

# **BEAT FREQUENCY OSCILLATOR ( BFO )**

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# B.F.O

Collected by Thushar baby

## **Introduction.**

When an audio signal is modulated with the Rf carrier, the two side bands ( lower side band & upper side band ) are generated . These signals carries full information and does not require any special receiver to receive it . But as the side bands are generated with the carrier , most of the power will be consumed . To avoid this loss of power , we remove the RF carrier from the signal . One side band can also be removed as both the upper side band and lower side band carry the same information . This procedure increases the effective signal strength and these signals are known as single side band or in short SSB .

Even tho both the side bands carry the same information , both the side bands are required by the receiver to make the signals intelligible audioable .

So at the receiving end the received SSB signals are reinserted with the missing side band . This is done by mixing the incoming signal with another signal . The external signals required by the receiver to receive the SSB signals are provided by the beat frequency oscillator or B.F.O .

## THE CIRCUIT.

The circuit mainly consists of a IFT , T1 and associated components . The IFT together with T1 forms an oscillator circuit . As the IFT is 455 kHz , the oscillator output will be around 455 kHz

The resultant oscillation from the oscillator mixes with the incoming SSB signals to make it intelligible .

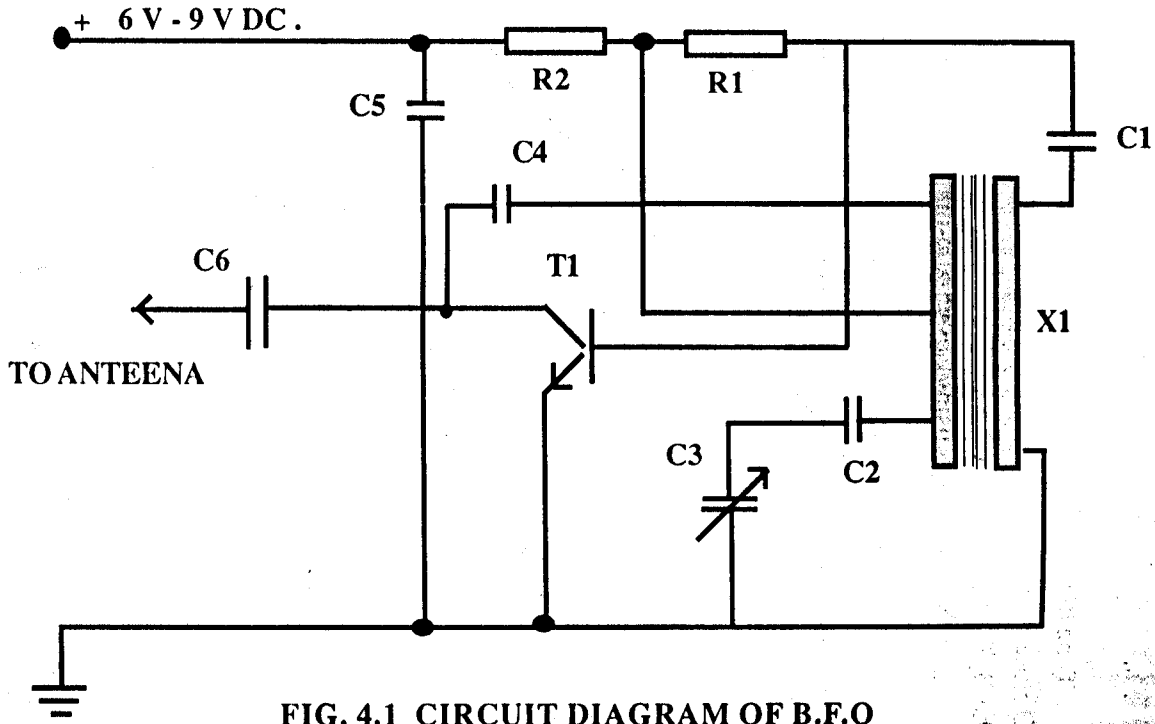
## CONSTRUCTION

As the circuit is very simple , no special PCB designs are included . Any general purpose PCB can be used for the construction . The assembled PCB can be fixed in a small cabin like visiting card box or eliminator case . Use a wire of about 40 cm long as the antenna . In most cases the antenna is not necessary if the BFO is placed close to the receiver . The power supply to the BFO can be from battery or from a well rectified eliminator .

## TESTING

Place the BFO close to the receiver keeping the wire antenna straight . Now apply power to the BFO and the receiver . Tune the IFT until you receive a sharp hissing sound in the receiver . Now our VFO is working and is ready to mix with SSB signals .

If you don't receive any signals , double check the wiring once again . Check the transistor and the IFT . If the wiring and transistor are o.k , try by replacing the IFT .



**FIG. 4.1 CIRCUIT DIAGRAM OF B.F.O**

## ALIGNMENT.

Tune the receiver to receive an SSB signal. Now place the BFO close to the receiver and make it on. Tune the tuning capacitor of the BFO to make the SSB signals sharp and intelligible. Now you catch any SSB signals using our small little B.F.O.

### COMPONENT LIST FOR B.F.O

<b>Resistors</b>		
No.	Item ID.	Description.
1.	R1	330 k
2.	R2	150 ohm
<b>Capacitors</b>		
1.	C1	470 pf
2.	C2	47 pf
3.	C3	1/2 PVC 2J Gang
4.	C5	.01 u
5.	C6	.01 u
<b>Coils &amp; Semiconductors</b>		
1.	T1	BF 194 , Oscillator
2.	X1	455 kHz Silicon IFT

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