$$v_\infty = \sqrt{\frac{2a_+ d}{\left(1 + \frac{a_+}{|a_-|}\right)}}$$

$$v_c = \begin{cases} v_{max}, & v_{max} < v_\infty \\ v_\infty, & otherwise \end{cases}$$

$$d_{acc} = \frac{v_c^2}{2a_+}$$

$$d_c = \begin{cases} d + \frac{v_c^2}{2}\left(\frac{1}{a_-} - \frac{1}{a_+}\right), & v_c > v_\infty \\ 0, & otherwise \end{cases}$$

$$d_{dec} = -\frac{v_c^2}{2a_-}$$

$$t_{acc} = \frac{v_c}{a_+}$$

$$t_c = \begin{cases} \frac{d_c}{v_c}, & v_c > v_\infty \\ 0, & otherwise \end{cases}$$

$$t_{dec} = -\frac{v_c}{a_-}$$

$$v_{acc}(t) = a_+ \cdot t$$

$$v_{dec}(t) = v_c + a_-(t - t_c - t_{acc})$$