

ADVICE SHEET #2



THE CONSUMER UNIT AND MAIN BONDING

The heart of the electrical installation

A brief introduction to the consumer unit

This will be known to most people as the fuse box.

All of the cables that supply the power points around your home will originate from this item. It comprises, basically, a large switch with which to 'turn off' all the power in the house and a number of fuses to protect each of the lengths of cable that carry the electricity to the point of use. There may be other devices in it- a transformer to power the door bell or an RCD device to turn off the power when a fault is detected.

As a house holder you need to know three things about the consumer unit:

- ◆ Where it is.
- ◆ How to re-set or re-wire a fuse.
- ◆ How to turn the whole thing off in an emergency.

A more detailed description of its contents

Take a look at the consumer unit. It could be in a cupboard in the hallway or under the stairs. It will consist of the majority of the following items:

MAIN SWITCH:- This is located to the left or the right of all the switches and should be marked 'ON' and 'OFF'. Flicking this switch should cut the power to everything in your property.

FUSES:- These consist of a number of devices in a row, all looking the same. Some may have switches or push buttons. Some will appear blank but, on close inspection, will have either coloured dots or writing on them saying, for example, 5A or 30A. Each will protect its own length of cable which, in turn, will supply electricity to a particular type of item. The lights

in the hall perhaps, or the plug sockets on the first floor, or the immersion heater, or the electric shower.

It is the fuse that 'trips' or 'blows' when there is a fault on a particular length of cable. Cut through the cable supplying the ground floor lights with a mis-placed drill bit and it will be a 30A or 32A fuse that will trip. It has done its job-stopping electricity from continuing to flow when there has been damage caused to the cable.

It is possible to remove, or turn off, one of these fuses and not affect the power flowing to all the other devices in the property. So it is possible to isolate the lights of the first floor, for example, if the electrician wants to repair or test them.

RCD DEVICE:- This safety device looks similar to the Main Switch but, if you look closely, has a Test button on it. An RCD simply monitors the flow of current through each of the circuits it controls and turns itself off if this current becomes unbalanced. This is exactly what would happen if a cable was cut by accident, or an appliance became soaking wet.

In a well designed 17th Edition fuse board there will be at least two RCDs to protect all of the circuits. The circuits are shared between the RCD devices to minimise the disruption if one of them operates and cuts off the power to its circuits.

RCBO DEVICE:- Recognisable by the tiny 'Test' button and the rocker switch below it. This device is a combination of a **FUSE** and an **RCD** and does the job of both at the same time. It's dedicated to one circuit only and using one to protect each circuit is the best way to offer protection- a fault only affects one circuit, leaving all the other circuits with power.

EXTRAS:- These could consist of timer units, bell transformers etc. The bell transformer is the most common.

How the consumer unit should be...

Basically, neat and tidy all over!

The individual fuses should be labelled, so that it is clear which parts of your electrical system they control. How else will you know exactly which one to turn off in an emergency? You can label it yourself by turning off each fuse in turn and seeing which electrical items or sockets go dead. Then write out a small sticky label and stick it on!

There should be no great mass of wires clustered around the top or bottom of the unit. The cables should be hidden, or neatly dressed. An untidy mess of cables can give a fair indication of the way the last electrician wired the rest of the property!

Although you should definitely not open the consumer unit yourself, if the next electrician recoils in horror at what he sees and tells you that you need a bigger consumer unit don't be surprised! It is common for people to cram more and more cables into the limited number of fuses of an existing board, making each one control more than one circuit. This is wrong and should be remedied. Order is the overriding requirement of a consumer unit. You will see why as you read on!

Testing and replacement of the unit

All electrical testing will involve the consumer unit, which is why it needs to be neat and tidy in the first place. An electrician faced with a well organized series of cables, arranged in numbered order will have no trouble testing the right conductors. Conversely, a spider's web of wire and overcrowded fuses is a nightmare. The electrician has to make sense of it all before any testing can take place. This costs time and money.

Here's an example: If I asked you to tell me how many 40mm screws I had in my van, think how easy it would be if you could pull out a box from a rack, open it, count the contents and report back. Now imagine if you had to a) find the box under a whole stack of boxes and b) sort the 40mm ones from the 35mm and the 47mm ones before you could start counting. See the difference? Now pity the poor electrician!

Replacing the whole consumer unit will certainly involve testing. It is vital that the electrician doesn't simply reconnect a sub-standard circuit to the new unit. Each circuit should be tested to determine its condition, and repaired if necessary. To do this for the whole installation the electrician will probably recommend that a [Periodic Inspection Report](#) be carried out first, which is an MOT for the entire system. There is no better way of making sure that the existing circuits are healthy. They can then be transferred into the new consumer unit with confidence. The test results gathered will also be included on the [Electrical Installation Certificate](#) that must accompany each new consumer unit replacement. If your electrician is not happy to provide such a certificate then there's something fishy going on! You should have checked his registration with a Trade body first (NICEIC, NAPIT, ECA etc.) or he shouldn't have pretended that he belonged to one...

Please note- certificates guarantee your own safety and the resale value of your home!

This Advice Sheet has been produced to explain the reasons why electrical work is so often better left to the professionals or to at least indicate why a simple job can sometimes turn into a more complex one!

Should you have any questions, please call me on [07812 000 658](tel:07812000658) to discuss them.

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