Safety Considerations

AMATEUR RADIO is a safe hobby, but there are always a few safety points which must be borne in mind and taken seriously.

High voltage

MAINS VOLTAGES are potentially lethal. Whilst amateurs have a habit of taking the lid off every item of equipment they own, this practice should not extend to mains powered devices. Higher powered transmitters and their power supplies may also have lethal voltages inside. Warnings on cases and in manuals must be heeded. Repairs must be left to qualified individuals.

If adjustments or replacements are needed inside equipment, they must be switched off and unplugged before work begins.

High current

HIGH CURRENT supplies also carry a risk, even if only low voltages are involved.

A short circuit can result in currents high enough to overheat wires and start a fire or cause burns. Many batteries, especially rechargeable batteries, can give surprisingly high currents which will cause wires to become red-hot.

Rings and metallic wrist watches should be removed when dealing with sources of high current.

Mains plugs & earths

THE MAINS EARTH is a safety earth, designed to protect you if a fault develops which would otherwise result in exposed metalwork becoming live. This protection also relies on the correct fuse being fitted so that the fuse will 'blow' before anything else becomes too hot. It is not acceptable just to fit a 13A fuse in every plug. A thin mains flex will overheat at well below 13A. Fit the correct value fuse and do not use higher values, even temporarily.

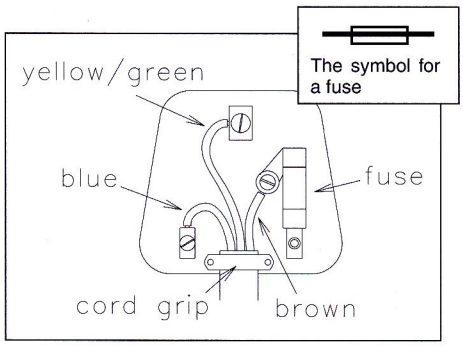

Fig 27: The correct wiring of a mains plug (a colour version of this is shown on the inside back cover of this book)

- The flex must be held captive by the cord grip. Do *not* rely on the fixing to the metal conductors themselves.
- Each wire must securely connect to the correct pin of the plug:
  Brown = live
  Blue = neutral
  Yellow/green = earth
- The insulation should continue close up to the pin.
- Frays and whiskers must be avoided.
- All the strands must be secured.
- The flex itself must be in good condition.

Fig 28: Points to remember when wiring a mains plug.

At the Foundation licence level it is assumed that it is inappropriate to wire mains plugs (**Fig 27**) and work inside mains powered items. However, it is still advisable to be able to recognise when a mains plug is safe (see **Fig 28**).

PME

PME or "Protective Multiple Earthing" to give its full name is a particular method of electricity supply to the home which affects the manner in which devices are earthed via the mains supply. Your electricity supplier will be able to tell you if you have a PME supply. If you have, you must consult an electrician before fitting an RF earth. The reasons are outside the scope of the syllabus but a leaflet is available on the RSGB EMC committee web site at http://www.rsgb.org/emc.

Accidents & emergencies

IN THE UNLIKELY event of an accident in the shack, there is always the possibility that the casualty may have suffered an electric shock and may still be in contact with the live mains. If another person touches the casualty then they could also receive a shock and become a casualty themselves.

The first action should always be to cut off the power.

This is best achieved if all the electrical outlets have a single 'off' switch which is clearly marked and everybody knows.

Do not touch a casualty until it is known that the power is off.

Adult help should always be summoned, and anybody who has suffered a shock should receive medical attention.

Antennas & feeders

ANTENNAS SHOULD BE mounted clear of being walked into and out of reach of being touched.

RF burns

RF burns are electric shocks from feeders and antenna elements carrying RF power. The burn may not be particularly painful, but it can be quite deep. The full extent of the injury may not be realised until some time later. Antennas must not be touched whilst transmitting, and insulated but unscreened antennas and wires can cause almost as much damage as touching the bare wire.

Powers available to the Foundation licensee are less likely to be an issue, but bear in mind that an antenna erected whilst someone is a Foundation licensee is likely to be used later, when he/she has progressed onto a higher power licence.

Antennas and their feeders must be securely mounted and well away from overhead power lines.

The wind loading on an antenna can be quite high during a gale. This may bring the antenna down, causing immediate injury or setting a trap to be walked into later. It may blow or fall against overhead power lines, resulting in all the exposed metalwork of the shack becoming live. From inside the shack, this risk may not be noticed.

If particularly high antennas are pro-