

A brief explanation of the annual electrical P.A.T test (part of the annual ADIPS thorough examination). For operators and test engineers having responsibility and sufficient technical knowledge to safely carry out the testing of children's rides.

A PAT test or Portable Appliance Test examines the electrical system of the children's ride. The manufacturer will already have taken every effort to ensure the ride is safe if they have followed BACTA guidelines by incorporating a Separated Extra Low Voltage (SELV) circuit in the passenger carrying part of the ride. However the base of the ride will still require a "mains" supply and this together with the circuit it feeds and any associated metalwork must undergo a PAT test as part of the annual ADIPS thorough examination.

The function of a PAT test is to test two basic elements of protection:-

- Insulation
- Earthing

Both elements protect the user by preventing any metal part becoming "live" at a dangerous voltage

The PAT tester checks :-

- Insulation resistance is greater than 2 megohms . Below this figure would register a "fail".
- Earth continuity resistance is less than 0.3 ohms . Above this figure would register a "fail"

Note : In the case of a fail due to earth continuity it is possible that the test fails due to the input supply cable to the ride being too long. To check this a test using a shorter cable could be carried out to establish the reason for the "fail". If it is essential that a long cable be used a larger capacity cable would give a better continuity reading, although it is recommended that the cable be no longer than 2 metres. In any case a residual current device (RCD) should be installed in the electrical system.(if the RCD is in the form of a 3pin plug on the supply lead then this will have to be removed to perform a PAT test).

On the subject of earthing please remember that the earth to the ride is dependant on a good earth at the socket. Make sure the electrical system of the building is sound.

The second paragraph referred to a SELV circuit. Parts associated with this part of the ride will not be earthed for example: coin mech, lighting , cashbox etc,. It is therefore meaningless to conduct earth continuity tests to these parts.

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On advanced PAT test equipment further optional tests are possible . However these tests should only be carried out by an experienced electrical engineer who has full knowledge of the electrical system of the ride and has reason to believe that the appliance has become unsafe. Due to high voltages present in at least one of these tests extra care should be taken to ensure that during the test everyone is clear and that the manufacturers recommendations are followed.