7.4.36.

$$f(t) = 2t - 4 \int_0^t f(t - \tau) \, \sin\tau \; d\tau$$

$$F(s) = \frac{2}{s^2} - 4 \frac{1}{s^2 + 1} F(s)$$

$$F(s) \left(1 + \frac{4}{s^2 + 1} \right) = \frac{2}{s^2}$$

$$F(s) = \frac{2(s^2 + 1)}{s^2(s^2 + 5)} = \frac{2/5}{s^2} + \frac{-8/-5}{s^2 + 5} = \frac{2}{5} \frac{1}{s^2} + \frac{8}{5} \frac{1}{\sqrt{5}} \frac{\sqrt{5}}{s^2 + 5}$$

$$f(t) = \frac{2}{5} t + \frac{8\sqrt{5}}{25} \sin \sqrt{5} t$$