$$\delta\dot{\hat{p}}_j = -\omega_m^2\delta\hat{x}_j + (-1)^j K_c(\delta\hat{x}_1 - \delta\hat{x}_2) - d_{SB/CB}^p + \mathcal{P}(\langle Q_j\rangle_{st}\,\delta\hat{Q}_j + \langle P_j\rangle_{st}\,\delta\hat{P}_j) + \omega_m\,\hat{p}_{in,j}.$$