

POEL 38A- HOW TO TEST A RESIDUAL CURRENT DEVICE (RCD) and/or RESIDUAL CURRENT BREAKER with OVERCURRENT (RCBO)

What is an RCD or RCBO?

A **Residual Current Device (RCD)** is a life-saving device that is designed to prevent you from getting a fatal electric shock if you touch something live, such as a bare wire. RCDs offer a level of personal protection that ordinary fuses and circuit-breakers cannot provide. Residual Current Devices are switches that "trip" a circuit under dangerous conditions, and instantly disconnect the electricity.

An RCD is designed to quickly and automatically disconnect the electrical circuit if it senses a short circuit or other electrical anomaly, such as leakage. Electrical current leakage can result in harm or death due to electric shock, especially if the leaking electric current passes through the torso of a human. A current of around 30 mA (0.030 amperes) is potentially sufficient to cause cardiac arrest or serious harm if it persists for more than a small fraction of a second. RCDs are designed to disconnect the conducting wires quickly enough to prevent serious injury from such shocks, commonly described as the RCD being "tripped".

An RCD does not provide protection against unexpected or dangerously high current (called "spikes" or "surges") therefore it cannot replace a fuse or protect against overheating or fire risk due to overcurrent (overload) or short circuits if the fault does not lead to current leakage. Therefore, RCDs are often used or integrated as a single product along with some kind of circuit breaker, such as a fuse or **Miniature Circuit Breaker (MCB)** See [figure \(2\)](#) for an example installation.

A **Residual Current Breaker with Overcurrent** protection (**RCBO**) combines the functionality of an **RCD** and an **MCB** in one, meaning it will quickly and automatically "trip" if it senses a short circuit or leakage, which could have resulted in harm or death due to an electric shock, but it is also capable of providing protection against unexpected dangerously high current or overheating (or fire) caused by circuit overloading. See [figure \(5\)](#) for example RCBOs

In summary:-

RCDs protect people,
MCBs protect equipment and buildings,
And
RCBOs protect people, equipment and buildings.

What does an RCD look like?

RCDs come in various types, shapes and sizes:-

Figure (1) shows the type of RCD that is installed into the Consumer/ Distribution unit (mains power supply) that will protect a circuit (group) of electrical sockets, and will "trip" the power if a fault is sensed at any socket within that circuit. Figure (2) shows an example Consumer unit, with the RCDs fitted

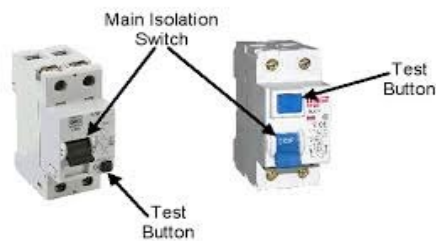


Figure 1

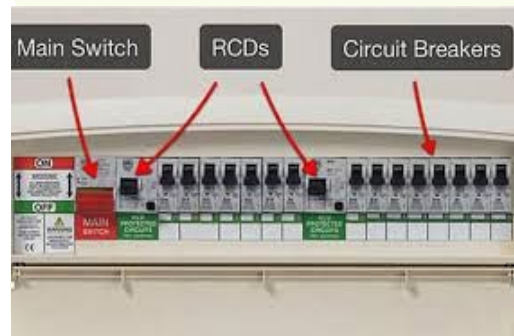


Figure 2

Figure (3) shows a type of RCD that is factory fitted into a mains wall socket. These units work in a similar way to those installed into the consumer/distribution unit, except it will only "trip" if a fault is sensed at the individual wall socket that has this type of RCD installed.



Figure 3



Figure 4

Figure (4) shows the portable type of RCD. These can be plugged into any mains wall socket that you wish to use. The RCD is plugged into the mains socket, with the electrical appliance or piece of equipment you wish to use then plugged into the RCD. This type of RCD works in the same way as the others but, as with the "socket-type" RCD, it only gives protection at the individual mains wall socket that it is plugged in to.

What does a RCBO look like?

An RCBO is similar in appearance to an MCB, but with the test button of an RCD. It is also longer than both the MCB and RCD.



Figure 5

How often should RCDs/ RCBOs be checked?

RCDs/RCBOs installed into the Consumer/Distribution unit (mains supply) should be checked (and the results recorded) every 3 months (quarterly) as a minimum.

RCDs installed at the wall socket, and/or portable RCDs can be checked before each use (as good practice) due to the ease of accessibility and minimum disruption caused to the electricity supply, but again, as a minimum, they should be checked every 3 months with the results recorded.

Checking RCDs/RCBOs in the Homeworking environment

With more of us working from home now, checking the correct operation of your home's RCD's/RCBO's is recommended. This can be undertaken in the same way as you would check in the office environment (Following steps 2 – 5 only.) In the event that your Home's RCDs/RCBO's do not operate as expected, competent advice should be sort from a qualified electrician and your manager should be made aware. (Do not contact Property services)

How to test an RCD or RCBO that is installed into the consumer/Distribution unit (mains supply)

Follow these simple steps to ensure your RCDs/MCBOs are operating correctly:

1. Locate the Consumer unit and ensure it is fitted with "trip" type circuit breakers (RCDs, MCBs, and RCBOs etc.) and not old-style "fuses". If old-style fuses are present, contact Property Services on (01522) 555555 (option 3). See [figure \(2\)](#) for an example of a "trip" type unit.
2. Ensure sensitive items of electrical equipment (computers etc.) are shut down/switched off, as power will be lost during the test procedure. (If applicable, testing before or after "office hours" may be advisable.)
3. Open the front of the consumer/distribution unit and locate the RCDs or RCBOs.
4. Press and release the "Test" button on the RCD/RCBO (this may be coloured or could be labelled "T" or "Test" for example) see [figure \(1\) \(2\) and \(5\)](#). The power should "trip" and the relevant toggle switch should flick down.
5. To restore power at the consumer/distribution unit, push the tripped switch back up into the "on" position.
6. Record your test (date/time/location, etc.) on a suitable "RCD/RCBO test results" sheet, and store safely for future inspection as/when required.
7. If the RCD/RCBO fails to operate correctly, contact Property services immediately on (01522) 555555 (Option 3).

NB. If the consumer/distribution unit has RCBOs installed, or more than one RCD, each one in turn should be tested with results recorded

For a printable example of an RCD/RCBO check sheet see [below](#).

For Further Advice and Guidance

Contact Property Services on (01522) 555555 option 3 or Email [here](#) for additional support with the testing of RCD/RCBOs if required.

For additional information on Electrical safety, see G18 - Electricity at work policy
Or

Contact the Corporate Health and Safety Team [here](#)

Residual Current Device (RCD) and/or Residual Current Breaker with Overcurrent (RCBO)

Testing Log Sheet (For Office use)

Residual Current Devices (RCDs) and Residual Current Breaker with Overcurrent (RCBOs) installed into the main Consumer/Distribution unit should be checked for safe operation every 3 months (Quarterly). See POEL 38 in G18 Electricity at work policy for further guidance and advice.

Address of Premises.....

Date	Location in Building of Consumer unit	Circuit identification/s of RCD or RCBO	Does the RCD/RCBO operate correctly?	Name of Person undertaking RCD testing	Signed
EXAMPLE 01/01/2017	"In store cupboard, main corridor on ground floor"	No. 7	YES	L Palmer	