Sun-Earth, L_1

$\mu = 3{,}00039 \times 10^{-6}$

$X = 0{,}99002$

$Y = 0$

$$U_{xx} = 1 - \frac{1 - 3{,}00039 \times 10^{-6}}{(,99002 + 3{,}00039 \times 10^{-6})^3} + \frac{3(1 - 3{,}00039 \times 10^{-6})(,99002 + 3{,}00039 \times 10^{-6})^2}{(,99002 + 3{,}00039 \times 10^{-6})^5}$$

$$= \frac{3{,}00039 \times 10^{-6}}{(,99002 - 1 + 3{,}00039 \times 10^{-6})^3} + \frac{3 \cdot 3{,}00039 \times 10^{-6}(,99002 - 1 + 3{,}00039 \times 10^{-6})^2}{(,99002 - 1 + 3{,}00039 \times 10^{-6})^5}$$

$U_{xx} = -2{,}99953$

$U_{xy} = 0, y = 0$

$U_{yy} = 0, y = 0$

For L_1, L_2, L_3: U_{xy} and $U_{yy} = 0$

$L_2, U_{xx} = 8{,}862087$

$L_3, U_{xx} = -1{,}0000056$

Earth-Moon

$L_1, U_{xx} = -2{,}84002$

$L_2, U_{xx} = 7{,}38119$

$L_3, U_{xx} = -1{,}0214$

Saturn-Titan

$L_1, U_{xx} = -2{,}99224$

$L_2, U_{xx} = 8{,}82602$

$L_3, U_{xx} = -1{,}00041$

L_4 Sun-Earth

$x = ,49997$

$y = \sqrt{3}/2$

$P_1 = P_2 = 1$

$$U_{xx} = 1 - (1-\mu) + 3(1-\mu)(x+\mu)^2 - \mu + 3\mu(x-1+\mu)^2 \qquad U_{xx} = ,75$$

$$U_{xx} = 3(1-\mu)(x+\mu)^2 + 3\mu(x-1+\mu)^2$$

$$U_{xy} = 3(1-\mu)(x+\mu)y + 3\mu(x-1+\mu)y \qquad U_{xy} = 1{,}29903$$

$$U_{yy} = 1 - 3(1-\mu)y^2 - 3\mu y^2 \qquad U_{yy} = -1{,}25$$