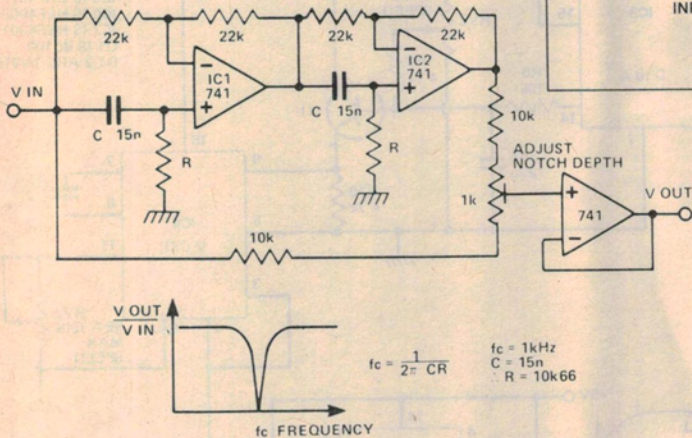


All-pass Notch Filter

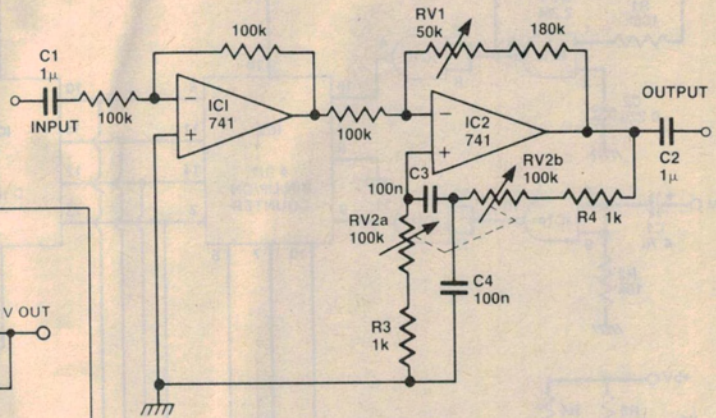
This circuit provides adjustable notch attenuation ('depth'). IC1 and IC2 are arranged as 'all pass' filters. They have a flat frequency response but the phase changes with frequency. Overall maximum phase shift is 360°, a phase shift of 180° (reversal) occurring at a frequency of $1/2CR$ Hz. By mixing the phase-shifted signal with the original, cancellation will form a narrow 'notch' in the frequency response.

The 1k preset varies the amount of phase-shifted signal mixed with the original so the notch attenuation can be varied. The notch frequency, f_c , can be varied by varying the two resistors marked R. e.g. for a notch at 50 Hz, R should be 220k.



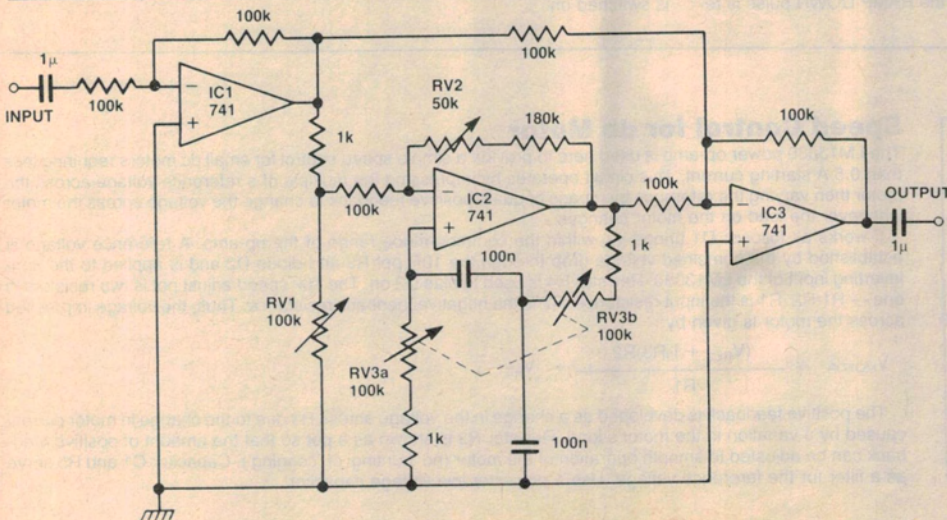
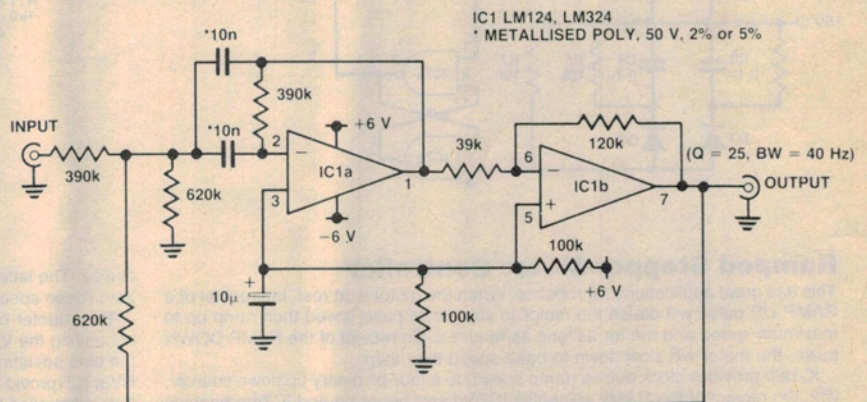
Tunable Audio Filter with Adjustable Selectivity

This filter can be tuned from 20 Hz to 1 kHz and features adjustable bandwidth. RV2 sets the frequency, RV1 sets the selectivity. This is a positive feedback control. Advancing it beyond a certain point causes oscillation. Set it just below the point of oscillation for minimum selectivity. The capacitors should be low voltage metallised poly types, 5% or better.



Active 1 kHz Bandpass Filter

This circuit provides a 40 Hz-wide 'window' at 1 kHz. Two op-amps from a quad op-amp IC are used. For best results, the two 10n capacitors should be metallised poly, low voltage types, with a 2% or 5% tolerance — matched values if possible.



Tunable Audio Notch Filter with Variable Selectivity, Attenuation

This is a modification of the previous circuit to provide a notch, rather than a peak. The original input and the filtered signal are summed in anti-phase at the input of IC3. Hence, the filter circuit provides attenuation at the filter frequency. RV1 sets notch depth, RV2 sets notch width, RV3 sets notch frequency.