

Even if you are an experienced user of portable appliance testers, you might end up making one of these common mistakes. Check out our list to see how you and your team can avoid these mistakes. Martindale offer one day training courses for people new to PAT testing which are also suitable for refresher training.



1. Not doing a visual inspection

It may seem obvious, but before you measure the condition of an appliance, make sure that all its parts are there—and in good condition. Any signs of damage should be reported and any dents / scratches on the casing. These can indicate that the appliance has been dropped or handled incorrectly at some point in its life. If the cable shows signs of wear or is not plugged in properly, this should be recorded as it could indicate that the appliance is unsafe.

2. Not doing the tests in the required order

If on a Class 1 appliance you do the insulation test first, you don't know if the conductive earth path is good. (In Class 1 appliances most PATs use the earth wire as the return signal path, which is why you don't need to use a probe for the insulation test). If the earth path isn't tested and proven good, you can't rely on the insulation test.



3. Forgetting to switch the appliance on

Think about the situation where the live wire is broken inside the appliance and touching the outer casing. When you do the insulation test, everything inside the appliance should be at 250V / 500V. The tester detects (via a probe or the earth wire) any voltage escaping to the appliance housing. But if you haven't switched it on the voltage can't get through the live wire, nothing will escape and you will have an incorrect pass of a dangerous appliance. Measure insulation resistance in Ohm's, and measure any breakdown or deterioration resulting in a reading lower than 1MOhm (Class I) and 2 MOhm (Class II).

4. Touching the appliance

The truth is most appliances pass the insulation test, so you get into the habit of holding drills etc. to make it easier to hold the probe in contact. Then one day the appliance insulation fails and... you get a shock.

5. Only doing 1 earth bond test

Many of the most experienced testers fall for this. (That's because some of the earliest downloading PATs had standard test sequences that only expected you to do 1 earth test). If an appliance has multiple, apparently isolated, outer parts with separate earthed paths, each one needs to be separately measured.

6. Taking an average reading

If you have multiple earth paths, don't take the average reading – it's the worst case that matters.

7. Trying to do an earth bond test on a Class II appliance

It will of course fail as Class II appliances have no earth. This is very common problem and causes a large number of calls to technical help lines.

8. Only doing one insulation test

For the reason in 5 above this is a common fault. At how many places on a power tool could the insulation break down? Obviously at the chuck, but what about the ventilation slots, the trigger, the assembly screws, the speed control. The best solution is to wrap the device in kitchen foil and test once on the foil (you can buy special conductive bags, but foil is cheaper).

9. Not checking the fuse is conducting (see point 3 above).

You don't have to do a separate fuse test – the operation test will prove that the appliance is both on and the fuse is okay.

10. Failing to do an function test (powering it up)

Some entry level PATs don't have the ability to power up the appliance. Plug the appliance into the wall socket (after PAT testing) and make sure it works properly. Putting your initials on a PASS label for an appliance that doesn't work or is obviously faulty is a bit embarrassing.



11. Not testing at the correct voltage

It is very common for people to make the mistake of performing a 500V test on surge protection extension leads. These require a lower voltage 250V test, this is especially helpful when testing appliances with surge protected circuits, such as sensitive IT equipment at 250V.

12. Not calculating the correct pass level

Many appliances are plugged into longer power cables than those specified by the manufacturer. The current pass level for an appliance with a longer power cable is calculated differently than the pass level for an appliance with a shorter power cable. The current pass level for an appliance with a longer power cable can be determined by a calculation available in the PAT code of practice.

Other useful information

HPAT400, HPAT500, HPAT600 PAT Testers

EPAT1600 and EPAT2100 PAT Testers

To book a PAT training course or to find out more, contact us at:
contact@martindale-electric.co.uk

Martindale Electric Co. Ltd.
Metrohm House, 12 Imperial Park,
Imperial Way, Watford WD24 4PP.
T: 01923 441717 F: 01923 446900
www.martindale-electric.co.uk
sales@martindale-electric.co.uk

Ver. D3.0

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