

## TECHNICAL BULLETIN - This bulletin contains technical information

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### Originating Author text

## Non-Destructive Testing (NDT) schedules

Several recent audits performed by Universal has highlighted inconsistencies with regards to the suitability of the Non-Destructive Testing (NDT) schedules held by the Controllers.

There are concerns around changes made to the NDT techniques performed, and traceability of components where sampling testing has been performed.

Appendix 5 of HSG 175 is prescriptive regarding the NDT schedule. It is referred to as the "Written schedule of NDT". This states that:

*"The controller of a device should have available a written schedule of inspection for NDT which specifies the frequency of in-service NDT required (this can be measured in either time and/or ride cycles as appropriate), the type of NDT to be used, the location, and the defect acceptance criteria."*

HSG 175 goes on to state that: *"it should have been drawn up by a suitably qualified mechanical/structural engineer along with a person qualified in the NDT techniques to be used. The mechanical/structural engineer should identify the parts of the device that require testing, the frequency of inspection and the extent of dismantling required to gain access to them. The NDT practitioner should specify the appropriate test methods and techniques to be used. These must be reliable and repeatable so that results can, if necessary, be compared to previous results."*

Examples of NDT schedules observed have a lack of document control, and it is unclear who the technical author(s) is, as above.

There are examples where the NDT technique (the type of NDT being used) has been changed without traceability/ updating on the NDT schedule. (e.g. A change from MPI to Eddy Current).

Any change to the NDT technique should be fully documented and agreed with the AIB prior to testing. Where the AIB does not hold the sufficient PCN level, an additional competent person with necessary qualification should be sought.

The NDT schedule should be updated and retained by the Controller to ensure the new technique is repeatable so that results can, if necessary, be compared to previous results.

### ADIPS Executive Summary: Due Process for Updating NDT schedules for Amusement Devices

Recent Controller assessments have shown that some controllers are unaware of the requirements for an NDT schedule in accordance with HS(G)175.

Non-destructive testing (NDT) is the testing of materials, for surface or internal flaws or metallurgical condition, without interfering in any way with the integrity of the material or its suitability for service.

It is also used by IBs as part of in-service annual inspection to determine whether structures or components continue to be fit for service.

Where any change is made to the schedule, the change should be traceable and the relevant IB consulted for further advice prior to any change(s) being made.

END

NDT schedules observed were ambiguous with their statements including “20% MPI on welded areas”.

Where sample testing (e.g a percentage of the device), the NDT schedule should detail which components are to be testing on the inspection, and the subsequent NDT report should clearly identify the components which were tested.

A report of NDT should not merely state 20% inspection performed. The report should indicate the location or unique part/ component serial number etc. to ensure traceability.

Your attention is drawn to HSG 175 Appendix 5 which states the following:

An NDT report should include:

- confirmation that the inspection has followed the written schedule and any further tests carried out;
- the date of inspection;
- the inspector’s name and their qualifications relevant to the type of inspection;
- the parts or elements examined which form any sample;
- details of the NDT methods, techniques and procedures used;
- the results of inspection.

For Inspection Bodies, your attention is drawn to ADIPS/ADSC Safety of Amusement Devices – In-service Annual Inspection document 2008 paragraph 66 which states that the IB should “Obtain any inspection or maintenance guidance available from documents such as the operations manual, design review, NDT schedule, etc.

END

**ADIPS Peer Review By:** Marcus Brian (Universal Verification Ltd) **Date :** 12 August 2024

The NDT schedule is a fundamentally important document that helps to ensure the device is inspected appropriately and continues to be fit for use.

Whilst some good examples of NDT schedules and NDT reports have been observed, a minority require update and improvement.

If in doubt, clarification must be sought from the Inspection Body.

The controller should also ensure that the appropriate documentation/ NDT schedule and reports of NDT are retained with the device.