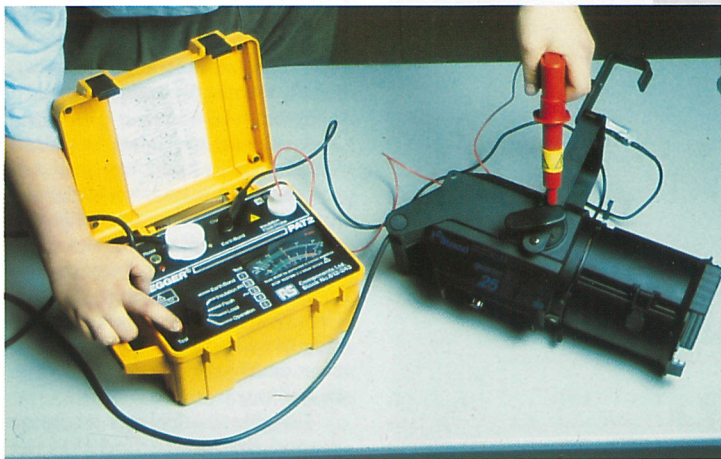


The 1908 Electricity Regulation set safety standards for electrical supply and distribution in the UK. It remained intact for over 80 years, but its replacement has set the British entertainment lighting world buzzing with confusion. Help arrives at last...

THE ELECTRICITY AT WORK REGULATIONS



Quartet spotlight being given a portable appliance test.

The *Electricity at Work Regulations*, which became law in 1990, are causing a stir in the entertainment industry, and responsible employers and technicians are calling on manufacturers and suppliers to answer some basic questions about how their products should be tested to comply with the intentions of the Health and Safety Executive (H&SE).

Sadly, it seems that whenever a question is asked of the regulating bodies, it is answered by analogy to an electric kettle or desk-top computer, and this is causing confusion, frustration and exasperation in the business.

The problem facing manufacturers such as Strand is that by publishing test guides in the market, the responsibility for maintaining safety standards could be seen to shift from the employer or user of the lighting equipment to the manufacturer. So there hasn't been a queue of people volunteering to help.

Industry bodies such as the ABTT and PLASA in the UK are actively working towards publishing guidance notes, but as

they will represent the industry as a whole, any advice can only be general, rather than looking specifically at one company's manufactured products.

So, what is all the fuss about? In a nutshell, the *Electricity at Work Regulations* set out requirements to ensure that safety hazards do not arise from the use of electrical systems at work. This is achieved in part by regular testing, both visual and electrical. General guidance notes are published by a variety of bodies including the H&SE, BSI, Electrical Contractors' Association and the PAT (Portable Appliance Tester) manufacturers. Naturally it is impossible to describe every specific use of electrical equipment anywhere in the country; an office with a photocopier, ten PCs, a fan heater and a kettle has little in common with a hospital ward with its ECGs, infusion pumps and kidney machines, which bears no resemblance to the environment of a garage.

Thus the specialist nature of the lighting equipment used in theatres and studios isn't specifically addressed, and although visual tests (which

probably cover 90% of the intentions of the H&SE guidance) can be easily extrapolated to a spotlight or dimmer pack, the generalised electrical tests for earth continuity and insulation integrity can be misleading or even destructive and dangerous.

Take for example the testing of a control console. The earth bond test on a typical PAT tester passes a current of up to 30A through the appliance earth connection. If the test duration is excessive, this high current may cause overheating, even degradation of cables and insulation, and in extreme cases could cause the burning of conductors. The flash test for insulation on a typical PAT applies 1500Vac between the Protective Earth connection and the Live and Neutral connected together. This voltage exceeds the normal rating for the capacitors usually employed as RFI suppressors, and may cause damage. The use of RFI capacitors could cause a flash test to fail due to the current passing through them. Also, the presence of discharge resistors across the RFI capacitors will almost certainly cause failure of the dc insulation resistance test.

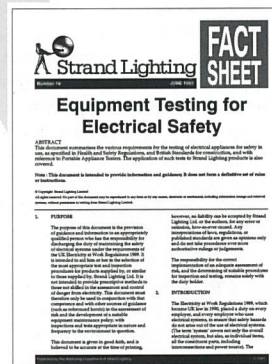
The situation with extension cables is even more frustrating. *The Electricity at Work Regulations 1989* may see the end of long extension cables - the arteries of touring and temporary rigs. Ohm's law (voltage = current x resistance) dictates that a normal 1.5mm² extension cable over approximately 7.5 metres in length cannot pass the standard earth bond test due to the inherent resistance of the cable! The H&SE advises that this contravenes the *Electricity at Work Regulation 4(1)* and must not be used. The use of multiple shorter extension cables connected together is similarly not acceptable.

Questions over the advised

frequency of testing have to be assessed for each location. It's not much help if you are responsible for the safe working of a venue, and you don't know the rules of the game.

What is to be done? It is in this environment of confusion that we at Strand have decided to take direct action and publish our own recommendations for theatre and studio lighting equipment. Firstly, we have prepared *Fact Sheet 10*, a technical document covering the general implications of the *Electricity at Work Regulations*. Discussions have been continuing for some time with users, electrical contractors and the H&SE with a view to providing clear and specific advice on testing Strand products, and this will lead to *Strand Lighting's Practical Guide To Equipment Testing For Electrical Safety*. This booklet, to be published by Strand in September, includes Fact Sheet 10 information and expands it with practical advice on checking Strand equipment.

To register your interest in a copy of *Strand Lighting's Practical Guide To Equipment Testing For Electrical Safety*, and for a free copy of Fact Sheet 10, please fill in the appropriate section of the enclosed reply card.



This information is published as a helpful introduction guide to the responsibilities now required to be observed by users of our lighting equipment, but Strand Lighting Ltd cannot be held responsible for any error or omission in specific guidance suggested. Users must refer to the 'Electricity at Work Regulations 1989' and associated guidance notes for a definitive statement. £2

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