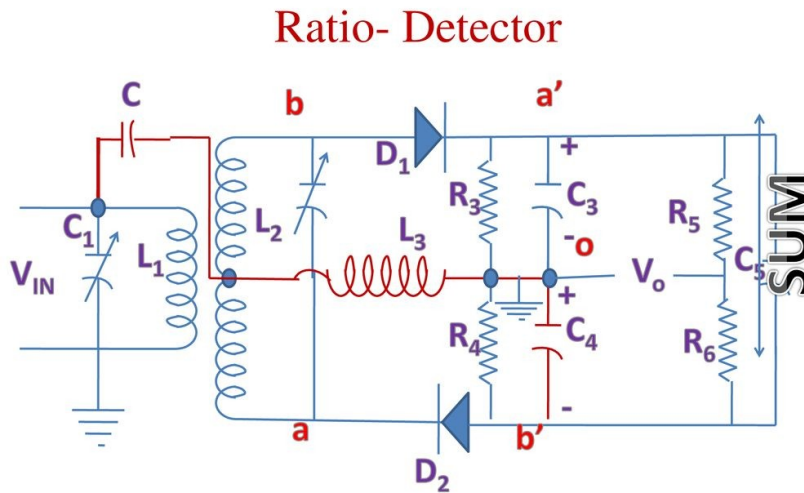


# Ratio detector

The ratio detector is a type of detector circuit, commonly used in radio receivers for demodulating frequency modulated signal.

The ratio detector is a variant of the Foster-Seeley discriminator, but one diode conducts in an opposite direction, and using a tertiary winding in the preceding transformer.



Change 1: Diode **D2** is reversed so that now sum of  $V_{ao}$  &  $V_{bo}$  appears across points **a'** and **b'** instead of difference.

The input tank capacitor (C1) and the primary of transformer T1 (L1) are tuned to the center frequency of the fm signal to be demodulated. The secondary winding of T1 (L2) and capacitor C2 also form a tank circuit tuned to the centre frequency. Tertiary (third) winding L3 provides additional inductive coupling which reduces the loading effect of the secondary on the primary circuit. Diodes D1 and D2 rectify the signal from the secondary tank. Capacitor C5 and resistors R1 and R2 set the operating level of the detector. Capacitors C3 and C4 determine the amplitude and polarity of the output. Resistor R3 limits the peak diode current and furnishes a dc return path for the rectified signal. The output of the detector is taken from the common connection between C3 and C4. Resistor RL is the load resistor.