

National Fairground Inspection Team (NFIT) Sector Workplan 2022/2023

Open Government status: Open

Audience: All HSE NFIT B3 and B2 inspectors, Heads of Operations and Specialist Inspectors engaged in NFIT work

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1. Inspection programme

1.1 What are we inspecting and why?

The purpose of this inspection programme is to continue and build upon the intervention work undertaken in previous years and to address emerging safety issues within the industry. It sets out NFIT's contribution to the Fairgrounds & Theme Parks Sector Action Plan and the milestones in the HSE Delivery Plan 2022/2023.

Although there are five main workstreams for 2022/2023, this Operational Guidance (OG) also outlines ongoing areas of concern, and Regulators should use the information contained with this OG to assist with addressing these matters should they arise.

There are five main work streams:

i) [Twist](#)

The intervention involving Twist amusement devices (also known as Cyclone Twist, Scrambler, Merry mixer, Zigzag, Sidewinder, Disco Twist, Grass Cutter, and Sizzler) follows a serious incident in 2021 and will focus on the general condition of the device, the rider restraint system including consideration of the rotational speed of the device,

ii) [Star Flyer](#)

The intervention follows on from a serious incident in Northern Ireland and will confirm that the safe height rotation device is working correctly, so that the risk that a passenger could come into contact with fixtures of the ride (lamps, sidings, barriers etc) during the operation of the device is eliminated.

In addition, the inspection will also consider the control system for monitoring the passenger restraint system, which builds on work carried out last year with other high-speed rides with an ejection risk.

iii) [Work at Height](#)

Following several serious incidents, and reports of bad practice involving work at height with the industry, the intervention will consider work at height controls for employees involved in the installation, maintenance, and inspection of amusement devices.

iv) [NDT](#)

Interventions undertaken as part of the 2021/2022 NFIT workplan identified several issues around the use of non-destructive testing (NDT) within the fairground industry.

Specific issues were identified around the selection of appropriate NDT techniques for the components being tested, the competence and diligence of those carrying out the NDT testing, the interpretation and presentation of the findings and the NDT schedules.

This intervention will be led by the Mechanical Specialist Group and Science Division with support provided by Sector.

v) Large Mobile Amusement Devices – Ground Bearing Capacity/Stability

HSE investigated a concern relating to the installation of a large mobile amusement device on disused land, which identified deficiencies in the assessment of the ground bearing capacity on which the device was placed.

In addition, inquiries identified failings with the information and instruction provided in the operations manual, the suitability of the risk assessment and the ongoing monitoring of the amusement device.

HSE plan to undertake several interventions with large amusement devices to confirm that the ground bearing capacity has been assessed and adequate controls are in place to ensure that the devices are sited correctly and monitored to ensure its stability.

vi) High Speed rides

The inspection of high-speed rides where failure of a restraint to be properly locked could result in ejection of passengers, also remains a priority from 2021/2022 workplan and interventions should be applied to rides.

- where passenger containment is achieved with either ‘over the shoulder’ or ‘lap bar’ restraints.
- restraints may be automatically opened and closed or manually operated.
- there is a locking mechanism to mechanically lock the restraints down and prevent them from opening during operation.
- electrical switches (called limit switches or proximity sensors) are used to detect that the restraints are down and locked in place. This can either be as an indication to the operator, or as part of a “safety interlock” which will only allow the ride to start when all restraints are down and locked.

Control systems used for monitoring seat restraints should be manufactured and installed to meet the relevant standards and be subject to the relevant pre-use inspections before the amusement device is put into use.

However, even when a control system has met the relevant standards, there are limitations to their effectiveness to monitor that the passenger restraints are correctly adjusted, and passengers are secured.

The not exhaustive list below gives several examples where even a correctly designed and installed control system may not be able to effectively determine that it is safe to initiate the ride cycle,

A control system may not detect.

- that the passenger is of the correct height can brace themselves sufficiently and the seat restraint is fitted correctly and adjusted so that the passenger can be effectively contained by the restraint system.
- that the restraint is confirmed to be securely locked.
- that the passenger is in a fit condition to ride the device.
- that unmonitored restraint devices such as crotch straps have been fastened and adjusted as necessary and that seat pommels and other features of the seat design form part of the containment system remain effective.

vii) [Matters of evident concern](#)

In addition, the OG sets out in appendix 16 matters of evident concern and potential major concern, which if identified during a site visit should be addressed and appropriate action taken.

Examples of such matters frequently found on fairgrounds can be found at [Appendix 16](#).

viii) Ongoing matters of concern

Although there are five main workstreams for 2022/2023, this Operational Guidance (OG) also outlines areas of ongoing concern, and Inspectors should use the information contained with this OG to assist with addressing these matters should they arise.

It is not expected that NFIT Inspectors will carry out this work during 2022/2023, but the continued inclusion in this OG provides a useful aide memoire should these issues be identified during a site visit whilst completing the main areas of NFIT work

- i) Inspection of travelling fairground rides focusing on standards of maintenance, inspection, repair, and operation.
- ii) Benchmarking of organisational arrangements, including emergency procedures, at travelling fairgrounds.
- iii) Inspection of inflatable devices to ensure their safe use.

iv) Interventions with controllers of specific travelling fair rides to check action has been taken to address safety issues previously identified by HSE in safety alerts arising from investigations, incidents and received intelligence. This will include the following amusement devices.

- [Kolmax Miami Trip](#)
- [Tagada](#)
- [Safeco Crazy Frog](#)
- [Superstar](#)
- [Big Wheels](#)

Further information and guidance are provided in appendices 10 -14 inclusive.

1.2 What is the extent of the problem?

Annual figures for the number of injuries to members of the public reported at fairgrounds and theme parks (SIC93210) under [RIDDOR 2013](#) are an unreliable measure of industry performance on public safety. This is due to significant misreporting and misclassification of injuries under this SIC (Standard Industrial Classification). The two main causes of injuries to workers reported under [RIDDOR 2013](#) are slips, trips, and falls on the level, and falls from height.

Analysis of valid injury reports received indicates very few injuries are sustained because of failure or incorrect operation of rides. However, HSE recognises that when there is a failure or incorrect operation of a ride it can result in catastrophic consequences such as the Smiler incident at Alton Towers in 2015, the Tsunami incident at M&Ds Strathclyde Park in 2016, the Crazy Mouse incident at Lightwater Valley in 2019 and the tragic incident at Drayton Manor in 2017.

In addition, HSE are continuing to investigate several incidents, where passengers have been ejected from high-speed amusement devices resulting in significant injuries.

HSE also recognises that recent incidents, including the prosecution of operators following a fatal incident in March 2016 involving inflatable devices, have raised public awareness of the potential for injury and harm to users of such devices when not erected and/or operated in-line with manufacturer guidance or good practice standards.

HSE's overall strategy is to promote the safe use of fairground rides and inflatable devices and in doing so reduce the risk of such catastrophic incidents to as low as is reasonably practicable.

1.3 What must be covered at the inspections?

The 2022/2023 NFIT Work Plan is focused specifically on:

i) [Twist](#)

In the first instance, a visual inspection of the device will be undertaken to consider the following safety critical aspects.

- the general structural condition of the amusement device.
- condition of the platform including support.
- the rider restraint system.
- the locking mechanism is of a suitable design and mechanically robust.
- the operating procedures are suitable and sufficient to ensure that riders are correctly restrained in the cars.
- the rotational speed of the typical rotational speed of the central carousel of the ride is within the design specification and cannot be exceeded.
- the pins securing parts of the ride together are correctly rated and have not been replaced with unsuitable alternatives.
- the electrical installation associated with the amusement device has been maintained and subject to routine inspection.

This should be followed up by seeking supporting evidence of maintenance history through:

- Up to date/ continuity of Annual Inspection reports (DOCs).
- Evidence of maintenance repair, routine preventive maintenance.
- Manufacturers Operating and Service manuals present and awareness to maintenance instructions contained

Depending on what is found, follow-up actions may be required to address shortfalls (based on consideration of the bullet points above). Note: The results of follow-up actions may in itself then lead further evidence of wider concern – i.e., additional contravention may then present itself.

The rider restraint provision should also be considered, including the dimensions of the rider restraint and the suitability of the locking mechanism. Where there are concerns Mechanical/Ergonomist Specialist support should be sought at this point.

The typical rotational speed of the central carousel ride will be around 12 revolutions per minute, which should be referenced in the operations manual and the operational risk assessment.

Where this is significantly exceeded then riders may be thrown forward in their seats and out of the ride. It is therefore imperative that there is some means of limiting the speed of rotation.

The operator should be asked to operate the ride at normal operating speed, and there should not be further travel on the control, which may take the form of a lever or rotating knob. Actual speed can be determined by taking a video of the ride in operation.

As a travelling ride, it will be assembled and dis-assembled on a regular basis and there a high likelihood that the fasteners used to connect the various sections of the ride together become lost or damaged. When this occurs, they must be replaced with similarly rated fasteners. Failure to do so can lead to premature failure of the fastener.

Typical issues seen will be the replacement of connecting pins with a threaded bolt. Where there are concerns Mechanical Specialist support should be sought at this point.

The safety of the electrical installation on the ride should be assessed, and if there are any issues these should be referred to an Electrical Specialist for consideration and review.

ii) [Star Flyers](#)

The targeted inspection intervention will look specifically at two elements of the Star Flyer amusement devices as follows.

Safe height rotation device

- the pre-use inspection / testing documentation, operations manual etc.
- a physical examination of the electrical control system including limit switches and the programmable logic controller (PLC).
- functional testing of the safe height rotation device.
- a review of the operational risk assessment including control of access and egress to the device and the emergency evacuation procedures.

Additionally, a review of the mechanical and structural elements of the device including wire ropes, gearboxes should be undertaken.

Passenger restraint monitoring

As ride control systems cannot always be relied upon to identify failures with the limit switches HSE intervention will establish that there are suitable provisions in place to ensure that:

- there is frequent and thorough checks and maintenance on the restraint system switches, following manufacturer's instructions to ensure that switches are opening and closing properly.
- operators have in place suitable arrangements so that at each cycle, and before running a ride, they carry out physical checks to ensure all the restraints are positioned correctly and passengers are secured.

Specialist Inspectors will carry out functional tests on seat restraint interlock devices to ensure that they function correctly.

Relevant information and details of the appointed inspection body (AIB) should be recorded during the on-site inspection, so that a follow up contact can be made with AIB carrying out the annual in-service inspection to ensure that they have:

- tested every individual restraint limit switch to ensure that all are functioning correctly.
- where failed switches are found, they have been identified as safety-critical defects and the potential consequences of these failures is included in the written report.
- before issuing a DOC (Declaration of Operational Compliance), ensured that the necessary remedial work has been completed and tested by a competent person, and this should be evidenced and documented.

The on-site inspection will also consider the design and integrity of the lifting mechanism and associated accessories including the condition of the wire rope used to suspend the carousel, specifically.

- wear, particularly where the rope passes over sheaves or close to static parts of the ride
- corrosion
 - signs of external pitting or corrosion
 - rust marks indicating internal corrosion
- lack of or excessive lubricant – excess may lead to a build-up of dirt and debris
- broken wires – are they randomly distributed or concentrated in a particular area
- distortion
- terminations
 - broken wires
 - cracks in fitting
 - wedge socket or wire rope grips correctly fitted
- the discarding criteria will be according to the OEM manual and/or the applicable standards for the wire rope used.
- the ride controller should be able to provide details of the maintenance and inspections carried out on the rope.

iii) Work at Height

This work will specifically focus on employees carrying out the installation, inspection, and maintenance of amusement devices at height.

The intervention will focus on several key areas including.

- where it is reasonably practicable to do so, has the need for work at height been eliminated.
- where work at height cannot be avoided, have adequate precautions been taken to prevent falls using either an existing place of work that is already safe or the right type of equipment?
- have employees carrying out the work at height received suitable training and instruction to carry out it out in a safe manner?
- is there suitable supervision of work at height activities?
- is the equipment provided suitable, stable, and strong enough for the job, maintained and checked regularly by a competent person?
- the emergency evacuation and rescue procedures for employees?

iv) NDT

HSE will undertake several targeted interventions to assess the competence and practice of a selection of NDT practitioners within the fairground industry.

The work will involve a head office visit to.

- review the inspection procedures for the various NDT techniques carried out by the NDT practitioner.
- review of the governance arrangements and quality management systems used by the NDT practitioner to ensure compliance with the relevant standards and industry good practice.

The head office intervention will be supplemented by the completion of sample site visits to assess the practicable application of the NDT including.

- confirmation that the NDT work completed aligns to the prescribed technique detailed within the NDT schedule and is appropriate for the component being tested
- confirmation that the NDT technique has been completed in line with the relevant standards and industry good practice, and that defects, cracks etc have been correctly identified and recorded.

The intervention will be led by the Mechanical Specialist Group and Science Division with support provided by Sector.

v) Large Mobile Amusement Devices – Ground Bearing Capacity/Stability

HSE will undertake a sample inspections of large mobile amusement devices to ensure that the ground bearing capacity, terrain, gradient, base area, load bearing capability of supporting structures and any localised ground features, such as trenches, utility access holes and uncompacted backfill and have been considered to ensure the stability of the device.

HSE will seek confirmation of the following.

- a suitable and sufficient assessment of the ground bearing capacity has been undertaken, and that the ground conditions are in fact suitable for the device in situ
- a review of the operating manual and other associated paperwork to confirm that it contains the relevant information regarding ground conditions and/or packing requirements for the device
- the packing requirements identified in the operations manual and other associated paperwork are in place
- the monitoring arrangements to confirm the ongoing stability of the device.

vi) High Speed Rides

In addition, HSE will continue to inspect high speed rides to consolidate the work undertaken in 2021/2022, where it is appropriate, and interventions should be applied to rides.

- where passenger containment is achieved with either 'over the shoulder' or 'lap bar' restraints.
- restraints may be automatically opened and closed or manually operated.
- there is a locking mechanism to mechanically lock the restraints down and prevent them from opening during operation.
- electrical switches (called limit switches or proximity sensors) are used to detect that the restraints are down and locked in place. This can either be as an indication to the operator, or as part of a "safety interlock" which will only allow the ride to start when all restraints are down and locked.

Control systems used for monitoring seat restraints should be manufactured and installed to meet the relevant standards and be subject to the relevant pre-use inspections before the amusement device is put into use.

However, even when a control system has met the relevant standards, there are limitations to their effectiveness to monitor that the passenger restraints are correctly adjusted, and passengers are secured.

The not exhaustive list below gives several examples where even a correctly designed and installed control system may not be able to effectively determine that it is safe to initiate the ride cycle, A control system may not detect.

- that the passenger is of the correct height can brace themselves sufficiently and the seat restraint is fitted correctly and adjusted so that the passenger can be effectively contained by the restraint system.
- that the restraint is confirmed to be securely locked.
- that the passenger is in a fit condition to ride the device.
- that unmonitored restraint devices such as crotch straps have been fastened and adjusted as necessary and that seat pommels and other features of the seat design form part of the containment system remain effective.

1.4 What specific sectors and topics are we inspecting and when?

The fairground industry is seasonal. Travelling fairgrounds and theme parks are most active between March and October with a limited number of winter fairs and carnivals in December/January.

100 inspections are to be carried out, with the majority to be completed in Q1 of 2022. These visits are to be targeted specifically at the inspection of Twist rides and Star Flyers will be undertaken at sites representing a cross section of both the travelling fairgrounds and theme parks.

It is anticipated that HSE will inspect 50 Twist rides, 15 Star Flyers, 20 sites with amusement devices that require significant work at height activities and 10m large amusement devices to consider ground bearing capacity.

In addition, HSE will continue to inspect high speed rides to consolidate the work undertaken in 2021/2022, where it is appropriate.

1.5 Application of the Enforcement Management Model (EMM)

Guidance is provided on the application of the Enforcement Management Model for topics in each of the above work streams. The IEE table at appendix 16 is not intended to cover every scenario but is intended to give an overview of enforcement standards for relevant topic areas.

Should an Inspector identify that there is (or is likely to be) a risk of serious personal injury arising from any of the situations detailed in appendix 16, then they should consider issuing a Prohibition Notice, regardless of the IEE (Initial Enforcement Expectation) indicated in the table.

In addition, to the service of an enforcement notice, proactive prosecution should also be considered in line with the Enforcement Management Model

1.6 HSE's approach to enforcement HSE believes in firm but fair enforcement of health and safety legislation. The purpose of enforcement is to:

- ensure that duty holders act to immediately deal with serious risks.
- promote and achieve sustained compliance; and
- ensure that duty holders, who breach health and safety requirements, and directors and managers who fail in their responsibilities, may be held to account.

Inspectors use various enforcement techniques to deal with risks and secure compliance with the law, ranging from the provision of advice to enforcement notices.

They can also initiate or recommend prosecution where the circumstances warrant punitive action. Making decisions about appropriate enforcement is fundamental to the role of an inspector

HSE expect that prosecution should normally be considered where it is appropriate in the circumstances, to draw general attention to the need for compliance with the law, or a conviction may deter others from similar failures to comply with the law.

1.7 Matters of Evident Concern

When undertaking the planned interventions inspectors may observe matters of evident concern and potential major concern beyond the workstreams set out in the OG.

Where matters of evident concern and potential major concern are observed, these should be brought to the attention of the relevant dutyholder i.e., the ride operator or fairground organiser, and where necessary the inspector should take action to deal with any issues.

Examples of such matters frequently found on fairgrounds can be found at [Appendix 16](#).

1.8 Ongoing areas of concern

It is not expected that NFIT Inspectors will routinely carry out this work during 2022/2023, but should these issues be identified during a site visit whilst completing the main areas of NFIT work they should be addressed.

i) Improving standards of inspection, maintenance, repair, and operation of rides in the travelling fair sector

For 2022/2023 all rides on a fairground are in scope for inspection where circumstances observed give rise to Inspector concerns.

Many fairground incidents can be attributed to poor maintenance regimes. Inspectors should ensure that fairground ride controllers/operators are effectively maintaining their rides in the interim period between inspections by the competent person. This will be through an appropriate programme of checks by the controller/operator including, but not limited to, pre-use, daily and weekly checks.

The fairground controllers will need to demonstrate that they have the requisite information (e.g., manufacturer's instructions) to perform these checks and that they are either competent to undertake the work themselves or employ the services of a competent person to complete the necessary checks.

Amusement device controllers will also need to ensure that any repairs that are carried out are of the requisite standard, as poorly designed repairs and poor standards of implementation can lead to the catastrophic failure.

Additionally, many incidents on amusement devices can be attributed to the way they are operated as often as they are for technical reasons. Such risks associated with use are only apparent when the ride is in operation; therefore, unannounced visits to fairs in operation will be more effective.

When Inspectors are observing rides, they should consider not only the behaviour of operators but the potential effects of foreseeable rider behaviour and whether operators are actively observing riders if such behaviour could create a risk to the safety of the riders or others e.g., rider behaviour suggests they may not be able to ride safely; attempts to jump from rides; remove restraints or ride in an inappropriate position etc. Guidance on the expected behaviour of operators and high-risk behaviours in riders can be found in [HSG 175](#).

iv) [Fair organisation and Emergency Planning](#)

Dutyholders should have in place measures that are self-sufficient and co-operative with other ride controllers and persons at the site to manage safety properly and control risks.

They must also have suitable arrangements to deal with emergency situations, which should not involve reliance on entities such as the fire service as first a point of action. The nature of emergencies is such that they do not happen to a schedule, and it may be that emergency services are not able to respond immediately or are close enough to assist in a timely manner.

Section E of HSG175 provides some assistance on topics to consider when making an emergency plan

iii) [Inspection of inflatable devices](#)

Intervention with the operators of inflatable devices to ensure that required safety measures are applied. These will include arrangements for annual inspection/ongoing care of the device, use of both base level and high-level tie points, and correct equipment i.e., anchor pegs, inflating device used, equipment available to monitor local wind speeds etc

iv) Inspection of rides where previous issues have been identified

Interventions with controllers of specific travelling fair rides aim to check that action has been taken to address safety issues already identified by HSE in safety alerts following investigations, incidents, and receipt of intelligence. These rides may contain design failures and specialist advice may be necessary. The rides previously identified are:

- [Kolmax Miami Trip](#)
- [Tagada](#)
- [Safeco Crazy Frog](#)
- [Superstar](#)
- [Big Wheels](#)

Where issues are observed with these rides at site the proforma available may be used and further detail about the issues is given in Appendices 10 to 14 inclusive.

2. Guidance & Support Available

Specialist Support type	Relevant specialist
Electrical and Control	Electrical and Control System Inspectors
Mechanical/Machinery	Mechanical Inspectors
Industry standards & enforcement	Fairground, Entertainment & Leisure Sector

Other Important Guidance for Inspections	Guidance location
Topic-specific industry guidance on topics such as workplace transport, electrical safety, public protection	Available on the Intranet
HSG 175 – Fairgrounds and amusement parks: Guidance on safe practice	HSG 175
Bouncy Castles and inflatable play equipment	Inflatables
NFIT SharePoint Site https://hsegov.sharepoint.com/sites/NFITCommunicationRepository	

The above support and guidance are supplemented by in-year work briefings and targeted sector-specific training as required, and in response to issues arising during the year.

3. Recording of inspections

NFIT inspections should be recorded in accordance with current work recording instructions. The additional instructions below will assist with accurate and consistent recording.

COIN Recording

When visiting a fairground site, it may be that one person owns more than a single ride operating there. Where this is the case and an inspector, or inspectors, undertake work upon rides owned by the same operator this should be recorded as a single inspection with each machine discussed as part of that inspection. Think of this in the same way as a fixed-premises and each ride is a machine under the control of the company i.e., as an inspector you do not open a case for each lathe or press observed within that company's perimeter. Where a family on site have several machines and each is owned by a different member of the family then each of those machines will be a separate case attributable to the ride operator.

Examples:

- Mr A owns three machines. This will be one inspection COIN case which will record details of the three machines seen.
- Family B have three machines Mrs B owns two of these and her son has ownership of the third. This will be two inspections with COIN cases for Mrs B and her son opened separately.
- Family C operate three machines each owned by a member of the family, but the family operate as a Limited Company. In this case the inspection is on the Limited Company covering all three machines covered in a single COIN Inspection case.

It may be appropriate to unitise interventions at large theme parks. This can be done by using a COIN Master Case relating to the Theme Park in question and then individual inspection cases for the major rides inspected related to the Theme Park Master Case. This is much the same as for recording investigations involving multiple duty holders on COIN.

Inspectors are also encouraged to share with the Fairground Sector any issues of note (e.g., instances of good practice, extremely poor practice, photographs, copies of letter/notices etc).

Proformas

Proformas are provided for the inspections of:

- [Twist](#)
- [Star Flyer](#)
- Specific machinery interventions including [Kolmax](#), [Miami Trip](#), [Crazy Frog](#), [Superstar](#), [Tagada](#) and [High-Speed rides](#).

These will be available on the FOD (Field Operations Division) SharePoint site and should be attached to the COIN record for each intervention.

In addition, copies of completed proformas should be emailed to David Kivlin at david.kivlin@hse.gov.uk

4. Your Health and Safety

Site visits should only be undertaken by designated NFIT Inspectors who have either attended the NFIT briefing session or viewed the relevant briefing materials on the NFIT SharePoint site.

When planning any visit, inspectors (and their line managers) should ensure they are familiar with the mandatory precautions which all visiting staff must consider when undertaking HSE business outside of HSE premises or their official office.

Details of this and HSE's lone worker policy can be found [here](#).

Details of the HSE's current COVID 19 precautions can be found [here](#)

Referral to COIN history pre-visit is strongly recommended.

As it may be necessary to observe rides in operation e.g., when rides are open to the public, consideration should be given to the timing of the visit. This is particularly relevant where in inspections and any necessary enforcement may be undertaken outside of office hours.

Appendix 1 Twist

Introduction
During this work year (2022/2024) FOD are asked to undertake 50 visit to assess the safety of Twist Rides in line with topic pack and briefing session. The sector will provide FOD with a list of ride controllers, which will include sufficient detail to identify a suitable number of visits. The visits will be led by Electrical SG Inspectors with support from the NFIT team, who should liaise prior to the site visit to ensure that ride is properly prepared for inspection and the relevant paperwork is available FOD are asked to carry out visits between April and July 2022, and they can be conducted at either the ride controllers storage facility or at a fairground. Details of visit numbers and selection will appear in the FOD Targeting and Inspection Guide
Background
The intervention involving Twist amusement devices follows a serious incident in 2021 and other interventions that identified issues with the passenger restraint system including locking mechanism.
Timing
FOD Inspection activity will take place April and July 2022.
Recording and Reporting
Follow the arrangements in the main body of the OG and complete and attach the relevant proforma.
Health and safety
Suitable PPE (Personal Protective Equipment) should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
On site inspectors should investigate and question owners/operators regarding. • the general structural condition of the amusement device • condition of the platform including support • the rider restraint system • the locking mechanism is of a suitable design and mechanically robust • the rotational speed of the typical rotational speed of the central carousel of the ride is within the design specification and cannot be exceeded • the operating procedures, to ensure that they are suitable and sufficient to confirm that riders are correctly restrained in the cars • the pins securing parts of the amusement device together are correctly rated and have not been replaced with unsuitable alternatives • the electrical installation associated with the amusement device has been maintained and subject to routine inspection.
Enforcement expectations

Inspectors should consider those issues set out below in the Priorities section where relevant at each visit. Initial Enforcement Expectations for some commonly identified issues are set out in this OG.

Priorities

- Mechanical and structural condition of the amusement device
- Electrical safety including peripherals i.e., lighting etc
- Rider restraint system and locking mechanism
- Rotational speed of central carousel, design specification and speed limitation.
- Knowledge of person undertaking operator checks during each cycle
- Knowledge of person undertaking operator checks during each cycle
- Ride Inspection DoC and associated inspection reports and DR (Design Review) documentation

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice
- [HSE inspection pack and proforma](#)

Contacts

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Appendix 2: Star Flyer

Introduction
During this work year (2022/2024) FOD are asked to undertake 15 visits to assess the safety of Star Flyer rides in line with topic pack and briefing session. The sector will provide FOD with a list of ride controllers, which will include sufficient detail to identify a suitable number of visits. The visits will be led by Electrical SG Inspectors with support from the NFIT team, who should liaise prior to the site visit to ensure that ride is properly prepared for inspection and the relevant paperwork is available FOD are asked to carry out visits between April and July 2022, and they can be conducted at either the ride controllers storage facility or at a fairground. Details of visit numbers and selection will appear in the FOD Targeting and Inspection Guide
Background
An issue has been identified following a recent serious incident, where the failure of limit switch fitted to the central column of the Star Flyer allowed the “star” to rotate at a height where users struck the fencing and lighting stands, resulting significant number of serious injuries.
Timing
FOD Inspection activity will take place April and July 2022.
Recording and Reporting
Follow the arrangements in the main body of the OG and complete and attach the relevant proforma.
Health and safety
Suitable PPE (Personal Protective Equipment) should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Safe height rotation device On site inspectors should undertake the following. • A review of the design paperwork (electrical drawings etc), including the pre-use inspection documentation, operations manual etc. • A physical examination of the electrical control system including limit switches and the programmable logic controller (PLC). • A review of the operational risk assessment including control of access and egress to the device and the emergency evacuation procedures • A review of the mechanical elements of the device including wire ropes, gearboxes etc. Seat restraint On site inspectors should investigate and question owners/operators to ensure that. • there is frequent and thorough checks and maintenance on the restraint system switches, following manufacturer’s instructions to ensure that switches are opening and closing properly.

- operators have in place suitable arrangements so that at each cycle, and before running a ride, they carry out physical checks to ensure all the restraints are positioned correctly and passengers are secured.
- Specialist Inspectors should carry out functional tests on seat restraint interlock devices to ensure that they function correctly.

Relevant information and details of the AIB should be recorded so that a follow up contact can be made with appointed inspection body (AIB) carrying out the annual in-service inspection to ensure that they have.

- tested every individual restraint limit switch to ensure that all are functioning correctly.
- where failed switches are found, they are identified as safety-critical defects and the potential consequences of these failures should be included in the written report.
- ensured that the necessary remedial work has been completed and tested by a competent person, evidenced, and documented before issuing a DOC.
- carried out a partial design review if the restraint interlock arrangement is modified following identification of problems during an annual inspection, as this should be classed as a safety critical modification

Lifting gear

On-site inspection will consider the design and integrity of the lifting mechanism and associated accessories including

- wear, particularly where the rope passes over sheaves or close to static parts of the ride
- corrosion
 - signs of external pitting or corrosion
 - rust marks indicating internal corrosion
- lack of or excessive lubricant – excess may lead to a build-up of dirt and debris
- broken wires – are they randomly distributed or concentrated in a particular area
- distortion
- terminations
 - broken wires
 - cracks in fitting
 - wedge socket or wire rope grips correctly fitted
- the discarding criteria will be according to the OEM manual and/or the applicable standards for the wire rope used.
- the ride controller should be able to provide details of the maintenance and inspections carried out on the rope.

Priorities

- Safe height rotation device and control system
- Mechanical and structural integrity of the device
- Lifting mechanism including wire ropes and other associated safety controls i.e., limit switches
- Knowledge of person undertaking pre use inspection and maintenance
- Knowledge of person undertaking operator checks during each cycle in relation to seat restraints
- Emergency procedures
- Ride Inspection DoC and associated inspection reports and DR (Design Review) documentation

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice
- [HSE inspection pack and proforma](#)

Action notes
Contacts
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Appendix 3: Work at Height

Introduction
During this work year (2022/2024) FOD are asked to undertake 20 visits to assess the management of work at height activities for employees involved in the installation, inspection, maintenance, and operation of amusement devices. The sector will provide FOD with a list of ride controllers and fixed sites, which will include sufficient detail to identify a suitable number of visits. The visits will be led by the NFIT team, who should liaise with the duty holder prior to the site visit to ensure that ride is properly prepared for inspection and the relevant paperwork is available FOD are asked to carry out visits between April and July 2022, and they can be conducted at either the ride controller's storage facility or at a fairground. Details of visit numbers and selection will appear in the FOD Targeting and Inspection Guide
Background
Following several serious incidents, and reports of bad practice involving work at height, the intervention will consider work at height controls for employees involved in the installation, maintenance, and inspection of amusement devices.
Timing
FOD Inspection activity will take place April and July 2022.
Recording and Reporting
Follow the arrangements in the main body of the OG.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
The work at height hierarchy should be applied to the task to determine the safest reasonably practicable way of working safely at height. On site inspectors should investigate and question owners/operators to ensure that. - where it is reasonably practicable to do so, has the need for work at height been eliminated. - where work at height cannot be avoided, have adequate precautions been taken to prevent falls using either an existing place of work that is already safe or the right type of equipment. - have employees carrying out the work at height received suitable training and instruction to carry out it out in a safe manner - is there suitable supervision of work at height activities. - is the equipment provided is suitable, stable, and strong enough for the job, maintained and checked regularly by a competent person? - there is suitable and sufficient emergency evacuation and rescue procedures for employees.
Priorities

- Application of work at height hierarchy
- Information, instruction, training, and supervision for work at height
- Work equipment and PPE provision, use and inspection.
- Emergency procedures for rescue

Guidance

- <https://www.hse.gov.uk/work-at-height/index.htm>
- [FOD inspection guidance for working at height](#)
- [Working at Height a Brief Guide indg401](#)
- [Safe use of ladders and stepladders INDG 455](#)
- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice

Contacts

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Appendix 4: Non-Destructive Testing (NDT)

Introduction
Interventions undertaken as part of the 2021/2022 NFIT workplan identified several issues around the use of non-destructive testing (NDT) within the fairground industry. Specific issues were identified around the selection of appropriate NDT techniques for the components being tested, the competence and diligence of those carrying out the NDT testing, the interpretation and presentation of the findings and the NDT schedules. The planned work by HSE will be led by the Mechanical Specialist Group and Science Division with support from Sector. FOD are asked to assist with visits between December 2022 and March 2023.
Background
Interventions undertaken as part of the 2021/2022 NFIT workplan identified several issues around the use of non-destructive testing (NDT) within the fairground industry. Specific issues were identified around the selection of appropriate NDT techniques for the components being tested, the competence and diligence of those carrying out the NDT testing, the interpretation and presentation of the findings and the NDT schedules.
Timing
FOD Inspection activity will take place December 2022 and March 2023.
Recording and Reporting
Follow the arrangements in the main body of the OG.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
HSE will undertake several targeted interventions to assess the competence and practice of a selection of NDT practitioners within the fairground industry. The work will involve a head office visit to. • review the inspection procedures for the various NDT techniques carried out by the NDT practitioner. • review of the governance arrangements and quality management systems used by the NDT practitioner to ensure compliance with the relevant standards and industry good practice. The head office intervention will be supplemented by the completion of sample site visits to assess the practicable application of the NDT including. • confirmation that the NDT work completed aligns to the prescribed technique detailed within the NDT schedule and is appropriate for the component being tested

- confirmation that the NDT technique has been completed in line with the relevant standards and industry good practice, and that defects, cracks etc have been correctly identified and recorded.

Priorities

- NDT Inspection procedures
- Governance and quality management systems of Inspection Body (IB)
- Qualifications and professional accreditation of IBs (Inspection Body) (Inspection Body)
- Equipment management and calibration
- NDT scheduled and reports
- Assessment of NDT work

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice

Contacts

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Appendix 5: Large Mobile Amusement Devices – Ground Bearing Capacity/Stability

Introduction
During this work year (2022/2024) FOD are asked to undertake 10 visits to assess the safety of large mobile amusement devices, in particular the ground bearing capacity and stability. The sector will provide FOD with a list of ride controllers, which will include sufficient detail to identify a suitable number of visits. The visits will be led by the NFIT team, who should liaise with the duty holder prior to the site visit to ensure that ride is properly prepared for inspection and the relevant paperwork is available FOD are asked to carry out visits between April and July 2022, and they can be conducted at either the ride controller's storage facility or at a fairground. Details of visit numbers and selection will appear in the FOD Targeting and Inspection Guide
Background
HSE will undertake a sample inspection of large mobile amusement devices to ensure that the ground bearing capacity, terrain, gradient, base area, load bearing capability of supporting structures and any localised ground features, such as trenches, utility access holes and uncompacted backfill and have been considered to ensure the stability of the device.
Timing
FOD Inspection activity will take place April and July 2022.
Recording and Reporting
Follow the arrangements in the main body of the OG.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
HSE will undertake a sample inspection of large mobile amusement devices to ensure that the ground bearing capacity, terrain, gradient, base area, load bearing capability of supporting structures and any localised ground features, such as trenches, utility access holes and uncompacted backfill and have been considered and the ground is suitable to ensure the stability of the device. HSE will seek confirmation of the following. • a suitable and sufficient assessment of the ground bearing capacity has been undertaken, and that the ground conditions are in fact suitable for the device in situ • a review of the operating manual and other associated paperwork to confirm that it contains the relevant information regarding ground conditions and/or packing requirements for the device • the packing requirements identified in the operations manual and other associated paperwork are in place • the monitoring arrangements to confirm the ongoing stability of the device.
Priorities

- Provision of suitable information pertaining to the ground bearing capacity on which the amusement device is sited
- Provision of adequate information within the operations manual, design review or other relevant documentation relating to required ground bearing capabilities
- Provision of adequate information with the operations manual, design review or other relevant documentation relating to the packing requirements for the device including outriggers, base plates etc
- Arrangements for monitoring ground conditions and the stability of the device throughout the entirety of its installation and use.
- Condition of packing material and other load bearing equipment

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice

Contacts

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Appendix 6: High Speed Rides - Safety Restraints and Control Systems

Introduction
An issue has been identified following several recent serious incidents, where the failure of limit switches fitted to restraints can cause the ride control system to indicate that the restraints are down and locked even if they are not, which may allow a ride to run when it is not safe for it to do so.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
On site inspectors should investigate and question owners/operators to ensure that. - there is frequent and thorough checks and maintenance on the restraint system switches, following manufacturer's instructions to ensure that switches are opening and closing properly. - operators have in place suitable arrangements so that at each cycle, and before running a ride, they carry out physical checks to ensure all the restraints are positioned correctly and passengers are secured. - Specialist Inspectors should carry out functional tests on seat restraint interlock devices to ensure that they function correctly. Relevant information and details of the AIB should be recorded so that a follow up contact can be made with appointed inspection body (AIB) carrying out the annual in-service inspection to ensure that they have. - tested every individual restraint limit switch to ensure that all are functioning correctly. - where failed switches are found, they are identified as safety-critical defects and the potential consequences of these failures should be included in the written report. - ensured that the necessary remedial work has been completed and tested by a competent person, evidenced, and documented before issuing a DOC. - carried out a partial design review if the restraint interlock arrangement is modified following identification of problems during an annual inspection, as this should be classed as a safety critical modification
Priorities
- Knowledge of person undertaking pre use inspection and maintenance - Knowledge of person undertaking operator checks during each cycle - Ride Inspection DoC and associated inspection reports and DR documentation
Guidance
HSG 175 – Fairgrounds and amusement parks: Guidance on safe practice - HSE action notes
Contacts
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Appendix 7: Maintenance of travelling fairground rides

Introduction
Fairground ride controllers are required to ensure machines are subject to annual inspection by a Registered Inspection Body who will produce a Document of Conformity (DoC) for the ride once examined. This DoC should be readily available at the fairground site for examination. In between annual inspection owners and operators are expected to be able to show a regime of pre-use checks and maintenance to ensure the ride remains safe to operate. They also need to ensure that repairs to the amusement device are suitable.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should investigate and question owners/operators about: DoC • Is it in date? • Does it relate to the machine in front of them? • What is the independence of the Inspection Body producing the DoC? Pre-Use checks and Maintenance • What aspects of the ride are subject to pre-use checks and which of these are daily, and which are post first running? • Is there a pre-use checklist and is this completed accurately? Repairs • All repairs should be suitably designed and implemented by a competent person with a suitable record of the work undertaken recorded. General Inspection The on-site general inspections will, in cases of poor adherence to maintenance regimes, help the inspector test the comments or information offered to them as evidence of an operator undertaking the checks. Evidence of a poor maintenance regime or lack of repair may be shown by: • Damaged fencing/floorplates • Worn or weathered ride restraints. • Poor electrical wiring, including blackened sockets • Missing bolts from structure or ride equipment
Priorities
• Ride Inspection DoC and in use checking regimes • Knowledge of person undertaking checks of what they are checking and why • Ride Safety – structural • Passenger Safety – restraint and containment equipment suitability and condition
Guidance
• HSG 175 – Fairgrounds and amusement parks: Guidance on safe practice
Contacts

Appendix 8: Fair Organisation and Emergency Planning

Introduction

Effective organisation of fairs and amusement parks is essential to manage safety properly and to control risks. The organiser should ensure the safe operation of the fair or amusement park by taking overall responsibility for the management of the risks. The organiser will need to:

- identify any control measures needed to avoid or reduce risks to the public and employees.
- have a policy in place for organising, planning, monitoring, controlling, and reviewing activities that affect the safety of people on the site.

Health and safety

Suitable PPE should be worn to ensure safety

Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking

Inspection

The inspection should confirm that the fair has been organised effectively and a suitable and sufficient emergency plan has been devised, considering the following.

Fair organisation

The fair should be planned to effectively deal with the following issues.

- risks arising from the site such as uneven or soft ground, wind uplifts or from another structure or overhead power lines, are minimised.
- there are no points where channelling the public could lead to dangerous overcrowding in an emergency. Extra space may be needed around popular attractions.
- there is sufficient space to allow access for emergency vehicles (including access to fire hydrants), at the same time as the public is being evacuated. Do not forget that access routes will need to be able to cope with people with disabilities or families with children and pushchairs.
- there are identified access routes that can take the weight of all vehicles. Remember that emergency vehicles and recovery equipment, e.g., cranes, may need to access the site.
- the ground or structures used are suitable to take the weight of all anticipated people, plant, and vehicles. Many large emergency service vehicles or MEWPs (Mobile equipment working platforms) are not suitable for use on grass sites.
- there are safe distances between attractions and perimeter walls, fences etc (this includes any barriers and waiting areas), considering:
 - the motion and passenger clearance envelopes of amusement devices.
 - the need for emergency access and egress (pedestrians and vehicles).
 - segregation of the public from dangerous moving parts or areas of danger.

Emergency Plan

The organiser should have appropriate emergency procedures in place for the duration of the fair. They should have prepared a written emergency plan before the fair starts, and before it opens to members of the public. The detail and complexity of any plan will depend on factors such as the size of the fair, its location, external factors, duration, and the likely number of visitors. They should have discussed their plans with the emergency services.

The risk assessments for the fair should provide a focus for areas that need to be considered. Where a foreseeable emergency will involve the organiser and a ride controller, e.g., rescue of members of the public trapped in a high ride, they must liaise to ensure it is safe for the necessary equipment, or example emergency service vehicles, mobile elevating work platform (MEWP) etc, to access the site of the emergency.

The emergency plan should be made available to controllers, the emergency services, and the local authority. It should include:

- a list of people with allocated responsibilities and their contact details.
- stewarding arrangements (stewards should not be involved in the operation of amusement devices).

- conditions agreed with the emergency services, such as:
 - liaison arrangements.
 - rendezvous points, entrances, and emergency routes.
 - the location of services (e.g., water, electricity etc).
- site evacuation procedures.
- contact details for the relevant emergency services.
- a layout plan of the site. This should include, where appropriate:
 - device locations.
 - entrances, including access for emergency services.
 - pedestrian and traffic routes.
 - position of control centres.
 - location of services (e.g., water hydrants, electrical substations etc).
 - assembly positions.

Priorities

Inspectors should ensure the following:

- a suitably detailed emergency plan has been prepared and communicated to all relevant parties
- the layout of the fair has been planned, and then implemented to ensure that the fair can be operated safely during both normal operation and emergency situations.
- the organiser is available on site, or be represented by an onsite deputy, whenever the site is open to the public.
- a means of communicating with controllers, the public and the emergency services is in place.
- areas prohibited to the public have been identified and marked.
- fire and other safety checks are carried out each day before the public is admitted, for example that:
 - a system for raising the alarm is in place.
 - fire escape routes are un-obstructed, and all fire exit signs are clearly visible.
 - there are no obvious hazards (e.g., deteriorating ground conditions).
 - fire instruction notices are displayed.
 - fire-fighting equipment is available.

Ensure that the organiser can demonstrate that safe conditions are maintained in and around the attractions throughout the day by:

- monitoring individual attractions.
- checking for overcrowding and re-routing the public if necessary.
- keeping all routes, including emergency routes, clear and well signposted.
- monitoring the condition of the site, particularly housekeeping and the state of the ground, and that wastepaper and other flammable materials are not allowed to accumulate where they may become a source of danger.
- checking that the layout stays as planned.
- ensuring that any accidents/incidents are recorded as necessary and investigated.

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice – Appendix E

Contacts

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Appendix 9: Inflatable devices

Introduction
Serious incidents have occurred where inflatables have collapsed or blown away in windy conditions. Inspectors should confirm that devices are manufactured in accordance with BS EN 14960 Inflatable play equipment. Safety requirements and test methods. In addition, inspectors should ensure that the inflatable devices are operated in a safe manner with adequate levels of supervision to ensure safety.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should ensure that the following matters are considered when inspecting an inflatable device as follows. Safe Use, supervision, and monitoring • Inflatables are not being operated in winds above 24 mph (38 kmph), which is Force 5 on the Beaufort Scale (small trees in leaf begin to sway) NB Certain inflatables may have a lower maximum wind speed for operation, so check the manufacturer's operating manual to confirm the maximum wind speed for the safe operation of the inflatable • When the inflatable is being operated outside, the operator should have access to an anemometer to measure the wind speed at regular intervals. If one of these is not available, the inflatable should not be operated outside. NB The use of smartphone weather applications to measure wind speed is not acceptable as they do not take localised wind conditions into account • When using the inflatable outside, all the anchor points must be used, with metal ground stakes at least 380 mm long and 16 mm wide, with a rounded top. They should have a welded metal 'O' or 'D' ring fitted to the end. • Ensure that all inflatables have at least 6 anchor points. The operator manual will tell you how many there should be, and you should check to ensure they are all still in place and have not been removed • Ensure that the ropes used to secure the inflatable are in good condition and not stretched, frayed or rotten. • Ensure that improvised ropes, e.g., bungee cords are not being used • If ground stakes cannot be used because of the surface (e.g., tarmac) then ballast should be used with anchor points. This should weigh at least 163 kg per anchor and should be connected using suitable fixings to attach the guy ropes. • Ensure that the inflatable is tightly secured to the ground so that the wind cannot get under it and lift it up • If an inflatable is being used indoors, refer to the operator's manual which will provide instruction on what anchorage is necessary to maintain the shape of the device and prevent overturn • Ensure that all other associated equipment is safe, including the blowers • Ensure that the correct blower is being used (the blower specification, including output, will be given in the operating manual) • Check to ensure that there are no obvious signs of over-tension or sagging of the structure. • Ensure that the connection tube and blower are firmly attached to each other • Impact-absorbing mats are in position in line with manufacturer's instructions and BS EN 14960:2019 • Check that there are no holes or rips in the fabric or seams • Ensure that the device looks symmetrical – if it looks misshapen or deformed there could be internal problems that make bouncing unpredictable.

- There should be constant supervision by at least one suitably trained person, even for “dry hire” devices.

Operating Instructions

Operating instructions must be supplied and should address the matters set out above.

Tests and inspections

Initial test

If inspecting a new inflatable Inspectors should confirm that it has an ‘initial test’ to confirm it complies with BS EN 14960.

Annual inspection

Inspectors should make sure that an annual inspection has been carried out by a competent person. The report should identify the inflatable and blower by their serial numbers.

Priorities

- Safe use, supervision, and monitoring
- Arrangements for the “dry hire” of devices used in non-domestic premises
- Initial test and inspection of devices to ensure that they have been manufactured in line with BS EN 14960 and are inspected to ensure that they are in a safe condition.

Guidance

- [HSG 175](#) – Fairgrounds and amusement parks: Guidance on safe practice
- BSEN 14960:2019 - [Inflatable play equipment. Safety requirements and test methods](#)
- [Bouncy castles and other play inflatables: safety advice \(hse.gov.uk\)](#)

Contacts

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Appendix 10: Kolmax Miami Trip

Introduction
The Kolmax Bench L-20 is a Miami-type ride manufactured in the Czech Republic. It has been involved in three serious incidents involving passenger ejections. The first investigation found numerous areas requiring remedial work.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should check remedial works notified to ride controllers have been completed and that machines are operating in accordance with both the manufacturer's instructions and HSE guidance. Identify and record the following information on your inspection case. • Specific ride details including serial number, ride name and ADIPS (Amusement Device Inspection Procedures Scheme) DoC unique reference. • Required remedial work completed • Machine operated in accordance with manufacturer and HSE instruction and guidance. • Any management failings such as training, instruction etc. • Any SG involvement • Any Material Breach or Enforcement action taken
Priorities
<u>Passenger Restraint Arrangement</u> • Has a supplementary restraint system/bar been fitted to the outside seats to prevent a person being ejected from the ride? • Has the electrical interlock switch to the restraint bar been modified so that it detects the restraint is positively latched and that the machine cannot be started without restraint being locked? • Has the restraint release pedal been moved or shrouded to prevent the end passenger being able to reach it, or has other action been taken to eliminate this risk? <u>Braking System</u> • Has the braking system been changed so that the gondola can be controlled if the primary drive and braking system fail? <u>Emergency Rescue</u> • Has a procedure been prepared (with training and instruction for ride operators and attendants) on how to safely rescue people from all gondola positions? This must take account of the residual limitations in the primary drive and braking after any modifications that have been made. It must consider possible unexpected movements of the gondola due to counter-weight movement.
Guidance
Inspection Proforma: Kolmax Miami Trip • Kolmax Miami safety alert  • Letter to Showmen's Guild on Kolmax Miami 
Contacts
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Appendix 11: Tagada

Introduction
There have been numerous incidents at Tagada rides in recent years and these are still occurring. Some are related to rider conduct, some to poor operating practices and some a combination of both. Injuries have occurred when passengers are dislodged from their seats and, in some cases, ejected from the machine.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should check remedial works notified to ride controllers have been completed and that machines are operating in accordance with both the manufacturer's instructions and HSE guidance. Identify and record the following information on your inspection case. • Specific ride details including serial number and ADIPS DoC unique reference. • Required remedial work completed • Machine operated in accordance with manufacturer and HSE instruction and guidance. • Any management failings such as training, instruction etc. • Any SG involvement • Any Material Breach or Enforcement action taken
Priorities
<u>Condition of Machine</u> ➤ No cracks in the casing that fingers etc. could get into. ➤ Seats all in reasonable condition with no cracks or holes? ➤ Rails all the way around the drum including over the door. ➤ Padding at the seat bench ends in good condition. <u>Accelerometer readings</u> ➤ Were accelerometer readings taken by the ride inspector during annual inspection? ➤ Was a printed accelerometer trace test available? If no, why? ➤ What were the maximum forces recorded? If above 1g, what action did you take to ensure the ride controller took action to ensure the machine was not able to generate forces above 1g in any axis? ➤ If the machine has been fitted with measures to control the downward speed of the drum, has this been done by: A restrictor in the air exhaust; Feeding the exhaust air into a pressurised air receiver; Or other (please specify) ➤ Were these safety modifications subjected to Design Review? (See HSG 175) <u>Observations during operation</u> ➤ Was the Tagada bounced by riders in the stationary position or whilst it was running slowly? ➤ If yes, what action did you take to address this unsafe behaviour? ➤ Did the operator deal promptly with rider misbehaviour i.e., standing up, walking about in the drum etc.?
Guidance

- [HSL \(Health and Safety Laboratory\) Report on Tagada accelerations](#) 
- [Letter to owners of Tagada rides](#) 
- [Letter to bodies inspecting Tagada rides](#) 
- [Tagada Proforma](#)

Contacts

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Appendix 12: Safeco Crazy Frog

Introduction

The Crazy Frog type machine was subject to a Safety Action Notice (SAN) requiring controllers to conduct certain examinations, make physical alterations to the machine and/or change operational use. Certain types of the Safeco Crazy Frog machine are the subject of a recent HSL Study (see link below for detail).

This machine has been involved in several serious incidents since first imported into the UK. The majority involved:

- injuries resulting from passenger ejections,
- serious back injuries sustained during un-commanded catastrophic mechanical or pneumatic movements and ride arms dropping suddenly to the ground. Also ride arms failing catastrophically through metal fatigue.
- back injuries resulting from high frequency, low amplitude seat movements.
- bruising and minor crush injuries resulting from poor ergonomics,

Most serious hazards affecting both riders and the machine's structural integrity were attributed to the ability to make sudden changes to pneumatic pressure in the machine. This can be addressed by the fitment of a pneumatic restrictor and some Controllers have done this. These have been fitted near to the pay box, so they are visible.

Health and safety

Suitable PPE should be worn to ensure safety

Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking

Inspection

Inspectors should check remedial works notified to ride controllers have been completed and that machines are operating in accordance with both the manufacturer's instructions and HSE guidance.

Identify and record the following information on your inspection case.

1. Specific ride details including machine name, serial number and ADIPS DoC number.
2. Required remedial work completed
3. Machine operated in accordance with manufacturer and HSE instruction and guidance.
4. Any management failings such as training, instruction etc.
5. Any SG involvement
6. Any Material Breach or Enforcement action taken

Priorities

Control of Machine

Pneumatic control system (see NFIT workplan for details)

- Has the machine been fitted with a valve to limit the pneumatic pressure to the rams controlling the arms? If the valve has not been fitted, has the pneumatic control pedal on the floor been disabled?
- If the valve has not been fitted, is the machine being NDT'ed in accordance with the HSL schedule twice per year? If not, consider enforcement. If the valve has not been fitted, why not?

Non-destructive testing (NDT)

- Does the NDT schedule for the machine include ultrasound (UT)?
- Has any welding been carried out to any of the arms?

Safety restraint system

- The integrity of the safety locking mechanism on the rider restraint needs to be checked to ensure that the device cannot be operated with the restraint open.
- Magnetic locking device, face of magnet to check for corrosion / detritus. (This can result in a false locked signal).

Cylinder rod/clevis block

- A visual inspection should be undertaken to identify, if there are any secondary mechanical methods of locking the clevis to the cylinder rod (e.g., a locknut) between the pneumatic cylinder and clevis.
- Alternatively, some devices have had a preparatory solution applied, which “locks” the cylinder rod into the clevis block. It is important that if this method is used there is a suitable means of releasing the cylinder rod from the clevis block that does not damage either component.
- In either case, a tamper proof torque seal pen (preferable in a high-definition colour) should mark the final locked position of the clevis block to cylinder rod, to allow for frequent visual inspection.

Guidance

- [HSL Report on Crazy Frog control system, mechanical integrity, and ergonomics.](#)
- [Crazy Frog Proforma](#)
- [HSE advice note](#)

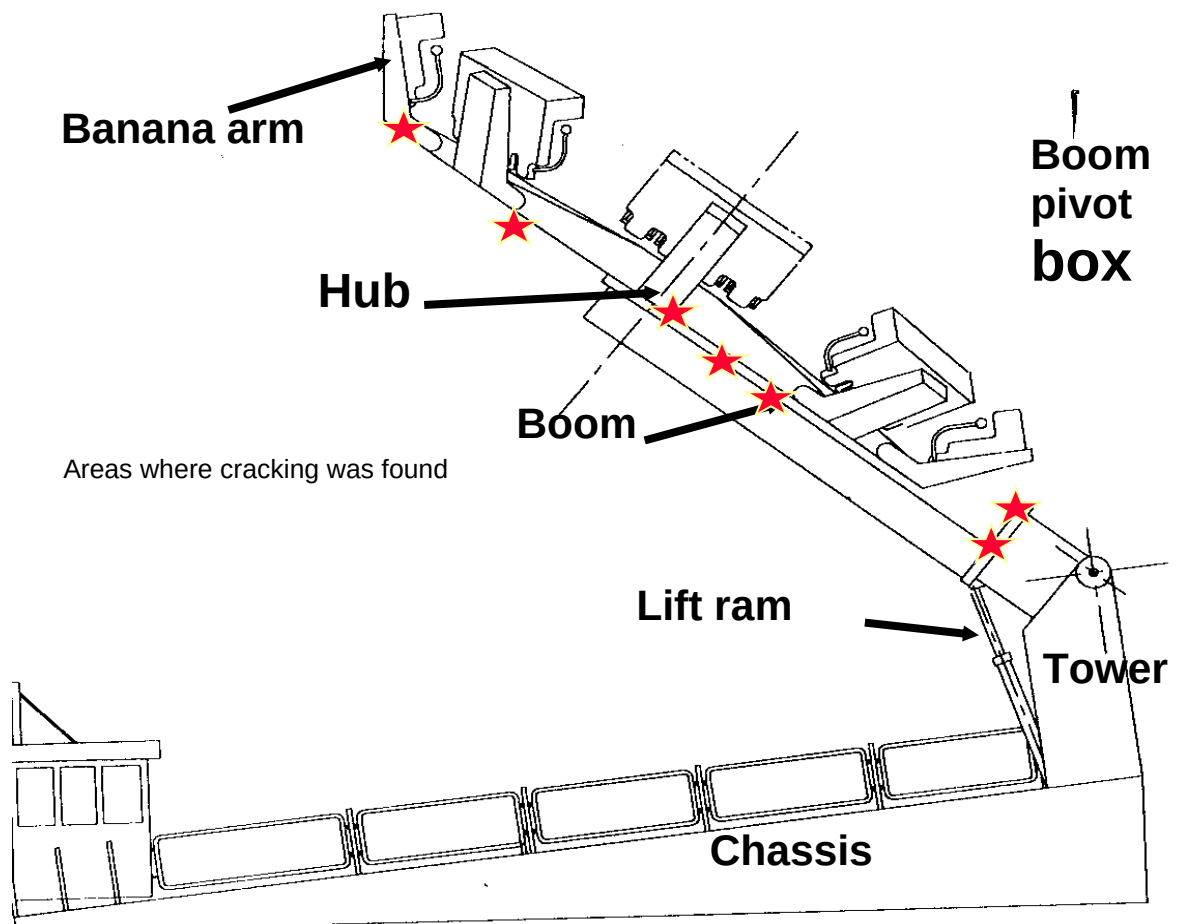
Contacts

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Appendix 13: Superstar

Introduction
The Superstar was the subject of a major investigation/ intervention in 2002–2004 when catastrophic weld failures occurred. These are illustrated at positions as shown in Diagram 1 below. Investigation into the causes was extensive and resulted in all these machines requiring remedial work and/or changes to their operation. An Enforcement Notice was issued during the investigation requiring alterations to the operating procedures and a comprehensive, in-depth NDT regime. In some cases, machines have had significant re-engineering work or have a revised NDT schedule. In these or other circumstances NFIT should act as necessary to ensure public safety. Sector can provide advice if required. See 'further references' section for copy of the Schedule to the Notice and letter sent to all ride controllers and inspection bodies reminding them of the standards required. Inspectors should check that these machines are being operated and tested either in accordance with the Schedule or to an equivalent standard.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should check remedial works notified to ride controllers have been completed and that machines are operating in accordance with both the manufacturer's instructions and HSE guidance. Identify and record the following information on your inspection case. 1. Specific ride details including machine name, serial number and ADIPS DoC number. 2. Required remedial work completed 3. Machine operated in accordance with manufacturer and HSE instruction and guidance. 4. Any management failings such as training, instruction etc. 5. Any SG involvement 6. Any Material Breach or Enforcement action taken
Priorities
<u>Condition of machine</u> Current NDT schedule ➤ Is the original HSE/HSL NDT schedule, issued with the PN, being used? ➤ If not, does an NDT schedule exist – if so, please take copy and pass to Sector. If no schedule exists, consider enforcement action – Sector will be happy to advise. ➤ Are there metal plates welded over the boom joints? ➤ If so, are these removed and refitted during NDT testing?
Guidance
• Superstar NDT Schedule • Letter to owners and inspection bodies of Superstar machines • Superstar Proforma
Contacts
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Diagram 1: Superstar Arm Diagram



Appendix 14: Big Wheels

Introduction
This work has been identified as a priority following an intervention by HSE, highlighting wider underlying issues with this type of device including a lack of supporting inspection and maintenance records.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Inspectors should investigate and question owners/operators to establish: • If the ride designed as a travelling/ static ride (provide relevant design information) • If the big wheel is a travelling model, is it subject to regular strip down and inspection, after dismantling at each event/ location. (Written confirmation from the Manufacturer would clarify this). • foreseeable opportunities for intrusive inspections may vary thus a Design Review would be expected to clarify the intended installation and any change in circumstances (i.e., operating alternatively as a fixed/ transportable installation) and should be reflected in the basis of the DOC. • if the ride being operated in accordance with the OEM (Original Equipment Manufacturer) design (if not how does this affect the in-service inspection and operational compliance) • if no intrusive inspection has been undertaken to main supporting components such as centre-shaft and drive wheel assembly (if different to centre-shaft), what specific checks have been undertaken to evaluate potential structural decay – e.g., use of low-level vibration monitoring and trending from new • if the original design review analysed fatigue life calculations and can the extent of the calculation in relation to local factors (such as marine environment and wind loading) be confirmed. Are such design review calculations available highlighting the local factors? • other than carrying out theoretical fatigue life calculations, how has the ongoing operational condition of the subject ride been assessed, given the theoretical design life. • the actual age of the big wheel, have previous Competent Person inspections recommended strip down of the centre- shaft (or centre pivot) arrangement, and supporting wheel (drive). Can the current DOC or equivalent in-service inspector explain why this not felt necessary? • if the manufacturer or the original design reviewer has provided written assurance (through supporting calculations) as to the latest date by which a structural strip down and intrusive assessment should be undertaken.
Priorities
• Ride Inspection DoC and relevant inspection reports • Design review documentation or other relevant documentation including risk assessments
Guidance
• HSG 175 – Fairgrounds and amusement parks: Guidance on safe practice
Contacts
Paul Grady 0203 028 2550

Appendix 15: Additional Matters of Evident Concern

Introduction
When inspecting Theme Parks or travelling fairgrounds inspectors may see matters of evident concern beyond those relating to the specified machines discussed earlier. Where assessed, these matters require discussion with the ride operator or fairground organiser, and where necessary action by the inspector to address the concern.
Health and safety
Suitable PPE should be worn to ensure safety Reference to COIN prior to visit to identify local factors e.g., violence or aggression marking
Inspection
Establish the contractual arrangements for the operation and management of the fairground and the individual rides to allocate responsibilities to the correct duty holder. Identify and record the following information on your inspection case. 1. Processes carried out and equipment used 2. Are appropriate control measures used, checked, and maintained? 3. Specific control failings 4. Any management failings such as training, instruction etc. 5. Any SG involvement 6. Any Material Breach or Enforcement action taken
Priorities
Matters of evident concern likely to be found include: ➤ inadequate or poor fencing on rides (e.g., access not prevented to underside of ride, fences close enough to allow reach through to moving ride, gaps between fence sections or underneath that would allow an adult or child through), ➤ inadequate protection on juvenile machines to ensure non-riders are protected. ➤ obvious electrical faults (e.g., domestic cabling, poor jointing, cable in poor condition or running across vehicle routes). It should be noted that HSE has no powers in living accommodation areas. ➤ poor control of work at height during erection/dismantling or when running the ride (e.g., work from atop open lorry sides), ➤ inadequate supervision and control of rides (e.g., one operator for two or more rides, not enough supervision to ensure access gaps are secure when ride is in operation), ➤ minimum/maximum rider heights not being enforced, ➤ ride attendants failing to conduct physical checks of restraints/containment before ride starts, ➤ danger areas not guarded/closed off (e.g., generator enclosures, vehicles), ➤ poor packing of rides (e.g., 'thin edge' loading or packing badly cracked and broken), ➤ rides in obviously poor condition (e.g., bent chequer plate, broken steps/handrails), ➤ queues not controlled (e.g., people running onto ride before last passengers can clear safely), ➤ passengers waiting on open decks of rides such as Waltzer's, ➤ rides sited close enough to impede pedestrian access or impact upon one another, ➤ rides being run out of balance (e.g., Twists with one car full and the opposite car empty, Crazy Frog with significantly different weight loading on opposing arms).
Guidance
• HSG 175 – Fairgrounds and amusement parks: Guidance on safe practice • Controller guidance for guarding and fencing requirements of juvenile fairground rides ADIPS guidance
Contacts
Tracy Hamilton 020 3028 3114

Appendix 16 Initial Enforcement Expectations

NB: Should an Inspector identify that there is (or is likely to be) a risk of serious personal injury arising from any of the situations below, then they should consider issuing a Prohibition Notice, regardless of the IEE (Initial Enforcement Expectation) indicated in the table.

Electrical			
	Situation	IEE	Comment
	The use of power connectors (for example, domestic 13-amp sockets) that have insufficient IP rating / not ruggedized and are not suitable for environments where they are likely to become wet / damaged	PN	The use of domestic type electrical sockets and accessories is often found when additional lighting or sound systems are added to rides. Sockets and electrical accessories suitable for use outdoors and robust are readily available and practical to use. The issue can often be dealt with immediately by either replacement or removal. In any case, a follow up NoC (Notification of Contravention) letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance. SG support should be sought about the correct rating of electrical fittings and accessories.
	Damage to cabling. Cable cores exposed from within the cable sheath or in extreme situations, copper conductors exposed by the cable damage.	PN	All cabling should be of a sound construction with the external sheath of the cable in good condition. Any joints or connections in cables should be made using electrical connectors or accessories suitable for the environment and intended for joining cables. The use of PVC tape to repair cabling should not be accepted. The replacement of damaged cabling is reasonably practicable and can often be completed immediately. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	Cables routed across vehicle and pedestrian traffic routes including those buried or covered cabling that	PN	This will include cabling that has been shallow buried or covered by tarmac or other material but could foreseeably become damaged by vehicle or pedestrian movements or may be struck by a shovel or securing peg.

	could foreseeably be damaged by vehicle or pedestrian movements.		Reasonably practicable measures could include the use of armoured cable, the provision of covers to provide adequate mechanical protection to the cable or routing the cable where it will not be at risk. A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	Damaged sockets and other electrical accessories	PN	The replacement of damaged sockets and other electrical accessories is reasonably practicable and can often be completed immediately. If the damage exposes potentially live parts within the accessory, then this is likely to present immediate danger and action should be taken to make the system safe. A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	Chocolate block type connectors used to make electrical connections	PN	Chocolate block connectors are not suitable for joining together flexible cables where there is any likelihood of strain being placed on the connection. They are not suitable for use where they may become wet unless suitably enclosed. Wrapping with PVC tape will not provide adequate weather protection nor adequate strain relief. If used in fixed wiring systems, the connectors should be in an enclosure and the cabling supported or fixed to prevent strain on the connection. Purpose designed cable connectors, or in-line plugs, and sockets can be used to join flexible cables when needed. Replacing cables rather than repairing damage with connectors may be practical.

			A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	The use of flat twin and earth cable in circumstances where mechanical stress and/or damage is foreseeable	PN	Flat twin and earth cable should not be used in situations where it will be subject to mechanical stress or damage. This type of cable should not be used to make extension leads or for the direct connection of portable appliances. This type of cable is designed for fixed wiring installations only. The provision of suitable cable is reasonably practicable and can often be changed immediately. A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	The use of damaged electrical distribution units i.e., distribution units with damaged or missing covers allowing access to live conductors	PN	Equipment damaged so that potentially live conductors are exposed presents immediate danger and action should be taken to make the equipment safe. The replacement or repair of damaged distribution equipment is reasonably practicable to expect. Distribution equipment should be suitable for use in the environment in which it is being used. Domestic type distribution boards (consumer units) should not be in use where they are likely to get wet. A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
	Cables incorrectly terminated into electrical equipment.	PN	Where cables enter electrical equipment, the cable sheaths should be maintained by the connection into the equipment. Cut outs for cables should not compromise the integrity of

			the equipment enclosure by allowing water ingress if the equipment is outdoors or access to potentially live parts inside. The cut outs should not cause damage to the cables. Cables should not be routed into equipment through doors or covers so that it is not possible to close the doors or replace the covers. If cables appear likely to become damaged, for example by cable cores being exposed as the cables enter metallic enclosures or if covers cannot be replaced or doors closed potentially exposing live parts, enforcement action should be considered. The appropriate action will depend on the foreseeable risk. A PN should be considered in circumstances where immediate remediation cannot be undertaken. In any case, a follow up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance.
Mechanical			
	Passenger Security (safety critical restraint)	PN\poss. Proactive prosecution	This relates to mechanical and integrated ride safety restraints i.e., locking lap bars etc. These should be in excellent condition without loose fixings, any damage or the actual system being over-ridden. The condition of this equipment is an aspect of the DoC, though be aware like an MOT for a car the DoC relates to the day of inspection. Where defects are seen, even where it may be possible to correct quickly, this is an indication of poor maintenance regime between inspections and a prohibition notice is the expectation. Where a proactive prosecution is considered, SG input is likely to be required.
	Passenger Security (non-safety critical restraint)	NOC	This relates to the chain style restraints seen on rides such as chair-o-planes etc. where the movement of the ride pushes the rider back into the seat and the restraint is for confidence and/or to prevent riders jumping from the ride as it operates. Securing of the restraint chain\lead should not be by dog-lead clip style fixing and any clip used should require dexterity to open it e.g., spring-loaded twist lock style karabiners. Where clips are seen to be easy to open due to weak or worn springs or the easy to open

			dog lead style verbal advice should be given at the time of the visit and followed up with a NOC (Notification of Contravention)
	Safety Critical Bolts	PN (where bolts are not suitable at pivot points)	This relates to the replacing of high tensile fastenings i.e., bolts with strength designations on the heads etc. with unmarked fastenings which will not have the same strength. There is also an issue where bolts are used as pivots on twisting connections where strength is critical. Threaded bolts are meant for joining non-moving parts. Questions should be asked about the use of bolts as pins and where doubt remains request SG Mech support.
	Ride Furniture Damaged	PN	This can relate to missing rails on cars or ride framework, bent or damaged ride make up, signage etc. Action will depend upon the foreseeable risk judged but such errors can be seen as the operator not having a robust on-going maintenance regime. Where the issues can be rectified at the time of the visit then verbal advice followed by a NOC is the expected outcome. Where the issues present a clear danger to either employees or public and cannot be corrected at the time then a PN should be considered.
	Ride Packing\Use of Jacks	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG support for IN advised.	Invariably the ground upon which travelling rides stand changes from week to week and as such packing is used to steady/level rides. With traditional rides i.e., waltzers/carousels etc. it is common to use blocks but independent jacks, not fitted to or part of the ride, may be used. Where jacks are seen extended on top of blocks questions should be asked as to how they are suitable for use and operator should be able to say why the motion of the ride will not dislodge the jack or jacks. Where there is no information then a NOC should be considered along with an IN for improved control measures on the provision of packing as a means of reducing the risk to riders and operators. Just because there is no information does not mean the arrangement is dangerous. Where an inspector has serious concerns relating to the arrangement for ride levelling and packing then SG support should be considered either by a second visit to the ride or use of technology at the time of initial visit e.g., digital photos\facetime. If the failings constitute a serious risk of personal injury, then a PN should be considered

Ride Operator			
	Lack of suitable and sufficient supervision of the ride including loading and unloading of the ride, including the application of any height restrictions and/or the checking of restraints etc.	PN	If the matter requiring attention cannot be immediately rectified, then PN should be served if the failings constitute and immediate and serious risk of personal injury. If the matter requiring attention can be dealt with immediately, and levels of adequate supervision can be demonstrated either through a verbal undertaking and/or observation of the ride in operation a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance.
	Inadequate arrangements to deal with rider misbehaviour e.g., permitting or encouraging passengers to stand up or walking across the drum whilst Tagada ride in operation	PN	If the matter requiring attention cannot be immediately rectified, then a PN should be served if the failings constitute and immediate and serious risk of personal injury. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues.
	Operators permitting the use of their machines in an unsafe manner i.e., crazy frog rides being run in reverse and/or the foot pedal is operational allowing the control system to be overridden and the arms bounced excessively	PN	If the matter requiring attention cannot be immediately rectified, then PN should be served if the failings constitute and immediate and serious risk of personal injury. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance.
	Inadequate or absent emergency procedures for the safe evacuation of users in the event of either a mechanical breakdown or other emergency of the ride or attraction	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG	Ride operator unable to demonstrate adequate and realistic arrangements for the safe evacuation of users in the event of a mechanical breakdown or emergency. Consideration should be given to the provision of suitable rescue equipment and the training provision for the person(s) undertaking the rescue. Rescue arrangements should not only be reliant on the emergency services Where the lack of suitable emergency procedures is identified consideration of a PN should be discussed with Mech SG and/or Sector

		support for IN advised.	
	Inadequate arrangements for the segregation of members of the public from the ride i.e., unsupervised means of access and egress onto the ride. Includes inadequate perimeter fencing.	PN	If the matter requiring attention cannot be immediately rectified, then PN should be served if the failings constitute an immediate and serious risk of personal injury. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance.
	Based on the level of risk it is reasonably practicable for manual handling / repetitive tasks to be eliminated or reduced as far as is reasonably practicable.	IN	Manual handling task that poses a risk of serious personal injury can often be eliminated by the provision of mechanical aids
Organiser (Fairground Controller)			
	No risk assessment in place to assess risk caused by workplace transport movements during set up and dismantling phase	NoC	A plan showing the site layout often accompanies the workplace transport risk assessment and is a useful visual aid to show traffic routes etc. Even when vehicles are operating on the fairground with a banksman a risk assessment should be carried out to identify and address significant risk
	The findings of the workplace transport risk assessment have not been communicated to employees, operators and other third parties working on the site during the set up and dismantling phase	NoC	While some of the risks identified in the risk assessment may be addressed through provision of barriers, walkways etc. it is still important that the risks and control measures are communicated to employees, operators, and other parties
	Inadequate segregation of pedestrians and vehicles during the set up and dismantling phase	PN	Enforcement action will depend on the level of risk. Workplace transport and pedestrians should be segregated so far as is reasonably practicable.
	Fairground rides placed too close to each other so that it is not possible for perimeter fencing to be positioned in such a way to prevent access to	PN	If the matter requiring attention can be dealt with immediately a follow up NoC letter should be sent addressing the issues, otherwise a PN should be served.

	dangerous moving parts, or the safety envelope of the rides is compromised		A NoC letter should also be sent to the Fairground Controller where there is sufficient evidence to demonstrate that they have failed in their duties i.e., inadequate provision of space for rides or adequate means of demarcation for each of the rides.
	Lack of a suitable and sufficient plan for dealing with emergency situations including suitable arrangements for the implementation of the plan.	PN	If the failings constitute an immediate and serious risk of personal injury, then a PN should be considered If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues.
Work at height			
	Working at height where it is reasonably practicable to carry out the work without working at height	IN / PN	Enforcement action will depend on the level of risk as to how quickly the work at height should cease.
	Working at height is taking place where control measures higher in the work at height hierarchy are not in place but are reasonably practicable to achieve	IN / PN	The work at height hierarchy should be applied to the task to determine the safest reasonably practicable way of working safely at height. Ladders are near the bottom of the hierarchy and should not be accepted as a default option where other measures are safer and reasonably practicable. Where unsafe work at height practices is observed they should be prohibited.
	Work at height access equipment or accessories (tower scaffolds, pedestals, pop-ups mini towers, ladders, ropes, walk lines, carabiners, harnesses etc.) are in an unsafe condition	PN	If there is a risk of persons falling distance liable to cause serious personal injury from use of unsafe equipment, then its use should be prohibited
	Ladder or other access equipment in poor condition	PN	Ladders used on site should be "industrial class" and be in good condition. Poorly maintained ladders e.g., with missing feet, damaged rungs or stiles should not be used.

	Arrangements relating to the erection and dismantling of amusement rides requiring lifting equipment have not been suitably planned, assessed, or managed at site.	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG support for IN advised.	Lifting equipment may be required for the erection and dismantling of some of the larger amusement rides. The lift operation for this work should be completed in line with a lifting plan, which has been prepared by a competent person. The lift should be undertaken in line with the suitable lifting plan, using a competent person and equipment suitable to the task and subject to thorough examination as required by LOLER (Lifting Operations and Lifting Equipment Regulations).
Ground bearing conditions/stability			
	Lack of a suitable and sufficient assessment of the ground bearing capacity to confirm that the ground conditions are in fact suitable for the device	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG support for IN advised.	An assessment of the ground bearing capacity is essential to ensure that the amusement device can be erected and operated safely on the site. The assessment should consider the localised ground bearing capacity, terrain, gradient, base area, load bearing capability of supporting structures and any localised ground features, such as trenches, utility access holes and uncompacted backfill.
	Lack of suitable instruction contained within the operating manual, design review documentation or other relevant paperwork that sets out the parameters for suitable ground support. (This may include required support forces, packing requirements	PN to deal with imminent risk NOC and consider IN to achieve	Instruction contained within the operations manual, risk assessment or design review documentation should set out the parameters for suitable ground support including required support forces, packing requirements and permissible ground conditions for the amusement device.

	and permissible ground conditions for the amusement device)	sustained compliance moving forward. SG support for IN advised.	
	Packing or other equipment used to provide adequate load spreading, as identified in the operations manual, design review of other associated paperwork is not in place or defective	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG support for IN advised.	If the matter requiring attention cannot be immediately rectified, then a PN should be served if the failings constitute an immediate and serious risk to the stability of the amusement device. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance
	Suitable arrangements to monitor arrangements to confirm the ongoing stability of the device not in place or deficient. Such measures may include the provision of sensors on the device to monitor movement etc or other observable means such as marks around base plates etc.	PN to deal with imminent risk NOC and consider IN to achieve sustained compliance moving forward. SG support for IN advised.	If the matter requiring attention cannot be immediately rectified, then a PN should be served if the failings constitute an immediate and serious risk to the stability of the amusement device. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance

Inflatables (Bouncy castles, slides etc.)		
Inflatables not properly secured (e.g., not all tie-down points used or inadequate stakes/ballast, tie down points damaged and not in use),	PN	Check PIPA tagged/ADIPS Doc. Check operator manual for information that inflatable complies with BS EN 14960:2013 Inflatable play equipment. Safety requirements and test methods
No means of measuring wind speed available (anemometer)	PN	BS EN 14960 recommends that the maximum windspeed in which inflatable play equipment should be used outdoors is 38 km/h which is Force 5 on the Beaufort Scale (small trees in leaf begin to sway). The device controller must have an effective means of measuring wind conditions and if they do not and there is an immediate and serious risk of personal injury, a PN should be considered.
No means of measuring internal pressure of device available (manometer)	PN/NOC	The device controller must have an effective means of measuring the internal pressure of the inflatable device and if they do not and there is an immediate and serious risk of personal injury, and a PN should be considered for larger inflatable devices where the internal pressure of the device is imperative for the safe operation i.e., retaining people within the device at height.
Electrical equipment including blowers in poor condition	PN	A PN should be considered in circumstances where immediate repair cannot be undertaken. In any case, a follow-up NoC letter should be sent even if the matter is dealt with immediately and consideration should be given to the service of an IN to achieve sustained compliance
Inadequate supervision of inflatable device	PN	If the device is not being supervised and this constitutes an immediate and serious risk of personal injury, then a PN should be considered. Particular attention should be paid to slides and other large inflatable structures and "dry hire" situations. If the matter requiring attention can be dealt with immediately a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance

Inflatable device being used whilst not inflated to the correct operating pressure	PN	If the device is being operated whilst not inflated to the correct operating i.e., it is under inflated and retaining walls are sagging and users are able to “ground out” on the inflatable bed, this is likely to constitute an immediate and serious risk of personal injury, a PN should be considered. If the matter requiring attention can be dealt with immediately i.e., a replacement blower is found that provides sufficient airflow to maintain the pressure for operation, a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance
Retaining wall heights on the inflatable device are insufficient to retain the use because a) they do not meet the requirements of the relevant standards or b) the device is being utilised by persons exceeding the recommended user height	PN	If the retaining walls of the device are insufficient to contain users whilst in use because the dimensions of the walls either do not meet the requirements of BS EN 14960 or the user heights exceeds the recommended maximum height for the device, then a PN should be considered if there is a risk of persons falling distance liable to cause serious personal injury from the inflatable device. If the matter requiring attention can be dealt with immediately i.e., the maximum of the user for the device is reduced to meet the recommended user height for the device, a follow up NOC letter should be sent addressing the issues and consideration should be given to the service of an IN to achieve sustained compliance