

L.E.O.

TUNING INDICATOR

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Most modern FM tuners either employ, or make provision for, a centre zero meter to indicate when accurate tuning has been achieved. However, a suitable meter can be expensive and requires hole-cutting and drilling of chassis to fit. These thoughts prompted the author to design and build a completely solid state equivalent which will cost the constructor less than £1, assuming that all the components are bought new.

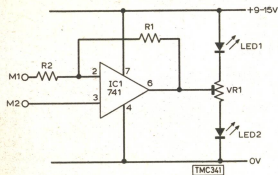


Fig. 1: Circuit of the tuning indicator.

Circuit Outline

By using a 741 op amp in the differential mode and driving a pair of LED from the output a very simple circuit can be realised employing only 6 basic components. The circuit diagram is shown in Fig. 1. Here the dc voltage across the meter output terminals is applied to the inverting and non-inverting inputs of the op-amp, pins 2 and 3 respectively.

Since very few components are employed the circuit can be constructed on a small piece of Veroboard and supported by the LED mounting clips. A suitable layout is shown in Fig. 2. The prototypes which have so far been constructed have been tried on a number of tuners which already possessed a tuning meter and the circuit described has been found to be virtually as accurate.

With the circuit wired into the tuner a check is made that both LED are illuminated. A point off-station is tuned so that only inter-station noise is being received, and VR1 adjusted until both LED are equally illuminated.

★ components

Resistors

R1 1M Ω , R2 2.2k Ω , both $\frac{1}{4}$ watt, 5% carbon, VR1 1k Ω horizontal preset.

Semiconductors

IC1 741, LED 1 and 2, 0.2" diam. 50mA max, colour to choice.

Miscellaneous

Veroboard 0.1" matrix, 47mm \times 38mm, LED clips.

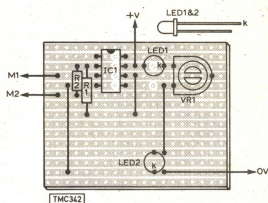
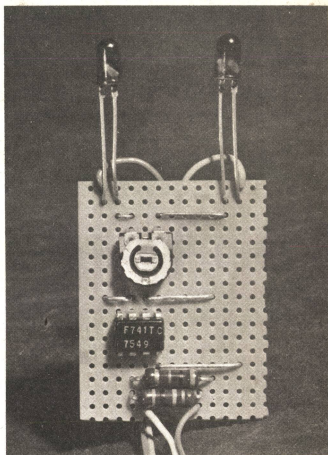


Fig. 2: Physical layout.



A station is tuned in, and as tuning proceeds the LED will vary in brightness, the correct tuning position being the point where they are both equally illuminated.