

$$1) \text{ Initial Point : } \{x_1, y_1, \theta_1, M_1\} \rightarrow \begin{bmatrix} v_1 \\ \mu_1 \end{bmatrix}$$

$$2) \text{ Centerline Intercept : } \theta_{cl} = 0$$

$$\text{right running characteristic line} \rightarrow \theta_{cl} + v_{cl} = \theta_1 + v_1$$

$$\rightarrow v_{cl} = \theta_1 + v_1 \rightarrow \begin{bmatrix} M_{cl} \\ \mu_{cl} \end{bmatrix} \rightarrow \text{Slope}(C_-) = \left(\frac{\theta_1 - \mu_1 - \mu_{cl}}{2} \right)$$

$$y_{cl} = 0 \rightarrow \frac{0 - y_1}{x_{cl} - x_1} = \tan(\text{Slope}(C_-)) \rightarrow x_{cl} = -\frac{y_1}{\tan(\text{Slope}(C_-))} + x_1$$