



## PORTABLE APPLIANCE TESTING

COURSE 160: 1 DAY: Max 8 Candidates

It is a legal requirement that all electrical equipment (including portable appliances) used at work shall be adequately maintained. In order to meet this requirement, appliances should be inspected and tested at regular intervals. This course provides participants with an understanding of the legal requirements and the expertise to carry out the inspection and testing competently.

### PARTICIPANTS

Ideally suited for participants with an appreciation of basic electrical concepts who are involved in either a maintenance or a contracting role and who need to undertake the inspection and testing of electrical equipment. The course is also suitable for participants with no electrical experience, as suitable guidance and support is provided.

### COURSE PRESENTATION

There is a high 'hands-on' content within the course, with ample opportunity for participants to use a wide range of leading PAT testers. Comprehensive course notes are provided.

### COURSE OBJECTIVES

On completion of the course, participants will be able to

- understand the dangers associated with PAT testing
- recognise the precautions necessary both for safety – and for the protection of equipment
- understand the legal requirement for testing portable appliances
- assess the required frequency of inspection and testing
- understand the importance of specific identification of equipment
- recognise the testing requirements for different classes of equipment
- carry out visual inspection of appliances and equipment
- carry out the following tests using a wide range of proprietary PAT testers:
  - earth continuity (low and high current)
  - insulation resistance
  - load test
  - earth leakage
- correctly interpret test results and determine appropriate pass levels
- maintain a system of record keeping.



**Successful completion of the course leads to the award of the Technical Training Solutions Certificate of Competence 160: Portable Appliance Testing.**

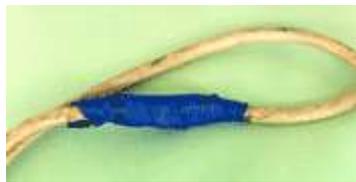
# What do candidates on the PAT Testing course actually do?

We give our candidates a brief overview of the legal requirements so that they understand why they need to do pat testing and the competence issues surrounding pat testing. We then look at how the testing should be carried out.

**PAT INSPECTION** We focus on the importance of the visual inspection of portable appliances, and provide candidates with the opportunity to discuss various incorrectly-wired plug-tops, cable and appliance faults, using a series of pictures of the offending appliances to guide them. The following are some example pictures from our photographic library of dangerous appliances, showing a damaged plugtop, a mains cable with a bad connection and an appliance that is wired incorrectly. We train our candidates to be able to spot these sorts of dangers, emphasising the importance of the visual inspection part of the pat testing procedure:



**One of the pictures of a faulty plug-top used on the PAT testing training course**



**One of the pictures of a faulty cable used on the PAT testing training course**



**One of the pictures of a faulty appliance used on the PAT testing training course**

The electrical PAT tests are then explained, with a comprehensive set of course notes which help to clarify which tests should be done and what the acceptable pass/fail limits of each pat test are. Useful reference tables dispense with the need for the candidates to perform complex calculations, for example in the case of the maximum earth continuity test readings allowed when portable appliances have longer leads. The following are some example pages from the course notes for this stage of the PAT testing course, depicting the important distinction that needs to be made between Class I and Class II appliances, the maximum allowable appliance earth bond resistance and the subtle differences between the various types of IEC lead that are often found connected to portable appliances:



**Page 9 of the course notes provided on the PAT testing training course, describing how portable appliances are classified as Class I or Class II types**

Appliance Category	Maximum earth bond resistance (ohms)	Appliance length (m)	IEC lead length (m)	IEC lead type
Class I (earthed)	100	1.0	0.1	1
	100	1.0	0.2	2
	100	1.0	0.3	3
	100	1.0	0.4	4
	100	1.0	0.5	5
Class II (double insulated)	50	1.0	0.1	1
	50	1.0	0.2	2
	50	1.0	0.3	3
	50	1.0	0.4	4
	50	1.0	0.5	5

**Page 18 of the course notes provided on the PAT testing training course, listing the maximum earth bond resistances that portable appliances can exhibit**



**Page 24 of the course notes provided on the PAT testing training course, describing the subtle differences between the various types of IEC lead that are often found connected to portable appliances**

Candidates then perform the visual inspection on a range of typical portable electrical appliances, including kettles, irons, electric drills, extension leads, IEC leads, multiblocks etc. This part of the course is very practical and the candidates get the opportunity to discuss the various issues surrounding visual inspections of portable appliances as they progress through the exercises. Because we need to be confident that the candidates are able to perform the visual inspections properly, our instructors check that each and every candidate understands this essential part of PAT testing.

**PAT TESTING** Candidates then perform the necessary electrical tests on a range of portable electrical appliances, using a variety of pat testers. We use some of the latest PAT testers on the market - the following are our Seaward PAT testers and Bluetooth devices:



**One of the Seaward PAT testers used on the PAT testing training course**



**Some of the bluetooth devices used on the PAT testing training course**



**One of the Seaward PAT testers used on the PAT testing training course**

The candidates also use a range of PASS/FAIL types of PAT testers, letting candidates see the advantages and disadvantages of using these. Candidates are reminded of the importance of calibration of PAT testers and they can use our calibration checkbox to check that our PAT testers are within calibration. The following are the PASS/FAIL type PAT tester, the PAT calibration checkbox and a tester that combines PASS/FAIL indications with an actual display of the electrical measurements made:



**One of the PASS/FAIL types of PAT testers used on the PAT testing training course**



**The calibration checkbox used on the PAT testing training course**



**One of PASS/FAIL types of PAT testers used on the PAT testing training course**

Candidates can also use a range of more traditional types of PAT testers, and we have a selection of these to use. The following are some of the other PAT testers that we use on the course:



**One of the Metrotest PAT testers used on the PAT testing training course**



**One of the Seaward PAT testers used on the PAT testing training course**

As well as gaining valuable experience and acquiring the skills needed to perform the PAT tests, the exposure to a wide variety of PAT testers allows candidates who are undecided about which PAT tester they should be using or how they intend to organise the PAT testing procedures to gain important insights into how this could be carried out in their organisations.

**PAT RECORD KEEPING** We then explain the record-keeping requirements and show the candidates examples of the certificates commonly used for recording the results of PAT testing. Candidates can then complete some example forms for themselves with the results that they have gained from the inspections and tests that they have carried out previously.

**If you would like to see some of the equipment used on the PAT testing course for yourself, then please call us to arrange a visit to our offices in Kent. Alternatively, we can visit you anywhere in the British Isles.**



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