$$E_a(s) \longrightarrow \boxed{H(s)} \longrightarrow I_a(s) \qquad I_a(s) = H(s) \cdot E_a(s)$$

$$= \frac{1}{L_a J}\left[\frac{Js+B}{s^2+2\xi\omega_n s+\omega_n^2}\right] \cdot \frac{E_a}{s}$$

$0 < \xi < 1$

$$\left\{\begin{aligned} &= \frac{E_a}{L_a}\left[\frac{1}{s^2+2\xi\omega_n s+\omega_n^2}\right] \\ &\quad + \frac{B \cdot E_a}{L_a J}\left[\frac{1}{s(s^2+2\xi\omega_n s+\omega_n^2)}\right] \end{aligned}\right.$$

$$i_a(t) = \mathcal{L}^{-1} I_a(s)$$

$$\xi > 1 \rightarrow i_a(t) = \mathcal{L}^{-1}\frac{E_a}{L_a}\left[\frac{1}{(s+a)(s+b)}\right] + \mathcal{L}^{-1}\frac{BE_a}{L_a J}\left[\frac{1}{s(s+a)(s+b)}\right]$$

$$\xi = 1 \rightarrow i_a(t) = \frac{E_a}{L_a}\mathcal{L}^{-1}\frac{1}{(s+a)^2} + \frac{BE_a}{L_a J}\mathcal{L}^{-1}\frac{1}{s(s+a)^2}$$