$$C_{6v} \rightarrow C_{3v}$$

$$A_{1} \begin{bmatrix} |A_{1};1\rangle & & |A_{1};1\rangle \end{bmatrix} A_{1}$$

$$B_{1} \begin{bmatrix} |B_{1};1\rangle & & |A_{2};1\rangle \end{bmatrix} A_{2}$$

$$B_{2} \begin{bmatrix} |B_{2};1\rangle & & |E_{2};1\rangle \\ |A_{2};1\rangle \end{bmatrix} A_{2}$$

$$A_{2} \begin{bmatrix} |A_{2};1\rangle & & |E_{3};1\rangle \\ |E_{1};2\rangle & & |E_{2};2\rangle \end{bmatrix} E$$

$$E_{1} \begin{bmatrix} |E_{1};1\rangle & & |E_{3};2\rangle \\ |E_{1};2\rangle & & |E_{3};2\rangle \end{bmatrix} E_{3/2}$$

$$E_{3/2} \begin{bmatrix} |E_{3/2};1\rangle & & |E_{1/2};1\rangle \\ |E_{3/2};2\rangle & & |E_{1/2};1\rangle \\ |E_{3/2};2\rangle \end{bmatrix} E_{1/2}$$