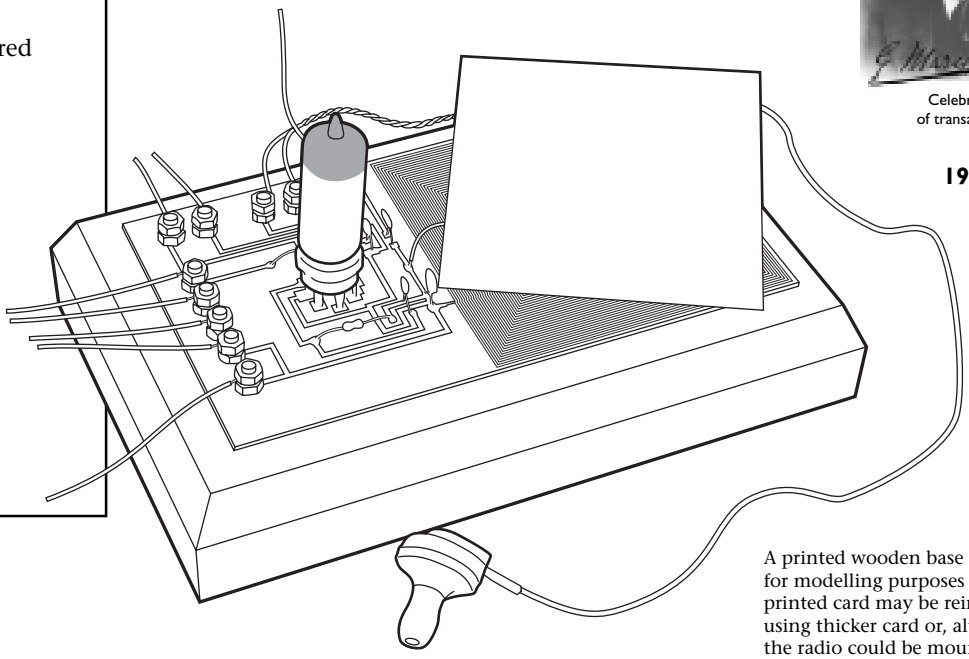
SINGLE VALVE RADIO KIT

Celebrating 100 years of transatlantic wireless communication

1901 - 2001

KIT CONTENTS:

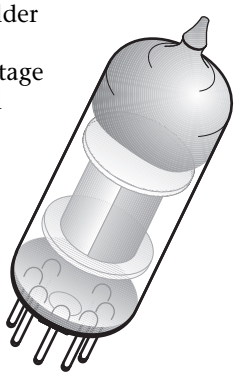
- Radio board with soldered components
- Metal tuning plate
- Valve (EF51)
- Earpiece
- 8 x screws
- 16 x nuts
- 3 x battery connectors
- 1 x battery box (to hold 4 x AA cells)
- Earth wire (short)
- Aerial wire (long)
- Folding base box



A printed wooden base is provided for modelling purposes only. The printed card may be reinforced using thicker card or, alternatively, the radio could be mounted on a rigid wooden base.

INTRODUCTION

Before they started to be replaced by transistors in the 1950s, most older radios used valves. Very early valves looked like small lightbulbs and generated electrons using a heated filament. Valves needed a low voltage supply to generate the electrons and a high voltage supply to control them. This often meant using special (expensive) batteries.

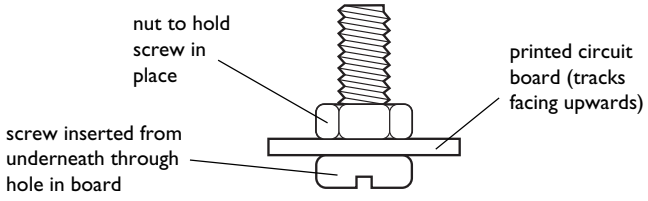


During the 1920s many people used one-valve radio receivers with headphones. This was a cheaper option than the multi-valve sets with loudspeakers then becoming available. Most of the early one valve radios displayed their valve like a trophy rather than conceal it in a case. Although your kit uses a later (and smaller) valve, the radio is laid out to look like one of the very early ones. It also behaves just the same. For example, it has to warm up before it works and a filament in the valve glows red hot.

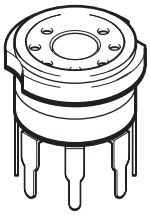
ASSEMBLING THE RADIO

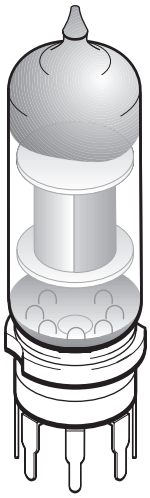
1. Make up the "wooden" base by cutting out the net, creasing the folds, and then forming into a box. It can be held together either with Sellotape inside the box or glue on the flaps.

2. Secure all the screw terminals in position as shown - and tighten with a screwdriver and pliers.



3. Carefully remove the valve from the packaging and plug it into the valve base. (You will see from the pins that it only fits in one way.)





PLEASE NOTE

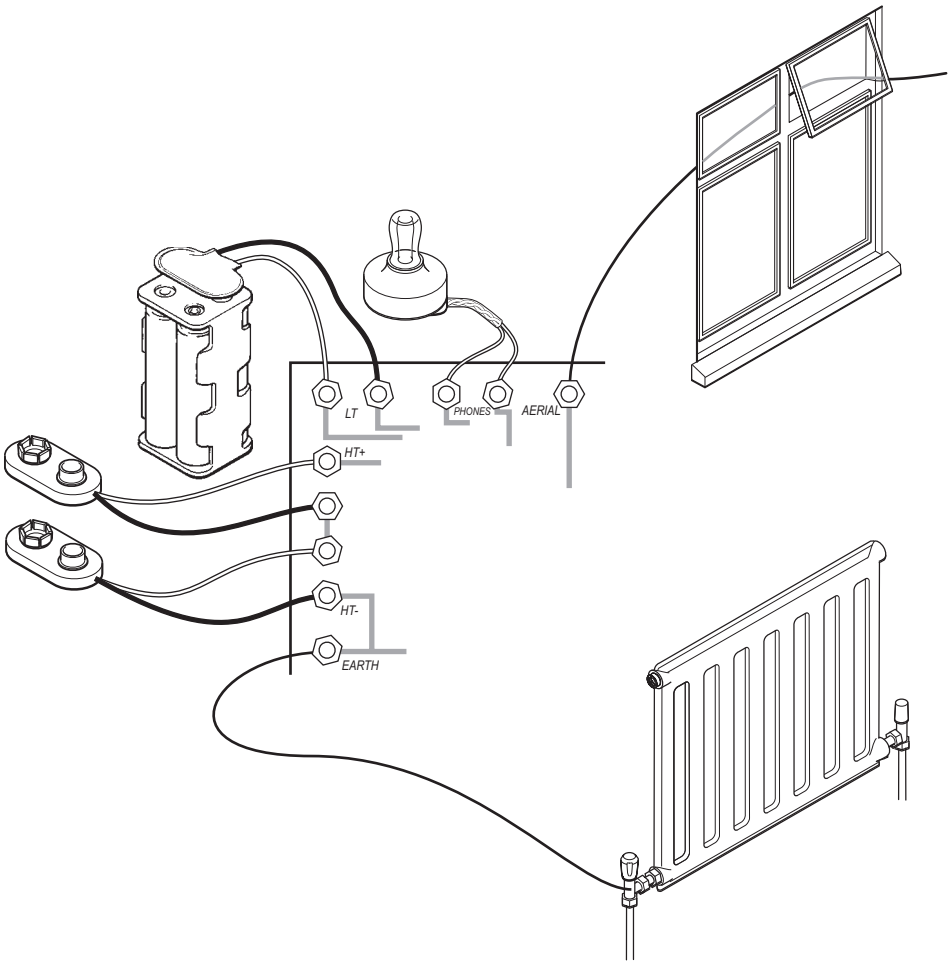
This historical radio is based on an original design, which could be tuned to a limited number of stations. By altering the coil and/or tuning mechanism, it is possible to improve the radio's reception characteristics. The length and disposition of the aerial wire are also critical factors in tuning the radio.

4. Using the remaining nuts, connect the earpiece and the battery leads to the terminals as shown.

5. Attach four sticky pads to the bottom edges of the radio board and stick it onto the base box - without pressing too hard !

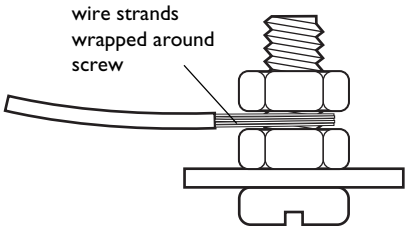
OPERATION

You need a long aerial (as high up as possible) and a good earthing point to make the radio work. The 10 metres of wire supplied should ideally be suspended outside or as high as possible in a house. The tuning will, to some extent, depend on the length and layout of the aerial. The earth wire can be connected to a water tap or radiator - but make sure that it connects well with bare metal.

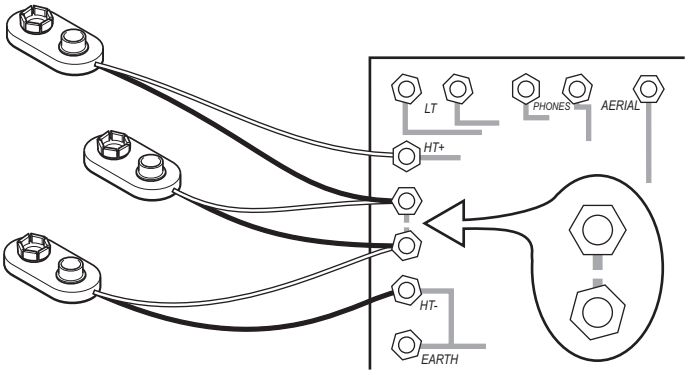


Strip the insulation off the ends of the aerial and earth leads and connect to the screw terminals as shown. Connect the two 9V batteries and then connect the 6V battery. (All the batteries are ideally alkaline types). The radio will take a few moments to warm up - and in a dark place you will see a red glow inside the valve. To tune the radio move the metal plate slowly over the flat coil.

The radio will work with less volume if you use just one 9V battery connected between HT+ (red wire) and HT- (black wire). It will also be much louder if you can use three 9V batteries - giving a total of 27 volts. To use three batteries the copper track on the board must be cut through as shown. If you do not receive a signal, it will be for one of the following reasons:

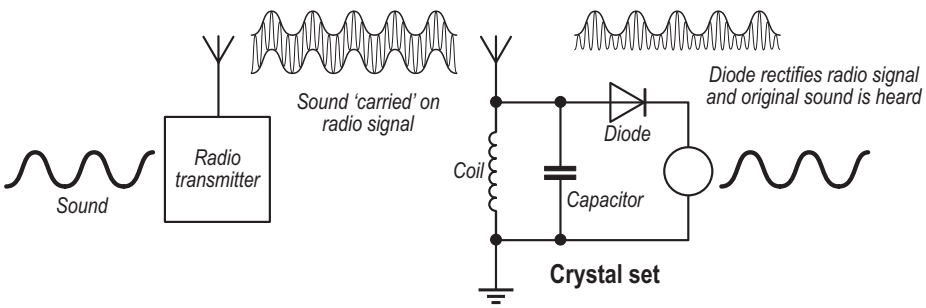


- One or more batteries are flat (check in a dark place to see that the valve is glowing).
- Poor connects to the radio board - check that the screws and nuts are tight.
- The earth connection is faulty. Check the connection or try another place.
- The aerial is not high enough or long enough. Try re-positioning it.



HOW IT WORKS

The sound you hear is "carried" on **AM** radio signals. The coil and capacitor form a circuit for tuning into one signal - which is converted back into sound using the diode. The diagram *indicates* how sound waves are carried on the radio signal.



NOTE: Reception on your valve radio will always be better at night.