Dangerous power points

In older premises, the insulation on wiring may have deteriorated to the extent that an earth contact on power points became live. If equipment is plugged into such an outlet, the frame of the equipment could become live.

The following fatal electrical accident was caused by this problem:

"A fault in a junction box, in which the earthing conductor was welded to an active terminal, livened the earth terminal of the socket outlet and the frame of the machine".

It is strongly recommended that a 'power point safety tester' be purchased and used to check the customer's power point before connecting your equipment. These simple devices can be purchased from most electrical wholesalers. If this device shows a fault notify the owner and request that they engage an electrical contractor to assess the situation.

Safety recommendations

1. Look out for electrical arcs or tingles – contact TasNetworks on 132 004 to report a shock.
2. Use a bridging conductor when cutting out sections of conductive piping that may be carrying electricity.
3. Test power points and use a Safety Switch on your equipment to reduce the risk of shock from your portable tools.
4. Testing of power tools and extension leads regularly in accordance with Standards Australia AS/NZS 3760 is a requirement of WorkSafe Tasmania.

Further information

If you would like further information about electrical safety for plumbers, please contact the Office of Electricity Standards and Safety

Remember - Report all electric shocks to TasNetworks on 13 2004.

If an electric shock occurs at a work site, also report it to WorkSafe Tasmania on 1300 366 322.

Master Plumbers Tasmania

Supported by the
Master Plumber's Association of Tasmania
in the interest of safe work practices for plumbers.

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Electrical Safety for Plumbers

Consumer, Building and Occupational Services
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The electricity distribution system

In most parts of Australia, the Multiple Earthed Neutral (MEN) system is used in relation to the distribution of electricity.

The major feature of this system is that the neutral wire is connected to earth at the supply company's substation and throughout the distribution system and at every building, house etc. where there is an electrical installation.

Until 1976 the most frequent method used to earth the electrical installation was by connecting the main earth wire to the main supply water pipe, usually where it first entered the building. Since 1976, a separate earth electrode has been required and where a conductive water service pipe exists, this is bonded to the earthing system.

The danger

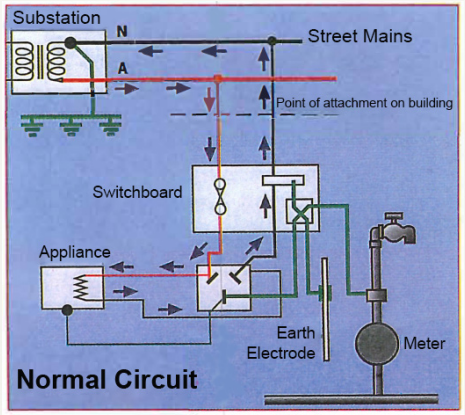
Electric current for appliances, lights, etc. normally flows in the active and neutral conductors. The neutral conductor provides the return path back to the substation transformer.

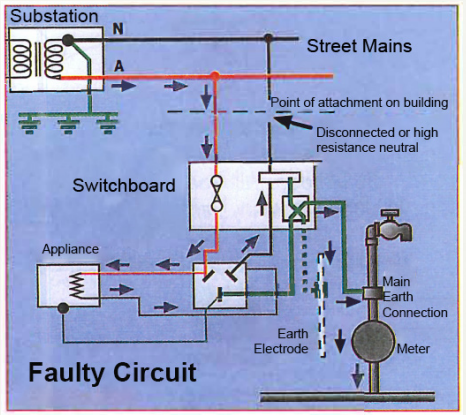
Under some fault conditions, electric current can flow in the water pipe.

Plumbers are at risk of serious or fatal electric shock if they cut through the water pipe between the earth connection and the street main or remove a water meter or disconnect the main earth wire from the water pipe.

The following details of an electrical fatality illustrate the danger:

"The deceased and a friend cut a water pipe under the friend's house and the victim suffered a fatal electric shock. The main service neutral had become detached and all load current flowed through the MEN point and earthing system which included the water pipe."





Working on water pipes

If work is to be done on water pipes as mentioned previously, the following procedure should be adopted:

1. Locate the main switch for the premises and if practicable turn it off. Attach a "Danger – Do not switch on" tag.
2. Use a bridging conductor to span the section of pipe to be cut and keep it firmly in place until work is completed. A car battery jumper lead or similar would be suitable in most cases but make sure the surface of the pipe is clean and the connection of the clamp is sound.
3. If there is an earth cable connected to the water pipe, contact a suitably licenced electrical contractor to assess and reconnect accordingly.
4. Where any existing conductive service pipe is to be replaced in part or in its entirety by plastic pipe or other non-conductive fittings or couplings, the work shall not commence until the earthing requirements have been checked by an electrical contractor and modified, if necessary.

Safety switches

A portable Safety Switch, also known as a Residual Current Device (RCD), should be used for all your equipment including extension leads. This will give you added protection against accidents such as cords being damaged or faults in equipment, but it cannot protect against some faults in the customer's premises.