APPENDIX A

A.1 COMPONENT HANDLING

Lead bending. Component leads need in general, to be bent to enable the device to be fitted. The bend should be made so that the radius of the bend is not less than the diameter of the lead (or the thickness of the lead in the case of flat leads), and the lead should be supported between the body of the component and the bend. The bend should be at least 2mm (approx 1/16") from the component.

Soldering. A soldering iron having a bit temperature not exceeding 245°C may be used. The soldered joint should be completed within 5 seconds. Overheating may damage the component.

Heat Sinks. Certain devices which are required to dissipate power are fitted with heat sinks. When replacing these devices, the heat sinking arrangement should be carefully reproduced, e.g. thermal conducting compound may be used. If an insulating washer has been used, this should be replaced and thermal conducting compound applied to both sides.

MOS Devices. These have an exceptionally high input resistance and they are susceptible to damage when exposed to high electrical charges. To avoid possible damage the following procedures should be followed:

1. Devices should be stored and transported in contact with a conductive material.

2. Soldering iron, bench surface, tools etc., should all be earthed. The operator should be earthed using a 1M ohm series resistor.

3. The equipment should be switched off when devices or boards are inserted or removed.

4. Nylon clothing should not be worn.

Anti-static precautions take an added importance in dry weather (relative humidity less than 30%).

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A.2 FIRST AID IN CASE OF ELECTRIC SHOCK

The Royal Life Saving Society recommends the **Expired Air** *method of artificial respiration for use in any case of electric shock.* **It is comparatively simple and produces the best and quickest results when correctly applied.** *It also has an important advantage over the accepted manual methods in that* **it can be carried out in awkward situations in confined spaces,** *such as might well be encountered at sea.*

However, where there is a facial injury, or if the patient is trapped in a face downwards position, *it might be necessary to use a manual method of artificial respiration : of this type the* **Holger Nielson** *method is considered the most satisfactory*

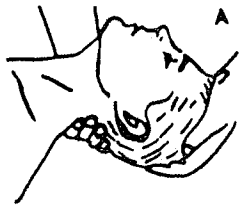
Directions for applying both methods are therefore given.

EXPIRED AIR METHOD OF ARTIFICIAL RESPIRATION

It is essential to commence artificial respiration without delay.

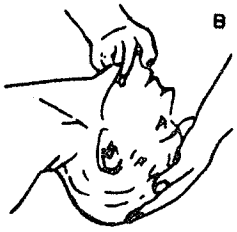
DO NOT TOUCH THE VICTIM WITH YOUR BARE HANDS until the circuit is broken.

SWITCH OFF. If this is not possible, **PROTECT YOURSELF** with dry insulating material and pull the victim clear of the conductor.



1. **Lay the patient on his back** and, if on a slope, have the stomach slightly lower than the chest.

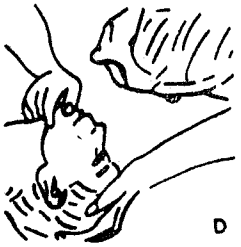
2. **Make a brief inspection of the mouth and throat** to ensure that they are clear of obvious obstruction.



3. **Give the patient's head the maximum backwards tilt** so that the chin is prominent, the mouth closed and the neck stretched to give a clear airway—Fig. A.

4. **Open your mouth wide, make an airtight seal over the nose of the patient and blow.** The operator's cheek or the hand supporting the chin can be used to seal the patient's lips—Fig. B, **or if the nose is blocked,** open the patient's mouth using the hand supporting the chin; open your mouth wide and make an airtight seal over his mouth and blow—Fig. C. This may also be used as an alternative to the mouth-to-nose technique.

5. **After exhaling, turn your head to watch for chest movement** whilst inhaling deeply in readiness for blowing again—Fig. D.



6. If the chest does not rise, check that the patient's mouth and throat are free of obstruction and the head is tilted backwards as far as possible. Blow again.

Send for medical assistance if possible.

HOLGER NIELSON METHOD OF ARTIFICIAL RESPIRATION

It is essential to commence artificial respiration without delay.

DO NOT TOUCH THE VICTIM WITH YOUR BARE HANDS until the circuit is broken.

SWITCH OFF. If this is not possible, **PROTECT YOURSELF** with dry insulating material and pull the victim clear of the conductor.

1. **Lay patient face downwards** with the forehead resting on the hands, placed one above the other.

2. **Remove false teeth, tobacco or gum** from patient's mouth; make sure the **tongue is free** by firm blows between the shoulders with the flat of the hand.

3. **Kneel on one knee at patient's head,** one foot by the patient's elbow.

4. **Place palms of your hands on patient's shoulder blades**—Fig. A.

5. **Rock forward until arms are vertical,** the pressure should be light and without force (22–30 lb. is sufficient); this should take 2½ seconds—Fig. B.

6. **Release the pressure** by allowing the hands to slide down the arms to the patient's elbow (approximately 1 second) then raise the patient's arms and shoulders slightly pulling at the same time by swinging backwards (approximately 2½ seconds)—Fig. C, lower the patient's arms—Fig.D, and return your hands to the patient's shoulder blades.

7. **Repeat the movements** taking 7 seconds for each complete respiration.

8. **While artificial respiration is continued, have someone else—**

   (*a*) Loosen patient's clothing.

   (*b*) Keep patient warm.

9. **If patient stops breathing, continue artificial respiration.** Four hours or more may be required

10. **Do not give liquids until patient is conscious.**

Send for medical assistance if possible.

A.3 HEALTH & SAFETY AT WORK ACT 1974 (UNITED KINGDOM

The objective of this Act is to maintain or improve standards of health, safety and welfare of persons at work, and to protect persons at work and others, against risks to health, safety and welfare.

To the best of current knowledge, there is no risk to health or safety when Eddystone equipment is installed and operated properly, provided it has been properly maintained.

Precautions have been taken during the design and manufacture of this equipment to reduce the risks involved when repairing or maintaining the equipment but a certain degree of risk must always be present, particularly under fault conditions. The list below has been prepared to draw attention to the general risks envisaged; further information is available from Eddystone Radio Limited, at any time.

1. **Electric Shock**
   Beware mains voltage and induced aerial voltages, ensure metal chassis is properly bonded to earth. Some units generate a high voltage even when the equipment is operated from a battery supply. Circuitry operating at low voltage is not necessarily at or near earth potential.

2. **Physical Strain**
   Obtain assistance if a heavy unit is to be lifted or removed from an equipment rack.

3. **Explosion and Implosion**
   Cathode ray tubes may implode if carelessly handled or dropped.
   Use protective masks and gloves.
   Electrolytic capacitors may explode if subjected to excessive voltage or voltage of incorrect polarity, and toxic materials may be released.

4. **Burns**
   Resistors and power transistors (for example) may attain a high temperature. Aviod contact with these.

5. **X-Rays**
   Cathode ray tubes operated at excessive voltage may generate harmful X-rays.

6. **Soldering**
   Beware of flying droplets of molten solder and careless use of soldering irons (place in a proper stand when not in use). Avoid fumes. Do not handle food or drink, cigarettes, etc., without washing hands (risk from lead poisoning).

7. Cleaning Solutions

Certain solutions give off flammable or toxic fumes, e.g., trichloroethylene and its derivatives. Do not smoke and avoid inhalation of vapours.

8. Disposal of Faulty Components

Certain components contain toxic materials which may be released if the component is broken or disposed of carelessly, e.g., semi conductor devices containing poisonous metallic compunds; electrolytic capacitors containing poisonous organic compounds.

TREATMENT FOR BURNS

1. No attempt should be made to remove clothing adhering to the burn.

2. If other help is available, or as soon as artificial respiration is no longer required, cover the burn with a dry dressing.

3. Oil or grease in any form should not be applied.

4. Warm, weak, sweet tea may be given when the patient is able to swallow.

These instructions are approved by The Royal Life Saving Society. A handbook and charts dealing with Artificial Respiration can be obtained from the Society at 14 Devonshire Street, London, W.1.