push this switch if the FAULT INDICATOR LIGHT comes on. When the indicator light goes out, normal operation of the ride can be resumed.

    NOTE: *If faults require frequent use of the RESET SWITCH, or it the FAULT INDICATOR LIGHT is still on after using the RESET SWITCH, notify the appropriate maintenance personnel.*

IMPORTANT: *Do not use the RESET SWITCH during the programmed ride cycle. Damage to the inverter and/or magnetic brake can occur.*

IMPORTANT: *The three main power circuit breakers in the main electrical box must be on before operating any of the controls on the operator's console.*

1. **Ready light** - This green light will come on when all passenger restraint bars are locked in the down position and the OPERATOR PRESENCE SWITCH is depressed. The ride cannot be started unless this light is on.

2. **Fault indicator light** - This red light is normally off when the power indicator light is on. If the fault indicator light is on, a fault is indicated and the ride will not operate. Press the RESET SWITCH to clear the fault. If this is not successful, notify the appropriate maintenance personnel. The ride will not operate until the fault has been corrected.

3. **Main power indicator light** - This green light is on when the three main power circuit breakers in the main electrical box are in the "ON" position.

4. **Control panel power indicator light** - This green light indicates that power is being supplied to the control panel. It comes on when the CONTROL PANEL POWER SWITCH is turned on.

5. **Program switch** - Use this key-operated switch to select either the short or long programmed ride cycle. This switch is keyed the same as the control panel power switch.

   NOTE: *Do not change the postion of the program switch after the ride is started. This will interrup the drive program and stop the ride.*

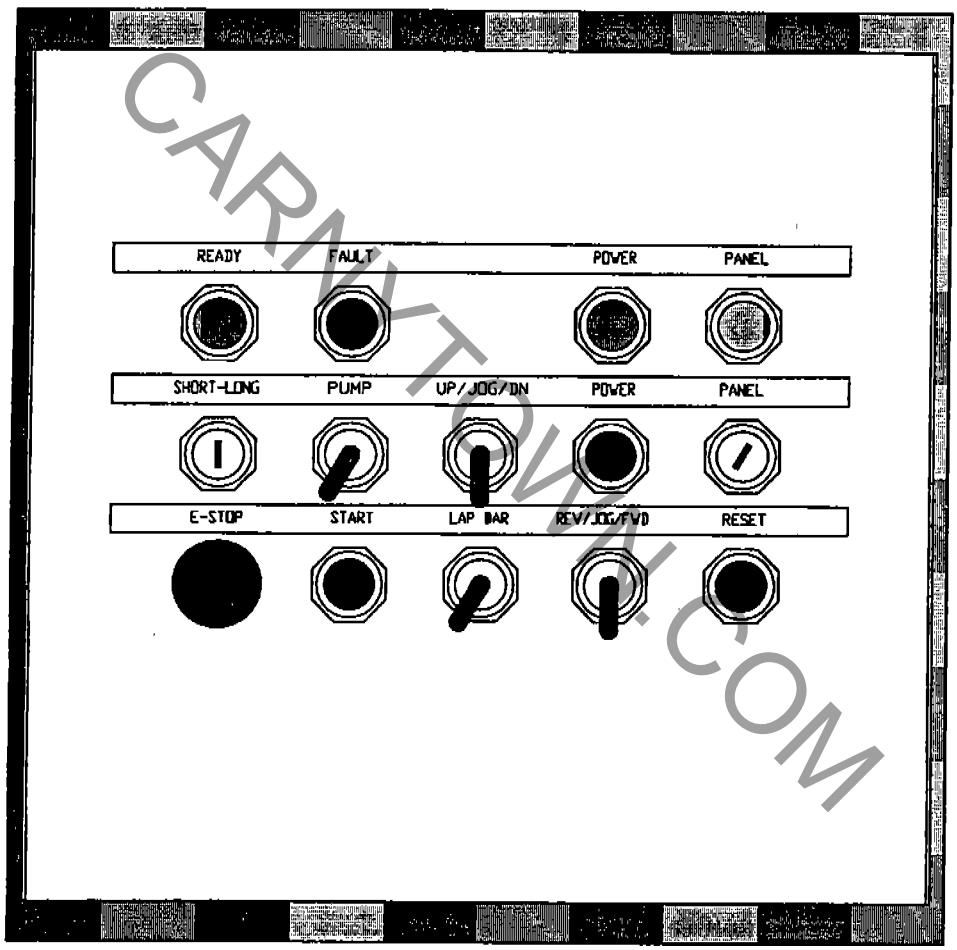
7. **Pump switch** - This switch to turns the main hydraulic pump on or off.

8. **Boom Jog switch** - This switch controls the boom hydraulic cylinders when the ride is not in the programmed ride cycle. This switch is inoperable during the programmed ride cycle.

9. **Power switch** - Use this switch to turn off the main power circuit breakers in the main electrical box. The MAIN POWER INDICATOR LIGHT will go out when this switch is used.

10. **Control panel power switch** - Use this key-operated switch to turn on the power to the control panel. The CONTROL PANEL POWER INDICATOR LIGHT will come on. This switch is keyed the same as the program switch.

Operation



following the directives of a Chance Rides, Inc. Service Bulletin, Service Kit, or a Chance Rides, Inc. representative, where applicable.

Any modification performed on a Chance Rides, Inc. product outside the recommended directives established by Chance Rides, Inc. as referenced above, constitutes an unauthorized modification. Chance Rides, Inc. specifically disclaims any liability for losses associated with any unauthorized alteration and/or modification to any of its products. Chance Rides, Inc. will not issue letters for the operation of rides which do not meet the manufacturing specifications; this includes cases where the non-conforming modification is of an aesthetic nature only.

It is the responsibility of the individual inspector to thoroughly inspect the ride as deemed necessary, based on his knowledge and field experience to determine that the ride meets the manufacturer's specifications and/or is safe for operation.

Ride description

The **Chaos** is mounted on either a single trailer (portable model) or a stationary base (park model). The ride is equipped with an variable frequency AC electric drive, with integral electro-mechanical (spring) brakes. An on-board hydraulic system provides lift for the boom. A set-up hydraulic system provides power for erection of the portable model.

The ride information plaque is mounted to the main electrical cabinet at the rear of the ride. It lists specifications, operating dimensions, ground loads, as well as model and serial number and date of manufacture.

Detailed operation and maintenance information is available in the *Chaos Service Manual* (manual number 24329800). For more information, or to order manuals, contact CHANCE RIDES, INC.

Introduction

Proper maintenance is essential to the safe operation of this ride. The inspection points outlined in this field inspection guide are not intended to replace the recommended maintenance schedule. This guide does not contain maintenance and repair procedures and should only be used as a ride inspection guide.

When repairs are necessary use only those components authorized, specified or provided by the manufacturer. If any alterations, modifications and/or additions, installations of unauthorized components are made to the original design without the manufacturer's explicit written consent or without direct supervision by a manufacturer's representative, CHANCE RIDES INC., makes no claims as to the integrity of the altered or modified ride (product).

Information in this field inspection guide applies only to products manufactured by CHANCE RIDES INC. built after January 1, 1986.

CHANCE RIDES INC., reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to such changes.

Manufacturer's Specifications[5]

Reference Standard:
ASTM - F24 Standards on Amusement Rides and Devices

1. F583 Maintenance Procedures for Amusement Rides and Devices
2. F893 Inspection of Amusement Rides and Devices
3. F1159 Design and Manufacture of Amusement Rides and Devices

Chance Rides, Inc., at the time of the initial design and prototype manufacture, determines by calculations and testing the appropriateness of the functional design criteria. The visual esthetics of the ride are also evaluated and together with the functional design criteria make up the manufacturer's design specifications. These design specifications are adhered to on all subsequently produced rides of the same style. Occasionally, through field experience, it becomes necessary to specify a modification to the original design specifications. Actual modification to meet the change in design specifications can only be performed by qualified personnel,

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Bulletin No:	B408R1202-0
Release Date:	October 1, 1998
Effective Date:	October 1, 1998
Supersedes:	N/A
Completion Date:	November 1, 1998
Page:	1 of 2

SERVICE BULLETIN

Ride Manufacturer: CHANCE RIDES, INC.	Affected Production Dates: ALL
Ride Name: CHAOS	Affected Serial Nos.: ALL
Model No.: 408	

Abstract of Issue:

PASSENGER RESTRAINTS

Reason For Release:

Chance Rides, Inc. specifies in the CHAOS amusement ride Operation Manual the correct way in which passengers are to be secured before the ride is started. The manual states that to avoid serious personal injury, passengers must keep their hands and feet inside the vehicle. It is the operator's responsibility to give safety instructions to the passengers and to make sure that they have their hands, arms, and feet inside the vehicle while the lap bar is being closed and locked.

Action to be Taken:

All owners of the above noted amusement rides must establish a training program which emphasizes the manufacturer's specifications as to how passengers are to be properly seated and secured. Operators must be instructed as to the dangers to the passengers if not secured per the manufacturer's specifications. All owners/operators of the CHAOS ride must read the Operation Manual and be familiar with all warnings and cautions printed in the manual prior to operating the ride.

Detail of Issue:

To help insure the safety of the passengers, Chance Rides, Inc. has developed a decal which, along with the operator's safety instructions, will alert the passengers to the proper way in which to be secured in the seat. All owner/operators of the above noted CHAOS rides are required to order and install these decals, part number 408-172-001. A total of 36 decals is required, two per vehicle. Follow the instructions contained in this bulletin for proper installation of the decals.

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

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Ride Manufacturer: CHANCE RIDES, INC.	Affected Production Dates: ALL
Ride Name: CHAOS	Affected Serial Nos.: ALL
Model No.: 408	

Detail of Issue (continued):

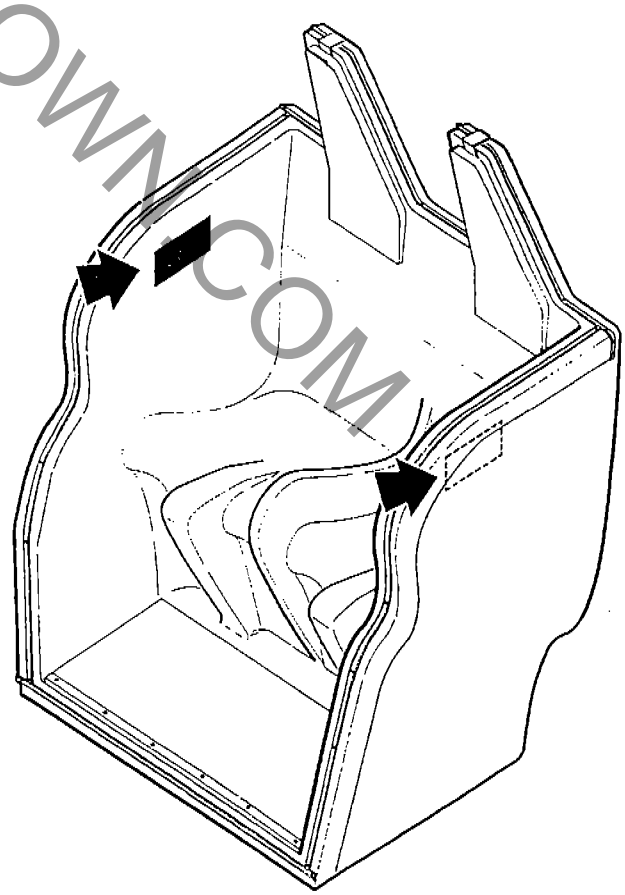
NOTICE

Use only those components authorized, specified or provided by Chance Rides, Inc.

Chance Rides, Inc. SPECIFICALLY DISCLAIMS ANY LIABILITY for losses associated with any unauthorized alterations and/or modifications or additions and installations of unauthorized components.

INSTALLATION INSTRUCTIONS

Thoroughly clean the vehicle surface before applying the decals, then install decals in locations shown. Replace decals immediately if they are removed, damaged, or otherwise become illegible.



NUMBER: B408R1181-0

DATE: July 25, 1997

SUPERSEDES:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Number: All Units

Ride: CHAOS

Subject: Hub Capscrew Torque Check

The center hub section on the CHAOS amusement ride is secured to the bearing turntable on the tilt head by 28 Grade 8 hex-head capscrews. It is essential for the care of the equipment and safety of the passengers to maintain the proper torque on these capscrews. Chance Rides, Inc. requires all owner/operators of the above noted rides to perform the following check immediately and at least once per month thereafter during the operating season.

1. Verify that the 28 hardened washers under the capscrews securing the center hub section to the bearing turntable on the tilt head fit flush to the hub.

2. Using a torque wrench, check for proper torque of all 28 capscrews. Torque value for checking these capscrews must be 80 ft-lbs.

   If any capscrew is found to be loose, remove it and replace with a new capscrew. Clean the threads on the new capscrew and in the bearing, then apply Loctite 271 (red). Tighten the new capscrew to 90 ft-lbs.

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

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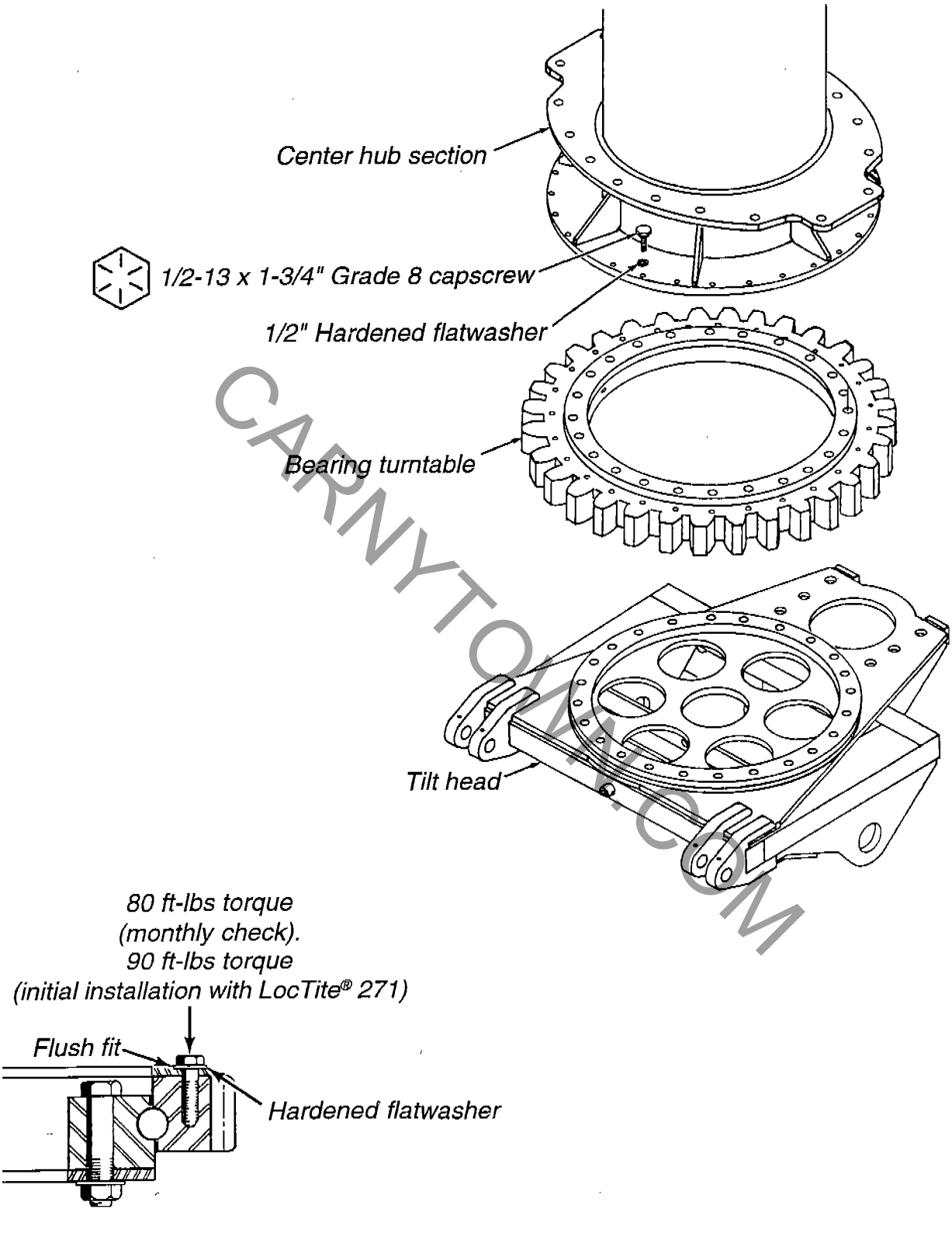

NUMBER: B408R1184-0

DATE: Sept. 12, 1997

SUPERSEDES:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Number: All Units

Ride: CHAOS

Subject: Inspection of Cylinder Support Frames

Chance Rides, Inc. has become aware that it is possible for cracks to develop in the structural frame members which supports the main hydraulic lift cylinder on the CHAOS amusement rides noted above.

Chance Rides, Inc. requires all owner/operators to perform an annual visual inspection of all support frame members as outlined on the back of this bulletin. If any indications are found, contact Chance Customer Service for a repair procedure.

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

NOTICE

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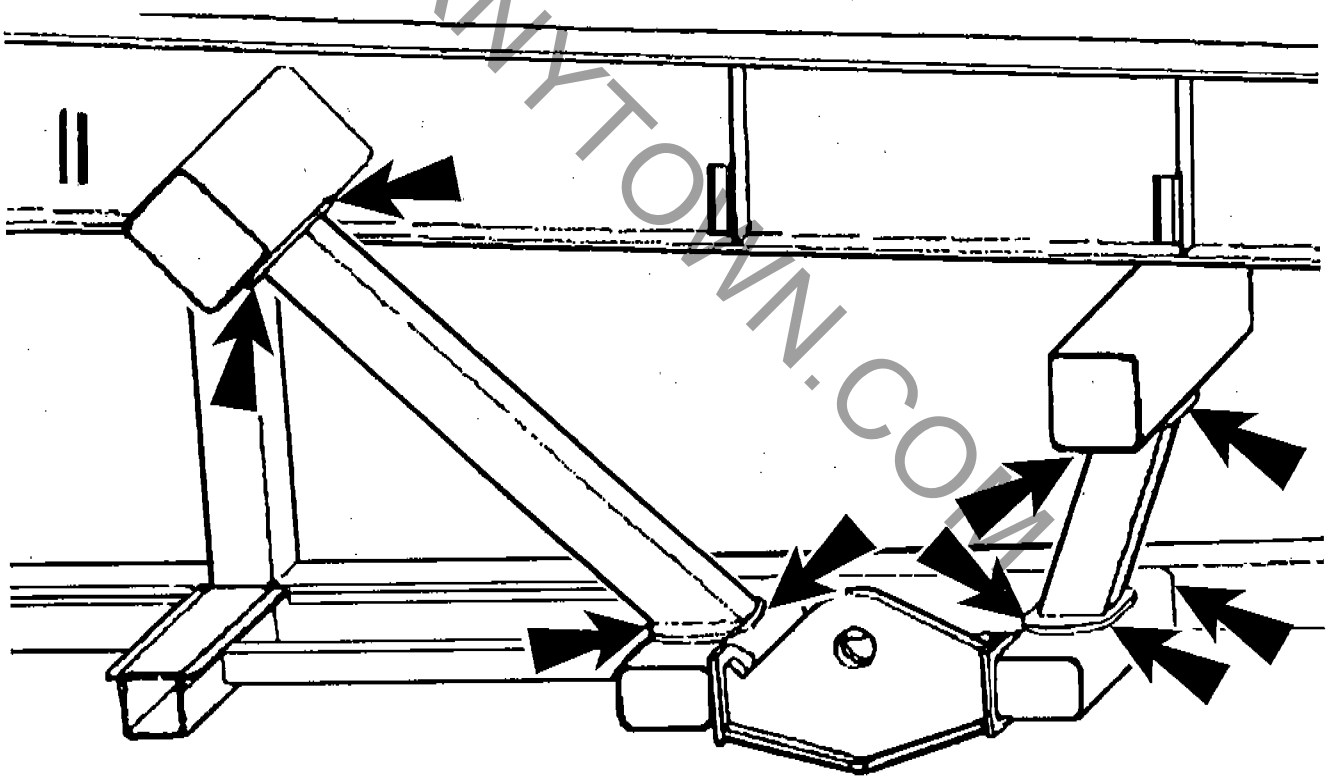
INSPECT ALL WELDS IN THE AREAS INDICATED BY ARROWS



NUMBER: B408R1180-0

DATE: June 20, 1997

SUPERSEDES:

America's Largest Manufacturer of Amusement Rides

SERVICE BULLETIN

Effective Serial Number: All Units

Ride: CHAOS

Subject: Lap Bar Indicator Light Wiring Rework

Chance Rides, Inc., has developed a rework procedure for the lap bar indicator light wiring for the CHAOS amusement ride. The rework consists of securing the wire harness at the light to restrict movement of the wires and prevent fatiguing and breaking of the wires.

All owner/operators of the above noted amusement rides are required to perform the rework, using the installation instructions and parts furnished with this bulletin.

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

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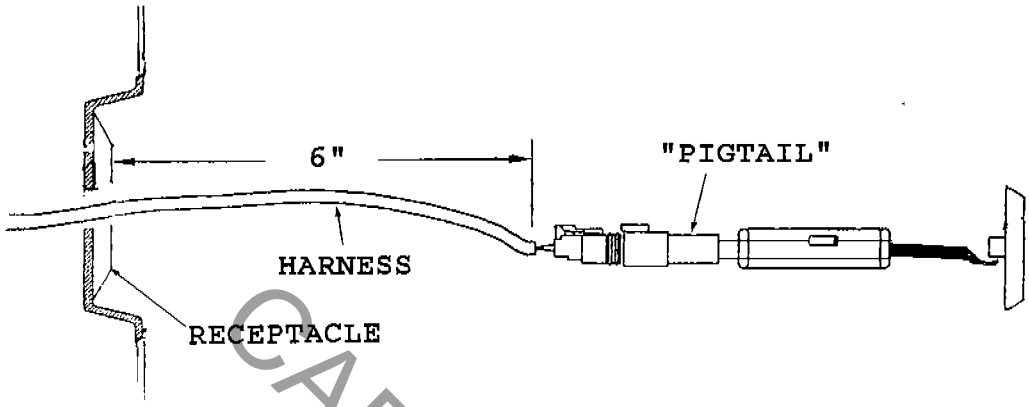
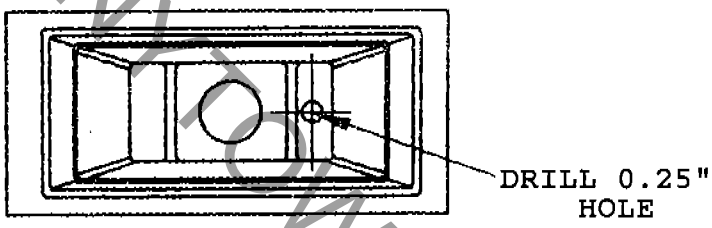
INSTALLATION INSTRUCTIONS

1. Turn off power to the ride, or open the lap bars to turn all lap bar indicator lights off. The indicator lights are located at the center of each vehicle near the passengers' feet.

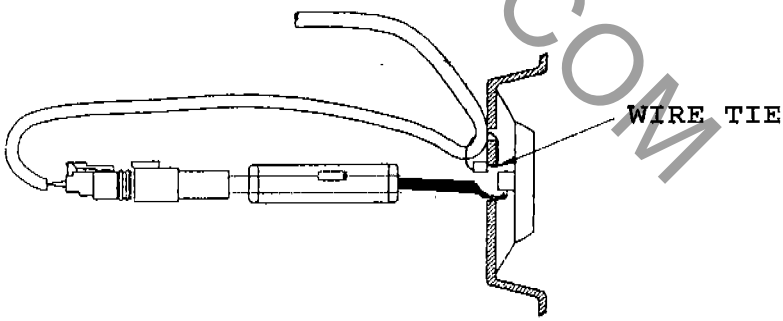
2. Remove the light using a screw driver. Pull the "pigtail" and harness out of the receptacle until about six inches of the harness are outside the vehicle.



3. Drill a 0.25" hole through the fiberglass behind the receptacle as shown. Be careful not to damage any wiring behind the opening.



4. Insert a wire tie (part number 68855200) through the small hole and pull back through the large opening. Needle-nose pliers work well.



5. Attach the wire tie aroud the harness (not the "pigtail") and pull until snug. Cut off excess wire tie.

6. Push the wire tie head and harness back through the large opening.

7. Feed the remainder of the "pigtail" back inside the vehicle and install the light.

8. Remove the cover from the back of the vehicle. Locate the same harness and pull up gently to remove any slack from the harness. Secure the harness to the vehicle frame with another wire tie.