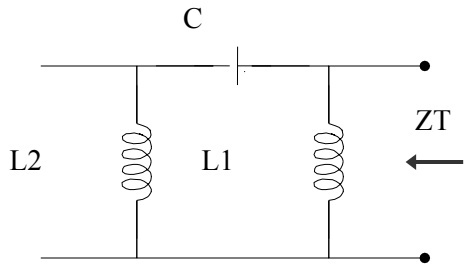
Chapter 10, Solution 95.

First, we find the feedback impedance.



$$Z_T = j\omega L_1 \| \left(j\omega L_2 + \frac{1}{j\omega C} \right)$$

$$Z_T = \frac{j\omega L_1 \left(j\omega L_2 - \frac{j}{\omega C} \right)}{j\omega L_1 + j\omega L_2 - \frac{j}{\omega C}} = \frac{\omega^2 L_1 C \left(1 - \omega L_2\right)}{j\left(\omega^2 C \left(L_1 + L_2\right) - 1\right)}$$

In order for Z_T to be real, the imaginary term must be zero; i.e.

$$\omega_o^2 C \left(L_1 + L_2\right) - 1 = 0$$

$$\omega_o = 2\pi f_o = \frac{1}{C\left(L_1 + L_2\right)}$$

$$f_o = \frac{1}{2\pi\sqrt{C\left(L_1 + L_2\right)}}$$