L96 Wheel Odometry Position

$$V = \frac{W_2}{2} \mathring{\phi}_R + \frac{W_2}{2} \mathring{\phi}_L$$

$$POS = \int_t V \, dt \implies \int_t \frac{W_2}{2} \mathring{\phi}_R + \frac{W_2}{2} \mathring{\phi}_L \, dt \implies$$

$$\int_t \frac{W_2}{2} \mathring{\phi}_R \, dt + \int_t \frac{W_2}{2} \mathring{\phi}_L \, dt \implies$$

$$\frac{W_2}{2} \int_t \mathring{\phi}_R \, dt + \frac{W_2}{2} \int_t \mathring{\phi}_L \, dt \implies$$

$$\frac{W_2}{2} \int_0^t \frac{d\phi_R}{dt} \, dt + \frac{W_2}{2} \int_0^t \frac{d\phi_L}{dt} \, dt \implies \quad t = 1$$

$$\frac{W_2}{2} \left(\phi_R^1 - \phi_R^0 \right) + \frac{W_2}{2} \left(\phi_L^1 - \phi_L^0 \right) \implies$$

$$POS = \frac{W_2}{2} \Delta\phi_R + \frac{W_2}{2} \Delta\phi_L$$