$$U_P\left(\vec{\theta}\right) = \quad R_y\left[-\left(\theta_1 + \frac{\pi}{2}\right)\right] \quad R_z\left[-\left(\theta_2 + \pi\right)\right] \quad R_z\left(\theta_2 + \pi\right) \quad R_y\left(\theta_1 + \frac{\pi}{2}\right)$$