

**RIDES ON THIS LIST REQUIRE NON-DESTRUCTIVE TESTING AND/OR OTHER MAINTENANCE ACTION, AS SPECIFIED**

Scope:

The following list of rides are required, or recommended, to have non-destructive testing (NDT) and/or other Maintenance Actions completed, prior to continued operation, as specified. Non-Destructive Tests must be performed and signed by an individual certified to conduct the specific non-destructive testing, in accordance with the American Society of Non-Destructive Testing's recommended practice SNT-TC-1A.

The Mission/Scope of this List is to provide REMINDERS of; Non-Routine, Periodic or one-time, Maintenance Actions, (including but not limited to NDT); to jurisdictions, third party annual inspectors, Owners, Maintenance personnel, as well as Prospective Owners in the market to buy used rides. The None-Routine Action maybe required by Manufacturers' Manuals or Bulletins, by Jurisdictions, CPSC, NAFLIC, NAARSO, CARES, HSE, or any other national and/or international stake holder, and does not include routine Daily and Weekly inspections and greasing. The List is provided only as an effort to Remind stake holders of the required actions. Users are responsible to exercise due diligence in locating all ride information by themselves and to verify for themselves the accuracy of the information provided in this List. Besides requirements by Manufacturers, which ought to be universally enforced, as well as the CPSC requirements, which ought to be enforced in the US, jurisdictions must decide which other requirements they choose to enforce, each within their particular jurisdiction. Users are advised that the List must never be perceived in any way as inclusive.

#	RIDE	MANUFACTURER	COMPONENT(S) IMPACTED	NDT, OTHER ACTION & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
1.	Sky Fighter	Allen Herschell	Stabilizing rods, threads	Non-destructive test (NDT) must be completed annually	U.S. Consumer Product Safety Commission safety notice dated June 9, 1992 and August 2, 2000
2.	Ali-Baba aka 1001 Nacht's	A. R. M.	1. Check for surface cracks in main arm joint weldment, main arm to center weldment, car mounting blocks and car frame weldments, tower bolt blocks weldment, tower to trailer weldment, car slewing ring mounting plate to arm weldment 2. Check for surface cracks in parent metal at weld toes, edges of holes, and flame-cut edges. 3. Check for cracks in drive-shafts in the vicinity of keyways, holes, changes in diam. and other geometric discontinuities. 4. Check for reduction in wall thickness of hollow sections especially at weld toes.	Non-destructive test (NDT) must be completed every 2 years: 1&2 check by Dye Penetrant and Magnetic Particle. 3 & 4 Use Ultrasonic to test drive shafts and wall thickness of hollow sections.	1001 Nacht's or Ali-Baba Operations Manual, Section 6, Pages 6.10, 6.11
3.	Ali-Baba, aka 1001 Nights.	A.R.M	Welds and Parent metal in their direct vicinity in all Critical Areas indicated by drawing on P. 5.09 and described on P. 5.10 of the Manual (section 5).	NDT to be performed annually, contact manufacturer for details.	A.R.M Ali-Baba Manual, section 5.

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4.	High Flyer	A.R.M/UK	Welds and Parent metal in their direct vicinity in all Critical Areas indicated by drawing on P. 5.08 and described on P. 5.09 of the Manual (section 5).	NDT to be performed annually, contact manufacturer for details.	A.R.M High Flyer Manual, section 5.
5.	High Flyer	A. R. M/UK	<ol style="list-style-type: none"> <li>1. Check for Surface Cracks in the following weldments (particularly along the throat): Main Arm Joint (at mid position), Main Arm To Center, Car Top Beam and Stay Bracket, Tower Bolt Block, Tower To Trailer, Tie Rod End.</li> <li>2. Check for Surface Cracks in Parent Metal at Weld Toes, Edges of Holes, Flame-cut Edges, and in all areas of possible stress concentration (contact ARM for details).</li> <li>3. Check for cracks/internal flaws in drive shafts in the vicinity of keyways, holes, changes in diameter, or any other geometric discontinuity.</li> <li>4. Check for Reduction in wall thickness of hollow sections caused by internal corrosion</li> </ol>	<ol style="list-style-type: none"> <li>1. All NDT to be performed Every 2 years.</li> <li>2. Use Dye Penetrant and Magnetic Particle for Surface Cracks.</li> <li>3. Use Ultrasonic for internal cracks/flaws and wall thicknesses (see High-Flyer Manual P. 6.11)</li> </ol>	High Flyer Manual Pages 6.10, 6.11 and 6.12
6.	Quasar	A. R. M./UK	Lifting Frames, weldment of main hinge boss to Link Assembly, and in the Link Parent Metal	Annual NDT (Electromagnetic and Ultrasonic recommended)	ARM Bulletin S.B/QUA/03/003, dated February 1994
7.	Sky Master	A.R.M./UK	<ol style="list-style-type: none"> <li>1. Check Parent Metal for surface cracks at weld toes, edges of holes, flame-cut edges and hi stress areas. Check welds for surface cracks.</li> <li>2. Check for reduction in wall thickness in hollow sections due to corrosion, particularly in the vicinity of welds.</li> <li>3. Check for cracks and flaws in drive shafts in the vicinity of keyways, holes, changes of dia., or any other discontinuity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dye Penetrant or Magnetic Particle for surface cracks of parent metal or welds, every 2 years.</li> <li>2. Ultrasonic Testing for wall thickness of hollow sections, every 2 years.</li> <li>3. Ultrasonic Testing, Magnetic Particle and Dye penetrant for flaws.</li> </ol>	Manual pages 5-19 to 5.21 for the detailed requirements.
8.	Sky Master	A.R.M./UK	All Bolts in the "Critical Areas". The "Critical Areas" are shown on a diagram on Page 5.09 (areas 1 thru5), and described in detail on page 5.10 of the manual, including but not limited to Tower-Tower Base fixing bolts, Car-To-Arm Fixing bolts, and Counter-weight hinge bolts.	All the Bolts in the "Critical Areas" are to be replaced Annually, according to page 6.04 of the Manual, under "Bolts to Replace In Safety Critical Areas".	The Sky Master Manual Pages 5.09, 5.10, and 6.04
9.	Sky Master	A.R.M./UK	Main arm drive pinions	Replace every 3 to five years depending on usage	Manual page 6-04.
10.	Sky Master aka Tomahawk	A. R. M./UK	Refer to your owner's manual, page 5.10	Non-destructive test (NDT) must be completed every 9 months	ARM owner's manual, pages 5.06, 5.08, 5.09, and 5.10.

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11.	Sky Master aka Tomahawk	A. R. M./UK	Over the Shoulder Restraints	Replace all over the shoulder restraints on your ride before the ride turns 5 year old	ARM US Bulletin SB 013007 dated 2/16/07 and Massachusetts Notice of Recommended Action Dated 8/10/06
12.	Touchdown 6 Car	A. R. M./UK	Diagrams 5.1 and 5.2	Non-destructive test (NDT) must be completed annually	ARM Operation & Maintenance Manual, Section 5
13.	Ali-Baba, Rainbow, 1001Nights, Typhoon, Rock Star, Sindbad, Magic Carpet, Flying Dutchman, Riptide, Full-Tilt	A.R.M./UK, and A.R.M./US (in the case of the Full-Tilt).	The two upper and lower Splined Drive Gears and Splined Output Shafts on the Reduction Gear Boxes of the Carriage Stabilizing Systems.  Please read the Reference Bulletin carefully	Effective immediately, and prior to continued operation of any of the indicated rides, Mandatory Inspections and checks of possible independent gear movement, indicative of possible wear in the two upper and lower splined drive gear and splined output shafts on the reduction gearboxes of the carriage stabilizing systems. The Inspection Must be Performed As Soon As the ride Completes 5 Years of Service, and monthly thereafter. If such movement is observed, disassemble the system. If wear, corrosion and/or pitting on any component is noted, please send the gearbox system back to the manufacturer for replacement of worn parts Prior To Continued Operation. Repeat the inspection and replacement of worn parts every month of operation and prior to extended storage, all per ref Bulletin.	ARM/UK Safety Alert Bulletin No. SA010614, dated Jan 6, 2014. Completion Date: Prior To Operation. EXCEPTION: Inverter conversion S/N: AB205 and higher (Ali-Baba), And FT206 and higher (Full-Tilt), are exempt until the fifth Anniversary of Conversion per Date of Manufacture on the Ride ID plate
14.	Super Shot	ARM/US	A new Auxiliary Hoist System now available to install and use in an emergency evacuation (see ref Bulletin)	The Emergency Evacuation Procedure Has Been Changed. Stop and retract current procedure. Install new Hoist System as mentioned in Bulletin. An upcoming Service Bulletin will provide further info	Bulletin No: SB022613, Release date: Feb 26, 2013, Effective Date: Feb 26, 2013.
15.	Vertigo	ARM/US	6 additional fence sections provided to increase the diameter of the fenced foot print to seventy six feet.	Larger diameter of the fencing foot-print would further enhance safety and preclude rider contact as a result of any fencing foot-print eccentricity.	ARM/US Safety Alert Bulletin No. SB090710. Release Date: 09/07/10, Supersedes: NA, Completion Date: Immediately.

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16.	Vertigo	ARM/US	2 Cups welded at ends of each sweep after marking cup position using provided Templates.	a. Use provided Templates to mark position of cups' perimeters and holes for interlock pins (to be added). b. Drill holes through marked holes' positions c. Weld cups along marked cups' perimeter positions, as shown in bulletin. Cups do the job of "pick-up cables" common to all swings, in case its supporting pin fails. The smaller interlock pins are used for temporary support of seat hangers until the full size pin is installed.	ARM/US Bulletin Number SB070133, Dated July 1 <sup>st</sup> , 2013, Effective Date July 1 <sup>st</sup> , 2014, Completion Date Aug 1 <sup>st</sup> , 2013 (18 pages).
17.	Aerial Trams & Lifts	All	Refer to ANSI	Refer to ANSI	Comply with ANSI 4.34.3B77.1-1982 pertaining to testing of grips or clips
18.	Coaster (steel)	Arrow	Track rails, strong back and ties, Saddle welds to strong back, Column welds	Non-destructive test (NDT) must be completed annually or every 2000 hours	Arrow technical bulletin #99-1 dated November 24, 1999
19.	Corkscrew, Loop and Suspended Coasters	Arrow-Huss	Welded areas of track, anti-roll back units, chain guide wheel spindles, axle housings, wheel carrier weldments, chassis main vertical spindle, body support frame, hitch yoke	Non-destructive test (NDT) must be completed annually	Arrow-Huss bulletin dated November 17, 1981 and January 4, 1988 and the operators Manual
20.	Hurricane	Battech/Dartron (Hrubetz Supplier)	All Cars Floor Fasteners (that fasten the floor to the car), Fasteners that fasten the Cars to the Saddles, and fasteners that fasten the restraint systems to the car. The different sets of fasteners have different diameters and lengths, as indicated in the bulletin.	1. Remove all floor-to-car fasteners, fasteners that hold the cars body to Saddles, and fasteners that hold the restraint system to the car 2. Replace all the old fasteners with special corrosion resistant Supertanium Hex Head Cap-screws. Nuts and USS washers placed under the bolt head and under the nut must also be replaced with Supertanium nuts and washers. 3. Tighten the nuts to the torque values specified in the reference bulletin. 4. Inspect to ensure that all old fasteners were replaced with the new corrosion resistant fasteners.	Dartron/Batech Bulletin# SR-H-0607-02 -A, dated 8-30-2007, and SR-H-0607-01-B, dated 4/25/2008.  Please read the bulletins carefully. If you have any questions, contact Al frieden of Battech.
21.	Top Gun Coaster	Bolliger & Mabillard	Per the manufacturer's requirements	Non-destructive test (NDT) must be completed annually	Manufacturers maintenance manual and letter dated December 6, 2000

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22.	Ski Lift Grips Borvig	Borvig	Grips	Non-destructive test (NDT) must be completed annually	Borvig instruction manual & drawing, C-3064
23.	Ski Lift Grips Borvig	Borvig	Grips	1. All existing grips are to be 100% NDT tested in order to establish how many grips have indications. 2. Replace all grips in which indications are discovered by the NDT, as well as all grips showing severe coining, but not less than one third of the total number of grips, prior to 11-15-2010. 3. The remaining grips can be used until 11-15-2011, at which time another 1/3 shall be replaced for a total of 2/3 of the original grips and a sufficient quantity of the remaining grips shall be tested, and, if found indications free, can be put back into service until 11-15-2012, at which time they will be replaced as well.	Partek Ski Lifts bulletin 02-030510, dated March 5, 2010 on Borvig lifts built from 1975-1982
24.	Balloon Races	Bradley & Kaye	Superstructure, sweep support rod	Non-destructive test (NDT) must be completed annually	Balloon Races operations manual 1A thru 4
25.	Aviator	Chance	The area where the sweeps mount to the hub	a. Inspect the clearance between the tower guide rails and the guide blocks (or guide wheels if ride is so equipped). Total clearance (both added together) is 1/4" Maximum. b. Inspect sweep and hub areas as described in Bulletin. If any indications are found, contact Chance immediately for further action. c. Repeat a & b annually. d. Above inspections must be performed by a Certified Visual NDT Inspector	Bulletin No. B410CRM167-0, dated March 22, 2010.
26.	Aviator	Chance	Vehicle Frames	Annually inspect the Vehicle Frames for cracks. If cracks are found, do not operate the ride. Contact Chance to get instructions on corrective action, including a Chance repair kit.	Chance Bulletin B410CRM126B, dated May 11, 2012

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27.	Aviator	Chance	Fasteners (cap-screws)for the Vehicle Mounting Shackles.	Replace all the fasteners for the Vehicle Mounting Shackles (likely compromised by over-tightening) within 60 days of the referenced bulletin release date (see Bulletin info in the next (NDT or Other Action Req'd by) field. Tighten newly installed fasteners to 400-490 ft-lbs	Chance Bulletin No: B410CRM175-0, Release date May 11, 2012. Completion date July 11, 2012.
28.	Aviator	Chance	Sweeps	Order and install the Sweep Brace Kit, part number 410-226-001, on all sweeps by July 11, 2012. The kit was developed by Chance to reinforce the sweeps.	Chance Bulletin No. B410CRM173-0. Release Date: May 11, 2012. Completion Date: July 11, 2012.
29.	<del>Carousels: 20' Model 409, 36' Models 404, 416, 420 (Double Decker), 28' Models 403, 415, 426 (Double Decker), 50' Model 405</del>	<del>Chance</del>	<del>All crankshafts welds as well as parent metal. Inspection areas indicated on pages 2 and 3 of 3 of the Referenced Service Bulletin</del>	<del>Monthly visual inspection. If any indications are observed in the in the shaft, the throw, or the welds, promptly replace the crankshaft</del>	<del>Service Bulletin No. B403CRM174-0, dated Sept 5, 2012. Inspect in strict compliance with the bulletin.</del>  <b>NO LONGER IN AFFECT, SUPERCEDED BY BULLETIN: B403CRM174-A</b>
30.	Carousels: 20' Model 409, 36' Models 404, 416, 420 (Double Decker), 28' Models 403, 415, 426 (Double Decker), 50' Model 405	Chance	All Crankshafts' U-Joints	Within 30 days of the release date of the referenced bulletin, and once a month or at every set-up thereafter (whichever occurs first), inspect all Crankshafts U-Joints for proper installation/alignment. The yokes at each end of the drive shaft shall be perfectly aligned. If any improperly aligned/phased , remove the u-joint attached to the gearbox and correct the problem.	Service Bulletin B403CRM180_0. Release Date: Sept 5, 2012. Inspection and associated maintenance to be performed in strict compliance with the referenced bulletin, page 1 thru page 5
31.	The following 36' Carousels: Model 404, Model 416, Model 420 (Double Decker, and the 50', Model 405.	Chance	Install the New I-shaped Horse Hook Retainer, Chance Part Number: 404-416-001, as per Reference Service Bulletin Instruction.	1. Monthly inspect the crank-shaft per Chance Bulletin B403CRM174-0 2. Install the New Chance Supplied Horse Hook Retainer, Chance Part Number: 404-416-001, as instructed by the Reference Chance Service Bulletin B403CRM198-0	Service Bulletin: B403CRM198-0 Release Date: Feb 4, 2016. Effective Date: Feb 4, 2016. Completion Date: within 60 days of the Release Date of the Bulletin. Discount applicable if Horse Hook Retainer and its Fasteners are ordered within 60 days of the Bulletin Release Date.

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32.	Carousels: 20' Model 409, 36' Models 404, 416, 420 (Double Decker), 28' Models 403, 415, 426 (Double Decker), 50' Model 405	Chance	Every Crankshaft on ride	Perform mag particle inspection on all the welded joints on the crankshafts per ASTM E709 within 30 days of the issue date of bulletin and annually thereafter. Visually inspect the weld, shaft and throw area. Look for and record any indications in welds and the parent metal. This is a monthly inspection.	Service Bulletin: B403CRM174-A dated March 9, 2016  This bulletin supercedes bulletin # B403CRM174-0
33.	Century Wheel	Chance	Weld between the main steel tube and the hub plate at the bottom of each gondola (after removing access cover)	Annual visual Non-Destructive Test	Chance bulletin number 406CRM135-0 dated 03-31-05
34.	Century Wheel	Chance	The Two Main Trailer Beams, in the overhang area, as shown on drawing on P. 2 of 2 in the Bulletin	Visual inspection of weld and parent metal around cut outs on both sides of webs and flanges of Main Trailer I-Beams, with the aid of an inspection mirror, within 30 days of Bulletin date, and annually thereafter.	Chance Bulletin No: B406CRM163-0 dated May 15, 2009
35.	Chaos	Chance	Tilt Cylinders	Annually, Magnetic Particle (MT) must be performed by a Level II or Level III NDT Inspector to inspect the areas shown on the detail drawing provided in the relevant referenced bulletin	Bulletin No. B408CRM 168-0, dated August 10, 2010
36.	Trabant	Chance	Boom	Monthly	Chance service bulletin #92
37.	Inverter and Double Inverter	Chance	Vehicle arm, counterweight arm, vehicle arm, adapter box	Non-destructive test (NDT) no longer required after May 6, 2003 - only visual inspection required	Chance 2001 field inspection guide, page 64 and page 66
38.	Falling Star	Chance	Drive sprocket	Non-destructive test (NDT) must be completed annually	Chance Rides bulletin #B391R11440 dated January 7, 1994
39.	Falling Star	Chance	2 Vehicle Axles (Front & Rear)	1. Calculation of Axle's accumulated number of revolutions before Nov3, 2009. 2. Axles that operated through 3 million revolutions or more must be replaced or kept only if they pass annual NDT. 4. Axles that pass NDT <u>may</u> be operated no more that 1 year thereafter, provided they pass annual NDT.	Chance Bulletin number B391CRM166-0, dated October 3, 2009.
40.	Giant Gondola Wheel	Chance	Torque tube flange	Non-destructive test (NDT) must be completed annually	Chance Rides bulletin #B400R11750 dated May 17, 1996

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41.	Giant Gondola Wheel, Park Model	Chance	Axle and Axle Bolting Flange.	1. <u>Annually</u> : Visual Inspection of the Axle where indicated by arrows, and as explained by text, on page 2 of 3 of the Ref Service Bulletin. 2. <u>Annually</u> : Visual Inspection of the Bolting Flanges where indicated by arrows, and as explained by text, on page 3 of 3 of the Ref Service Bulletin. 3. If any indications are found, contact Chance for instruction on Corrective Action.	Chance Service Bulletin No: B400CRM191-0 Release Date: Nov 21, 2014, Effective Date: Nov 21, 2014.
42.	Giant Gondola Wheel, Portable Model	Chance	Axle.	1. <u>Annually</u> : Visual Inspection of the Axle where indicated by arrows, and as explained by text, on page 2 of 2 of the Ref Service Bulletin. 2. If any indications are found, contact Chance for instruction on Corrective Action.	Chance Service Bulletin No: B400CRM193-0 Release Date: Nov 21, 2014, Effective Date: Nov 21, 2014
43.	Pharaoh's Fury	Chance	Cap-screw securing lap bar mount onto the pivot area on each side of the seat. Affected Serial Nos.: 407-00294 and on, production date: June 1994 and after	According to Bulletin B407CRM155-0, dated April 3, 2008, replace all lap bar cap-screws indicated in the preceding field within 60 days of the Bulletin date. Inspect all cap-screws for tightness per bulletin once a month thereafter.	CRM Bulletin B407CRM155-0, dated April 3, 2008.
44.	Revolution 32, 24 & 20	Chance	Under the fiberglass seats	Use ¾" diam hole saw to cut drainage hole under each seat at the location shown on page 2 of the reference bulletin. Apply paint to hole edges to prevent corrosion. Action to be completed within 90 days of bulletin receipt.	Bulletin B418CRM160-0, Dated June 30, 2011.
45.	Sea Dragon	Chance	The Mast.	Either remove the (decorative) Mast, which has no impact on operation, or perform Annual NDT as follows: 1. Visual (VT) along the entire Mast, and, 2. Ultrasonic (UT) to detect possible corrosion related Mast wall thickness thinning, and 3. Magnetic Particle on all the Mast's welded joints. For details refer to Bulletin.	Chance Bulletin B387CRM171-0 dated October 25, 2011.



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46.	Sky Wheel	Chance	Bull wheel axle, boom axle	Non-destructive test (NDT) must be completed annually	Chance Rides bulletin #111 and Chance Rides bulletin #B379R1041-0 dated July 17, 1989
47.	Trabant Casino	Chance	Per the manufacturer's bulletin	Non-destructive test (NDT) must be completed annually	Chance Rides bulletin #92 dated December 5, 1974
48.	YoYo	Chance	Sweep lift cylinder (must be removed and sent to Chance for recertification)	Rebuild and recertification Non-destructive test (NDT) must be completed every 5 years	Chance Rides 1999 Field Inspection Test Guide, page 28 and bulletin B376R1077-0
49.	YoYo	Chance	Sweep Lift Cylinder Bearing Assembly	Uncover assembly and insert ¼" gauge between upper bearing nut and gauge plate,	CRM Bulletin B376CRM146-B, Dated Sept 4, 2008
50.	Zipper	Chance	Boom weld at spindle	Non-destructive test (NDT) must be completed annually on all units without the Chance Rides Zipper repair kit.	Chance Rides 1999 Field Inspection and Test Guide, Zipper, page 40 & 41 bulletins B106R1057-0 and A106R1057-A dated May 22, 1990
51.	Zipper (see more Zipper Bulletins right after "All Chance Rides" & "Zummer"). Thank you.	Chance	Seat Support (K) Frames	<ol style="list-style-type: none"> <li>1. Annually, the Annual Inspector must inspect all disassembled sliding joints on all seat support (K) frames for cracks and corrosion.</li> <li>2. If corrosion is observed in the disassembled sliding joints of any K-Frame, wire brush to shiny metal and re-examine the part. <u>If corrosion is not superficial/instantly removed to shiny metal</u> to allow for positive visual check, <u>please order a replacement part from chance, as this part wall thickness thinning is not permissible.</u></li> <li>3. If you observe a crack, please follow the bulletin instruction to weld repair any crack.</li> <li>4. If you suspect a crack, use Mag Particle per ref bulletin specs, and follow the ref bulletin specified repair procedure.</li> <li>5. <u>It is always more favorable to replace any parts (if damage or deterioration is observed or suspected), by new Chance parts.</u></li> </ol>	Chance Bulletin No. B106CRM192-0. Release Date: Nov 21, 2014. Effective Date: Nov 21, 2014.

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52.	All Chance Rides	Chance	All cap-screws and associated nuts which are frequently disassembled in the portable rides model.	Replace at the beginning of each new operating season. Cap-screws and nuts that become damaged for any reason must be replaced immediately regardless of time in service	The Ride's Field Inspection and Test Guide
53.	All Chance Rides	Chance	All Permanently Assembled Cap-screws and associated nuts	Chance requires the bolts to be changed only if they were in service for 5 years or more, and were being removed for any reason; or if they have been in service for less than 5 years and were being removed for any reason and excessive torque was required to remove them.	The Ride's Field Inspection and Test Guide.
54.	Zummur	Chance	Pinion Drive Gear, Main Bearing Gear, Hydraulic Motor Shaft	Weekly Action: 1. Pinion Drive Gear Inspection for wear or damage on the external teeth. 2. Main Bearing Gear Inspection for wear or damage on the internal teeth. 3. Pinion Drive Gear and Main Bearing Gear Lubrication: Apply - redistribute grease to the gear teeth. Annual Action: 1. Check Backlash between Pinion Gear and main bearing gear teeth. Proper Backlash is 0.010" to 0.015". 2. Ultrasonic Testing of the Hydraulic Motor Shaft to look for fatigue indications, as described in P. 4 of the reference Bulletin.	Chance Service Bulletin B380CRM185-0, Dated Oct 18, 2013.  Completion Date: Immediately.  A Certified Level II Ultrasonic NDT technician must perform the straight Beam Ultrasonic Testing of the Hydraulic Motor Shaft.
55.	Zipper	Chance	Spacers	Use the correct fasteners to install spacers when needed (due to Wire Rope elongation, as explained in the Chance Field Inspection and Test Guide).	Chance Bulletin B106CRM184-0 Dated 10/25/2013. This bulletin emphasizes the importance of using the correct fasteners to secure the Track Spacers.
56.	Coaster	D.H. Morgan Manufacturing	Axle	Annually, as specified in manufactures manual	D.H. Morgan Manufacturing letters dated March 7, 1988 and June 22, 1994

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57.	Cliff Hanger	Dartron Industries	Car hanger stem, all stem gusset welded joints. A New Back-Up safety Cable System	1. MP test (NDT) must be completed as a one time test on all welds connecting the stem to the arch assembly in rides built prior to January 23, 2004. 2. A back-up safety cable system approved by Dartron must be added. The cable back-up system must include a cable inserted inside the stem and attached to the passenger carrier	Dartron Industries safety bulletin # SR-5K-002 dated January 23, 2004, and attached drawings
58.	Cliff Hangers having Serial Numbers and Production Dates as provided in the referenced bulletin	Dartron Industries	A New Back-up Safety Cable System Connecting the Passenger Carrier Vehicles with the Lower Hanger Block connected to the Sweep (via the Upper Hanger Block)	The Cliff Hangers manufactured in the years listed under "Affected Production Dates" and/or whose Serial Numbers are listed under "Affected Serial Numbers" in Bulletin SR-5K-003, must be retrofitted with the Back-Up Safety Cable System, as per the drawings included in the Bulletin.	Dartron Industries Safety Bulletin # SR-5K-003. Dated January 27, 2004. Please visit the manufacturer website <a href="http://www.dartronrides.com">www.dartronrides.com</a>
59.	Cliff Hanger	Dartron Industries	A critical area of support for the bearing base	Install reinforcement plates in a critical area of support for bearing plates, according to the referenced bulletin	Dartron Industries Safety Bulletin # SR-5K-1110-01, dated Nov 9, 2010. No Cliff Hanger is to be operated after Dec 31, 2010 until this bulletin is complied with.
60.	Zero Gravity, All Models, Production Dates Jan 03 to July 2004, S/Ns: 0301201-5R, 0302102-5R, 0303103-5R, 0303244-5R, 0310092-5R, 0312233-5R, 0403034-5R	Dartron	Cracking found in the vicinity of boom drum and reinforcement plates	Affected S/Ns not to be operated past Dec 31, 2013 unless the boom from the affected rides has been returned to Battech Enterprises, LLC facility in Salem, Oregon to have the boom drum, bearing base/motor mount plate and side reinforcement plates upgraded to current specifications, according to the referenced bulletin	Battech Enterprises LLC Bulletin No: SR-5R-1301-01, Dated Sept 12, 2013, Completion Date: Dec 31, 2013, Affected Production Dates: January 2003 To July 2004

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61.	Zero Gravity, All Models, S/Ns: 0404125-5R FORWARD	Dartron	Cracking found in the vicinity of boom drum and reinforcement plates	1. No Zero Gravity is to be operated past Dec 31, 2013 until it fully complies with the referenced bulletin 2. Contact Battech @ 503-362-2341 to purchase the reinforcement plates. 3. Please refer to the Reference Bulletin for Description of work, welder cert requirements, welding and Material specifications.	Battech Enterprises LLC Bulletin No: SR-5R-1309-02, Dated Sept 12, 2013, Completion Date: Dec 31, 2013, Affected Production Dates: July 2004 To October 2009.  Adequate and firm support of the ride boom during work is indispensable to ensure the safety of personnel
62.	Zero Gravity, all models, Production Dates Nov 2009 To Present, S/Ns: 0911011- 5R FORWARD	Dartron	Cracking found in the vicinity of boom drum and reinforcement plates	1. No Zero Gravity is to be operated past Dec 31, 2013 until it fully complies with the referenced bulletin 2. Contact Battech @ 503-362-2341 to purchase the reinforcement plates. 3. Please refer to the Reference Bulletin for Description of work, welder cert requirements, welding and Material specifications.	Battech Enterprises LLC Bulletin No: SR-5R-1309-02A, Dated Sept 12, 2013, Completion Date: Dec 31, 2013, Affected Production Dates: November 2009 To Present.  Adequate and firm support of the ride boom during work is indispensable to ensure the safety of personnel
63.	Ski Lifts, General	Dopplemayer	If your equipment use Doppelmayr Detachable Grips, Please implement the requirements of the Reference Bulletin.	Follow the NDT requirements of the Reference Bulletin, which Supersedes Doppelmayr Bulletin KD11009	Reference Bulletin: KD 150013 Dated March 17, 2015. Supersedes Bulletin KD11009.
64.	Big Eli Hy-5, Eagle 16 and Double Eagle Wheels	Eli Bridge Manufacturing	Drive-rim removable bolts and pivot bolts.	Ultra sound or X-ray. In addition to NDT requirements, gives wear limits of parts (prompting replacement thereof), torque requirements for bolts, as well as other requirements.	Eli Bridge Manufacturing memo to all owners dated October 7, 2005. Per Patty Sullivan/Eli Bridge, this is a one-time requirement that Eli Bridge will send out new bulletin to clarify.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
65.	Eagle 16 Wheels, Double Eagle 16 Wheels, and HY-5II Wheels	Eli Bridge	All Drive Rim Removable Bolts (and Nuts), and Pivot Bolts (and Nuts)	<p>1. All Bolts and Nuts under “Components Impacted” must be replaced with new ones every 5 years. If bolts’ age is not known, they must be replaced. 2. Annually check the Spoke Tenon Bolt or Hub Bolt connections for wear. If either the bolt or banana is worn 1/32” or more, replace them together with the bolt and banana in the same position on the other side of the spoke stack. 3. If the spoke tenon hole is worn more than 1/32” call Eli Bridge.</p> <p>Notes: a. Torque Drive Rim Bolts in a range of 75 to 100 foot-pounds at each set-up b. Replace any bolt if nut keeps backing off after torquing c. If a nut bottoms out on the thread before the proper torque is reached, insert a regular flat washer between the nut and spoke tab and apply the proper torque. d. If the spoke tab holes wear into ovals, ream and bush them back to original size. Call Eli Bridge for reamers and other parts.</p>	<p>Eli Bridge Bulletin No. 060131-16 dated January 31, 2006.</p> <p>Please refer to the bulletin for more detailed required action.</p>
66.	Expo Wheel	Wadkins Expo Wheel Inc. Expo Wheel, LLC	<ol style="list-style-type: none"> <li>1. The wheel’s main Spindle/Axle.</li> <li>2. According to the referenced PA Safety Alert, the installation of a new Safety Cable is Mandated by the “Manufacturer”.</li> <li>3. According to the referenced PA Safety Alert, a new upgraded Spindle/Axle is available from “the Manufacturer”.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact the “Manufacturer” to purchase their required Safety Cable and obtain the installation procedure and instructions</li> <li>2. Install the Safety Cable according to “the Manufacturer” instructions</li> <li>3. Procure an Annual UT testing of the main spindle according to the manufacturer specification and in accordance with the reference Bulletin.</li> <li>4. For any questions contact the PA Amusement Ride Safety Division</li> </ol>	<p>PA Amusement Ride Safety Division Safety Alert Dated Sept 3, 2013.Completion Date: Immediately</p> <p>NOTE:</p> <p>The reference document for this entry is the PA Safety Alert ONLY.</p> <p>Please do not rely on the manufacturer’s bulletin, since it does not mandate the installation of the Safety Cable, which renders the ride FAIL SAFE (see the ASTM definition). The manufacturer bulletin also does not provide instruction on what to do if the ride fails the UT test.</p>

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
67.	Monster	Eyerly Aircraft Company	All areas around structural modification, kit components, seat tubing	Non-destructive test (NDT) must be completed annually Non-destructive test (NDT) must be completed every 5 Years	Eyerly Aircraft Company notice dated June 12, 1981 U. S. Consumer Product Safety Council safety alert dated September 13, 1994.
68.	Octopus	Eyerly Aircraft Company	Eccentric, sweep support rods, seat tubing	Non-destructive test (NDT) must be completed annually Non-destructive test (NDT) must be completed every 5 Years	Eyerly Aircraft Company, bulletins #0-48-86 and #0-50-86 --Per US Consumer Product Safety Council bulletin dated August 16, 1994 & September 13, 1994.
69.	Octopus and Spider	Eyerly	Weldments of the Eccentric Tube Assembly (part number O-436), as shown on referenced Bulletin/Drawing	X-ray, Radiograph, or Magnetic Particle. Please contact Eyerly for testing frequency	Eccentric Crank Bulletin (undated), Drawing Number 0-50-86 (included in Octopus-Spider Electronic Manual).
70.	Octopus and Spider	Eyerly	Octopus Sweep Support Rods numbers 0-956 and 0-393, as well as Spider Sweep Support Rods numbers 0-933 and 0-624, areas A and B as shown on references Bulletin/Drawing.	Magnetic Particle every 200 hours of operation.	Oct./Spider Sweep Support Rod Bulletin (undated), Drawing number 0-48-86 (included in Octopus –Spider Electronic Manual).
71.	Spider	Eyerly Aircraft Company	Eccentric, sweeps w/16" base, sweep support rods, seat tubing	Non-destructive test (NDT) must be completed annually Non-destructive test (NDT) must be completed every 5 years	Eyerly Aircraft Company, bulletins #0-48-86, #0-49-86, #0-50-86 and #8-88-1 --Per US Consumer Product Safety Council bulletin dated August 16, 1994 and September 13, 1994.
72.	Spider	Eyerly	Wedments of the Spider Sweep (part number 0-619), as shown on referenced Bulletin/Drawing.	Magnetic Particle, X-ray, or Radiograph. Please contact Eyerly for testing frequency	Spider Sweep 0-619 Bulletin (undated), Drawing number 0-49-86 (included in Octopus-Spider Electronic Manual).
73.	Wacky Worm	Fajume	Lap Bar Activators under each tub	1. Have the Lap Bar Activators on the lower side of each tub inspected by the annual inspector each year. 2. Weekly inspection of the Lap Bar Activators by the maintenance mechanic at every set-up. 3. The annual Inspector shall indicate in the "comments" section of the inspection report that the Lapbar Activators were functional, or were repaired and rendered functional during the inspection.	The State of RI 2013 Annual Announcement.
74.	All Far Fabbri Rides	Far Fabbri	All Fasteners assembled & disassembled at each set-up	Annual UT or X-Ray, or if difficult to do, Wet Magnetic Particle may be done, replace defective fasteners	Maintenance Manual. Allowing Wet Mag Particle when UT and X-Ray is difficult to do is per Fabbri Letter Dated 12/18/09
75.	Double Shock	Far Fabbri	Vehicle attachment bolts	Replace Bolts every 3 years, or Annual NDT (contact Fabbri for type of NDT), replace bolts failing NDT.	Operation & Maintenance Manual and per Fabbri Letter Dtaed May1, 2008. Also see the "All Fabbri Rides" entry.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
76.	Raft Ride	Far Fabbri	Centre wheel shaft retaining socket to base frame welds	Annual Visual Inspection. For possible additional NDT contact Fabbri	NAFLIC Bulletin 350, Dated Aug 2008
77.	Kamikaze (aka Ranger, Hi Flyer or Phoenix)	Far Fabbri	Vehicle, tower & counterweight bolts	Non-destructive test (NDT) must be completed annually	Far Fabbri bulletin #FR-034 magnetic particle inspection is NOT acceptable, per Preston Amusement letter dated April 20, 1994. Also see the "All Fabbri Rides" entry.
78.	Ranger, (aka Kamikaze, Sky Flyer, Hammer, Sky Fire)	Far Fabbri	The Two Basil Bearings, the two relative pinions, and all fixing bolts	Replace ALL the components under "Components Impacted" after twenty years from the date of delivery	GAS (Global Amusement Service) Bulletin dated 28/9/2010
79.	Phoenix	Far Fabbri	Vehicle, column & tower bolts	Non-destructive test (NDT) must be completed annually	Far Fabbri bulletin #FR-034 magnetic particle inspection is NOT acceptable, per Preston Amusement letter dated April 20, 1994. Also see the "All Fabbri Rides" entry.
80.	Ranger	Far Fabbri	Vehicle, column and tower, bolts	Non-destructive test (NDT) must be completed annually	Far Fabbri bulletin #FR-034 -magnetic particle inspection is NOT acceptable per Preston Amusement bulletin dated April 20, 1994. Also see the "All Fabbri Rides" entry.
81.	Crazy Dance	Far Fabbri	Sweep hooks & welding	Non-destructive test (NDT) must be completed annually (only applies to 1990-1995 models)	Far Fabbri bulletin #FC 002
82.	Hi Flyer	Far Fabbri	Secondary sweep ends	Non-destructive test (NDT) must be completed annually	Far Fabbri Bulletin #FR-034 magnetic particle inspection is NOT acceptable, per Preston Amusement letter of April 20, 1994
83.	Sky Tower	Far Fabbri	Install a Certified "Catching Device" Between the Main Vehicle, and the Tower, to enforce the Safety System, in the event one the following problems cropped up: 1. the Steel Cable that supports the Vehicle as it travels up and down the Tower broke. 2. In case of Braking System Failure. 3. In the case of Drive System Failure.	To ensure riders safety, install a Certified Catching Device, per the Referenced NAFLIC/Far Fabbri Bulletin. This Catching Device is of the same type installed in the Elevator (Lift) Industry. The catching Device must be Designed, Installed, and tested by the Design Engineer.	Reference Safety Alert Bulletin Author: Mr. Enrico Fabbri: <a href="mailto:enrico@fabbrirides.com">enrico@fabbrirides.com</a>  Safety Alert Bulletin No. 51/1 Date: 3 February 2015. Distributed by NAFLIC.
83.	Sling Shot	Funtimes (Hnadeks Gesmbh)	Swivel shaft and capule welds - refer to operators manual	Paint must be removed every 5 years and weld inspection completed. Some Annual Action is also required. Contact European Manufacturer for details.	Operators Manual

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
84.	Merry Mixer (Ground Mount rides only)	Garbrick Manufacturing	Seat spindles	Non-destructive test (NDT) must be completed annually for all GROUND mounted Merry Mixers. Trailer mounted rides do not require NDT.	Manufacturer's safety alert letter to all Merry Mixer ride owners dated July 3, 1991
85.	360 Degree (aka Typhoon)	General Kiddie Rides, Inc.	Main axle & axle housing, welded on shoulder supports, welded areas of legs, welded areas of counterweight, revision of the gear teeth that support the shoulder harnesses	A Magnetic Particle and Dye Penetrant non-destructive test (NDT) must be completed annually A visual non-destructive test (NDT) must be completed every 3 months	(ASTM), F-24 Committee Standards on Amusement Rides and Devices Manufacturer, General Kiddie Rides letter dated March 21, 1991
86.	70 Degree (aka Pirate Ship or Viking Ship)	General Kiddie Rides, Inc.	Main axle & axle housing, welded areas of legs, change of security belts	A Magnetic Particle, Dye Penetrant and X-ray non-destructive test (NDT) must be completed annually	(ASTM), F-24 Committee Standards on Amusement Rides and Devices Per Manufacturer, General Kiddie Rides letter dated March 21, 1991
87.	Pirate Ship (aka 70 Degrees or Viking Ship)	General Kiddie Rides, Inc.	Main axle, axle housing, weld area of legs	A visual non-destructive test (NDT) must be completed annually Magnetic particle, Dye Penetrant and X-ray must be complete every 3 years	(ASTM), F-24 Committee Standards on Amusement Rides and Devices Manufacturer, General Kiddie Rides letter dated March 21, 1991
88.	Typhoon (aka 360 Degrees)	General Kiddie Rides	Main axle and axle housings, welded on shoulder supports, welded areas of legs, revision of the gear teeth that support the shoulder harnesses, change of security belts, welded areas of counterweight	Non-destructive test (NDT) must be completed annually A visual inspection is required every 3 months	(ASTM), F-24 Committee Standards on Amusement Rides and Devices Manufacturer, General Kiddie Rides
89.	Viking Ship (aka Pirate Ship or 360 Degrees)	General Kiddie Rides, Inc.	Main axle and axle housings, Welded areas of legs	Non-destructive test (NDT) must be completed annually	(ASTM), F-24 Committee Standards on Amusement Rides and Devices Manufacturer, General Kiddie Rides
90.	Steel Coaster cars	Gerstlauer	Per the manufacturer's requirements	Non-destructive test (NDT) must be completed annually	Manufacturers requirements
91.	Ejection Seat Permanent 120'	Gravity Works	Towers' leg to flange welds (about 40' up from ground)	Magnetic particle, annually, plus complete owner inspection of towers every 2000 launches	Gravity Works letter to Ejection Seat owners, dated circa July, 2000
92.	Hustler and Tempest	Grover Watkins	Per the manufacturer's requirements	Non-destructive test (NDT) must be completed annually	Manufacturer's safety bulletin dated August 24, 1978 & CPSC safety bulletin
93.	Swinger	Grover Watkins	Per bulletin	Non-destructive test (NDT) must be completed annually	Comply with CPSC bulletin dated June 21, 1996
94.	Rock Spin & Roll	Hampton	Tub shafts	Non-destructive test (NDT) must be completed annually	Hampton bulletin #107-91
95.	Tubs of Fun	Hampton	Both main shaft (spindle) and tub shafts (spindles)	UT testing must be completed annually on rides made before January 1, 1979.	Hampton Rides Bulletin #104-90, and Hampton Rides Bulletin #3105-90 which is an addendum to #104-90 and #105-90
96.	All Rides	Hi-Lite	All Components	Complete Overhaul at the Manufacturer's plant (every 10 years)	Rides' Manuals



#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
97.	All rides	Hrubetz	See Note under the "NDT or Other Action Required By" field for the reference bulletins	See Note under the "Action Required By" field for the reference bulletins	For Batech/Dartron Bulletins on Hrubetz rides manufactured before 1992, please see entries under: Batech/Dartron, Note: Batech Enterprises is the supplier for Hrubetz rides' parts.
98.	Paratrooper	Hrubetz/ Kilinski, Man Co, Dartron	Spindle, main spindle hub housing	Non-destructive test (NDT) must be completed annually	Man Co Manufacturing Company bulletin #QC-UI-I, Rev. 3; Bulletin #QC-MI-1-Rev O; and bulletins BU-136MC and BU-138MC Per Dartron bulletin #BU 201 PR 01 dated January 15, 2002
99.	Fireball	Hrubetz/ Manco Manufacturing Company.	Spindle, main spindle hub housing	Non-destructive test (NDT) must be completed annually	Man-Co Manufacturing bulletins CO QC-UI-I, Rev.3 QC-MI-1-Rev O BU-136MC BU-138MC
100.	Enterprise	Huss	Bearing block holders, car structure parts of the roof and parts above, at and below pivot pins; and for cracks in the welds of these parts and the welds that attach these parts.	Non-destructive test (NDT) must be completed annually	U.S. Consumer Product Safety Commission - Enterprise Ride Interim Corrective Action Plan dated December 7, 1993.
101.	Rainbow	Huss	Bevel gears	Non-destructive test (NDT) must be completed after every 5,000 hours of operation	Huss recommended checking procedure dated January 5, 1990
102.	Break Dance	Huss	Booms, Particularly the break area at the gondola	Buyer of used ride beware of requirements of UT testing in the referenced Vekoma Alert-Service Letter	Huss "Alert relating to amusement ride Break Dance Service Letter No. 17-10, dated 05-09-05
103.	Roller Coaster JR 30	IE Park s.r.l	Possible crack in the Main Support Shaft of the Wheel Boogie (see ref Safety Alert).	Urgent 100% NDT of the Wheel Boogie Main Support & Shaft (UT and Magnetic Particle), order and replace parts as necessary per reference Safety Alert.	Safety Alert Bulletin No: 01-2014. Release and effective dates: 2/12/2014
104.	Super Twist	King	Per the manufacturer's requirements	Non-destructive test (NDT) must be completed annually	The manufacturer's requirements
105.	Swinger	King	Per the manufacturer's requirements	Non-destructive test (NDT) must be completed annually	The manufacturer's requirements letter dated August 10, 1989
106.	After Burner	KMG	Swing arm weld of 12 sided tube to bottom bearing flange	One time magnetic particle test of welds. Required corrective action is to repair any cracked welds, and to install gussets to preclude future cracking.	KMG bulletin number FRBSB006, dated August 8, 2007, impacting ride serial numbers FRB-24-XX

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
107.	After Burners, Serial Numbers KMG-XXXXFRB-24-XXX-001 through and including KMG-XXXX-FRB-24-XXX-036	KMG	Over-the Shoulder Restraints	One time immediate action before January 31, 2010, or ASAP if not done by then. Action includes removal of padding, visual inspection, and repair as necessary, according to procedures spelled out in the bulletin.	KMG Service Bulletin FRB24-SB007, dated December 7, 2009.
108.	Freak-Out	KMG	Major Structural and critical welds (contact KMG for details)	Annual Inspection by Level 1 or higher NDT company, including visual and NDT as needed. Inspection report, including welds NDT to be forwarded to KMG annually.	Manual, Section 3.3.1
109.	Speed	KMG	Main Drive Gear-Box	The reference Service Bulletin: 1. Specifies a new (revised) Emergency Evacuation Action procedure in the rare event of Main Gear-Box Failure, and, 2. Requires operator training on this Emergency Evacuation Procedure, at least once a year.	Reference Service Bulletin SPDSB003 Dated October 14, 2013.  This Service Bulletin supercedes and replaces Bulletin No. SPDSB002.
110.	Speed	KMG	Unbalanced loading can create undue stress on the Gear Box, Brake, and main drive motor	Notification on proper loading of ride, and the possible adverse consequences of out of balance loading. See reference Notification	Notification Bulletin No. SPD08-N001. Release Date: Oct. 15, 2013. Effective Date: Same as above.
111.	Freak-Out	KMG	Bolts as shown on Figure 5 of Section 3.3.2.	Replace bolts annually.	Manual, Section 3.3.2, Figure 5.
112.	Super Loop, Ring of Fire	Larson International	Hinge pins on units	Non-destructive test (NDT) must be completed every 5 years	Larson International service bulletin #94-1 dated July 18, 1994
113.	Cortina Bob	Mack	Safety bars, gondola supports, track, supports, base, center decoration, center structure	Non-destructive test (NDT) must be completed every 5 years or after 10,000 hours and monthly visual. If cracks are suspected non-destructive test/dye penetrant must be completed annually	Cortina Bob Operator's Manual

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
114.	Himalaya	Mack	Center plate, sweep bolts, sweeps, gondola bolts, gondola frames, safety bars, gondola supports, track, supports, base, center decoration, center structure	Non-destructive test (NDT) must be completed every 10 years or after 20,000 hours/some parts Non-destructive test (NDT) must be completed every 5 years or after 10,000 hours/some parts Monthly visual and if cracks are suspected a non-destructive test/dye penetrant must be performed annually	Mack Operator's Manual
115.	Matterhorn	Mack	Refer to test guidelines	Refer to test guidelines	Manufacturer's test guidelines and letter dated January, 2000
116.	Musik Express	Mack	Center plate, sweep bolts, sweeps, gondola supports, gondola bolts, gondola frames, safety bars	Non-destructive test (NDT) must be completed every 10 years or after 20,000 hours Non-destructive test (NDT) must be completed every 5 years or after 10,000 hours	Music Express Operator's Manual
117.	Musik Exress	Majestic	Spreader Ears	Inspect Spreader Ears for Damage and their bushings for wear: 1. Replace bushings if signs of wear are noted. 2. Replace Spreader Ears if the material thickness is less than 85% of the original thickness (original thickness is 15 mm).	Reference Bulletin: S.A. 2012-01, Release Date 10/24/12, effective date 10/24/12, Completion Date: 10/24/12. e-mail from Chris Kudler to the State of RI specified the original thickness of the Spreader Ears to be 15 mm (fifteen millimeters).
118.	Musik Express	Majestic	Track	1. A Certified Level II NDT Technician must examine each track section (100% VT-Visaul Testing). 2. Repair all cracks. Cracked welds must be ground out to chamfer by an aluminum grinding wheel. 3. Pre-heat for better penetration of the weld metal., see ref Bulletin for Aluminum weld specification. 4. Inspect welds by 100% VT as well as 100% liquid dye penetrate.	Reference Service Bulletin No: 2013-04, Release Date 8/27/2013, Effective Date: 8/27/2013.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
119.	Round up	ManCo Manufacturing	Main boom rocker shaft, cylinder anchor shaft, spindle, main spindle hub housing	Semi-Annually as follows: For Round-Up rides operating in Illinois on or between April 1 and Oct. 31; the NDT must be performed after March 22 and before operation. For Round-Up rides operating in Illinois on or between Nov. 1 and March 31; the NDT must be performed after Oct. 22 and before operation.	Man-Co Manufacturing bulletin CO QC-UI-I, Rev. 3: QC-MI-1-Rev O; and bulletins BU-136MC and BU-138MC, and Dartron bulletin BU0201 PR01, dated January 15, 2000 Unless at the time of the NDT inspection, the Department places a seal upon the ride prohibiting the assembly and operation until the Department removes that seal.
120.	Matterhorn	Matterhorn/Petersburger Schlittenfahrt	Sweep slew rings, sweep bolts, sweeps, wheel axles, gondola, bearing pins, intermediate, rods, gondola frames, safety bars	As specified in the Matterhorn/Petersburger Schlittenfahrt's operator's manual	Matterhorn/Petersburger Schlittenfahrt's operator's manual
121.	Sea-Ray	Mulligan Engineering	Sea-Ray Main Axle, and Main Axle welds	Annual Visual Inspection on Main axle, Annual Mag Particle test on Main Axle welds. UT on Main Axle every 3 years, per referenced undated letter to NJ	Undated letter to NJ Department of Community Affairs (faxed on May 15, 2000).
122.	Coaster, kiddie	Miler (only applies to coasters built after 1991)	Track & structure, car bodies & frames, wheels & axles, hitch assy., lap-bar assy.	Non-destructive test (NDT) must be completed annually on all coasters built after 1991	Miler Coaster Operation Manual, pages 15-17
123.	Wood Coaster Vehicles	Morgan	Per the manufacturer's requirements		Manufacturer's requirements per letters dated March 7, 1988 and June 22, 1994
124.	Coaster, full size	Philadelphia Toboggan Company	Tractor wheel frame, axle, friction wheel frame, square head axle, clutch axle, clutch, coupler pin, draw head front, draw head rear	Non-destructive test (NDT) must be completed annually	Philadelphia Toboggan Company bulletins dated April 22, 1988 and December 10, 1992
125.	Coaster, Junior Size	Philadelphia Toboggan Company	Rear coupler, front coupler, frame, spindle, spindle frame	Non-destructive test (NDT) must be completed every 2 years	Per Philadelphia Toboggan Company bulletin dated April 22, 1988
126.	Zyklon Loop	Pinfari	Welded structural joints, center plate, sweep bolts, sweeps, gondola bolts, gondola frames	Non-destructive test (NDT) must be completed after each 960 hrs of use Non-destructive test (NDT) must be completed every 10 years or after 20,000 hours	Zyklon Loop Maintenance Manual, page 19

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
127.	Zyklon Loop	Pinfari	1. Cars' Components, including Chassis, Axles, Wheel Pins, and Front Axle Fork. 2. Vertical Structures. 3. Tracks.	1. Chassis: Biennial Visual inspection by an NDT technician, Liquid Dye Penetrants if in doubt. 2. Axles: Annual UT. 3. Wheel Pins Biennial UT. 4. Front Axle Forks: Biennial UT. 5. Visual Inspection by an NDT technician of Tracks <u>and</u> Vertical Frames, Liquid Dye Penetrants if in doubt. For NDT frequency, please contact Carlo Guglielmi (see e-mail next column)	Per Pinfari Fax dated 2/11/2000.  Contact Carlo Guglielmi at: <a href="mailto:carlo@italint.com">carlo@italint.com</a>  For frequency of vertical frames inspection by an NDT technician. Daily track and vertical structures inspection by operators.
128.	Explorer (Matterhorn)	Revershon	Capsule support axle	Non-destructive test (NDT) must be completed semi-annually or every 1000 hours	Revershon's owner's manual
129.	Crazy Frog	SAFECO	1. Foot Pedal 2. Ride Arms (Sweeps)	1. Disable foot pedal 2. conduct UT and MT tests on critical Arm/Sweep areas, as indicated to the HSL Study report (see references in the next field, under "NDT or other Action Required By"). 3. Tests to be done twice every season, at the start and midway through the operation schedule. 4. Strictly follow instructions on the referenced document, and direct all questions to HSE/UK	UK Health and Safety Executive (HSE) Bulletin Dated 1/10/2014, and the Non-Destructive Testing Schedule attached to the UK Health and Safety Laboratory (HSL) Research Report PH 05709 v2.0, Page 126.  Please direct all questions to HSE.  Melvin, sandell@hse.gov.uk

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
130.	Super Truck	SBF-Visa	Tube Steel members (enclosed sections)	Annually survey the wall thicknesses of enclosed section members in low areas susceptible to water collection and corrosion by UT. Contact SBF for corrective action if any member wall thickness is reduced by more than 15% of the original thickness. Determine the original thickness by getting consistent readings in high areas not susceptible to water collection (see the "Action Req'd By field).	SBF-Visa Manual, page 12 requires surveying the wall thicknesses of tube steel sections. The manual instructs the owner not to operate and to contact SBF-Visa if a section is found to be reduced by more than 15% of the original thickness. The manual does not indicate the original Tube Steel wall thickness. The NDT firm must determine the original thickness by obtaining the highest consistent thickness readings from high zones not susceptible to water collection. The number of the highest consistent readings necessary to accept the reading as the original wall thickness is left to the NDT firm. SBF was contacted but did not provide the original thicknesses information. If the original thicknesses are obtained by the owner from SBF, it shall be used as the baseline for calculation section reduction %
131.	Frog Hopper and Rodeo Rider	S & S Power, Inc.	Boom and base welds (refer to bulletin) every three (3) years  As shown on bulletin	Non-destructive test (NDT) must be completed annually  MT/PT every 3 years	S & S Power, Inc. bulletin # 03.10.10 dated October 9, 2003  S & S Drawing Numbers F-FRG-BOO-W-@, 002125, and 002278 on Frog Hopper/Rodeo Rider
132.	Turbo Force Stratoshere	Soriani	Tie rods	Non-destructive test (NDT) must be completed annually on rides made before 2004 with specific serial numbers	Soriani bulletin #2004 TF02 dated September 14, 2004
133.	Super Loop on top (Crazy Flip)	Soriani & Moser	Gondola arms joint	Non-destructive test (NDT) must be completed annually	Soriani & Moser Logbook pages 53, 54

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
134.	20 m- 40 m Ferris Wheels, Carnival and Park models	Technical Park	Support hubs of Gondola Arms, tightness of cap screws, Bearings Maintenance and function, ensuring correct maintenance in general.  * For Park Models 20 m, 25 m, and 28 m wheels, see Fig A, P. 2 of the Ref Safety Alert.  * For Carnival Models 28 m and 32 m wheels, as well as for Park Models 34 m and 40 m wheels, see Fig B, P. 2 of the Ref Safety Alert.	1. Ensure correct, timely, thorough, and thoroughly documented Maintenance of all ride components. 2. Grease Bearings as frequently as indicated in Manual to protect from deterioration and from the risk of set-screws loosening (see drawing item 2 on P. 2 of the ref Safety Alert). 3. Perform the following Maintenance on each Gondola Every 15 Days: a. Remove the cover (item 1 in Fig. A and Fig.B). b. Check/tighten any loose screws (item 2). Check bearing (item 3) for wear and rust and proper greasing. Replace parts as necessary, contact Technical Park for Guidance.	Safety Alert Bulletin No: SAB-001 Release Date: 8/19/2013. Effective Date: 8/19/2013 Completion Date: Immediately.
135.	Orbiter (Predator)	Tivoli	Car attachment pins	Non-destructive test (NDT) must be completed annually	Tivoli bulletin #00120 dated December 10, 1990
136.	Predator (Orbiter)	Tivoli	Car attachment pins	Non-destructive test (NDT) must be completed annually	Tivoli bulletin #00120 dated December 10, 1990
137.	Scorpion rides, Serial numbers: 4870230, 4871230, 4886230	Tivoli	Pivot balls, main sweep flange bolts	Mag Particle or UT Non-destructive test (NDT) must be completed every 2 years on the impacted components as follows: a. Pivot balls: test 7 balls every 2 years. Document the tested balls and test results. If any ball fails, test all balls and replace balls that fail. b. Sweep Flange Bolts: Test all bolts every 2 years. If one bolt fails, all bolts must be replaced.	Per Tivoli bulletin #001 for the Scorpion Ride
138.	Scorpion rides, Serial numbers: 4870230, 4871230, 4886230	Tivoli	Ride Structure Weldments	Visual Inspections of all welds on all the structural components, including Center, Sweeps, Spinner Sweeps, Center/Trailer attachment areas and vehicle frames is required every 2 years. Report all problems to the manufacturer before any repairs are made.	Tivoli Scorpion Bulletin #001, undated.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
139.	Spin Out aka The Claw, Maelstrom, El Nino	Tivoli	Refer to bulletin	Non-destructive test (NDT) must be completed annually	Tivoli bulletin #SOSA0001-SOSA13 and U.S. Consumer Product Safety Commission safety alert dated March 30, 2004
140.	Star Force	Tivoli	Vehicle frame, car pivot ball, vehicle sweeps, sweep spreader, main sweep arms	Non-destructive test (NDT) must be completed annually	U.S. Consumer Product Safety Commission safety alert dated September 13, 1994
141.	Mini-Miami	Unknown. Bulletin issued by an inspection group to warn of discovered defects	See ref bulletin	See damage in ride components highlighted by photos in the reference Bulletin.	Geary Power systems Bulletin Dated March 19, 2014
142.	SFC & SLC (Suspended Family Coaster & Suspended Looping Coaster)	Vekoma	L2/L3 Brake Shoe of rides manufactured before 24-08-2001, having the SNs provided in bulletin	One time action to secure Brake Shoes against “falling down from a suspended brake by a single point failure”, as detailed in referenced bulletin	Vekoma bulletin No. 1-SB-003-011106, impacting all rides manufactured after 24/8/2001
143.	Corkscrew, MK 1200, MK-900 and Suspended Looping Coasters	Vekoma	Main axle, wheel spindles, guide wheels, up stop wheels, coupling, anti-roll backs, chassis	Non-destructive test (NDT) must be completed annually	Per Vekoma Coaster Technical bulletins #V90-3 and #V90-4
144.	Suspended Looping Coaster	Vekoma	Suspended Seats.	Welds marked in blue in the Suspended Seat Drawing in Bulletin are to be tested by MT, whereas welds marked in red are to be tested by UT. Please contact Manufacturer regarding frequency of testing.	Vekoma Bulletin No. 1-SB-006-14052009, dated May 20, 2009.
145.	Giant Inverted Boomerang, Hi Speed Suspended Looping Coaster, Big Air, Tilt Coaster, all equipped with the new steel Shoulder Restraints Hinge Blocks	Vekoma	New Steel Hinge Blocks of Shoulder Restraints of rides specified by serial numbers among those shown in Table 1 on page 2 of Service Bulletin SB-023-170712_00.	1. Every 2 weeks/ 2500 ride cycles, visually inspect the hinge blocks (shown in drawing on Page 3 of Bulletin SB-023-170712_00). 2. Every year/ 120,000 ride cycles check 50% of the hinge blocks by PT/MT 3. If indications are found, replace hinge block(s)	All work to be done in compliance with Service Bulletin SB-023-0170712_00



#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
146.	Giant Inverted Boomerang, Hi Speed Suspended Looping Coaster, Big Air, Tilt Coaster, all still equipped with the old Aluminum Hinge Blocks	Vekoma	Old Aluminum Hinge Blocks of Shoulder Restraints of rides specified by Serial Numbers among those shown in Table 1 on page 2 of Safety Alert SA-003-040412_00, Page 2 of 8	1. Stop operation of the rides specified on Table 1, Page 2. If the Ride is in operation for more than 7 years, replace all Shoulder Restraints' old Aluminum bearing (or hinge) blocks with the (new material) Hinge Blocks supplied by Vekoma, and follow the new Steel Hinge Blocks of Shoulder Restraints maintenance action specified by Service Bulletin SB-023-170712_00 . 3. If the ride is in operation for less than 7 years, inspect the bearing blocks visually And with PT (contact Vekoma on the interval of PT inspection). 4. If indications are discovered, close down affected seats until new Steel Hinge Blocks are installed, and follow the maintenance action required by Service Bulletin SB-023-170712_00 thereafter.	All work to be performed according to Vekoma Safety Alert SA-003-040412_Rev. 00, Release Date 04-04-2012, Completion Date: Immediately (04-04-2012).
147.	Mad House	Vekoma	Slewing Bearings of rides specified by serial numbers (or other ride IDs) in Table on page 2 of the referenced Service Bulletin No. SB-022-120612_00	1. Monthly visual check of the visible parts of the Slewing Bearings (SB) of the Drum for indications of cracks (see Drawing on P3 of the ref bulletin 2. At any time, if abnormalities noted (e.g. running sound), check for indications of cracks. 3. If indications are found, replace the Slew Bearing(s)	All work to be performed per instruction in the Service Bulletin No. AB-022-120612_0, pages 1 to 6 of 6.
148.	All Venture Rides	Venture	All Components subject to examination, replace parts as needed	Complete Ride Overhaul every 10 years	Per Venture-Go-Round operators manual Hi-Lite of Greer South Carolina is the authorized parts supplier for Venture Rides (Now defunct) and willing to perform 10 year overhauls
149.	Parachute Tower	Venture	Cylinder path, Cylinder Clevis, elevator head, tower base plate, 12" sheave shafts, attachments—turn buckle	Non-destructive test (NDT) must be completed every 5 Years	Venture manual, Section 3.1.5.3

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
150.	Spider Mountain	Vertical Reality	Elastic banding on all Spider Mountains	1. By the Referenced Bulletin Completion Date, re-band all elastic banding according to the procedure described in the Ref Bulletin 2. Replace relevant section of Manual with this correct banding procedure.	VR Bulletin 1001, Release Date 11/29/2012, Effective Date: 11/29/2012, Completion Date: 11/29/2012.
151.	Hustler	Watkins	Secondary sweep shafts, car center pins	Non-destructive test (NDT) must be completed annually	IL Carnival-Amusement Safety Board – Refer to Grover C. Watkins Inc., Emergency Safety Bulletin for Tempest dated August 24, 1978. Per the U.S. Consumer Product Commission Safety bulletin dated August 4, 1993 (car center pins)
152.	Swinger	Watkins	Upright tube	Visual at every set up, if cracks are observed non-destructive test (NDT) must be completed annually	U.S. Consumer Product Safety Commission safety alert dated June 21, 1996
153.	Tempest	Watkins	Secondary sweep shafts, car center pins	Non-destructive test (NDT) must be completed annually	Grover C. Watkins Inc., emergency safety bulletin, dated August 24, 1978, and U.S. Consumer Product Safety Commission Safety bulletin dated August 4, 1993.
154.	Adult Coaster Cars	Wisdom	Inspection of Wheel Bracket Assembly	Visual & dye penetrant or magnetic flux	Wisdom bulletin dated February 25, 2004. Drawing number 9C 025
155.	Avalanche	Wisdom	Check to ensure that the speed of ride rotation is 21 RPM in both directions, each time you repair or replace the Charlyn Hydraulic Drive Motor.	If speed is over 21 RPM switch the two hoses on the repaired or replaced motor. If still over 21 RPM, do not run the ride and contact Wisdom. Frequency: every time the said motor is repaired or replaced.	Wisdom Service Bulletin, Dated February 23, 2009
156.	Gravitron	Wisdom	Console Post	Annually, Turn Off Main Electrical Power, Lock Out the Disconnect, then visually inspect welds and parent metal for cracks, as detailed in Bulletin.	Part of a Gravitron Bulletin Package dated Aug 12, 1993
157.	Gravitron	Wisdom	Underwing 7/8" diameter x 8" long alignment bolts	Replace all Table alignment bolts annually	Wisdom Gravitron/Starship bulletin dated June 1, 2004
158.	Gravitron	Wisdom	Eight Platform Hinges	1. When the wing is folded, remove the hinge bolts one at a time and inspect the hinge for cracks and or wear. 2. Contact Wisdom for hinge wear tolerance. 3. Perform this inspection annually.	1. Wisdom Gravitron/Starship bulletin dated June 1, 2004. 2. Annual Frequency of testing per Vic Wisdom written response to Dan Ang of N.J, dated 10/15/04.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
159.	Gravitron	Wisdom	Eight Platform hinge bolts	Inspect to insure hinge bolts are in good condition. 1. When ride is set-up, loosen the hinge nut ½ turn 2. Use a torque wrench preset to release when a torque of 50 ft-lbs is reached to turn the bolt head. 3. If the bolt can be turned with a torque less than 50 ft-lb, take it out and check wear. 4. Replace worn bolts (or contact Wisdom for questions on tolerance). 5. Perform this inspection annually.	1. Wisdom Gravitron/Starship bulletin dated June 1, 2004. 2. Annual Frequency of testing per Vic Wisdom written response to Dan Ang of N.J, dated 10/15/04.
160.	Himalaya one truck	Wisdom	Secondary sweep ends	After the installation of the sweep reinforcement kit, weekly visual inspection, and Annual Magnaflux or Dye Penetrant test according to the reference bulletins.	Wisdom service bulletins dated March 15, 2000, November 12, 2000, Dec 20, 2000, and V. Wisdom's letter of January 31, 2001
161.	Himalaya, One Truck	Wisdom	Wheel Shafts	Visual annually, replace if wear is perceptible, UT every three years of continuous operation	Manual's Maintenance section (P45, e-Manual P 51), item 9. E-mail from Wisdom to Doug Rathbun/Illinois, dated 11/16/2010
162.	Himalaya Silver Streak, Family	Wisdom	Sweeps	Non-destructive test (NDT) must be completed annually unless sweep kit installed	Wisdom service bulletin dated April 22, 2002
163.	Himalaya, Square Top (aka One Truck)	Wisdom	Wheel Shafts	Replace if wear is noticed. After 3 years of service, test shafts with UT (contact manufacturer for frequency)	Manual Page 45, item 9 (Wisdom contacted by e-mail to clarify NDT frequency).
164.	Laser Ship	Wisdom	Ears and their weldments, see bulletin	Magnetic Flux, Non-destructive test (NDT) must be completed annually (per Vic Wisdom not clear in bulletin)	Wisdom's service bulletin dated November 1, 2005
165.	Magic Carpet	Wisdom	Main pivot shaft, seat pivot pin	Non-destructive test (NDT) must be completed annually	Wisdom's inspection guide requirements, seat pivot pin Fabricated and Rebuilt Rides, page 10, item 9
166.	Sizzler	Wisdom	Cabbage head ears, main center pole shaft	Non-destructive test (NDT) must be completed annually	Wisdom's inspection guide, Fabricated & Rebuilt Rides, page 2, item 11 and drawing 01-100 and bulletin dated June 3, 1985 and July 1994
167.	Storm	Wisdom	All Welds	Annual Visual Test by an AWS Certified Welding Inspector, or Equivalent	Storm Manual, Inspection & Maintenance, Item 5 under Annual Inspection
168.	Twizzler	Wisdom	Car frames, rod ball swivel ends, frame pivot bushing, drive rim	Non-destructive test (NDT) must be completed annually visual	Wisdom's letter dated February 22, 2001 and the operators manual

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
169.	Gravitron	Wisdom	Trap Door/Emergency Fire Exit, in the Ride's Floor.	Install a Micro-Switch on the frame of the Trap Door/Emergency Fire Exit in the Ride's floor, as per the reference Bulletin: 1. To mark the correct position of the Micro switch, a certified welder must go down under the ride (thru the trap door) 2. A worker would hand the Micro Switch to the welder below, who would then position the Micro Switch such that when the trap door closes, it would push down the switch button <u>completely</u> . 3. While the Trap Door is down, and completely pressing against the Micro Switch Button, the welder would make a mark along the side of the switch bracket. 4. The welder will then weld the Micro Switch bracket to the Trap Door Frame (see sketch in bulletin). 5. The wiring connections are then completed per instructions in the Reference Bulletin, so that the Ride will not run until the Trap door is properly closed.	Wisdom Service Notice dated April 14, 2015.  <u>Very Important Note:</u>  In a phone conversation dated 1/28 between RI Ride Official Mag Guirguis and Victor Wisdom, it was agreed that <u>the Trap Gravitron Door must be functional as a mandatory Emergency Fire Exit AT ALL TIMES.</u>  As such, Please Disregard the Wisdom Rides' "Mandatory Notice" dated March 24, 2015, which calls for welding the said Trap Door shut, as such action would violate the Fire Code and pose a Grave Life Safety Risk.  For any questions please call the RI Ride Official, Mag Guirguis @ 401-222-6330 .
170.	Coasters	Wisdom	Design Drawing(s) for a Retrofit Checkered Plate that is required to be installed in the front seat of the coaster, in order to preclude inadvertent opening of the lap bar should the right foot of the rider comes in contact with the Lap-Bar Release Latch.	Install plate per the Wisdom Design Drawing Dated 2/28/1997. Contact Victor Wisdom if you wish to install the component shown in the older Wisdom Design Drawing Dated 9/18/1995 (of an earlier option that performs the same function).	Wisdom Ride Design Drawing Dated 2/28/1997 (which appear to supersede the earlier design dated 9/18/1995).  PA Safety Alert dated July 15, 2015.
171.	Crazy Bus	Zamperla	Welds on rotating hub flange	Non-destructive test (NDT) must be completed annually (only applies to rides built from 1990-1995)	Zamperla service bulletin #99CB1 dated June 28, 1999
172.	Crazy Bus	Zamperla	Motor Brake Liner	Quarterly Visual Inspection (every 3 months)	Zamperla Bulletin No: 08CB02, dated Nov 14, 2008
173.	Dragon or Tornado Coaster	Zamperla	Vertical spindles	Non-destructive test (NDT) must be completed annually	Zamperla maintenance bulletin dated January, 1991
174.	Enterprise, Mini	Zamperla	Vertical spindle	Non-destructive test (NDT) must be completed annually only if cracks are suspected	Zamperla maintenance bulletin dated January, 1991

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
175.	Lolli Swing	Zamperla	Center section (must check for reinforcements)	Weekly visual Non-destructive test (NDT) must be completed annually on all units without factory reinforcement	Zamperla bulletin #97LS.1 dated March 20, 1998
176.	Mini Enterprise	Zamperla	See Zamperla bulletin number 2002 ME01, dated December 6, 2002 and attached drawing	One time Magnetic Particle testing of welds, different locations. ( See bulletin drawing ) Monthly visual inspection of the welds thereafter.	Zamperla bulletin number 2002 ME01, dated Dec. 6, 2002 and attached drawing, plus Zamperla email dated 1/10/08.
177.	Samba Balloon	Zamperla	Center column base, center frame structure	Non-destructive test (NDT) must be completed annually For rides manufactured after December 8, 1997, if Zamperla repair kit has been installed, a non-destructive test (NDT) is not required	Zamperla bulletin #97SB1 dated December 8, 1997
178.	Speedway	Zamperla	Support bars	Non-destructive test (NDT) must be completed annually	Zamperla service bulletin #99-SW1 REV dated July 2, 1999
179.	Power Surge	Zamperla	Welds on the arms, Particularly the areas as shown in the "attached" drawing.	Monthly, remove decorative panels and Visually Inspect welds as specified in bulletin and in preceding field.	Bulletin number 2008 PS01, dated 23 June, 2008, and attached drawing.
180.	Jump Around	Zamperla	Hardware attaching Sweep Arms to Ride Center	Disassemble and inspect Sweep arms and ride Center, as well as hardware attaching the Sweep Arms to the Ride Center, annually. Add Lubrication Grease Fittings to Upper and Lower Sweep Arms.	Bulletin No. 2009, JA-01 explains required action and list the serial numbers of the rides covered whereby.
181.	Crazy Bus, Crazy Sub, Crazy Plane, & Fire Chief	Zamperla	New Zamperla Redundancy Kit.	1. Use the ref bulletin P. 2 instruction to identify your ride version. 2. Contact Zamperla with the Ride Version and Serial Number to procure the correct Kit for your ride, with attached installation instruction. 3. Follow the instructions to install the redundancy kit.	Zamperla Service Bulletin No:2014 CB0. Release /Effective Date: Oct 1 <sup>st</sup> , 2014 Completion Date: Prior to operation in 2015.
182.	Mini-Jet	Zamperla	Sweep Arm-Fork weld	1. Weekly visual inspection of all the sweep-fork welds (along their entire length). 2. Annual Magnetic Particle ND testing according to ASTM E709, EN 1290, or equivalent	Zamperla Bulletin No. 12-MJ01, Release Date: 22 Aug, 2012, Effective Date 22 Aug, 2012, Completion Date: 22 Aug, 2012. Page 2 of bulletin has a drawing showing the area of interest. Affected Models: all Mini-Jet models manufactured prior to Jan 1 <sup>st</sup> , 1996

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
183.	Family Coaster	Zamperla	Cracks Noted in T-Bars (Lap Bars) that have been in service for more than 15 years.	Add the following New Requirements into this Ride's Preventive Maintenance Program: Annual Liquid Penetrant NDT on All T-bars (Lap Bars) using a Dye Penetrant Test, according to EN 5711 OR its US ASTM E 165 Equivalent Test. Test must be performed by a qualified/certified NDT technician.	Zampela Bulletin: 2015 FAMRC 01. Release Date: Jan 1, 2015. Effective Date: Jan 1, 2015. Completion Date: Before the first operation in 2015.
184.	Wave Swinger	Zierer	Various.	Numerous (see chart for Test Method Code Legend). Frequency also varies. (see chart for Time Code Legend).	Zierer bulletin (no English bulletin number) dated 05-08-04. Gives NDT requirements, detailed wear limits on parts (prompting replacement thereof). Plus maintenance instructions.

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
185.	Wave Swinger	Zierer	<p>1. Suspension Pin 2. Lifting Rope and 3. Hydraulic Cylinder.</p> <p>The Action required under the “NDT or other Action” field, applies to the above impacted items in all “Wave Swingers” having the serial numbers provided in the reference bulletin.</p>	<p>1. Perform NDT on the Lifting Cylinder Suspension Pin (contact the Zierer for details on the NDT). Perform steps 2, 3, and 4 IF the Suspension Pin PASSES the NDT</p> <p>2. Install a Rope Monitor (Article No: 80063), consisting of two sets of sensors to monitor the smooth movement of the Lifting Cables, and whose signals are to be subsequently integrated into the ride control system. This modification requires at least three additional slip rings at the slip ring assembly in the lower mast portion. If spare slip rings are available on your unit we recommend the addition of the rope monitor to your Wave Swinger on the next occasion (e.g. winter rehab).</p> <p>3. Install 2 U-shaped Retaining Elements (Article No HZ020078) to pick up the cylinder joint head in case of a local failure of suspension pin, and to thus preclude a more general failure. 4. Install one additional Lifting Cylinder Bottom Protection Plate (Article No: HZ020079), to preclude a more general failure in case of suspension pin failure. For additional information regarding installation, details, and pricing, contact the manufacturer.</p>	<p>Zierer Bulletin # SB-WS-1001, dated Feb 2, 2012 and SB-SW-1001_rev1, dated Dec 18, 2012.</p> <p>Note1: The last 2 paragraphs of item 2 in the “NDT or other Action” field (in blue text), were added based on advise by Zierer (Ref. Mr. Martin Weinberger e-mail).</p> <p>Note2: Please read the reference bulletins carefully. Contact Zierer for any questions.</p>
186.	Wave Swinger 32, S/Ns: 8200001 thru 8200022	Zierer	Zierer Wave Swinger Safety Cables	Reminder to retrofit your ride (see S/N range) with the Safety Cables, per procedure provided in Notification, if not already done	Zierer Notification number NO-WS-1003, dated July 7, 2013
187.	Wave Swinger 40, S/Ns: 8220002 to 8220010	Zierer	Zierer Wave Swinger Safety Cables	Reminder to retrofit your ride (see S/N range) with the Safety Cables, per procedure provided in Notification, if not already done	Zierer Notification number NO-WS-1003, dated July 7, 2013

#	RIDE NAME	MANUFACTURER NAME	COMPONENT(S) OR FEATURE(S) IMPACTED	NDT, OTHER ACTION, & ACTION FREQUENCY	NDT OR OTHER ACTION REQUIRED BY:
188.	Wave Swinger 48, S/Ns: 8042001 thru 8042123, and 8042901, thru 8042920	Zierer	Zierer Wave Swinger Safety Cables	Reminder to retrofit your ride (see S/N range) with the Safety Cables, per procedure provided in Notification, if not already done	Zierer Notification number NO-WS-1003, dated July 34, 2013