

Theoretical Study of the Parametric Effects on the Overturn by Wind Pressure for High Speed Train

**# 1

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Key words : High Speed Train, Train Wind Pressure, Overturn

1.

가 /km , / 100 /km
 가 가
 가 가
 가
 가 (1-3)

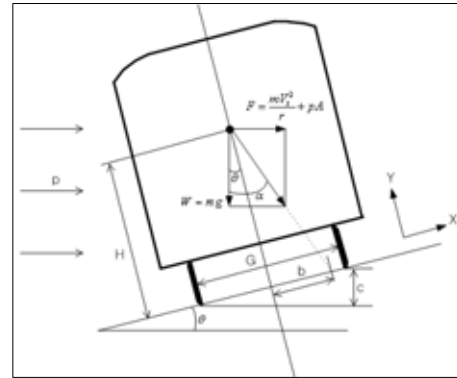


Fig. 1. Forces acting on Carbody

2.

KTX , 1, 2
 가 ,
 가

3가

가
 case

$$b = H \left(\frac{m V_t^2}{r} + \frac{pA}{mg} - \frac{c}{G} \right) \quad (1)$$

$$b = H \left(\frac{pA}{mg} \right) \quad (2)$$

$$b = H \left(\frac{c}{G} + \frac{pA}{mg} \right) \quad (3)$$

Table 1. Pressure for Train Speed

(km/h)	(Pa)	
	300	253.69
310	270.13	513.37
320	287.0	552.6
330	304.6	594.84
340	322.93	637.08
350	342.0	682.33

Table 2. Pressure for Track Distance

(m)	(Pa)	
	5.0	253.69
4.8	276.33	529.17
4.6	298.96	572.51
4.4	326.24	624.75
4.2	360.18	689.74
4.0	399.78	765.58

5.0m ,
 300km/h~350km/h
 case , ,
 가 , ,
 가 case
 가 case

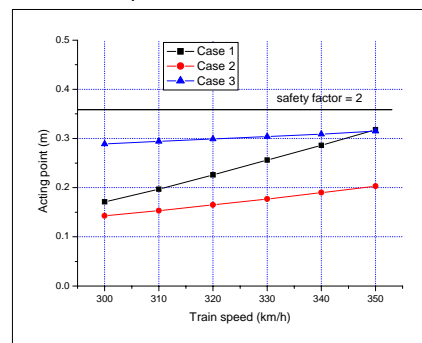


Fig. 2. Effect of Train Speed

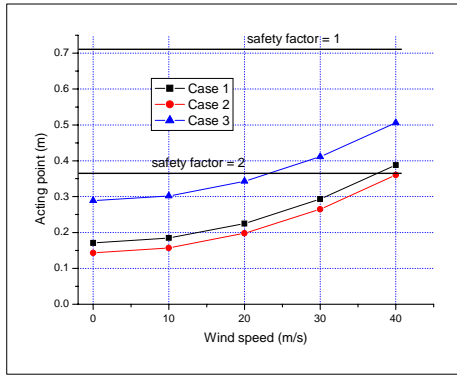


Fig. 3. Effect of Wind Speed

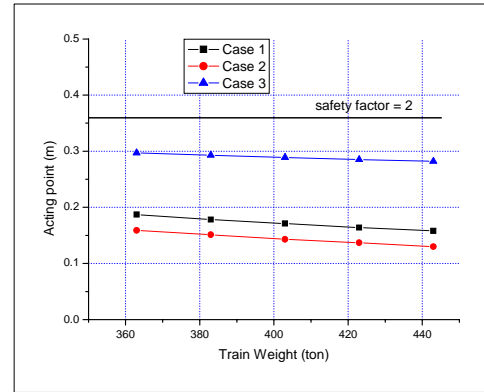


Fig. 5. Effect of Train Weight

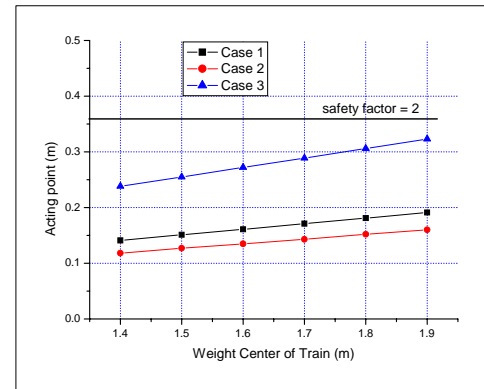


Fig. 6. Effect of Weight Center

4.

가

, 300km/h

가

가

가 가
 가 가
 case , , 0m~40m 가 가 ,
 case 23m/s 2 가 가
 0.7175 가 20m/s , 30m/s
 5.0m~4.0m , case ,
 가 case
 가 가
 4.0m 가 가
 가
 가
 403ton ±10%
 Fig. 5. 5%, 10%
 case 가 2
 0.3m 가 가
 가
 가 1.4m~1.9m , case
 Fig.7 가
 case

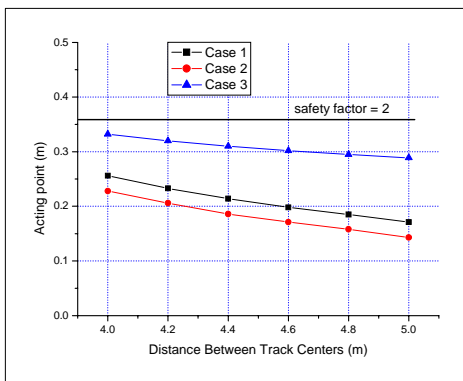


Fig. 4. Effect of Track Distance

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