Basic Electronic Circuits Lab (IEC-103)

Experiment-06

Objective

To build a Wein bridge oscillator.

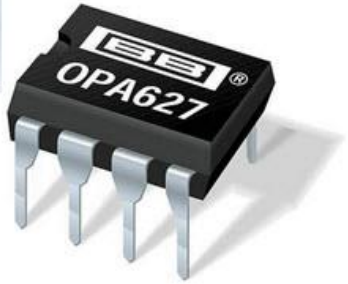
Components

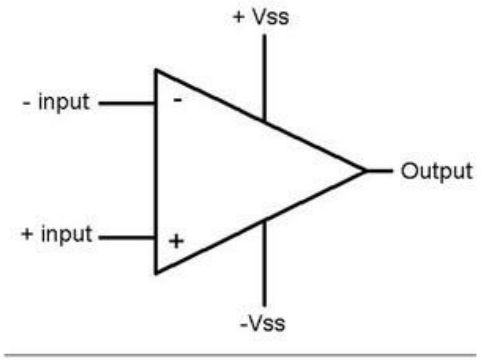
- **Op-amp ICS (**741**)**
- **Resistances (**1KΩ (2)**,** 1.5KΩ**,** 2.2KΩ (2)**,** & 1KΩ pot**)**
- **Capacitors (**0.1 μF (2) **and** 0.01 μF (2)**)**
- **Breadboard**
- **Connecting wires**

Equipment

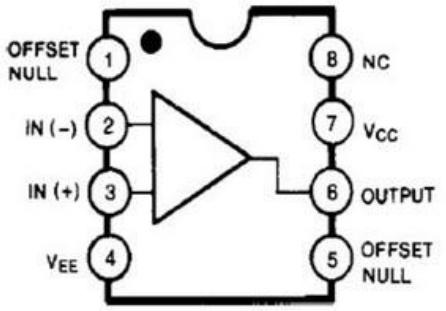
- **Regulated Power supplies ($\pm$ 12 V) to power up op-amp.**
- **CRO for voltage measurements.**

741 Op Amp IC

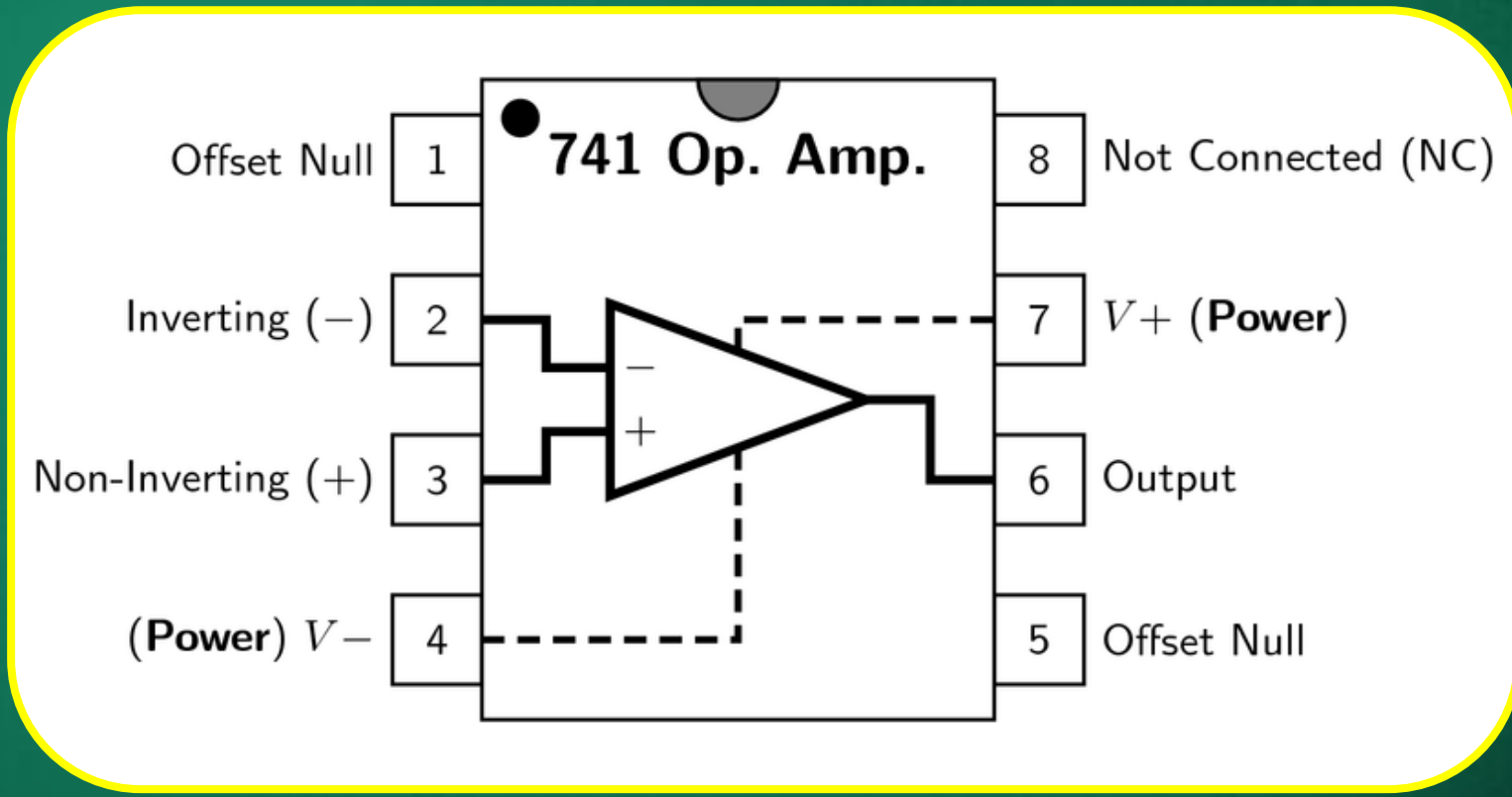




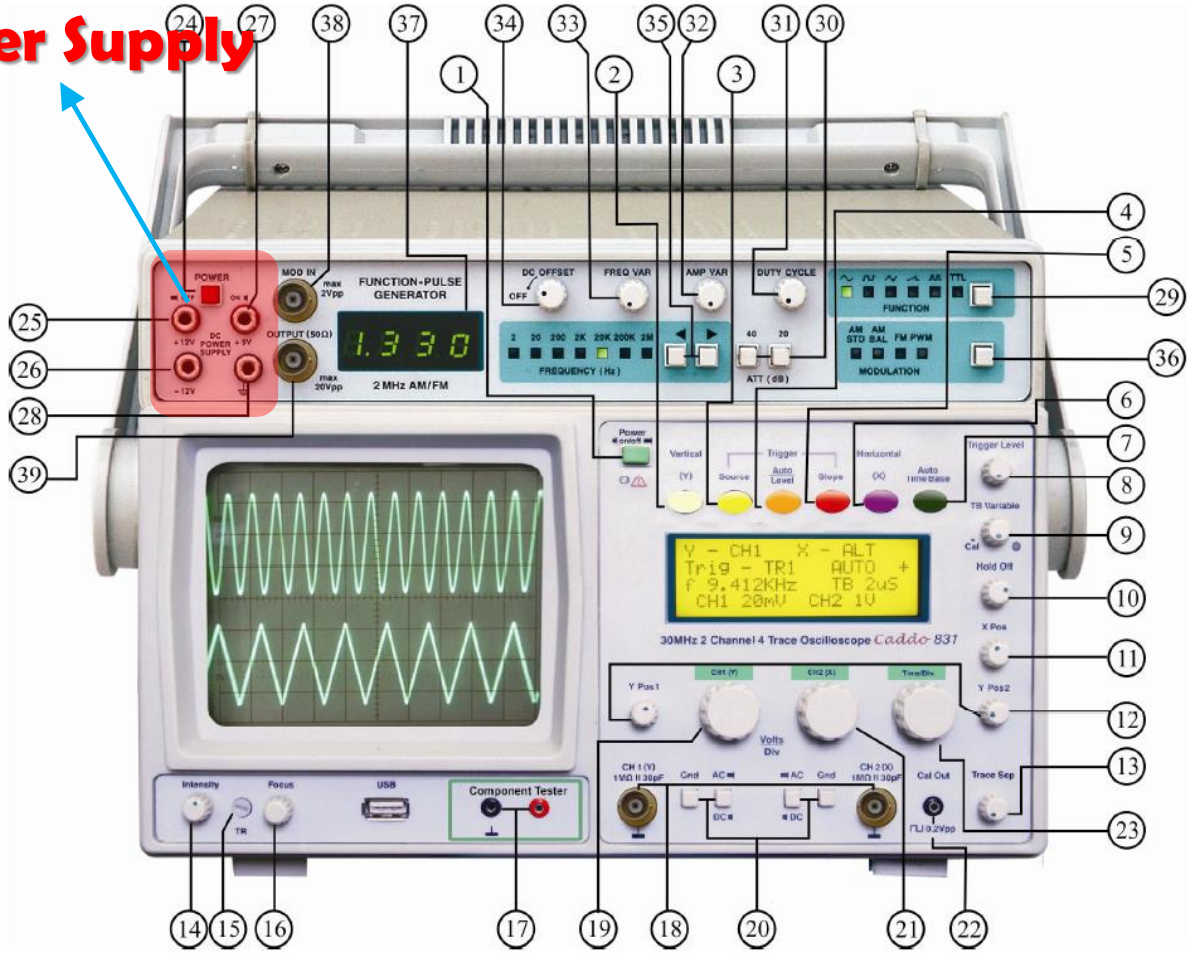
OP-AMP



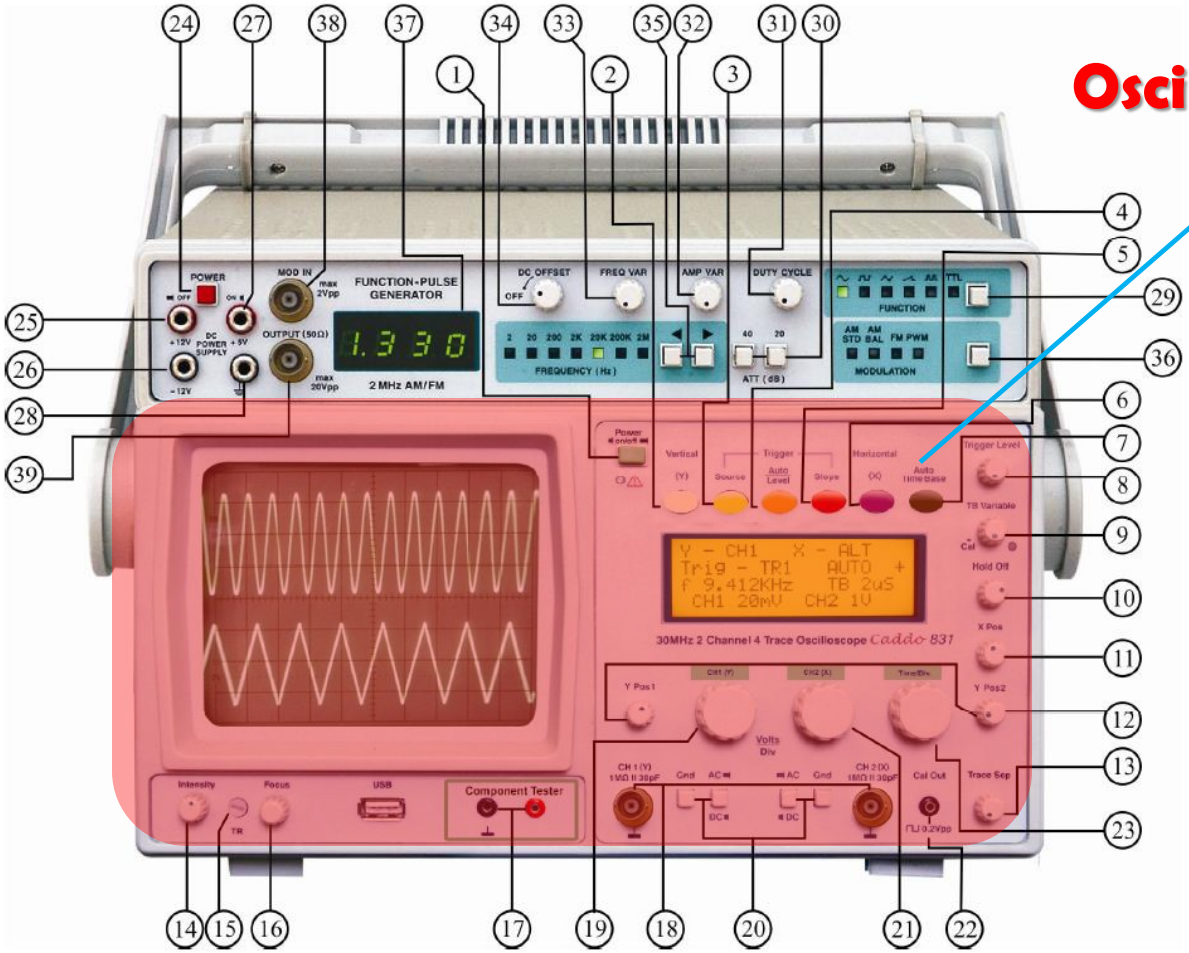
741 Op Amp IC (Pin Diagram)



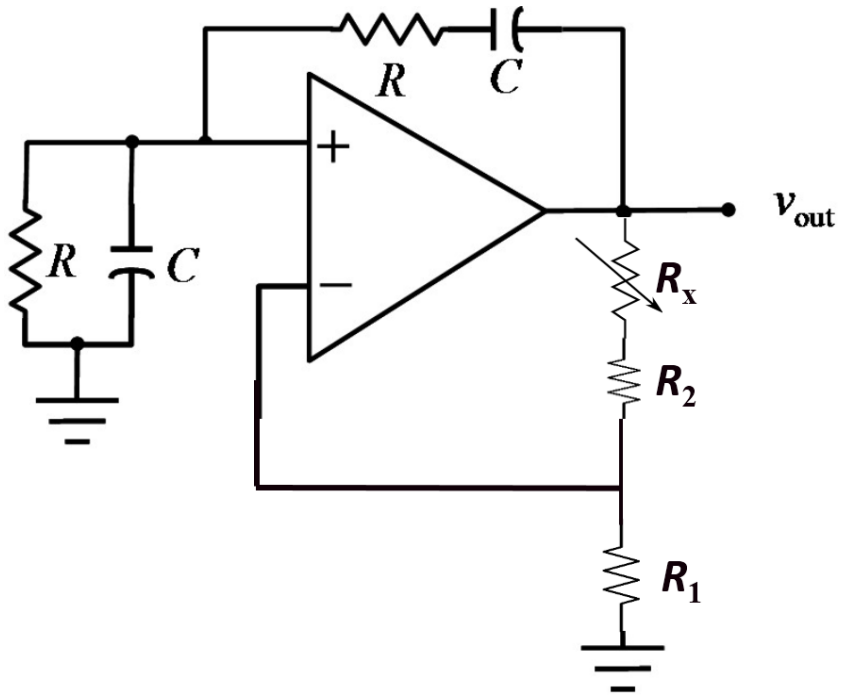
Power Supply (Fixed)



Oscilloscope



Wein Bridge Oscillator



R = (1 kΩ, 2 kΩ), C = (0.1 μF, 0.01 μF), R_1 = 1 kΩ, R_2 = 2 kΩ and R_x = 1 kΩ pot

Wein Bridge Oscillator (f)

Frequency of the oscillations

$$f = \frac{1}{2\pi RC}$$

Observations

Sr. No.	R	C	R_1	R_2	R_x	T (measured)	f = 1/T	f (theoretical)
1	1 KΩ	0.1 μF	1 KΩ	1.5 KΩ	1 KΩ pot			
2	1 KΩ	0.01 μF	1 KΩ	1.5 KΩ	1 KΩ pot			
3	2.2 KΩ	0.1 μF	1 KΩ	1.5 KΩ	1 KΩ pot			
3	2.2 KΩ	0.01 μF	1 KΩ	1.5 KΩ	1 KΩ pot			