Solve the following nonlinear system of integral equations for ψ_1 and ψ_2

$$\begin{cases} \psi_1(p) = \int_0^\infty \frac{k^2 dk}{(2\pi)^2} V|p-k|(\frac{A(k)}{E(k)} - 1) \\ \psi_2(p) = -\int_0^\infty \frac{k^2 dk}{(2\pi)^2} V|p-k|(\frac{n_0 V(k) + \psi_2(k)}{E(k)}) \end{cases}$$

where

$$A(k) = n_0 V(k) + \psi_1(k) - \psi_1(0) + \psi_2(0) + \frac{k^2}{2m}$$

$$E(k) = \sqrt{A^2(k) - (n_0 V(k) + \psi_2(k))^2}$$

$$V(k) = \frac{V_0 j_1(k)}{1 - V_0 P j_1(k)}$$

$$j_1 = \frac{\sin(x) - x\cos(x)}{x^3}$$

and V_0 and P, n_0 are some numbers.