The input to the electrical circuit shown below is voltage $e_o$. As a reminder, the impedance equations are

$$i = \frac{\delta e}{R}$$
$$i = \frac{\delta e}{LD}$$
$$i = CD\delta e$$

To write state variable equations for this circuit, state variables must first be assigned. Assign the state variables for this system.

- $x_1 = i_{c1}$, voltage at $C_1$
- $x_2 = i_{c2}$, voltage across $C_2$
- $x_3 = i_L$, current at $L$

$$\frac{\delta x_1}{\delta t} = \frac{e_1 - e_2}{L_1}$$
$$\frac{\delta x_2}{\delta t} = \frac{e_2}{R}$$

$$i_{c1} = e_1, \quad i_{c2} = e_2$$
$$i_L = \frac{e_1 - e_2}{L}$$