$$G(x_1, p_{x2}, y_1, p_{y2}, p_1) = H_0(x_1, p_{x2}, y_1, p_{y2}, p_1) + \frac{1}{2}\left(\frac{\partial H_0}{\partial x_1}\frac{\partial H_0}{\partial p_{x2}} + \frac{\partial H_0}{\partial y_1}\frac{\partial H_0}{\partial p_{y2}}\right), \tag{163}$$

where

$$H_0 = p_{x2}\Delta x_1 + p_{y2}\Delta y_1\,, \tag{164}$$

$$\Delta x_1 = x_1(a/3 + b) \tag{165}$$

$$\Delta y_1 = -y_1(a + b/3) \tag{166}$$

$$a = \mathtt{K1}\frac{x_1^2}{4p_1} \tag{167}$$

$$b = \mathtt{K1}\frac{y_1^2}{4p1}\,. \tag{168}$$