The model equations are:

Prefault Conditions $(0.0149)\frac{d^2\delta(t)}{dt^2} = 1.0 - 2.7269 \sin\delta(t)$

$\delta_o = 0.3755$ rads

During Fault $(0.0149)\frac{d^2\delta(t)}{dt^2} = 1.0$

Post Fault $(0.0149)\frac{d^2\delta(t)}{dt} = 1.0 - 2.0724 \sin\delta(t)$

$\delta_s = 0.5035$ rads

The Lyapunov function

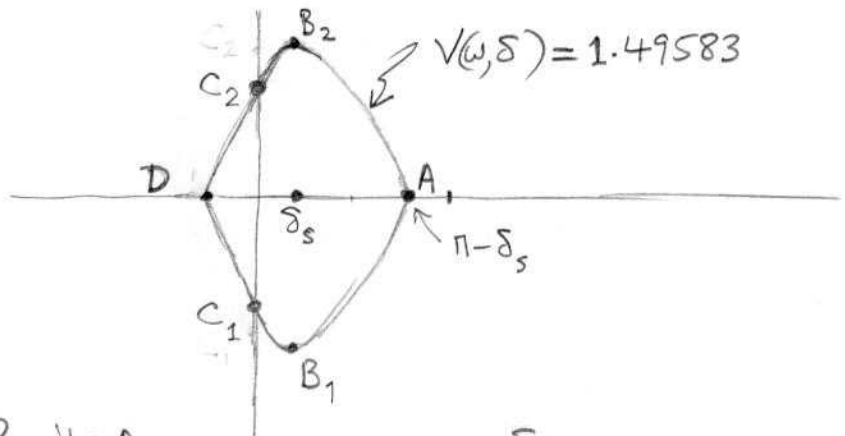
$$V(\omega,\delta) = \frac{1}{2}(0.0149)\omega^2 + \int_{\delta=\delta_s}^{\delta} (2.0724\sin\delta - 1.0)\,d\delta$$

$$V(\omega,\delta) = 0.00745\,\omega^2 - \delta - 2.0724\cos\delta + 2.31871$$

The maximum value of the potential energy is

$$V_{pot}(\delta)_{max} = 1.49583 \quad @ \quad \delta = \pi - \delta_s = 2.63809 \text{ rad}$$

The separatrix is



Point A : $\omega = 0.0$ $\delta = 2.63809$

Points B_1, B_2 : $\omega = \pm 14.169$, $\delta = 0.5035$

Points C_1, C_2 : $\omega = \pm 5.7499$, $\delta = 0.0$

Point D : : $\omega = 0$, $\delta = -0.7265$