



# LD Benchmark

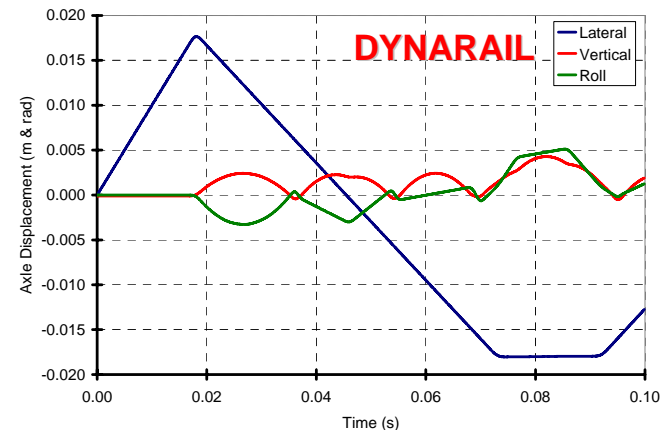
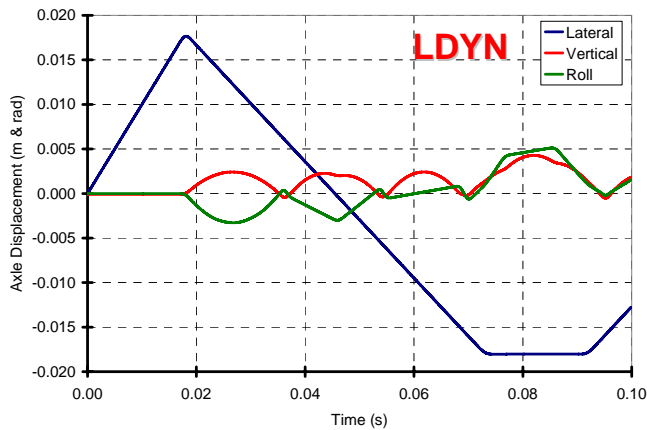
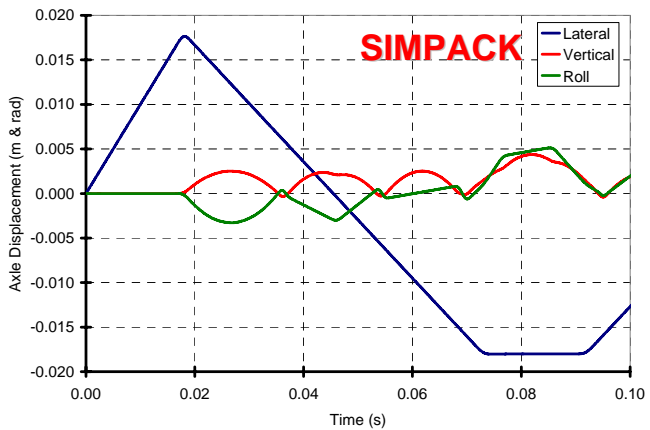
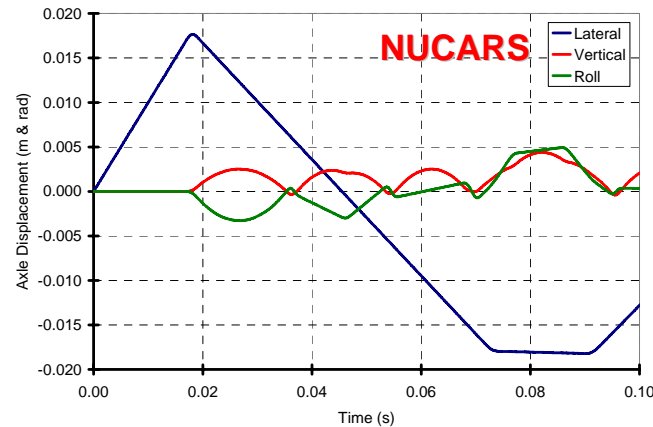
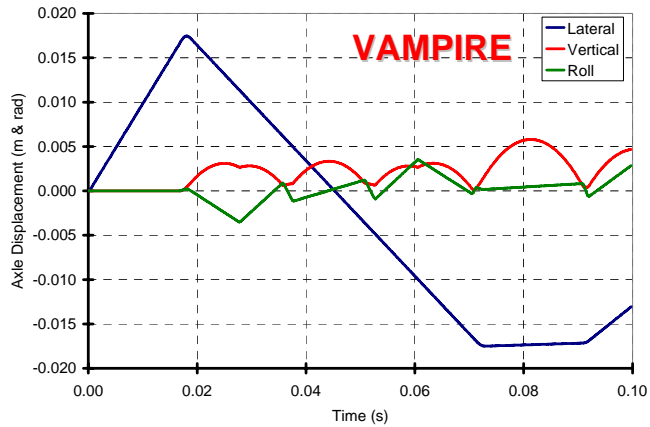
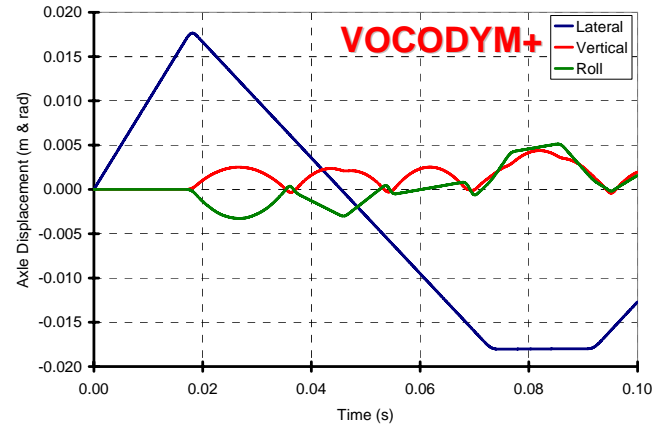
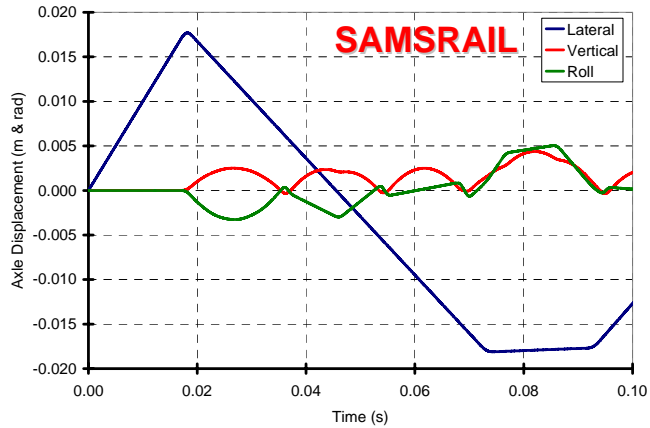
## Case 1, Exercise 3 Simplified Wheel and Rail Profile

1 m/s Forward Velocity

1 m/s Initial Lateral Velocity

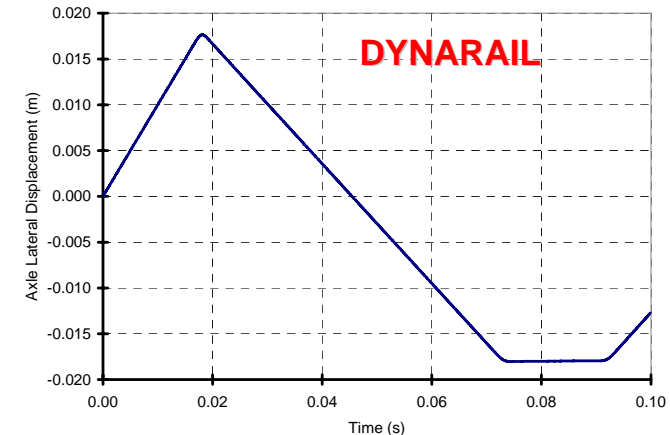
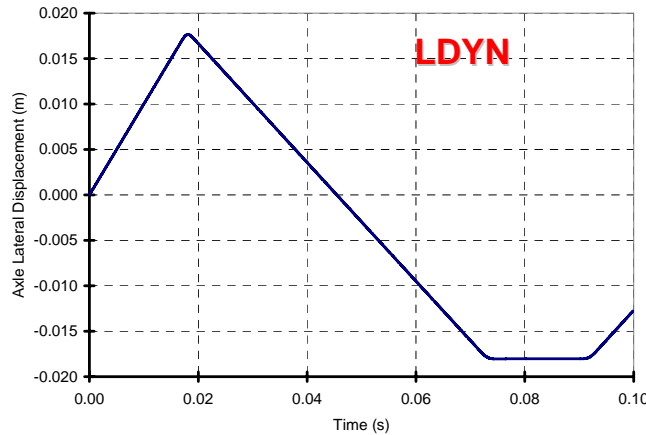
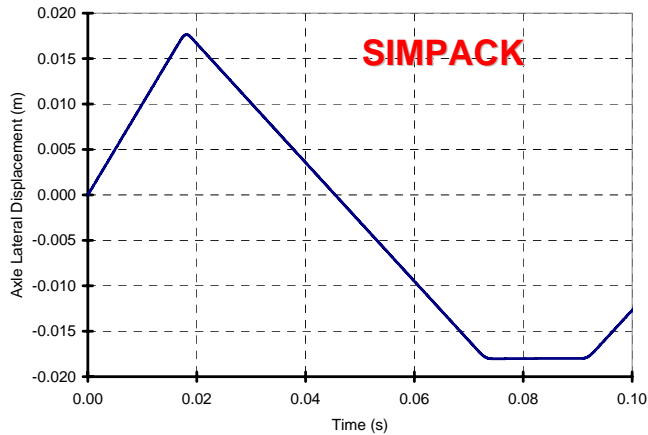
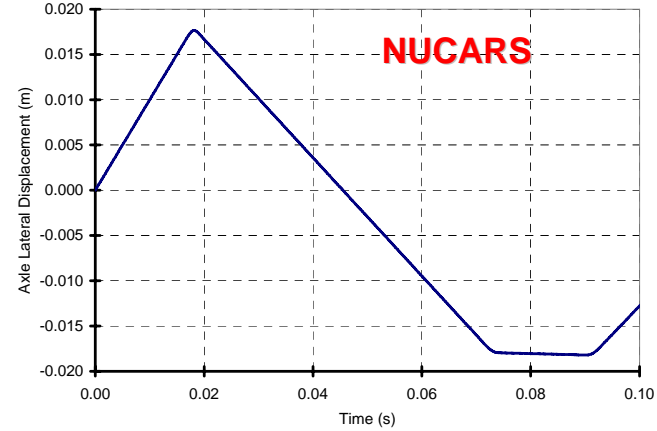
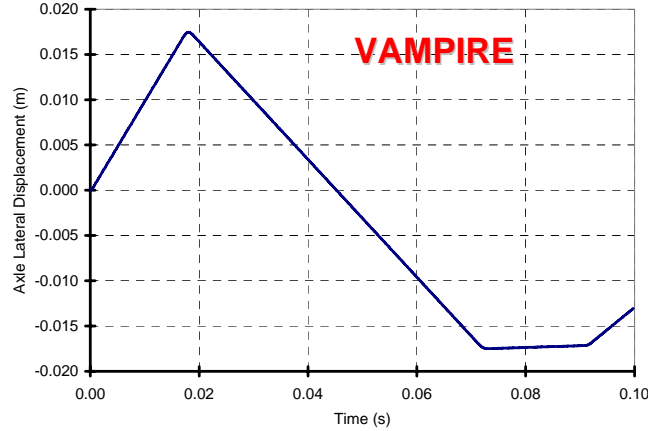
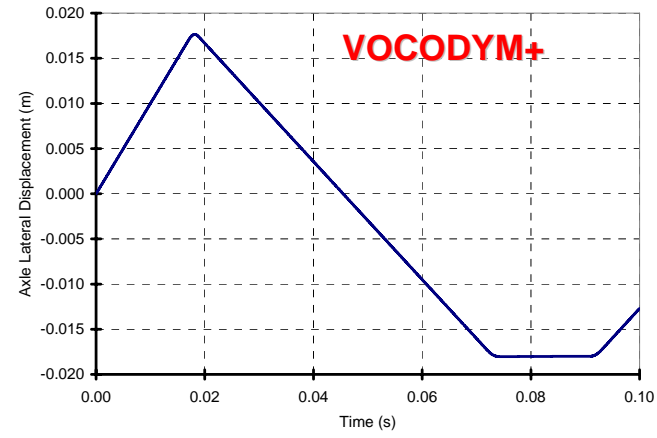
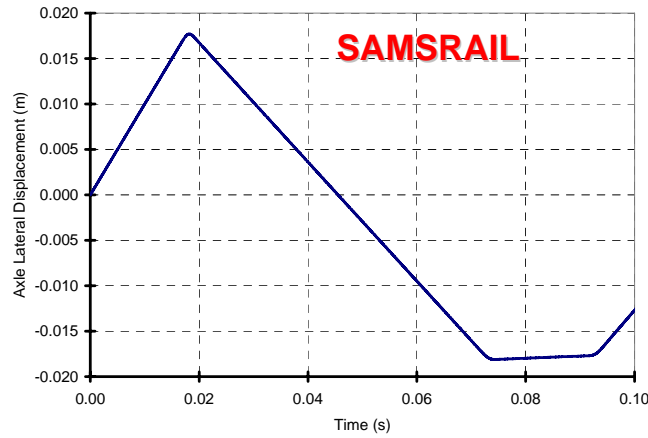


# Wheelset Displacement



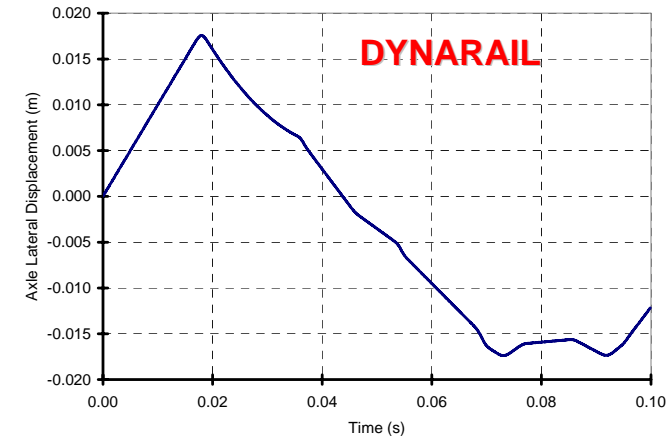
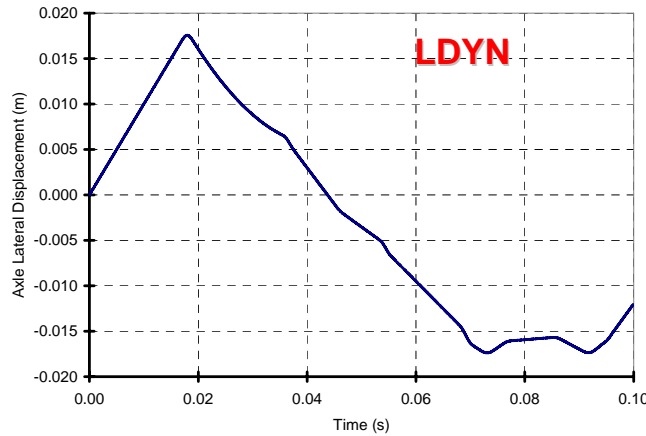
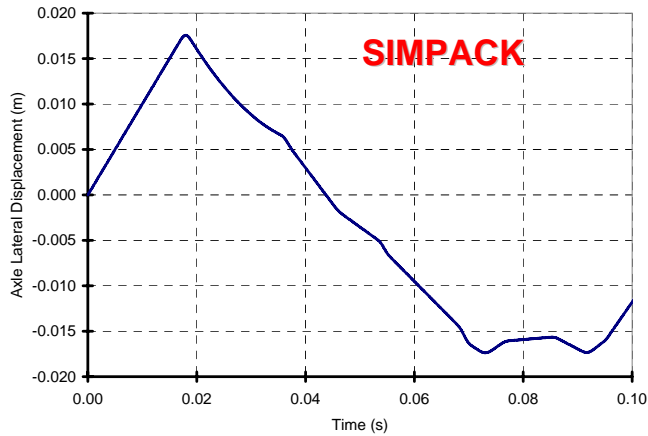
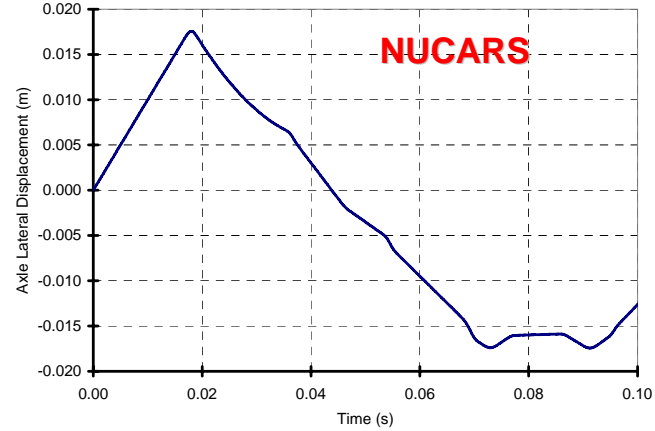
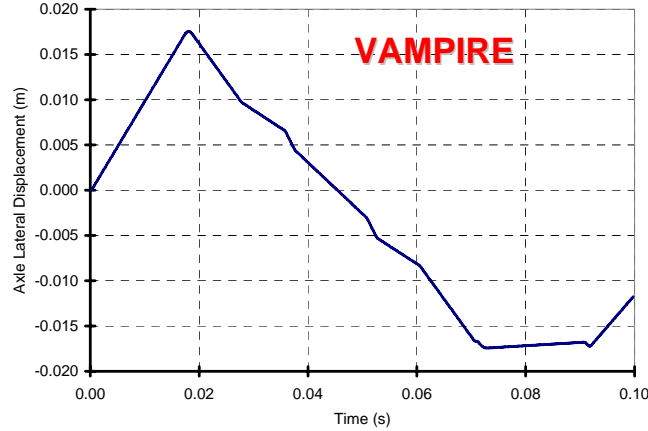
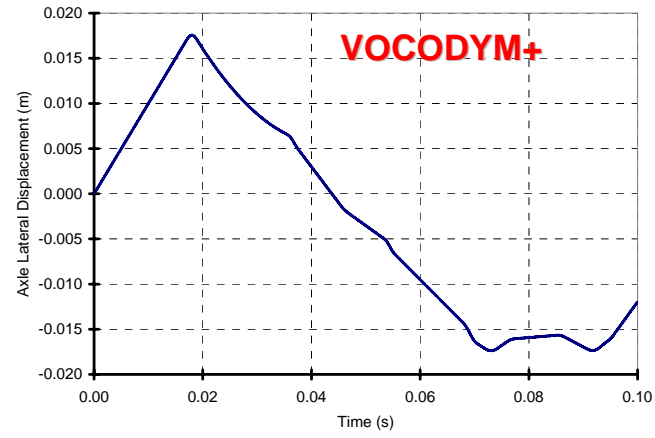
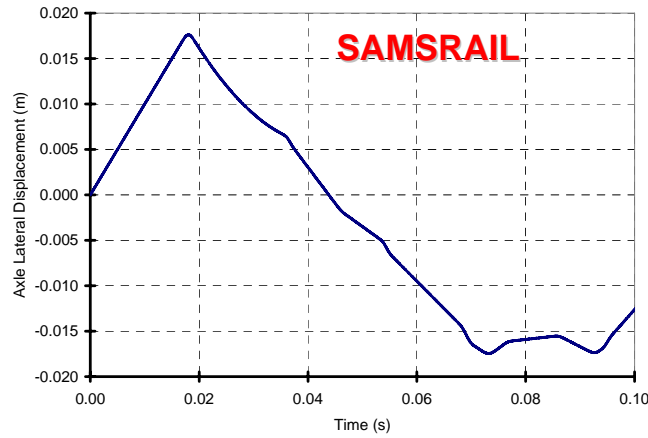


# Wheelset Lateral Displacement at Axle CG



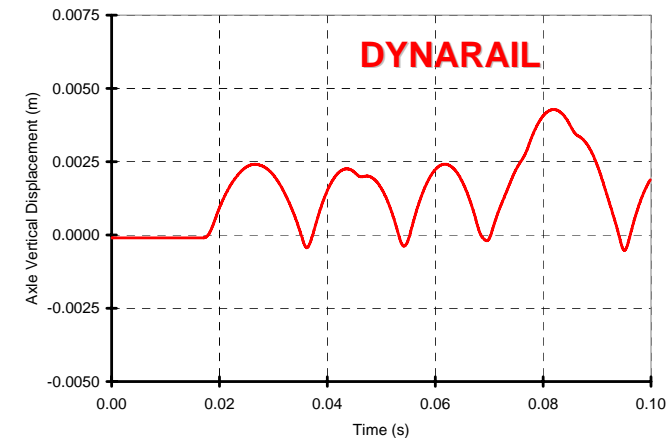
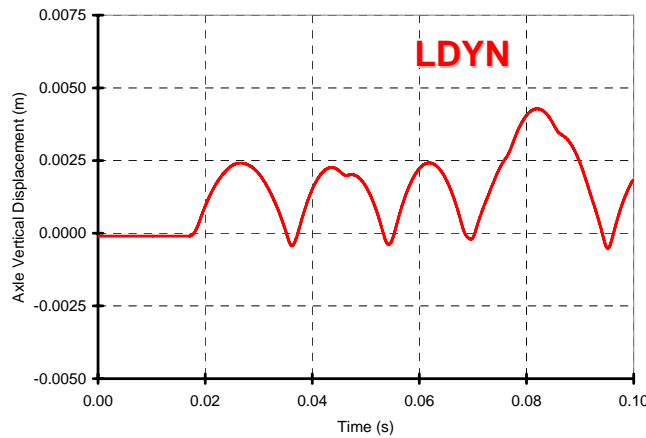
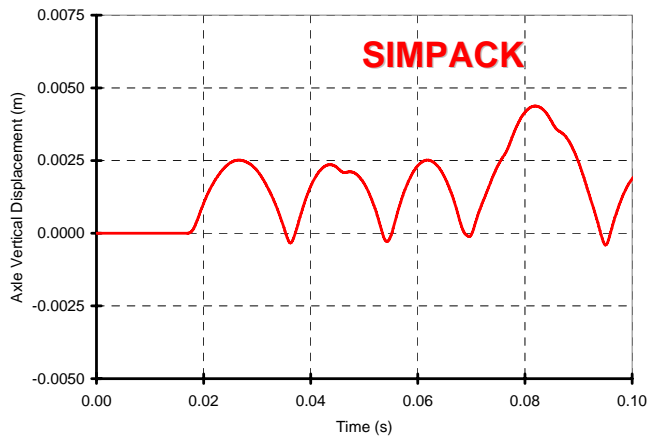
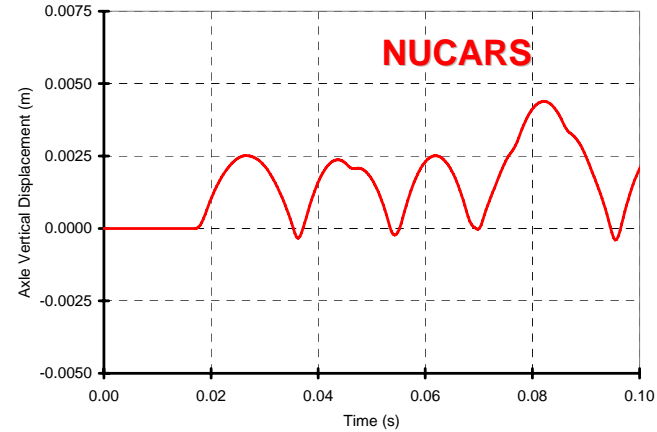
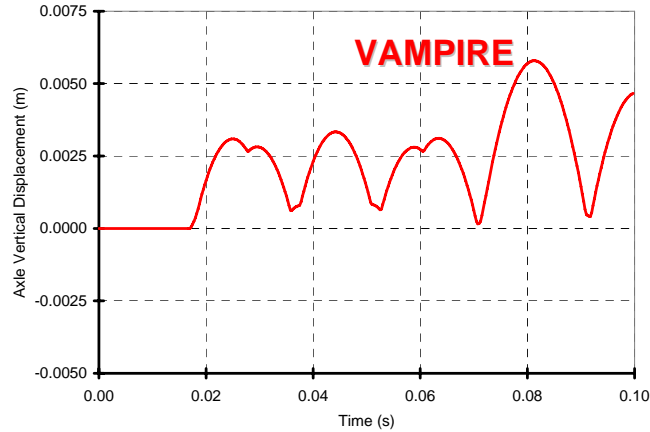
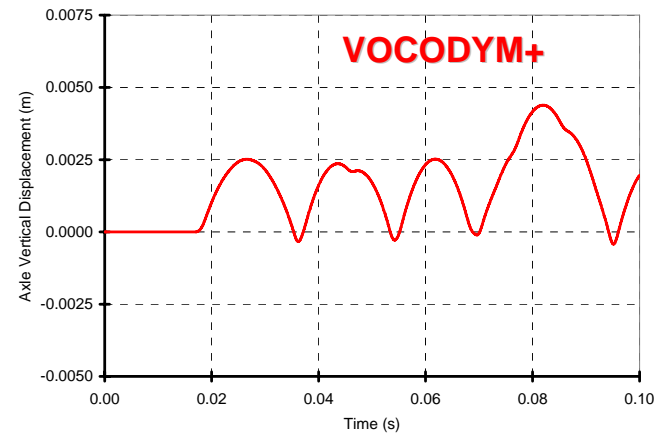
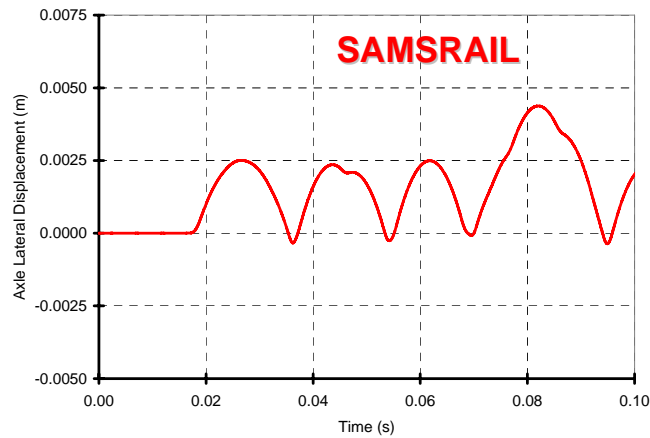


# Wheelset Lateral Displacement at Rail Height



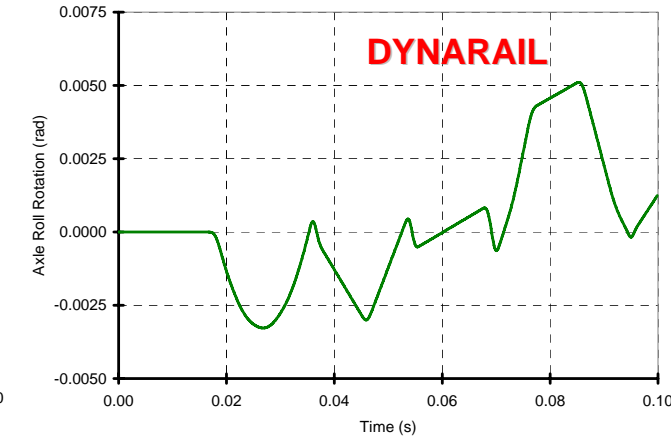
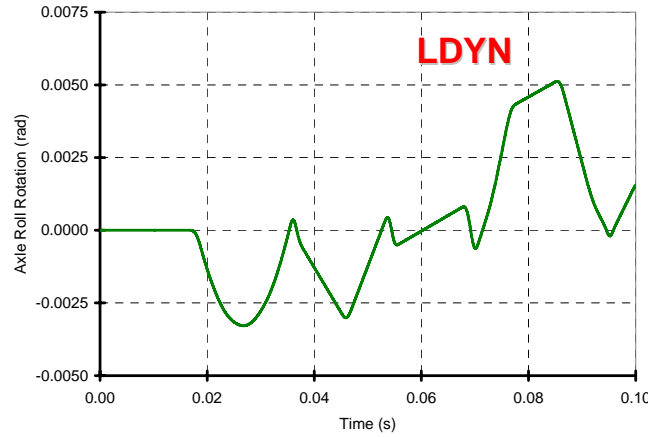
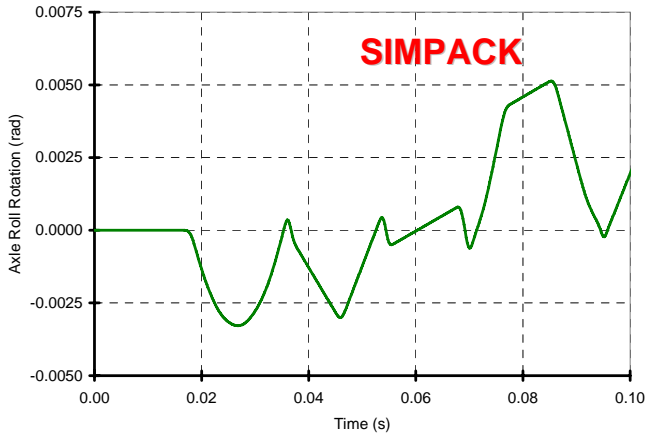
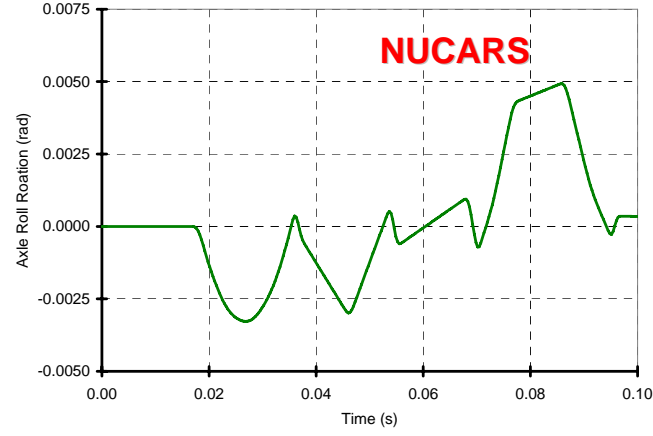
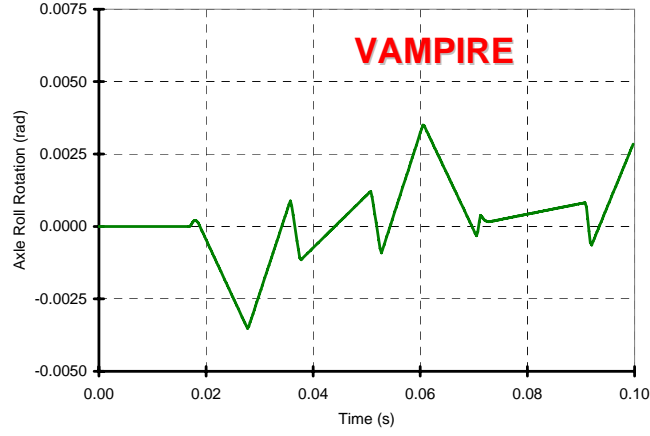
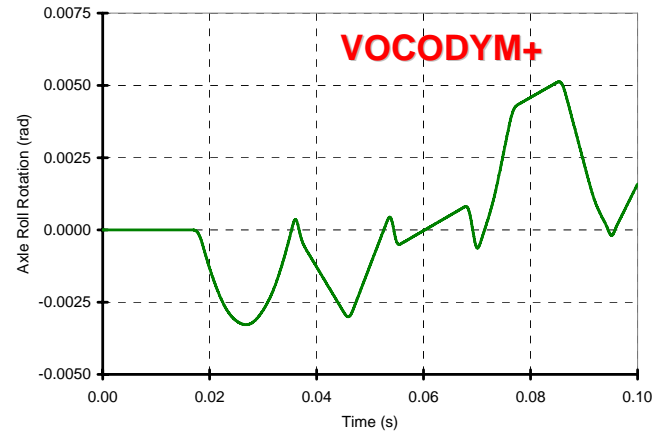
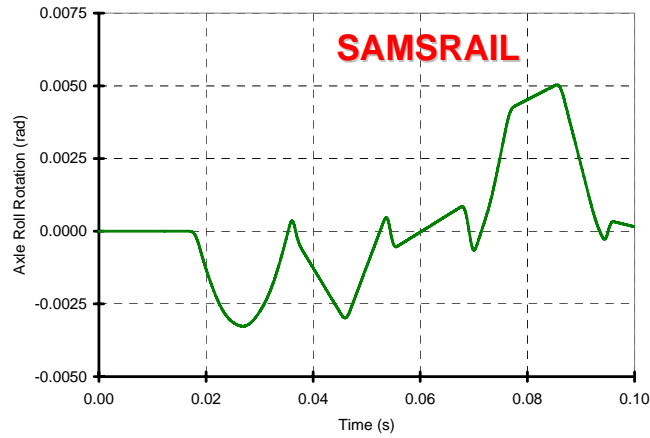


# Wheelset Vertical Displacement



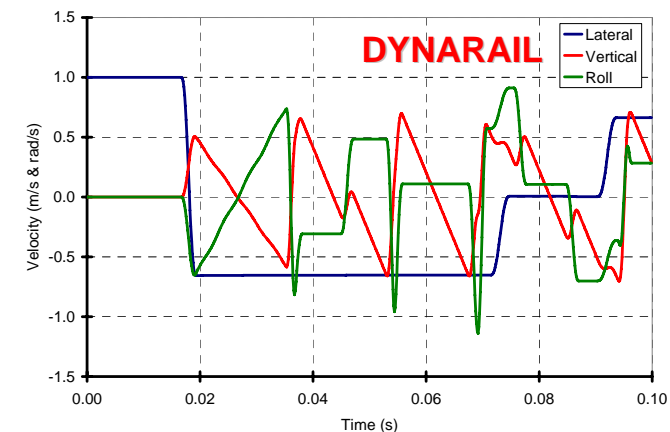
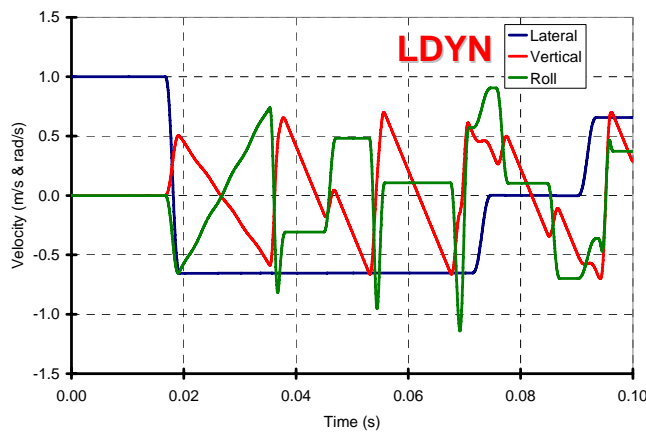
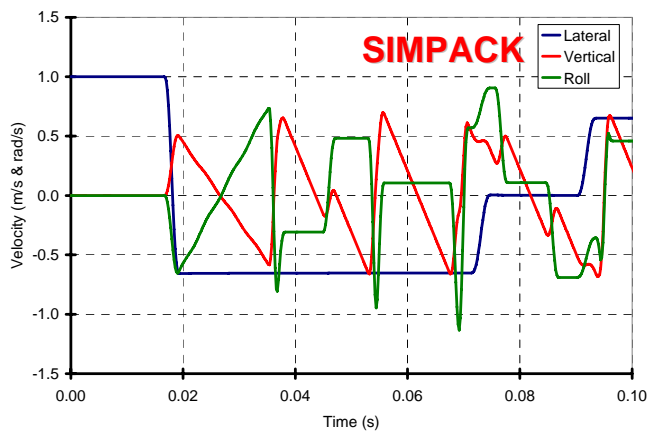
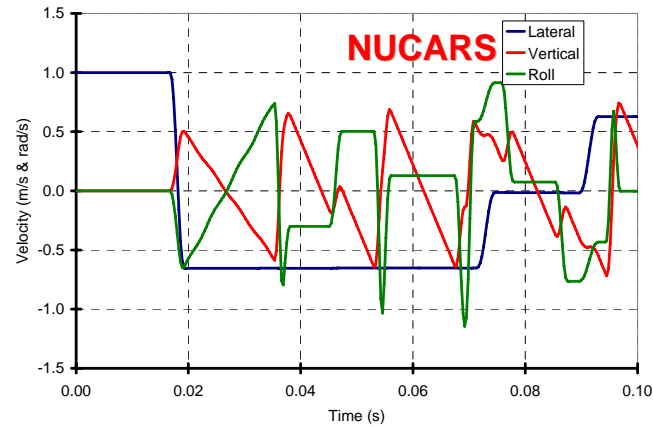
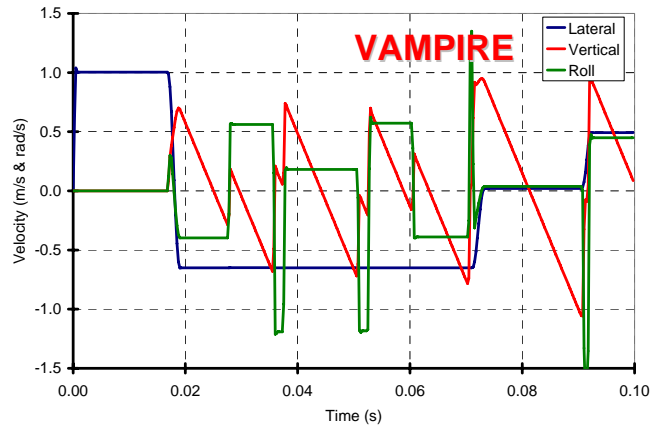
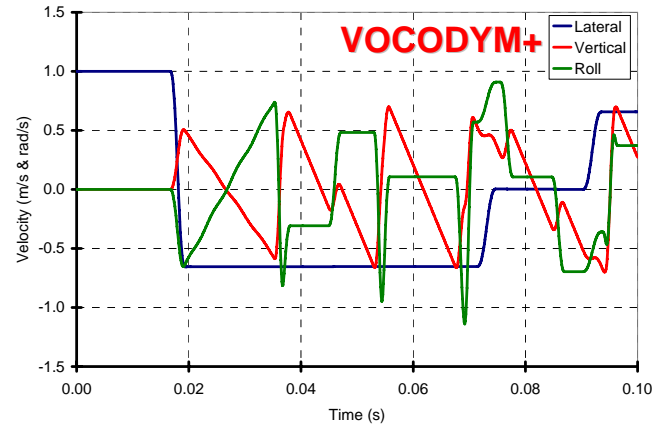
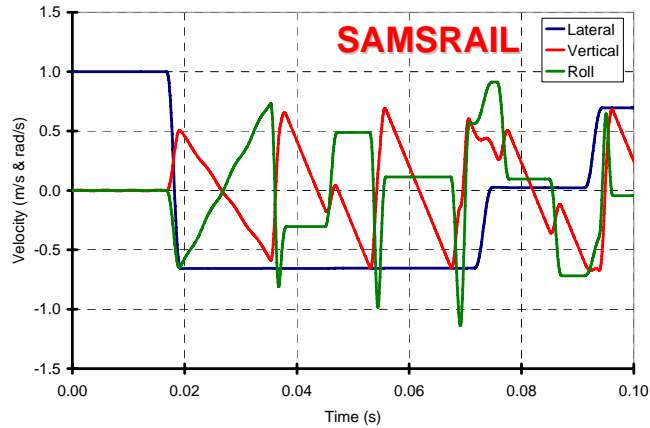


# Wheelset Roll Rotation



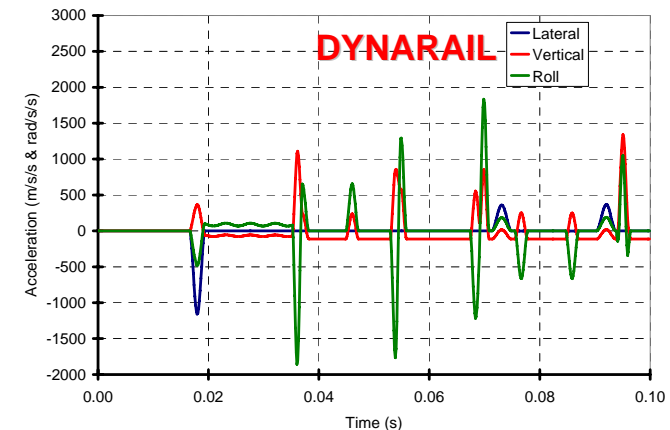
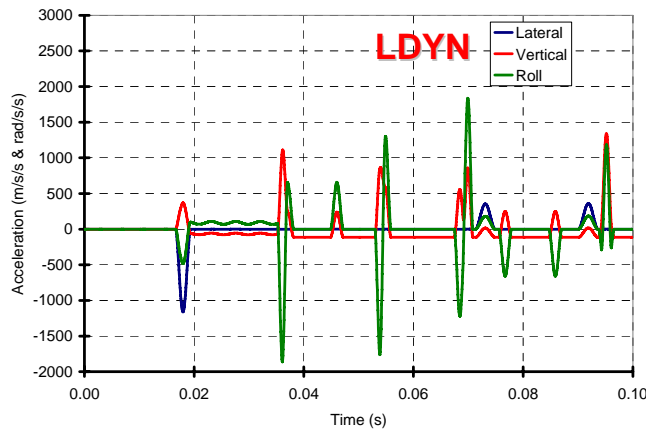
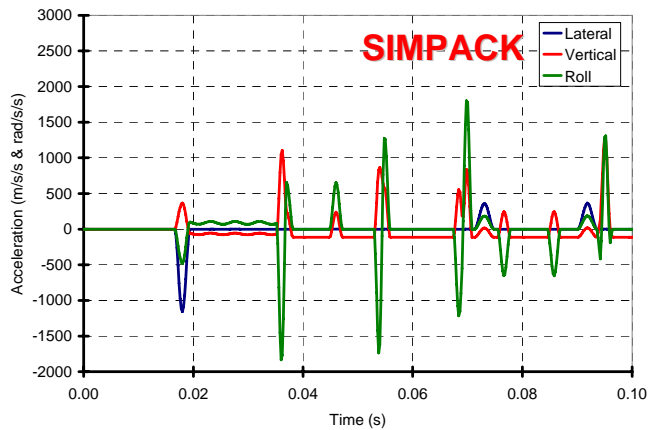
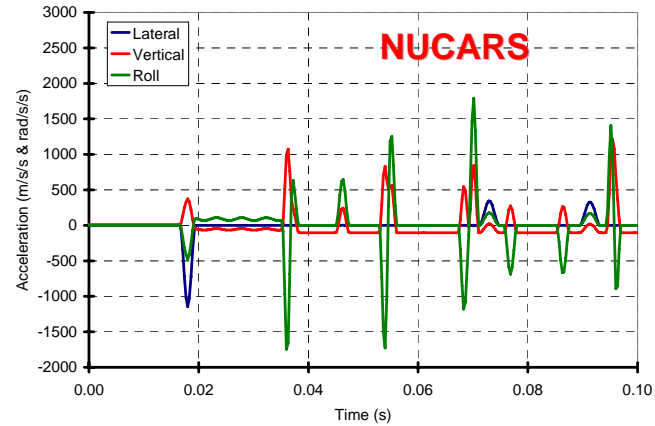
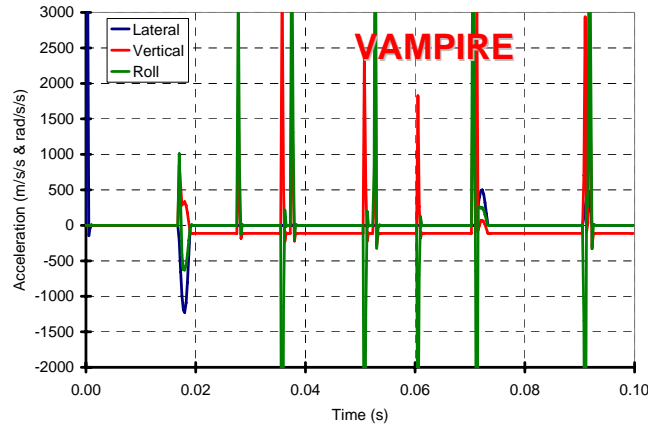
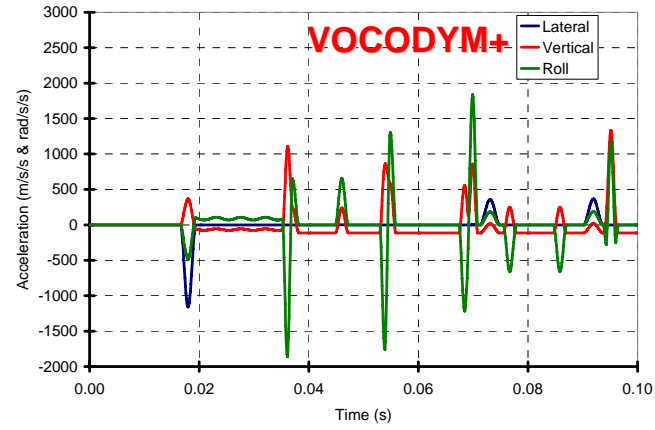
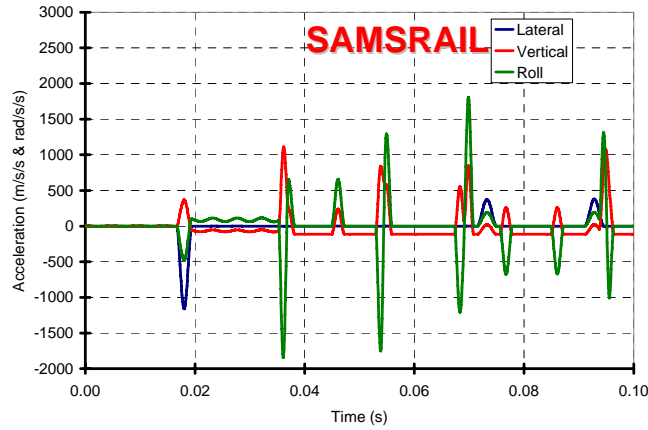


# Wheelset Velocity





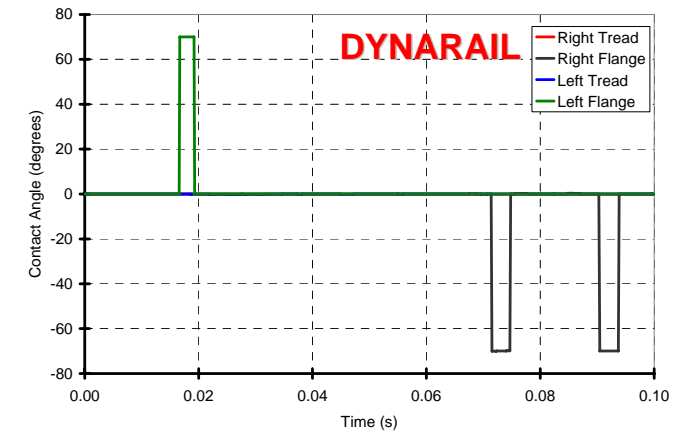
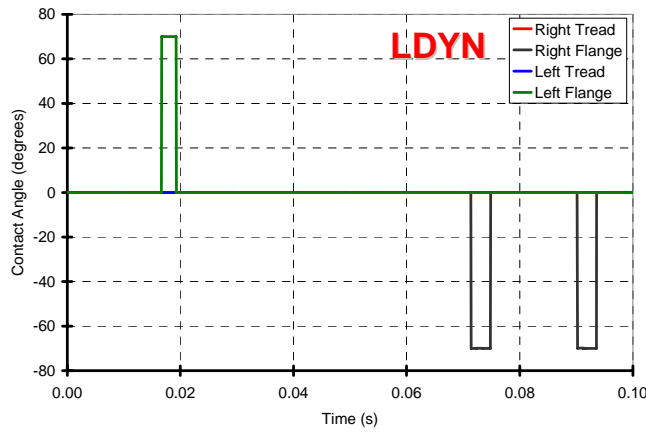
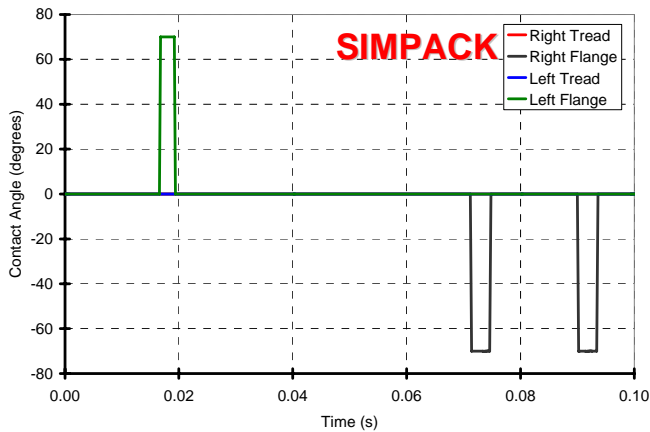
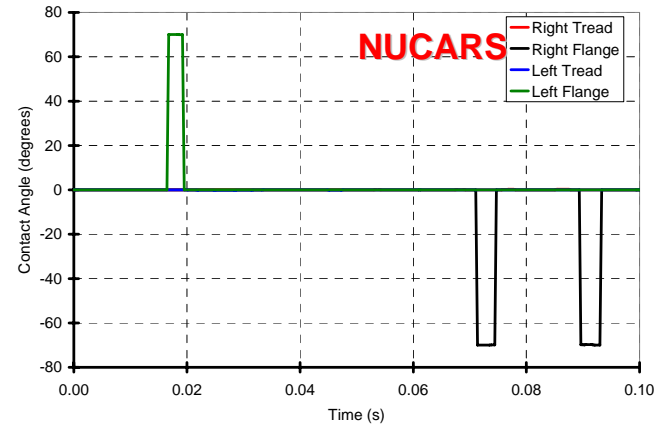
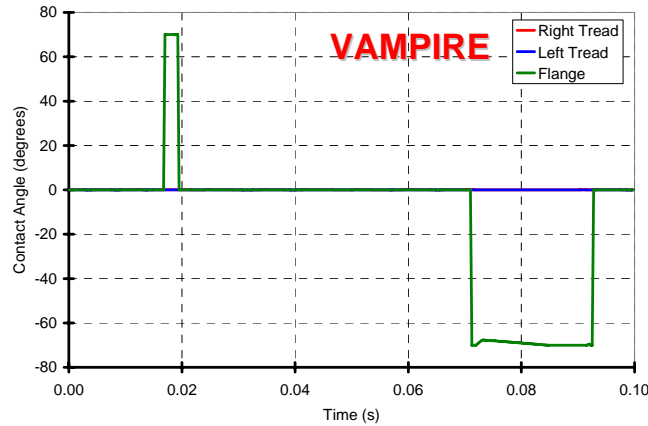
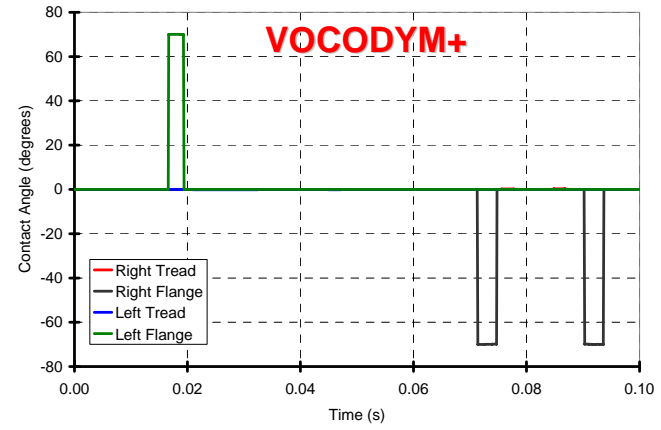
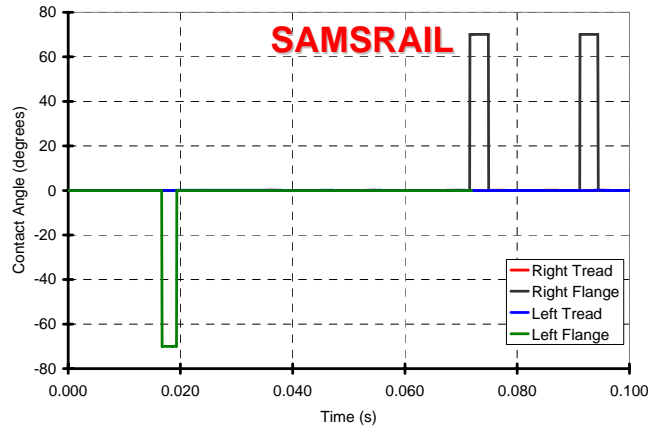
# Wheelset Acceleration





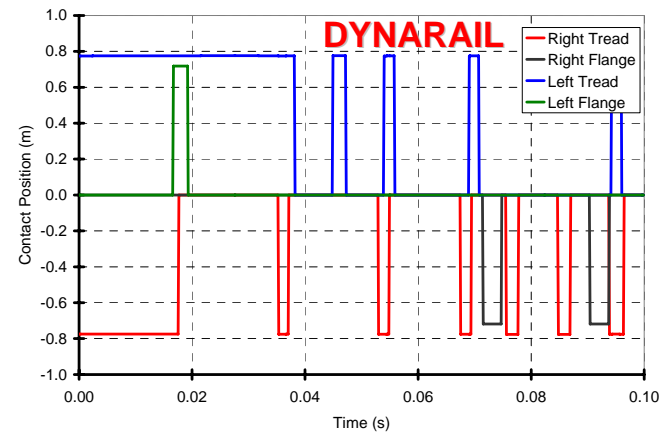
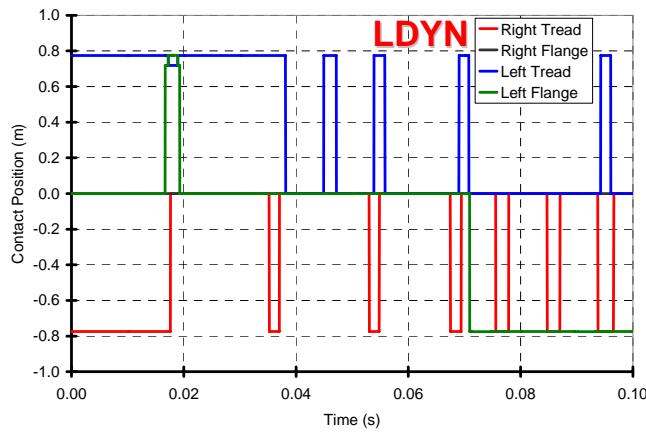
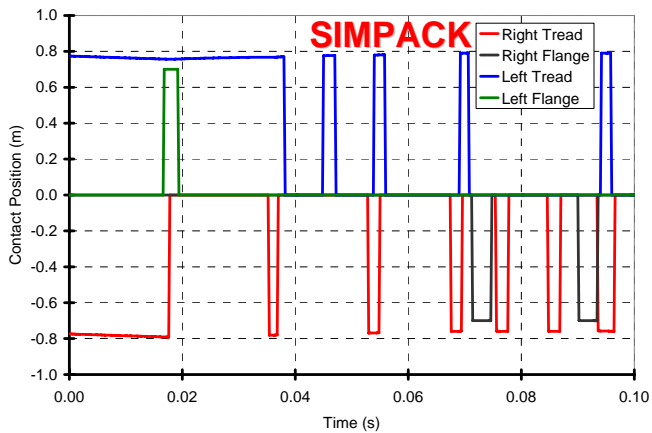
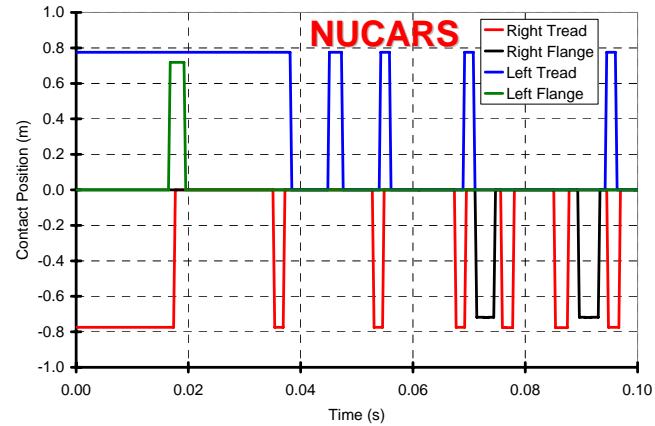
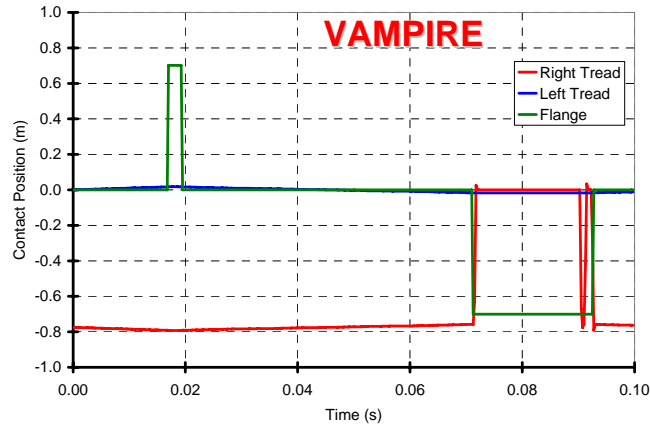
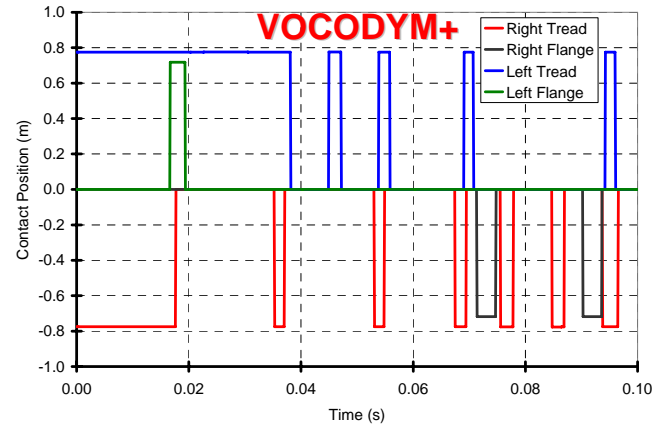
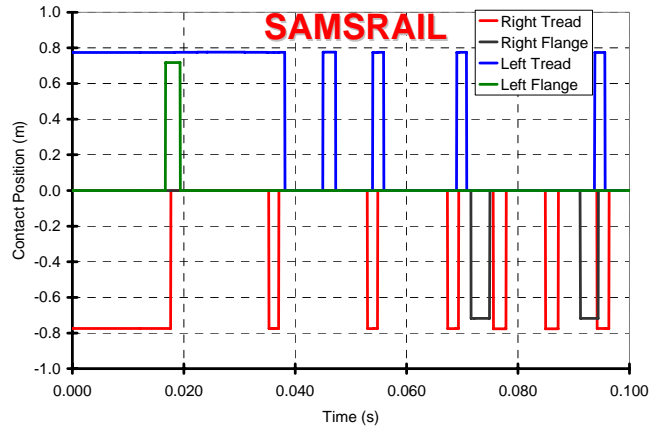


# Contact Angle



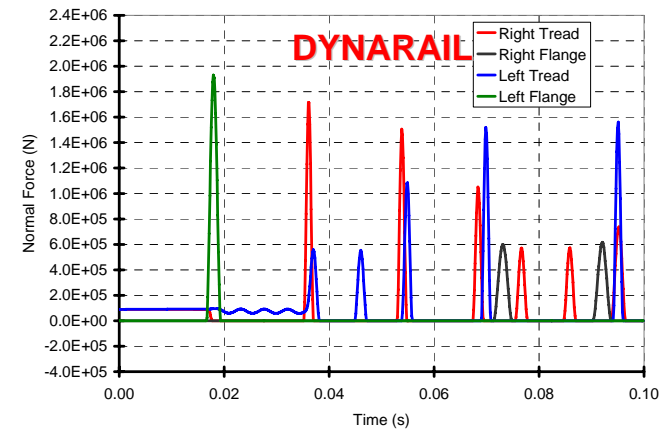
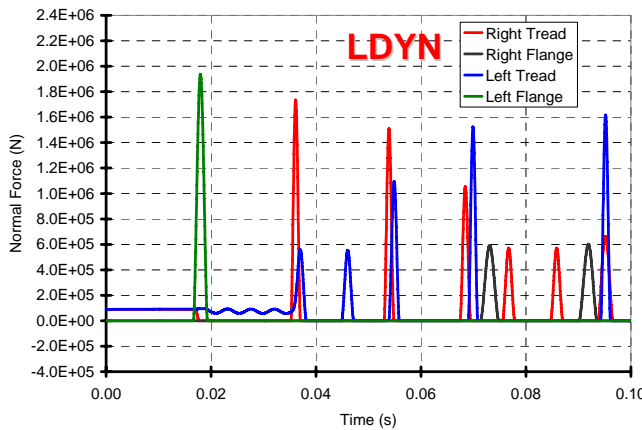
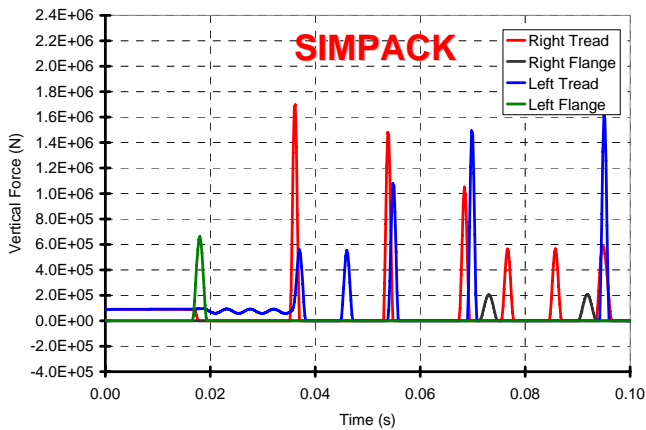
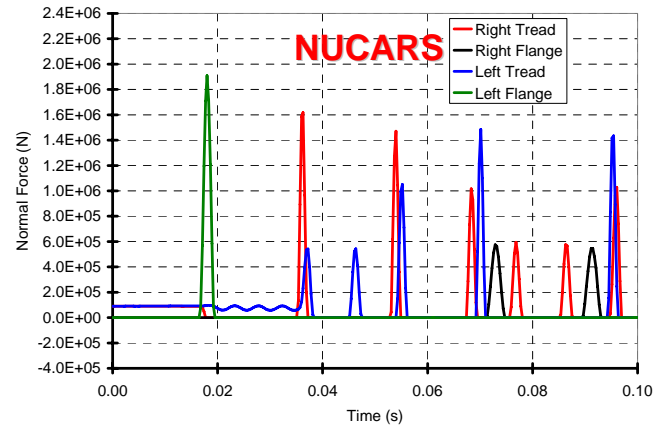
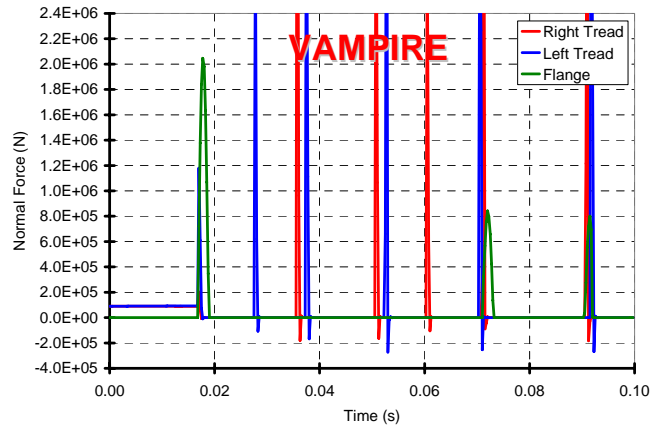
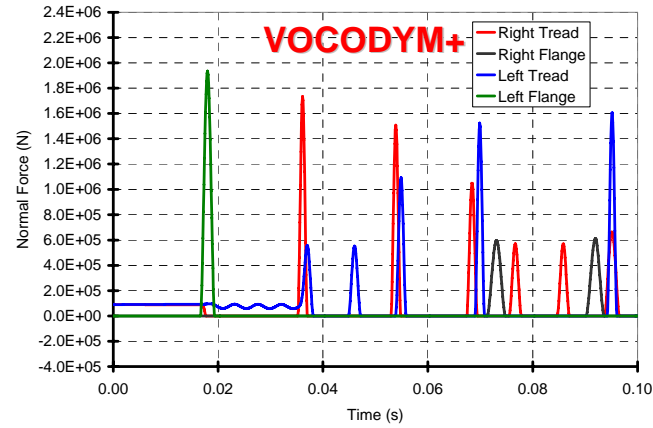
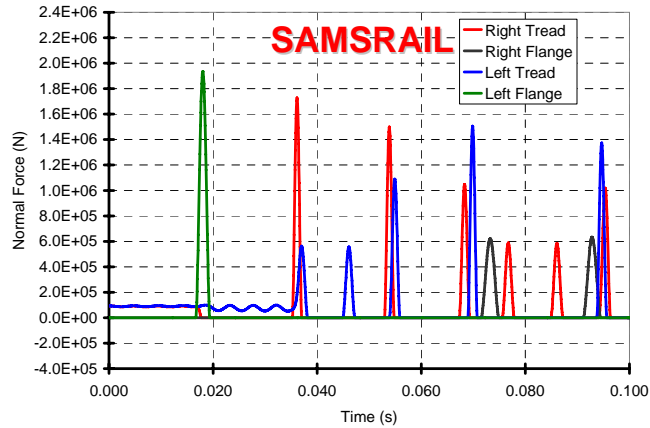


# Contact Position





# Normal Force





# Energy Balance

