

$\hat{T}_4 :$

$$\left| \begin{array}{c}
 \begin{array}{c}
 l_6 \downarrow q_6 \\
 \swarrow j_1 \quad \searrow j_6 \\
 k_1 \downarrow q_1 \\
 \swarrow j_2 \quad \searrow j_4 \\
 k_2 \downarrow q_2 \\
 \swarrow j_3 \quad \searrow j_4 \\
 l_2 \downarrow q_3 \\
 \swarrow j_3 \quad \searrow j_4 \\
 l_3 \downarrow q_3
 \end{array}
 \end{array} \right\rangle \rightarrow \sum_{k'_1} v_{k_1} v_{k'_1} G_{j_1 l_1 k'_1}^{j_2^* q_1^* k_1} \left| \begin{array}{c}
 \begin{array}{c}
 l_6 \downarrow q_6 \\
 \swarrow k'_1 j_1 \quad \searrow j_6 \\
 j_2 \downarrow q_1 \\
 \swarrow j_2 \quad \searrow j_4 \\
 k_2 \downarrow q_2 \\
 \swarrow j_3 \quad \searrow j_4 \\
 l_2 \downarrow q_3 \\
 \swarrow j_3 \quad \searrow j_4 \\
 l_3 \downarrow q_3
 \end{array}
 \end{array} \right\rangle,$$