$$H_{117} = \begin{bmatrix} 2\,h - 6\,\mu + U & -\left(\sqrt{2}\,t\right) & \sqrt{3}\,t & -2\,t \\ -\left(\sqrt{2}\,t\right) & 2\,h - 6\,\mu + U & 0 & 0 \\ \sqrt{3}\,t & 0 & 2\,h - 6\,\mu + 2\,U & 0 \\ -2\,t & 0 & 0 & 2\,h - 6\,\mu + U \end{bmatrix}$$