



# LD Benchmark

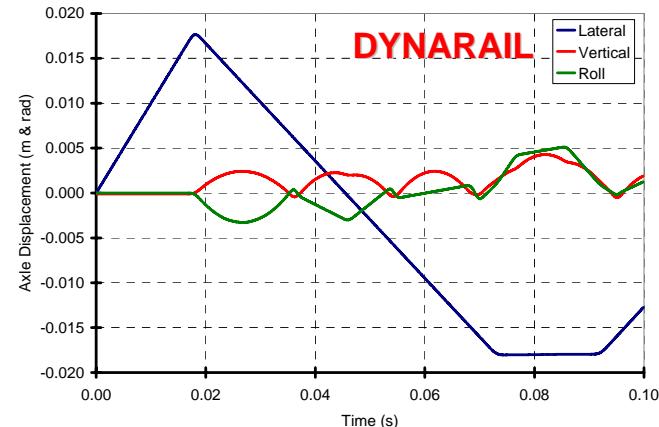
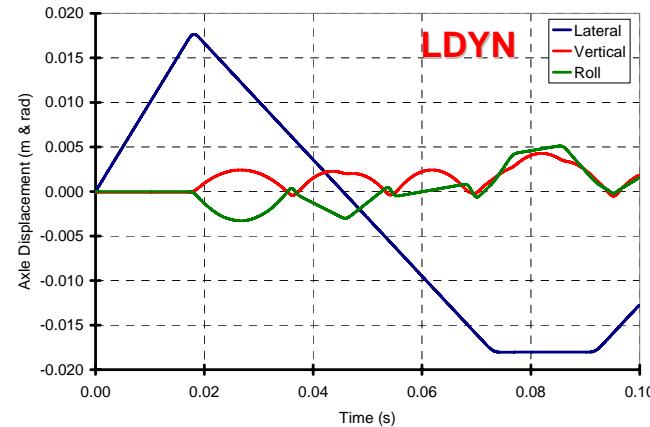
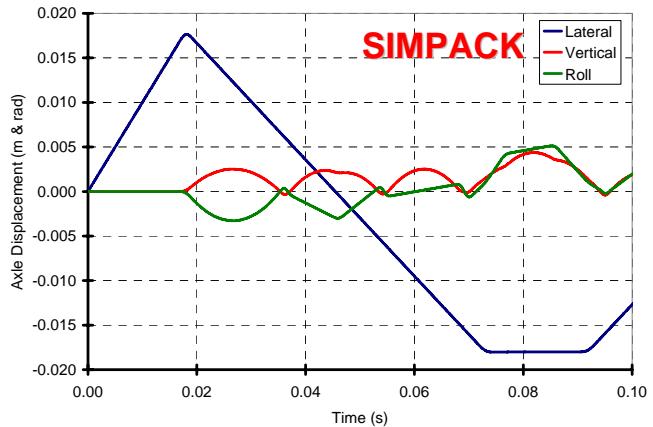
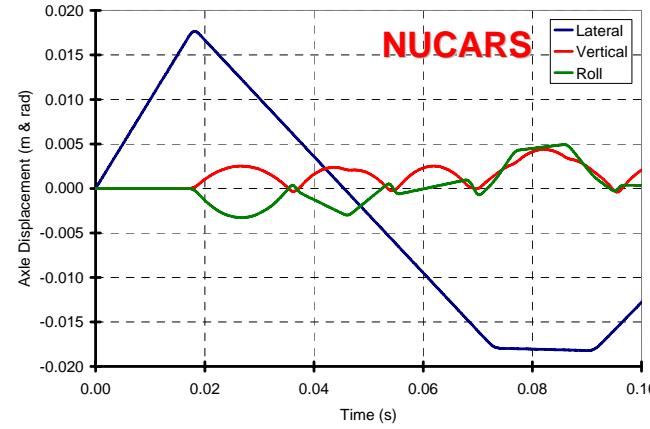
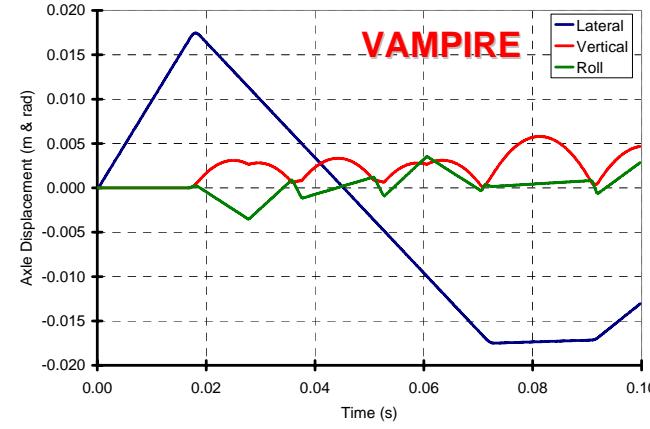
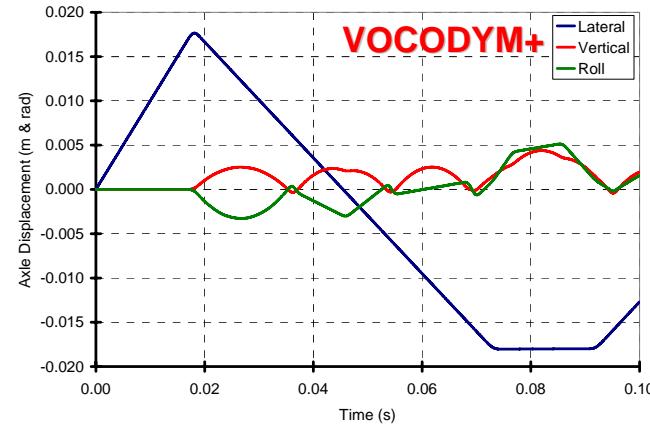
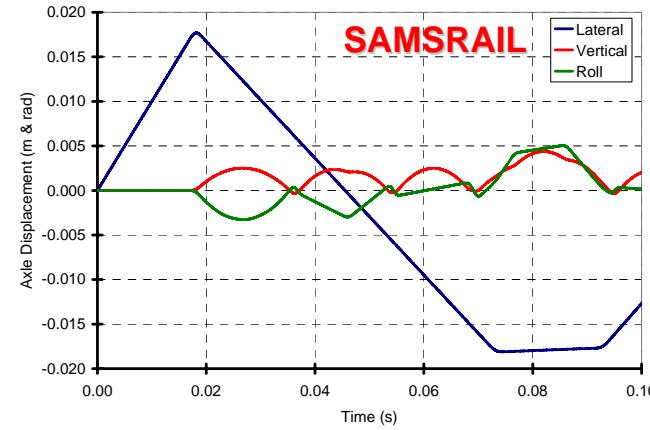
Case 1, Exercise 3  
Simplified Wheel and Rail Profile

1 m/s Forward Velocity

1 m/s Initial Lateral Velocity

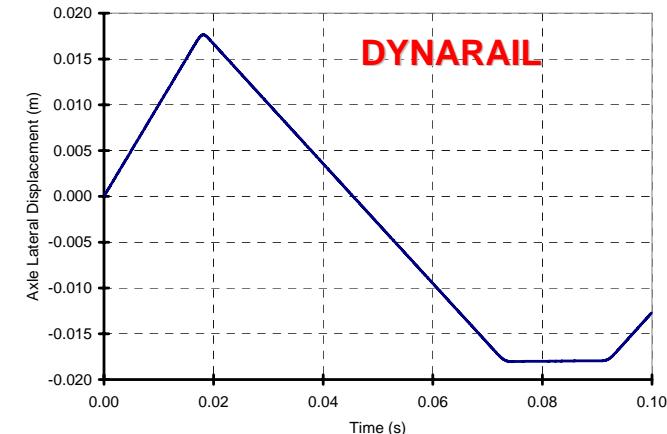
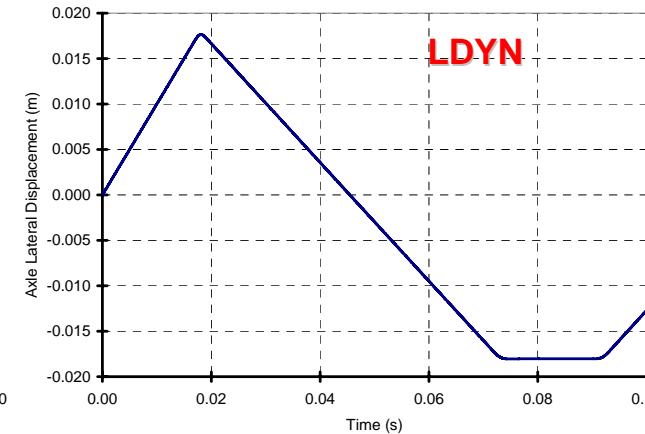
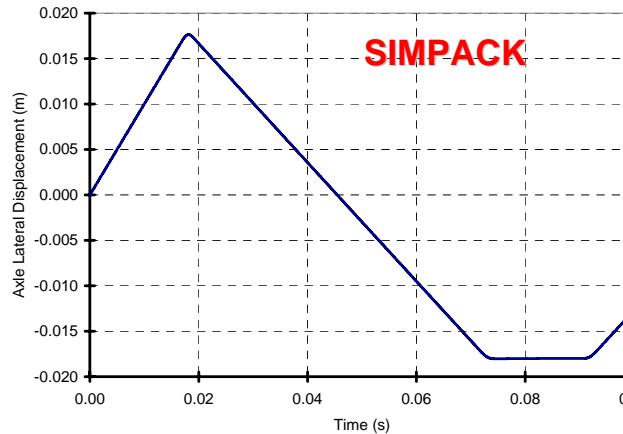
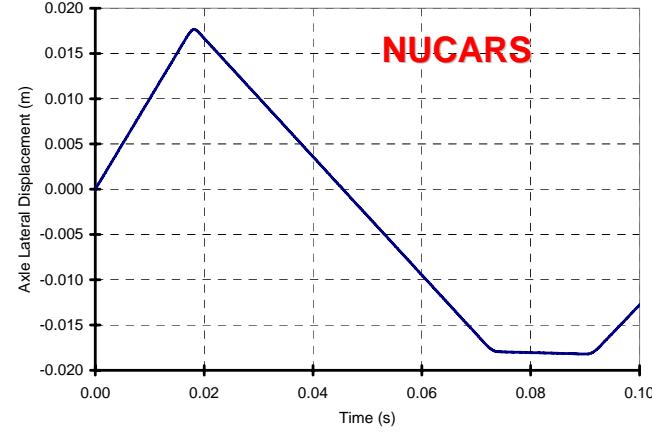
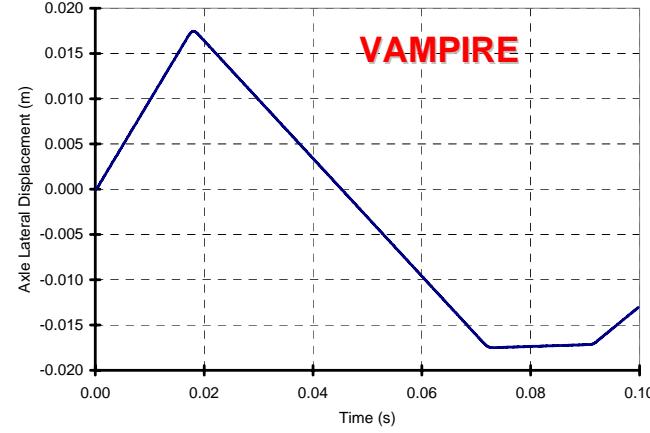
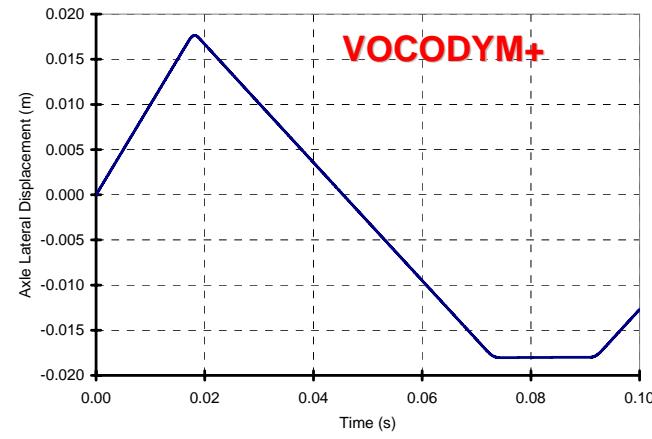
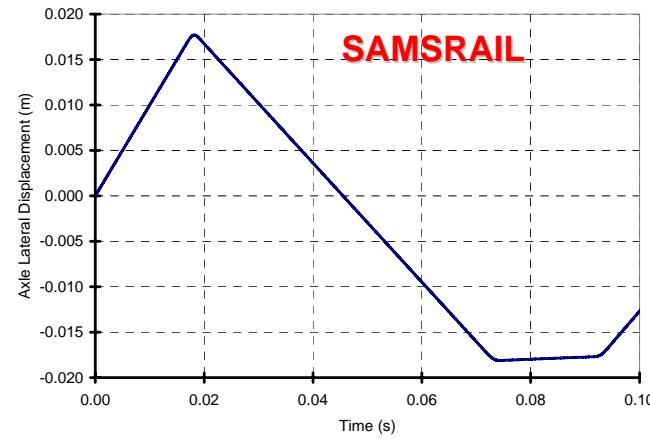


# Wheelset Displacement



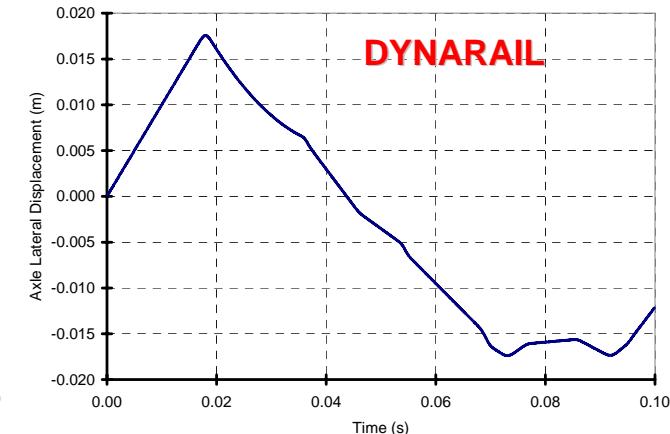
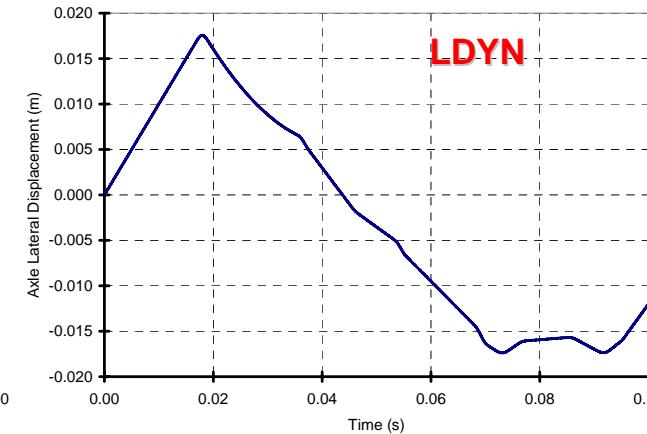
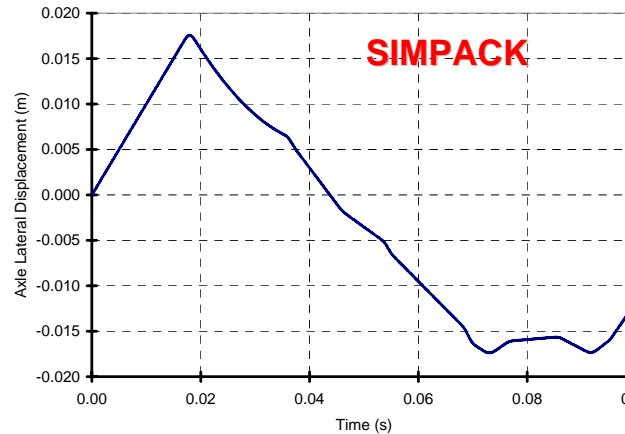
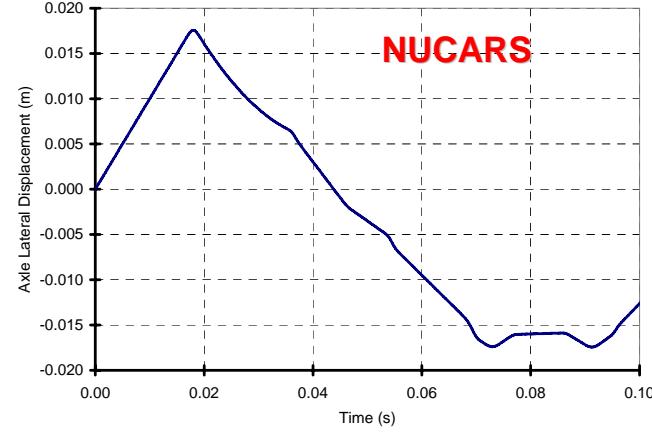
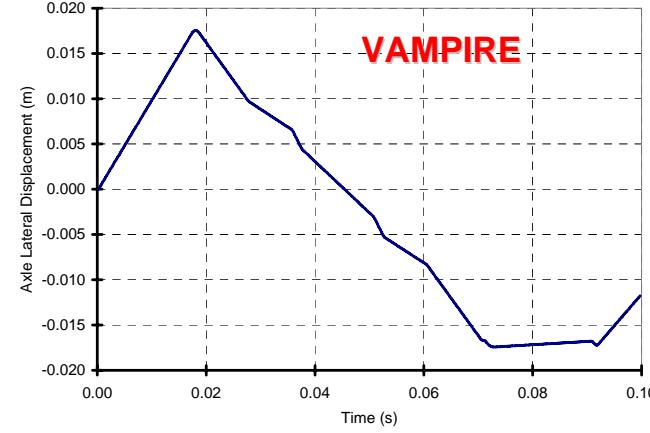
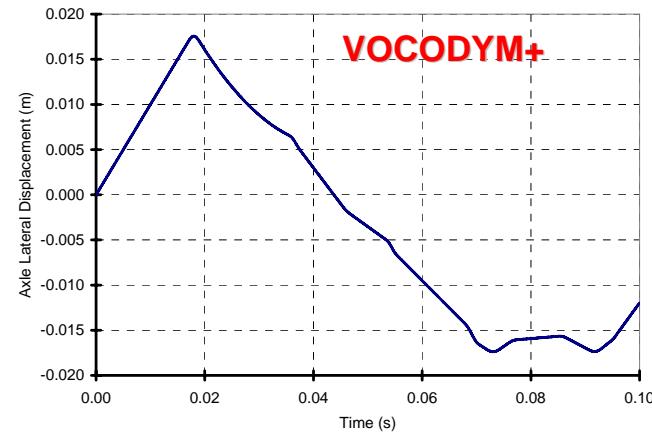
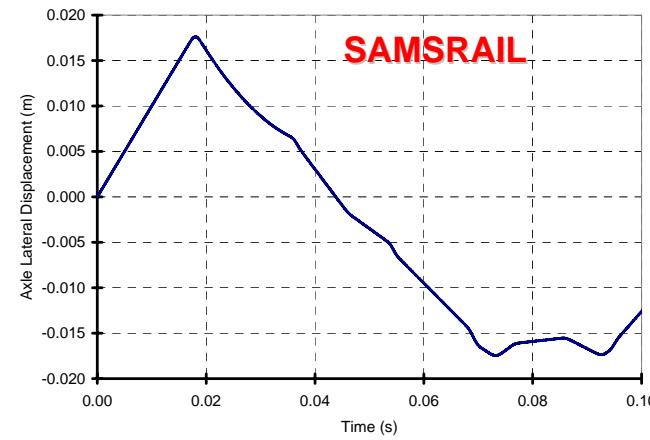


# Wheelset Lateral Displacement at Axle CG





# Wheelset Lateral Displacement at Rail Height

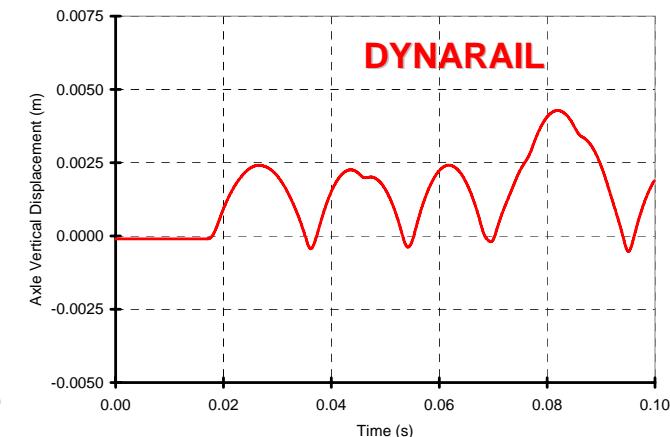
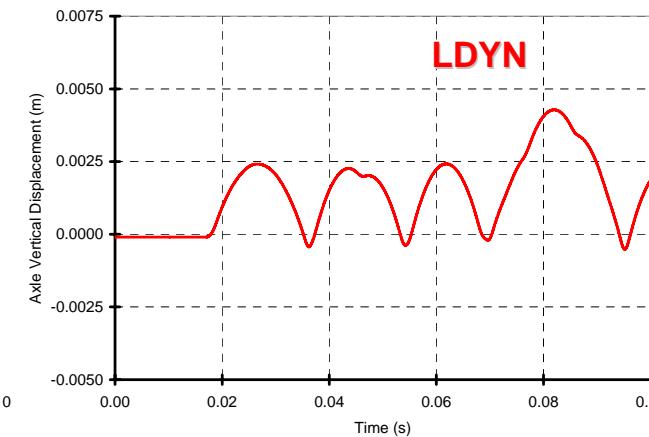
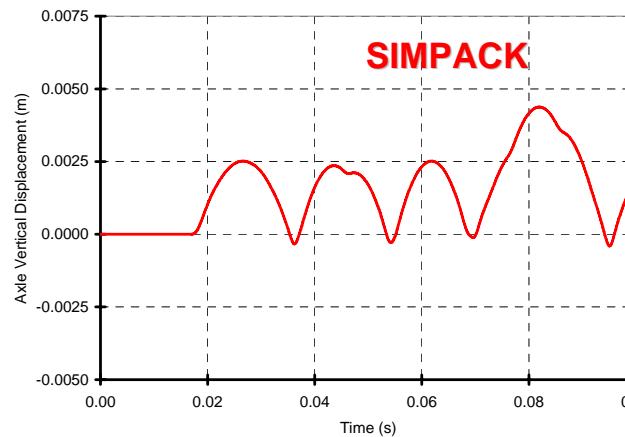
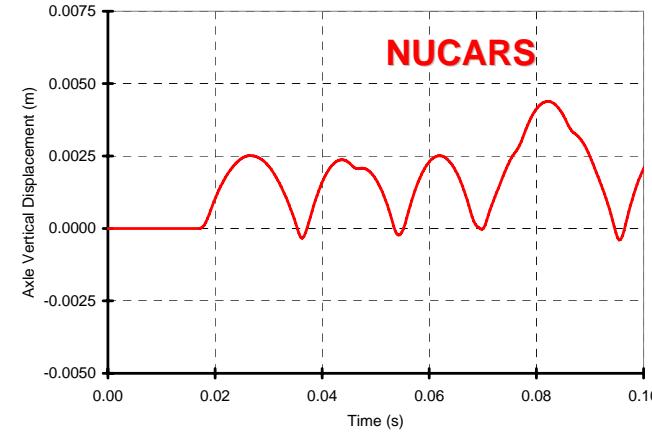
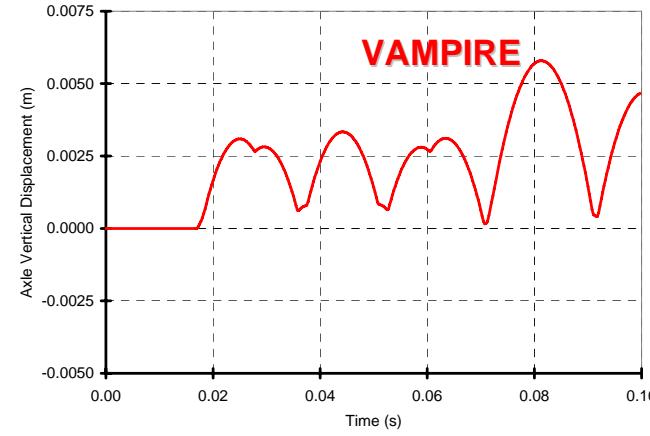
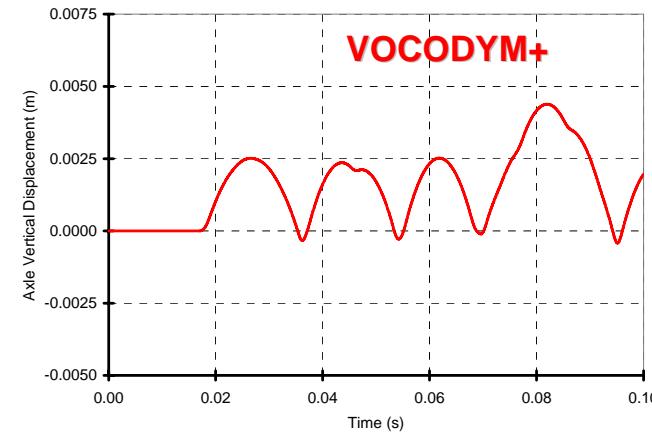
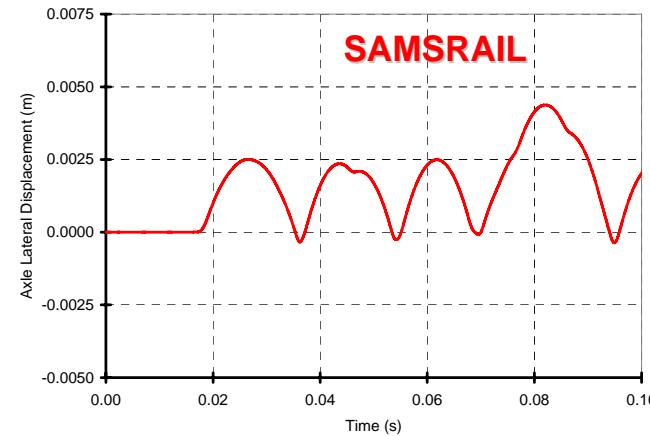


C1, Ex3, Simplified Profiles, Lat Vel = 1 m/s

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# Wheelset Vertical Displacement

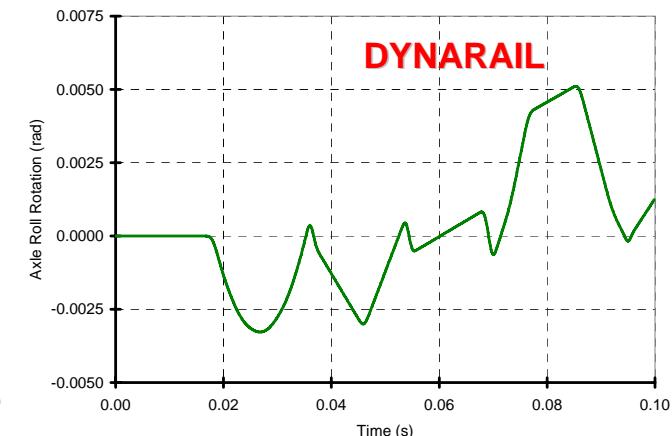
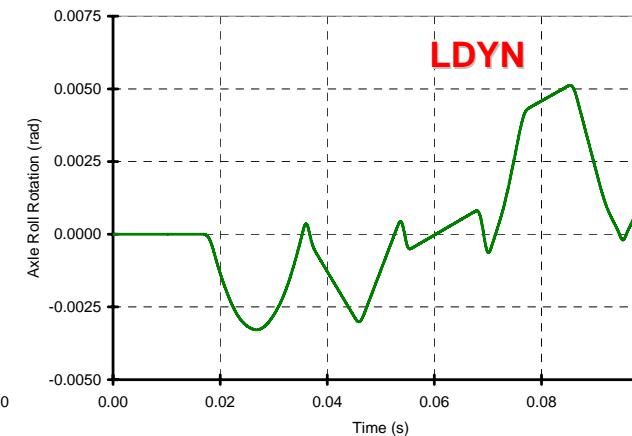
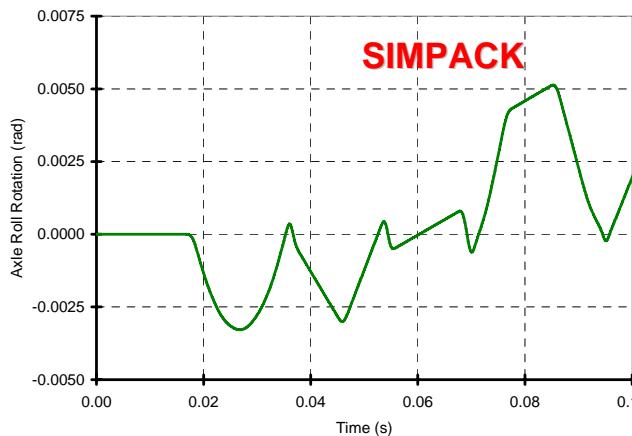
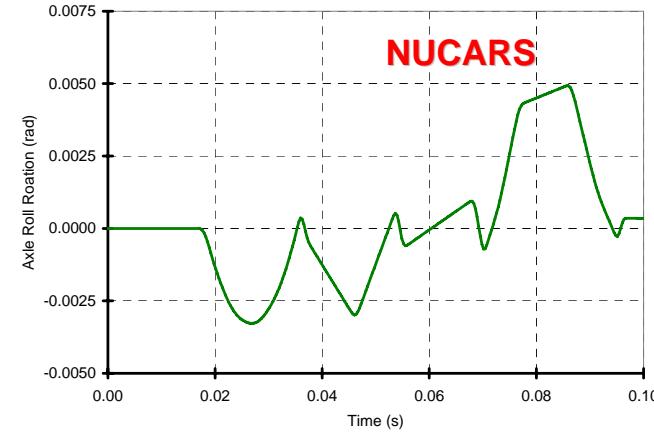
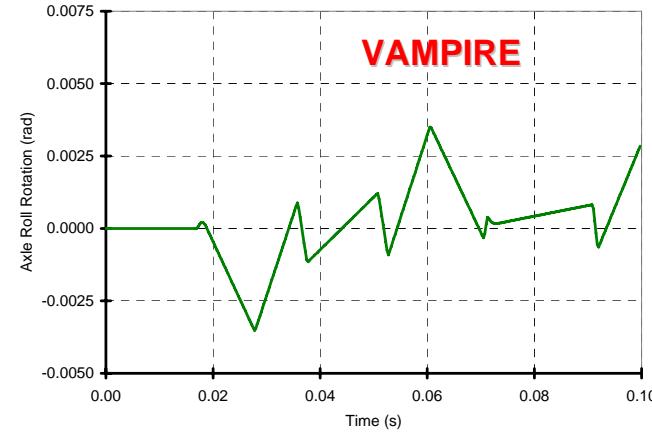
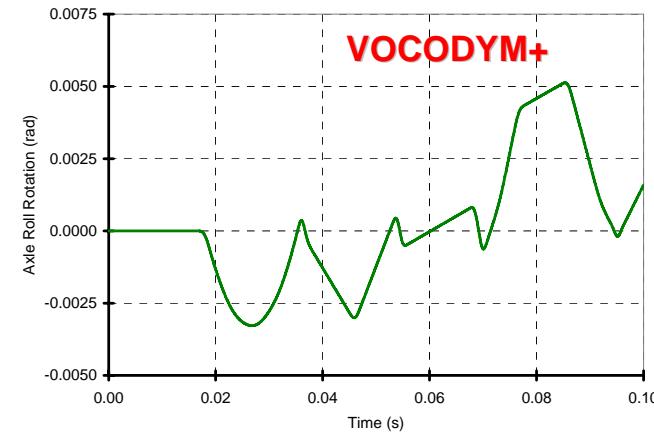
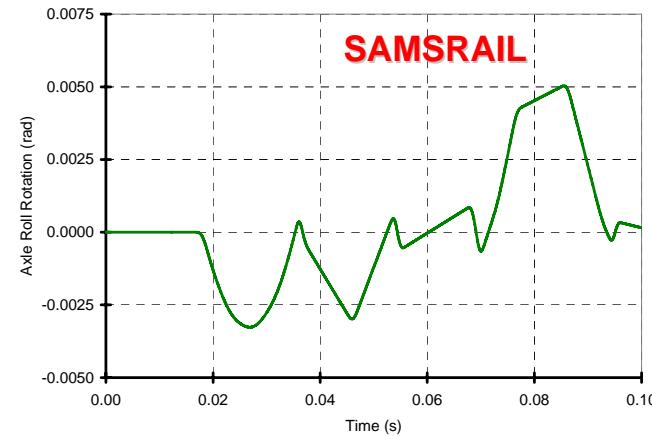


C1, Ex3, Simplified Profiles, Lat Vel = 1 m/s

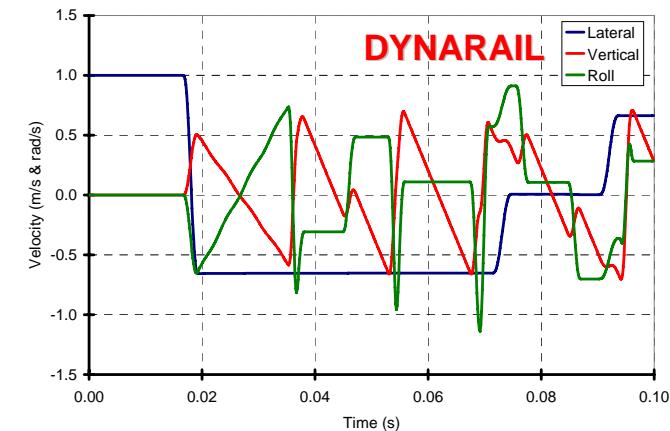
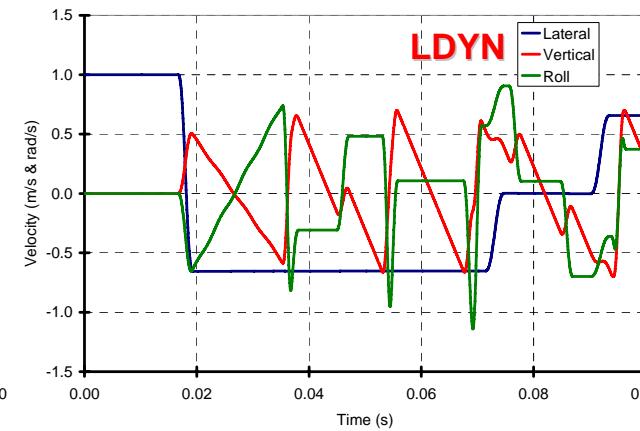
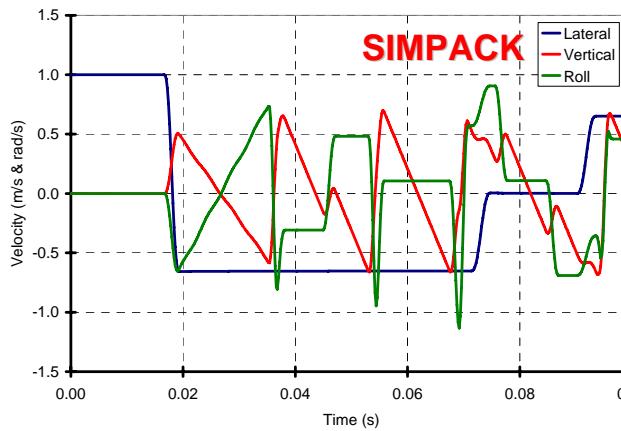
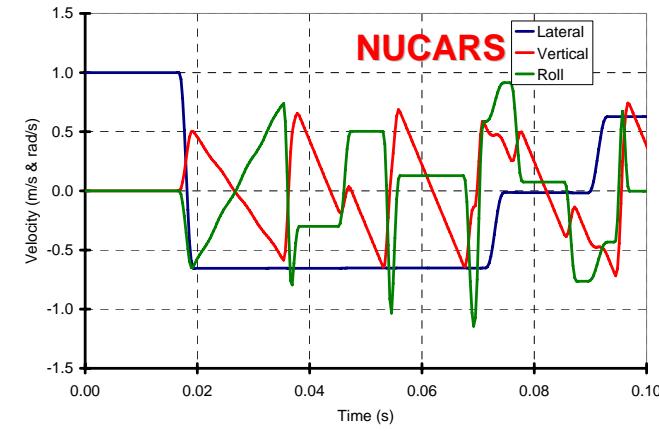
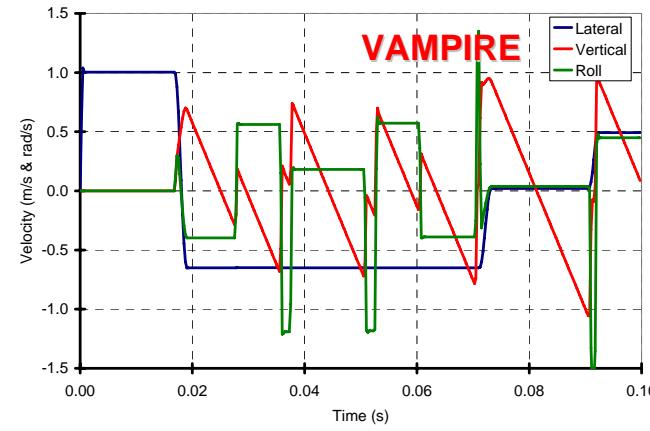
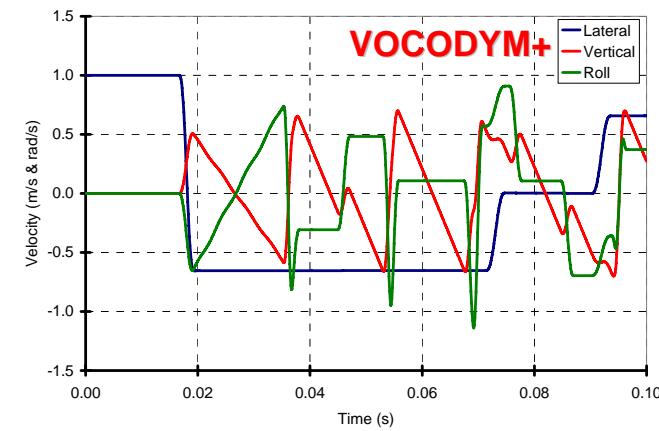
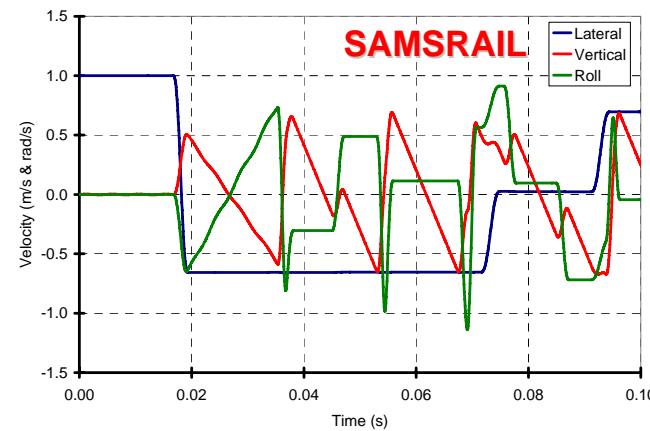
LD Benchmark / Page 5



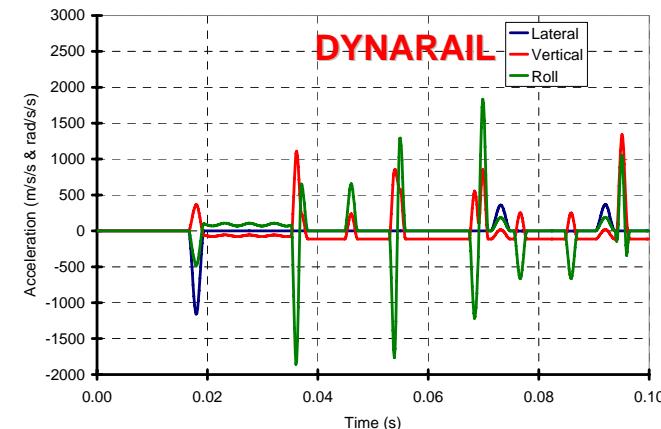
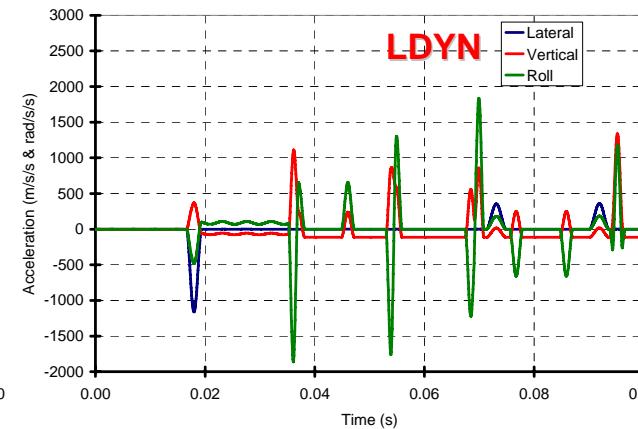
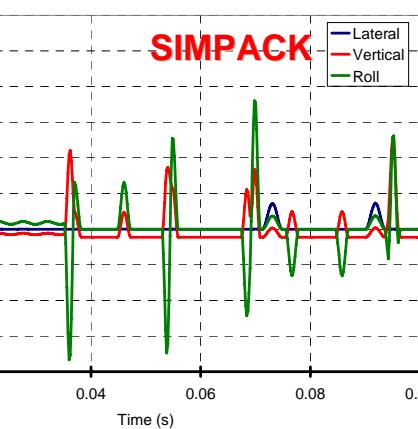
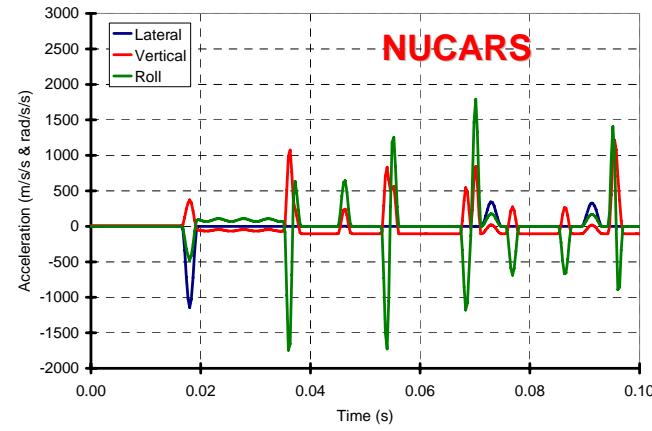
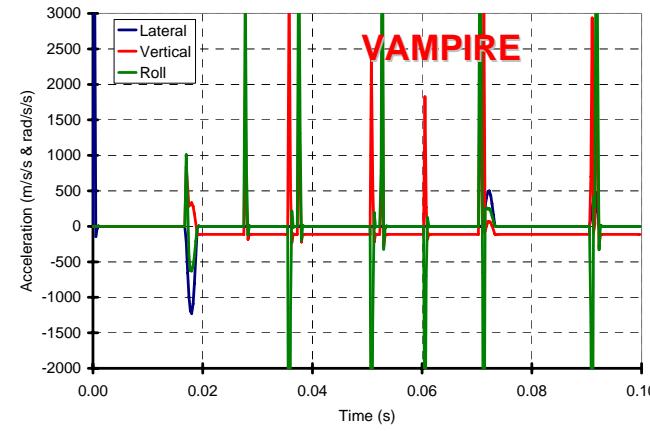
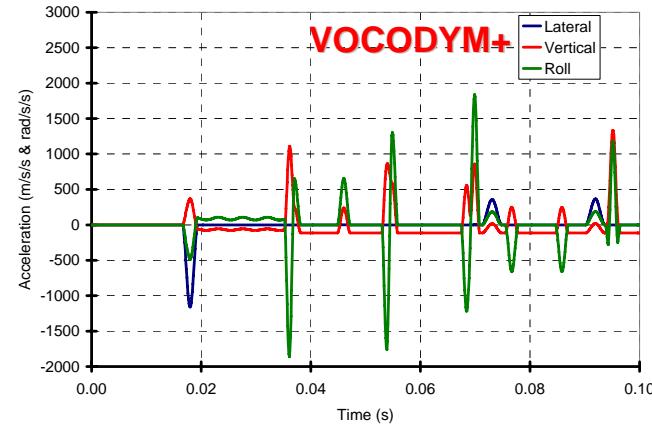
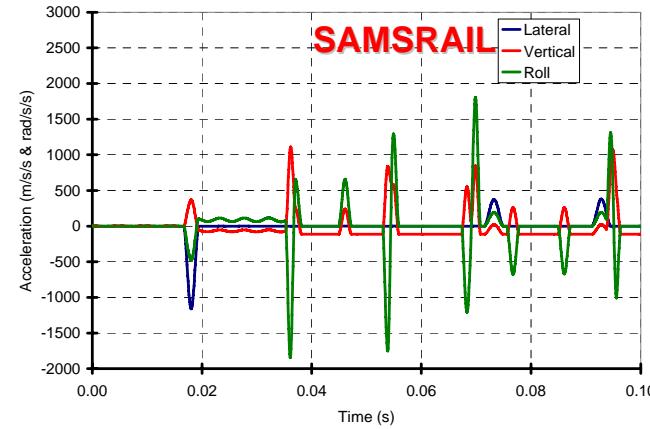
# Wheelset Roll Rotation



# Wheelset Velocity



# Wheelset Acceleration

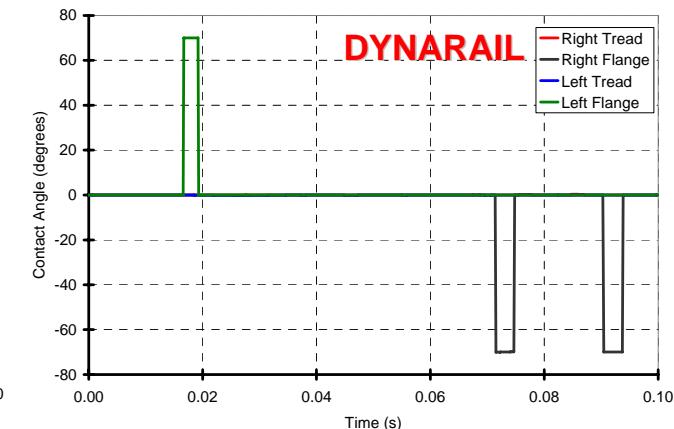
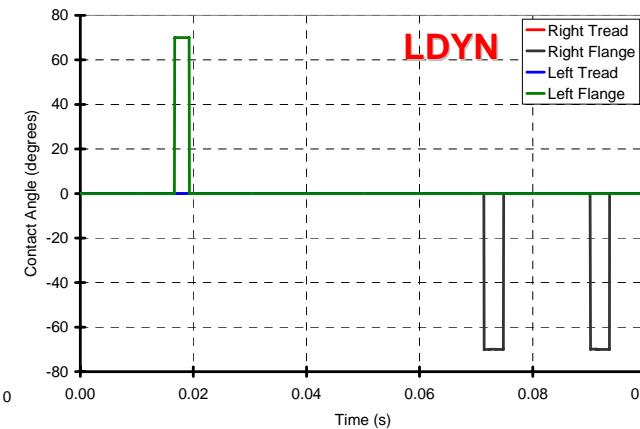
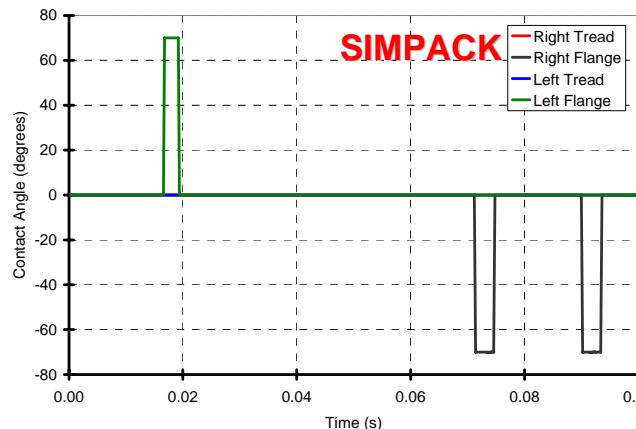
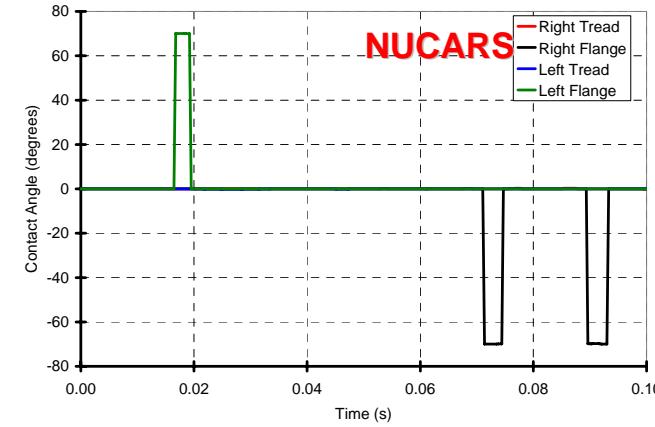
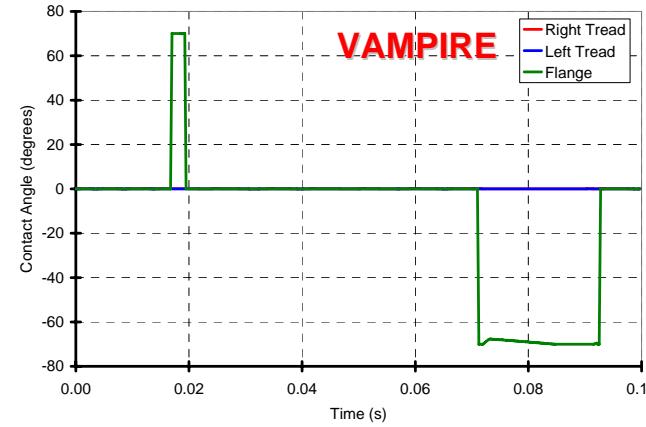
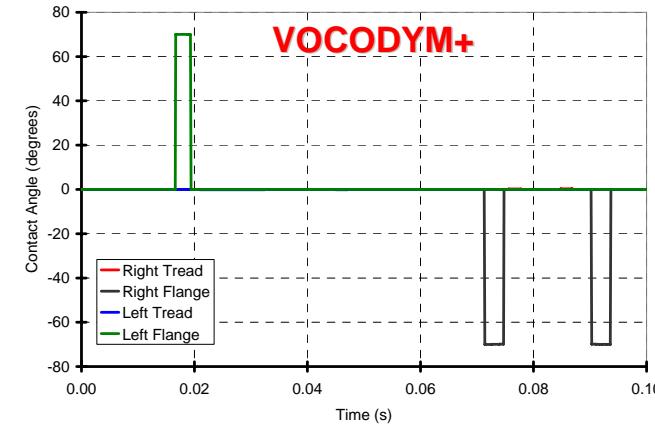
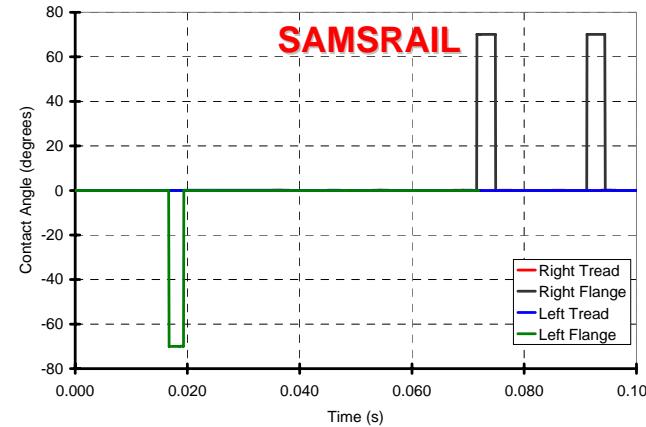


C1, Ex3, Simplified Profiles, Lat Vel = 1 m/s

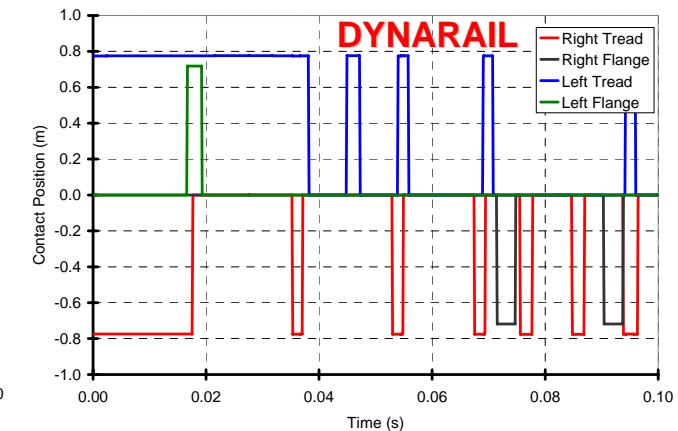
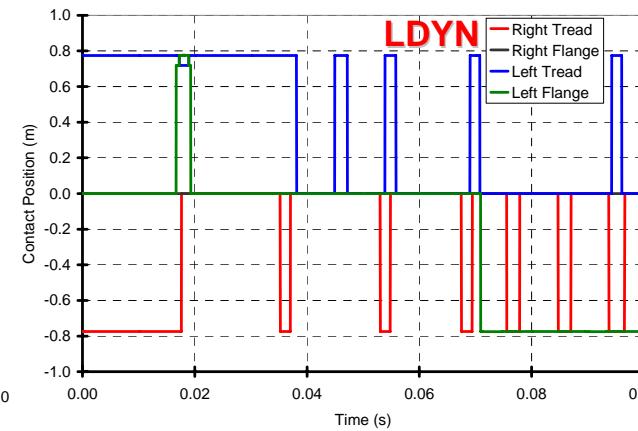
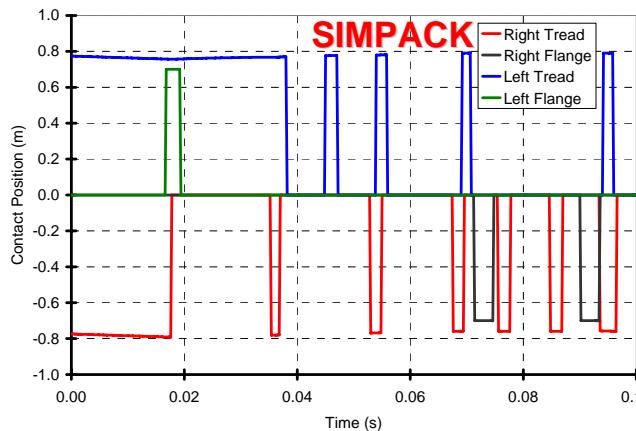
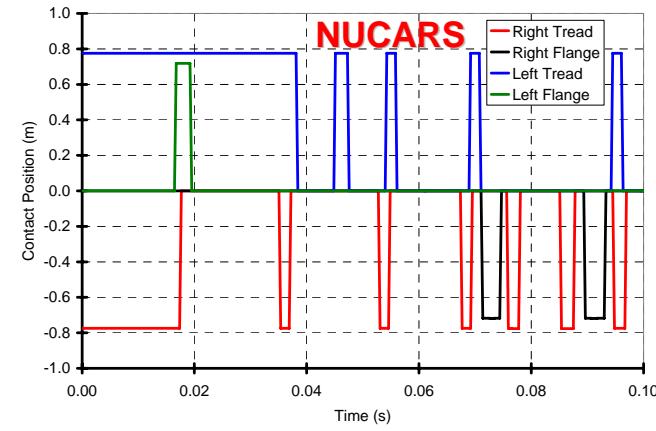
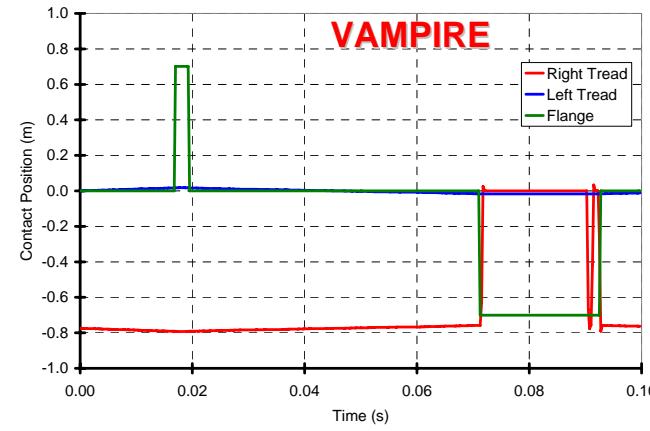
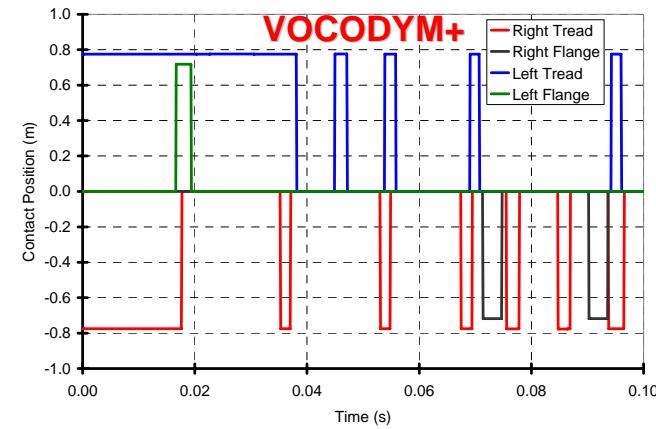
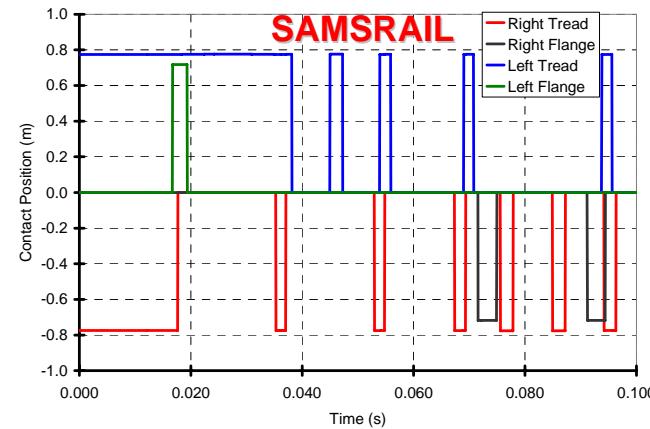
LD Benchmark / Page 8



# Contact Angle

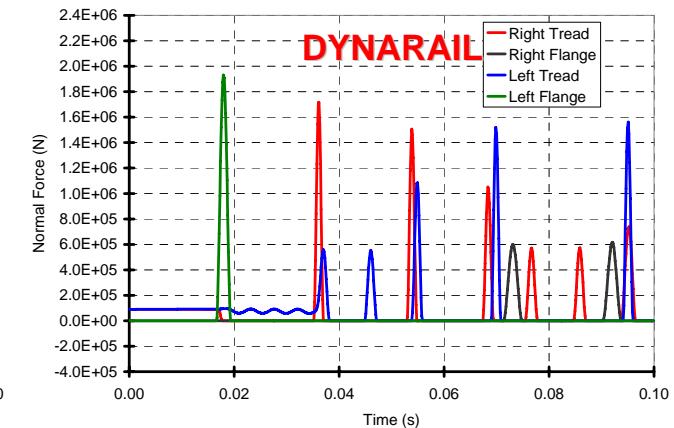
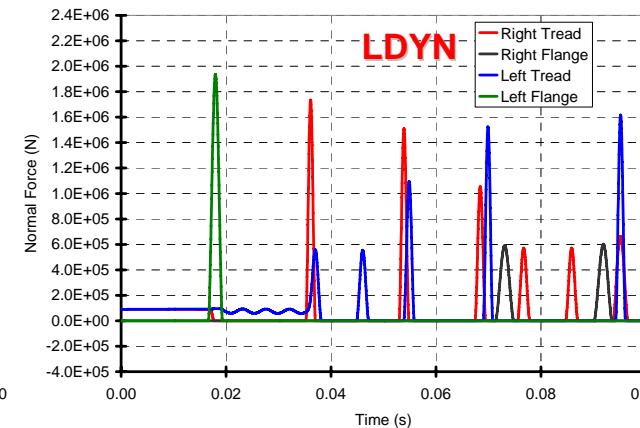
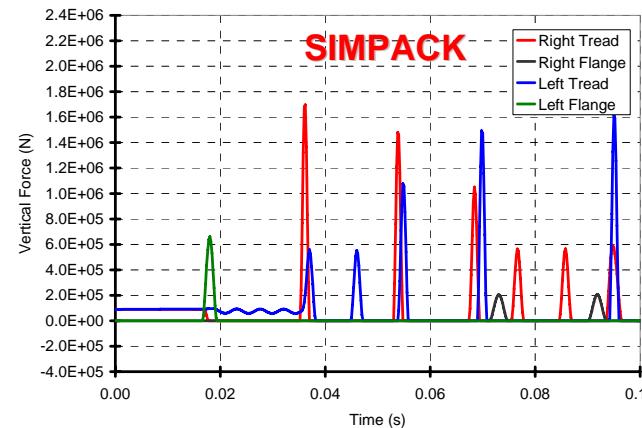
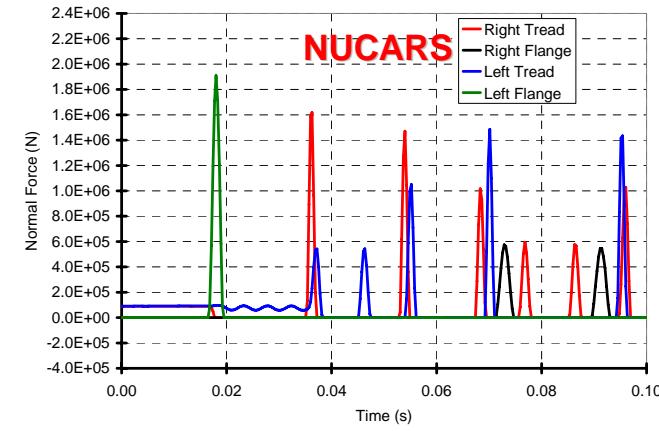
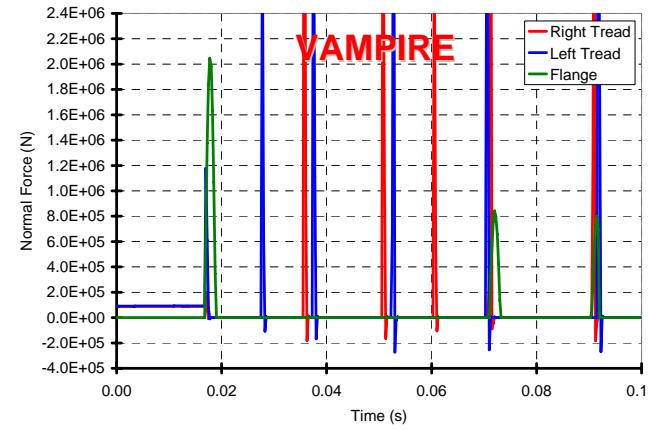
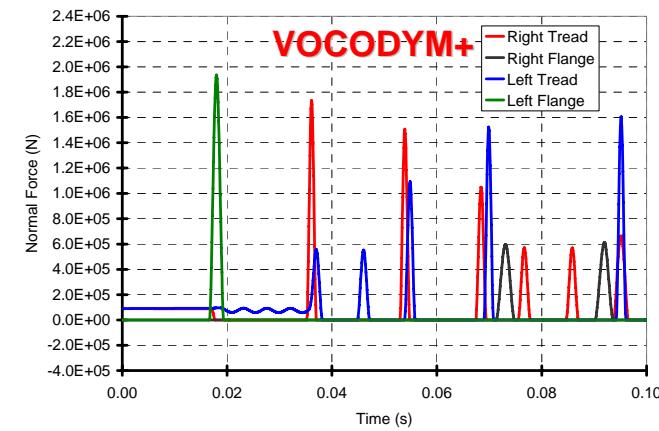
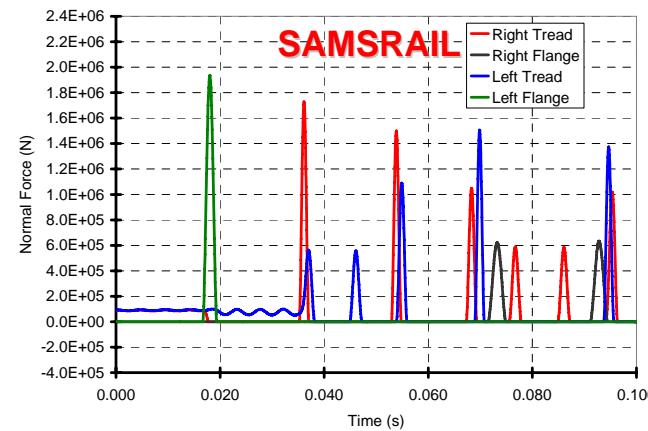


# Contact Position





## Normal Force



# Energy Balance

