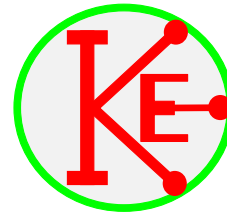


Regeneration panel.



The rf amplifier produces an output that is almost in phase with the input signal i.e. if the input voltage increases then so does the output voltage.

If some of the signal from the output is sent back to the input, then it will also be amplified, and make the output signal larger, which increases the input signal to the rf amplifier etc.

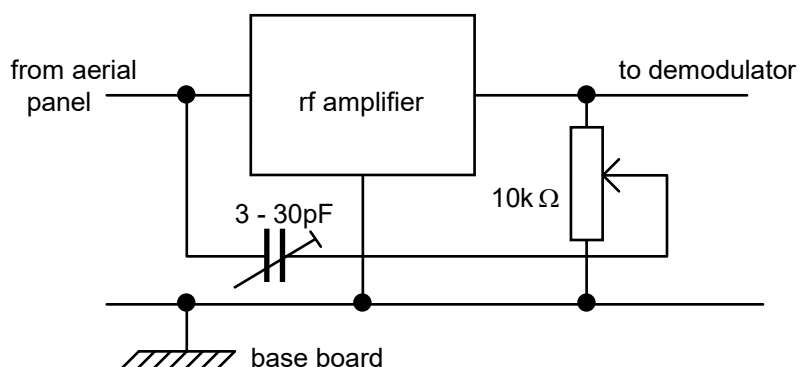
This is called Positive feedback and very quickly, the rf amplifier will start to oscillate at a frequency determined by the tuned circuit.

If the amount of the output signal fed back to the input is carefully controlled so that the rf amplifier is just on the point of oscillation, then the selectivity and sensitivity of the radio system is significantly increased.

With very careful adjustment, the rf amplifier can be made to just oscillate when it receives a morse code signal or a single sideband transmission, so making them audible.

Care must be taken to ensure that the rf amplifier is not left oscillating as it will act like a radio transmitter and cause interference to others.

The circuit diagram for the regeneration control is shown below.



The 10kΩ log. potentiometer is mounted on a panel next to the tuning panel and near to the output of the rf amplifier. This is the regeneration control.

A 3 - 30pF trimmer capacitor has its one terminal soldered onto the input connection of the rf amplifier. Its other terminal is connected by a wire to the wiper of the 10kΩ potentiometer. This wire should be kept away from the tuned circuits section of the rf amplifier.

Using the Regeneration Control.

NOTE. The regeneration control will also be affected by the attenuator control. The attenuator should initially be set to minimum attenuation.

Set the trimmer capacitor to around 15pF (when half of the capacitor plates overlap).

Set the regeneration control to minimum (fully anticlockwise).

Tune in a radio station on the short wave bands and slowly increase the regeneration control.

The radio station will become louder (you may need to retune the station slightly as the radio system becomes more selective.)

Continuing to increase the regeneration control, the station will start to distort and become very noisy. A whistle may also be heard from the speaker. At this point, the rf amplifier is just starting to oscillate and so the regeneration control should be slightly reduced.

If the oscillating state cannot be achieved, even when the regeneration control is at maximum, then the trimmer capacitor value needs to be increased. This only applies to the short wave bands (switch position 4 and above). Similarly, if oscillation occurs very near to the minimum setting of the regeneration control, then the value of the trimmer capacitor should be reduced.

On the long and medium wave bands, there will not be sufficient feedback to cause oscillation, but the increase in selectivity and sensitivity obtained is useful.

