$$\begin{pmatrix} 2\hat{I} & \hat{U}^\dagger(t_1, t_0) & 0 & 0 \\ \hat{U}(t_1, t_0) & 2\hat{I} & \hat{U}^\dagger(t_2, t_1) & 0 \\ 0 & \hat{U}(t_2, t_1) & 2\hat{I} & \hat{U}^\dagger(t_3, t_2) \\ 0 & 0 & \hat{U}(t_3, t_2) & \hat{I} \end{pmatrix}$$