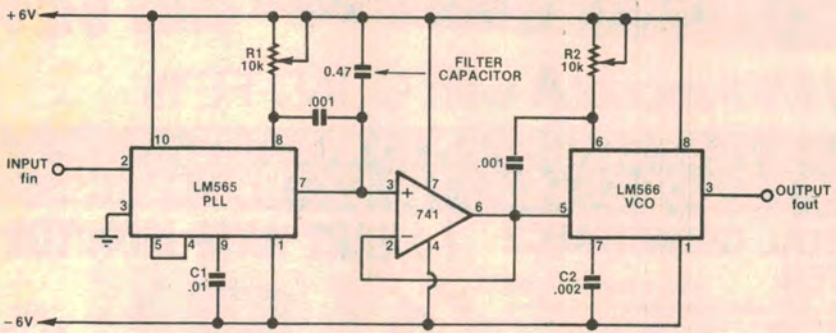
Fractional frequency multiplier



While most frequency multipliers using a phase-locked loop (PLL) can multiply frequencies only in exact integer amounts, this circuit can multiply by any real number, fractional or otherwise. It combines a phase-locked loop frequency-to-voltage converter and a separate voltage controlled oscillator.

The PLL is connected as a frequency demodulator and the demodulated output at pin 7 is fed to a 741 connected as a voltage-follower. This drives the modulation input, pin 5, of the 566 voltage-controlled oscillator. The multiplication factor is determined by the formula n=R1C1/R2C2. For stable circuit operation, R1 and C1 should be selected to suit the input frequency while R2 and C2 are chosen to give the required multiplication factor.

From "Electronics",
May 19, 1982.

Refurbishing a radiator

Domestic single-bar radiators which have rusty and unsightly reflectors can be cheaply restored with the aid of aluminium foil. The foil should be placed over the reflector, underneath any protective grille and kept taut by wedging it in the rolled edges of the reflector. Naturally the foil must be kept well clear of the radiator element itself and its active end terminations.

K. Kenneally,
Collaroy, NSW.