

Feedback and its Applications

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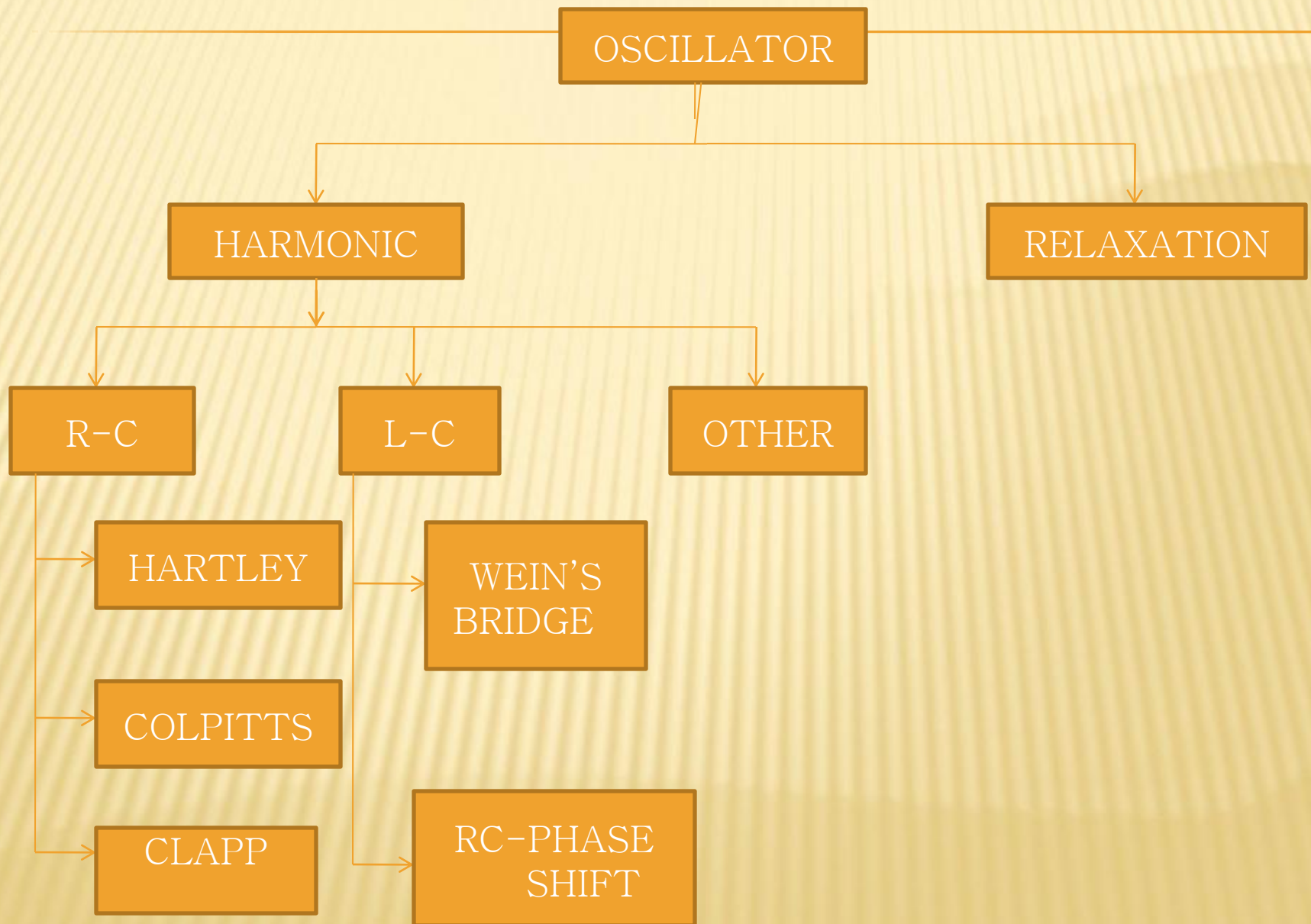
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- ✗ **Oscillation circuit** it is basic tank circuit (LC circuit) which is used to produce frequency of oscillation

$$f = 1/2\pi(LC)^{1/2}$$

- ✗ **Electronic amplifier** receive dc power from battery & convert into the ac power for supply to the tank circuit.
- ✗ **Feedback network** it is supplied output part to tank circuit to the electronic amplifier.

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- ✖ **Frequency Selector:** Oscillator must be able to provide oscillation of any desired frequency , therefore frequency selector is provided.
 - ✖ **Automatic Amplitude Control:** If for any reason, the amplitude of oscillations in the output increases, it may continue to increase on account of feedback. Therefore to overcome this problem an automatic amplitude control unit is provided.

TYPES OF OSCILLATORS



HARMONIC OSCILLATOR

- ✗ The harmonic oscillator produces a sinusoidal output. It means energy is transformed from active to passive components mostly and consume by them.

Wein bridge oscillator

- ✗ It's output is free from distortion and it's frequency can be varied easily. However the maximum frequency output of a typical wein bridge oscillator is only about 1MHz.
- ✗ At all other frequency the bridge is off –balance (the voltage feedback and output voltage do not have the correct phase relationship for sustained oscillation).
- ✗ So bridge circuit can be used as feedback network for an oscillator provided that the phase shift through the amplifier is zero .

Circuit Diagram of Wein Bridge Oscillator

