

Results of the latest test series on the effect of lateral tilt on the headrest test results



Head Rest - OC Plate Lateral Tilt

- ▶ Determine if tilting the OC plate angle causes significant test differences for the Dummy Certification Head Rest Test
- ▶ Determine if any differences occur during contact with the head rest

Head Rest - OC Plate Lateral Tilt

- ▶ Test Series was to set the angle of the OC plate to
 - Negative 1 Degree
 - Negative ½ Degree
 - 0 degree (Level)
 - Positive ½ Degree
- ▶ Run 2 tests in each condition and repeat 3 times
- ▶ Total = 24 Tests
- ▶ Collect as many channels as we had instrumented at time of testing

Head Rest - OC Plate Lateral Tilt

- ▶ Level the Head +/-0.5 degrees (fore and aft)
- ▶ Targeted a 70 mm backset
- ▶ Neck shape changed with angle settings causing a backset difference
- ▶ Head rest was adjusted to achieve backset of 70mm
- ▶ Use the machined rail surface to zero the inclinometer
 - Difficult to find a good level surface on the welded tube with reference to the guide rail

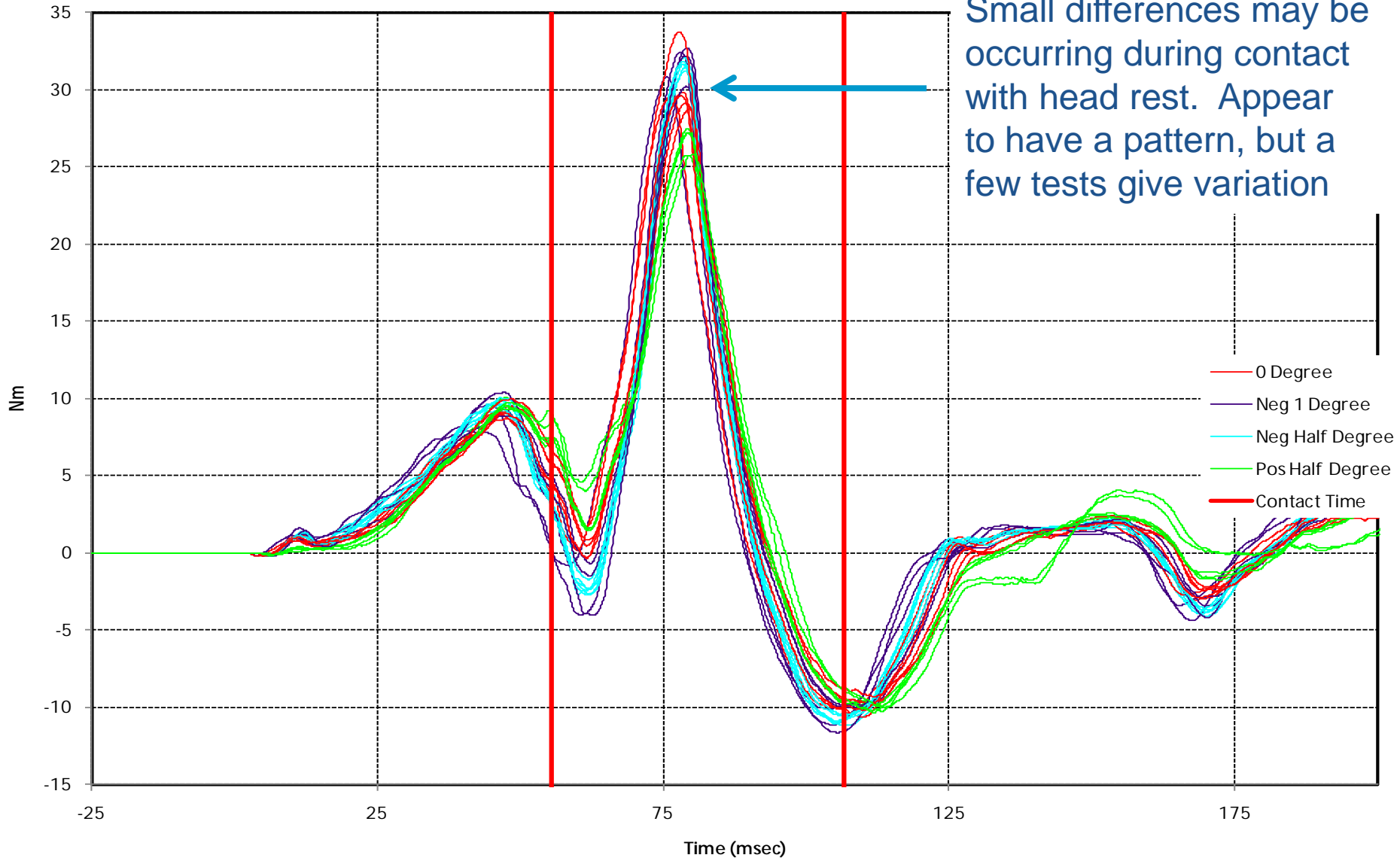
Head Rest - OC Plate Lateral Tilt

- ▶ Test inputs were all consistent
 - Nominal impact velocity of 5.32m/s
 - Target Sled Velocity of 4.44 m/s²
- ▶ Test Results
 - Difficult to see differences in data from change compared to overall test variation
 - Some channels have small differences that may be significant
 - Better distinction between Negative 1 and Positive ½ degree for some channels during contact time

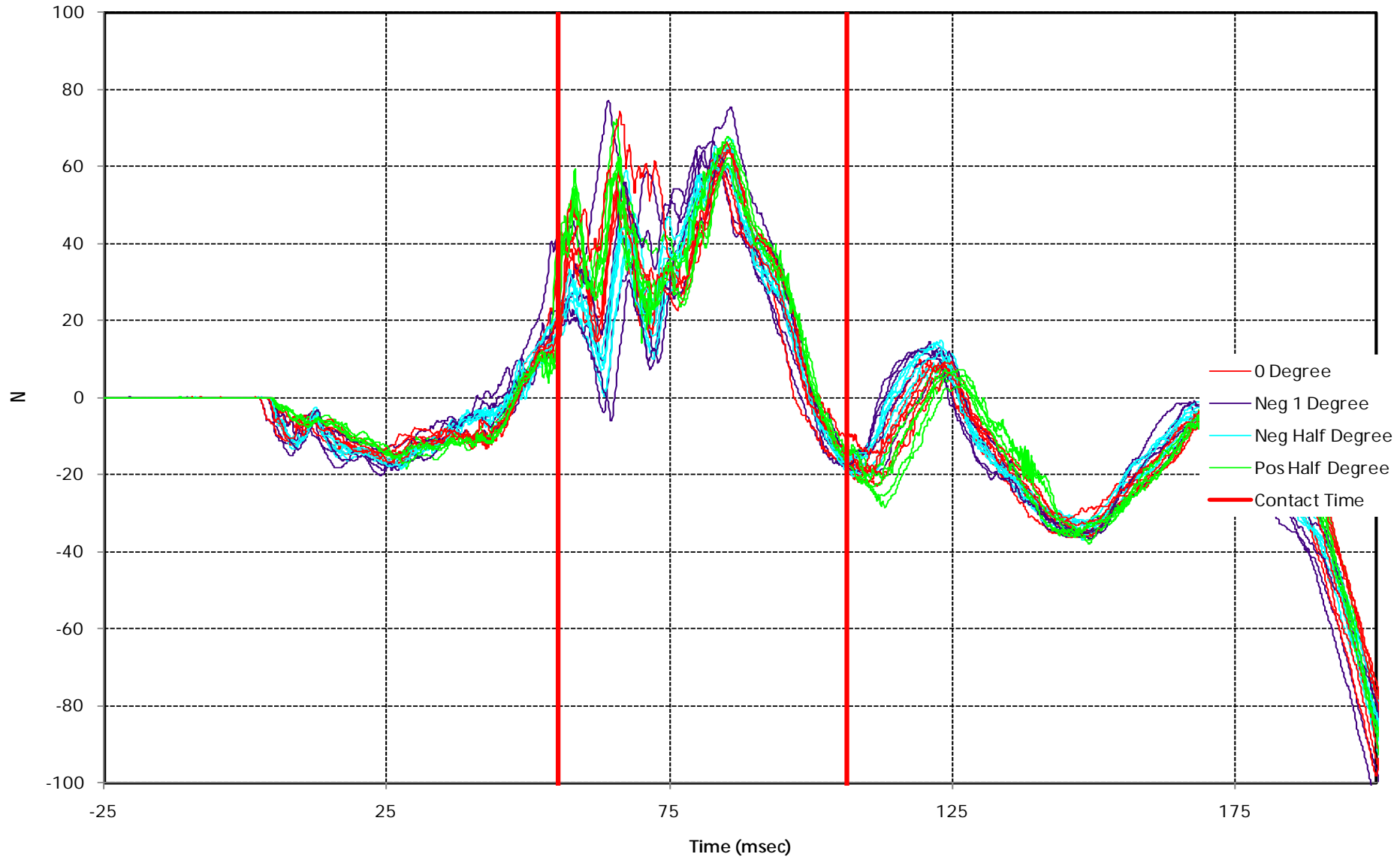
► Conclusion

- Care should be taken when measuring the lateral tilt
- Be sure to zero the inclinometer on a good reference surface (the welded tubes may be a source of angular offsets when leveling the head or checking the lateral angle)

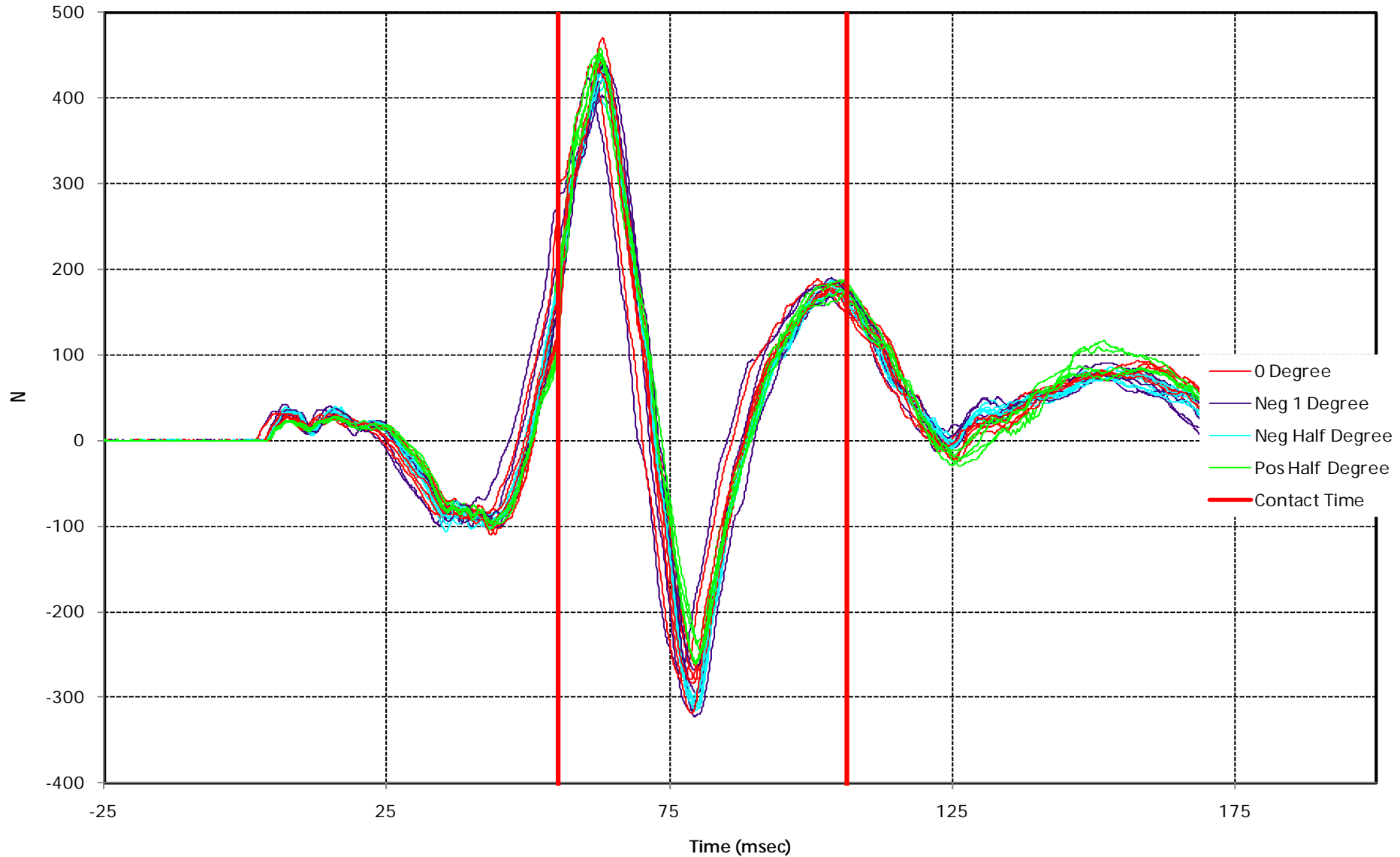
Upper Neck Moment MY



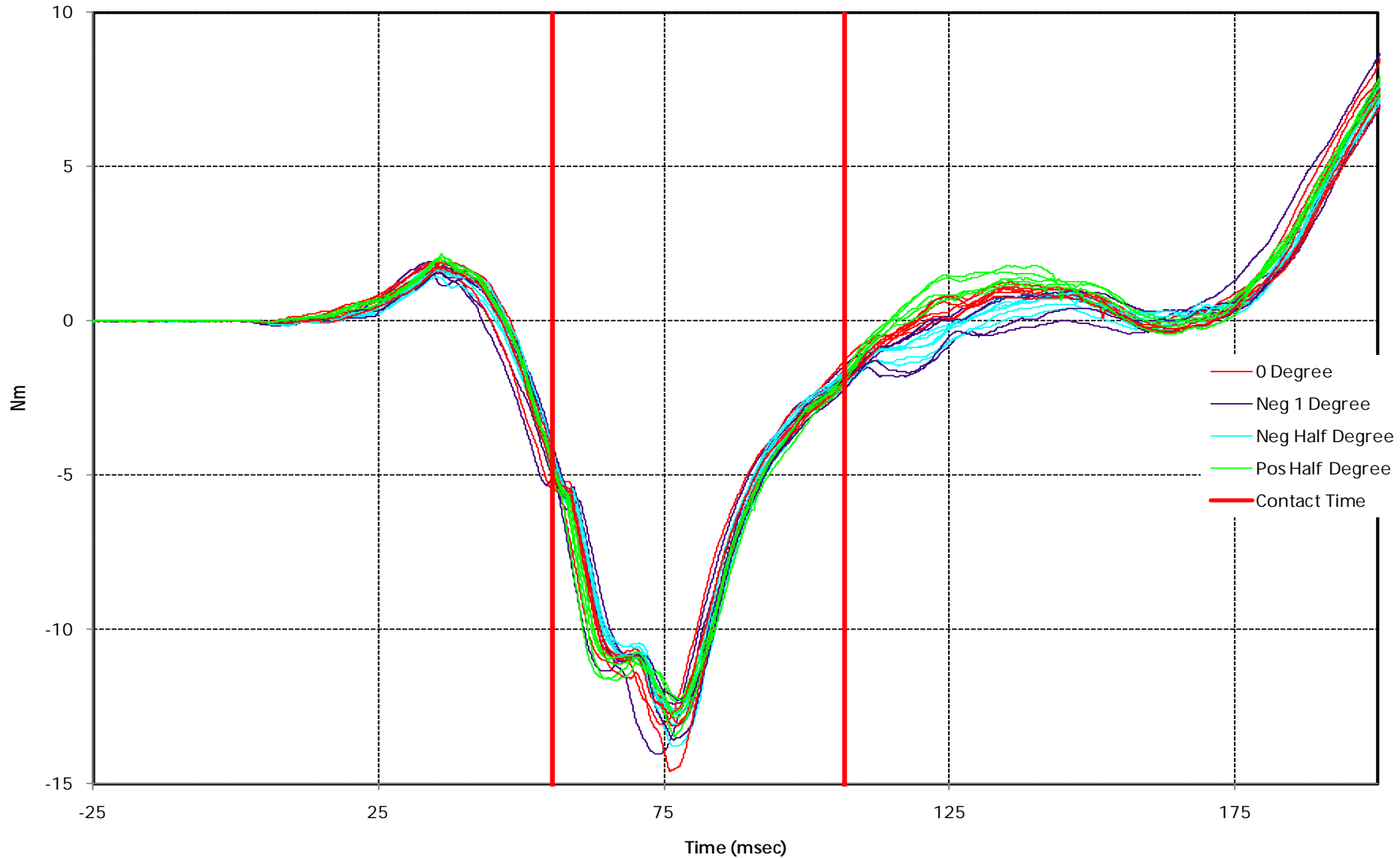
Upper Neck Force FX



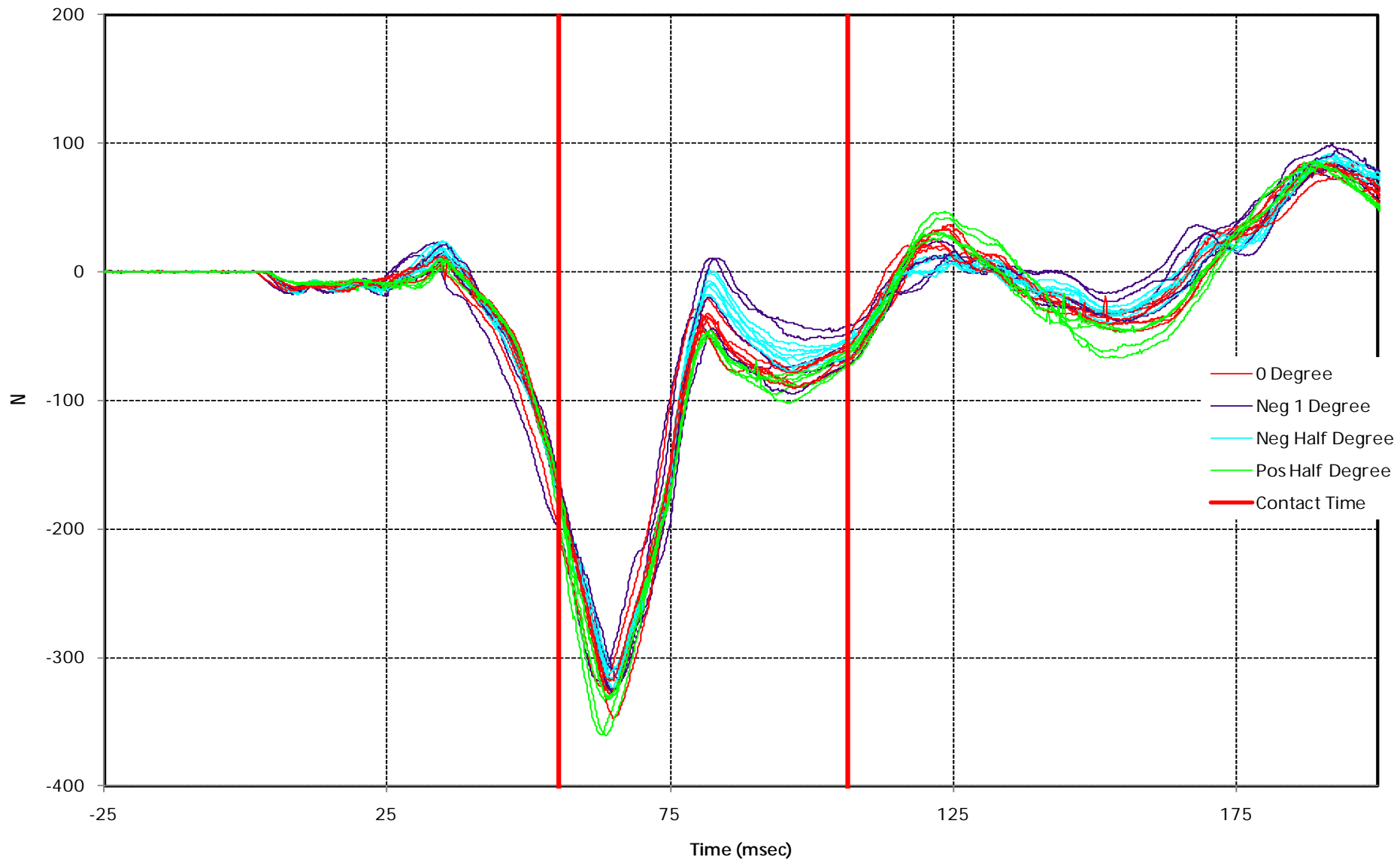
Upper Neck Force FZ



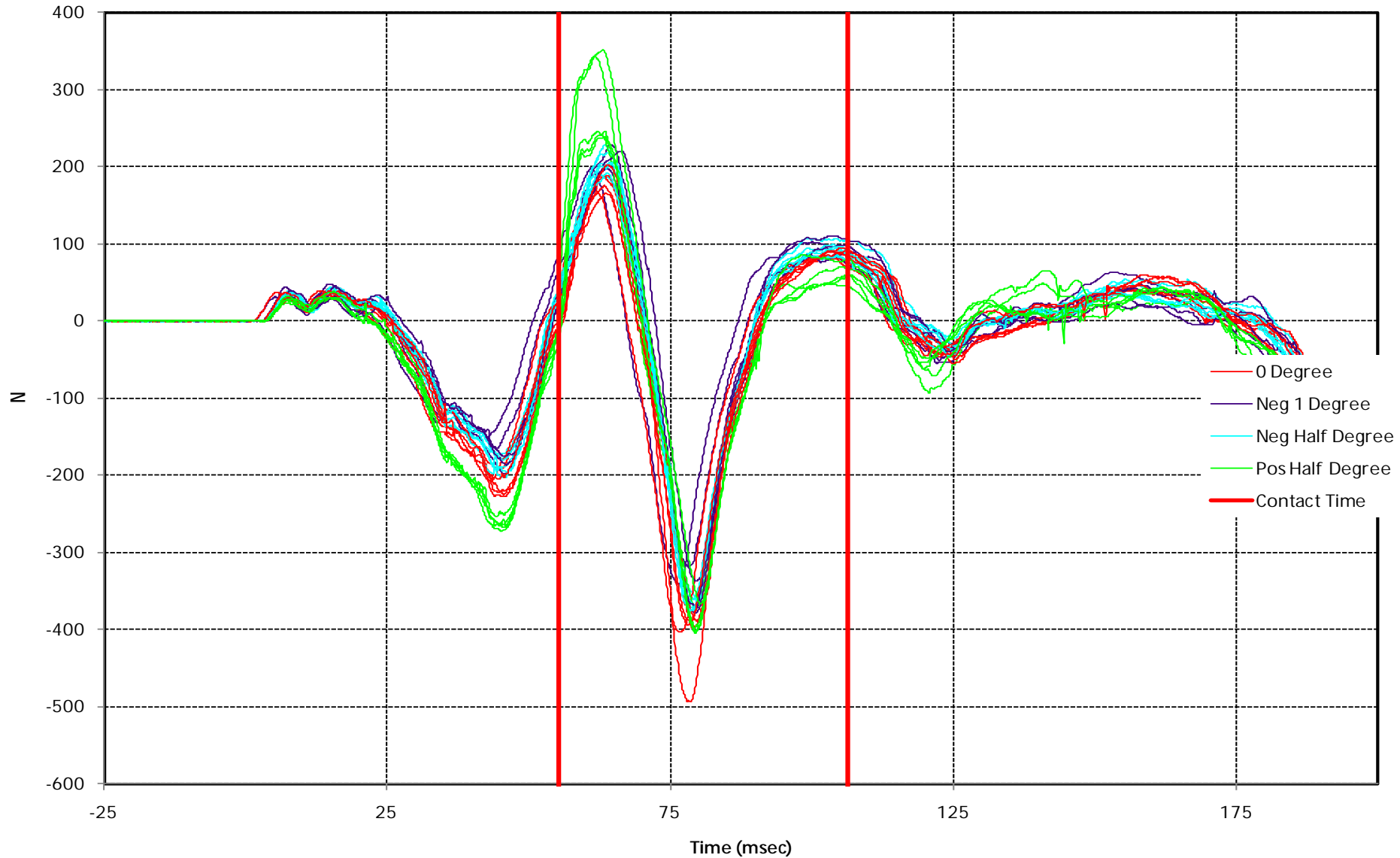
Lower Neck Moment MY (T1 Load Cell)



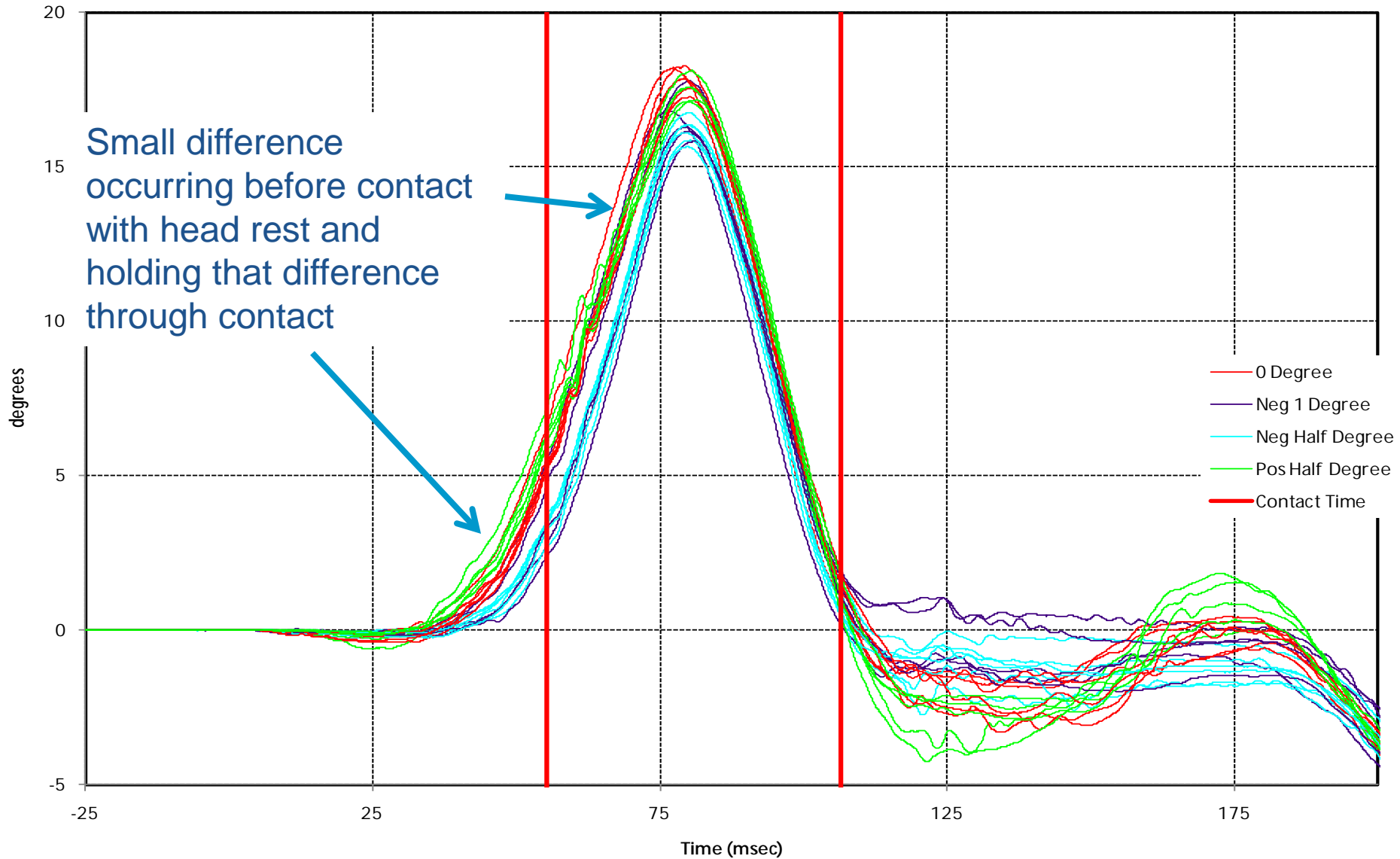
Lower Neck Force FX (T1 load Cell)



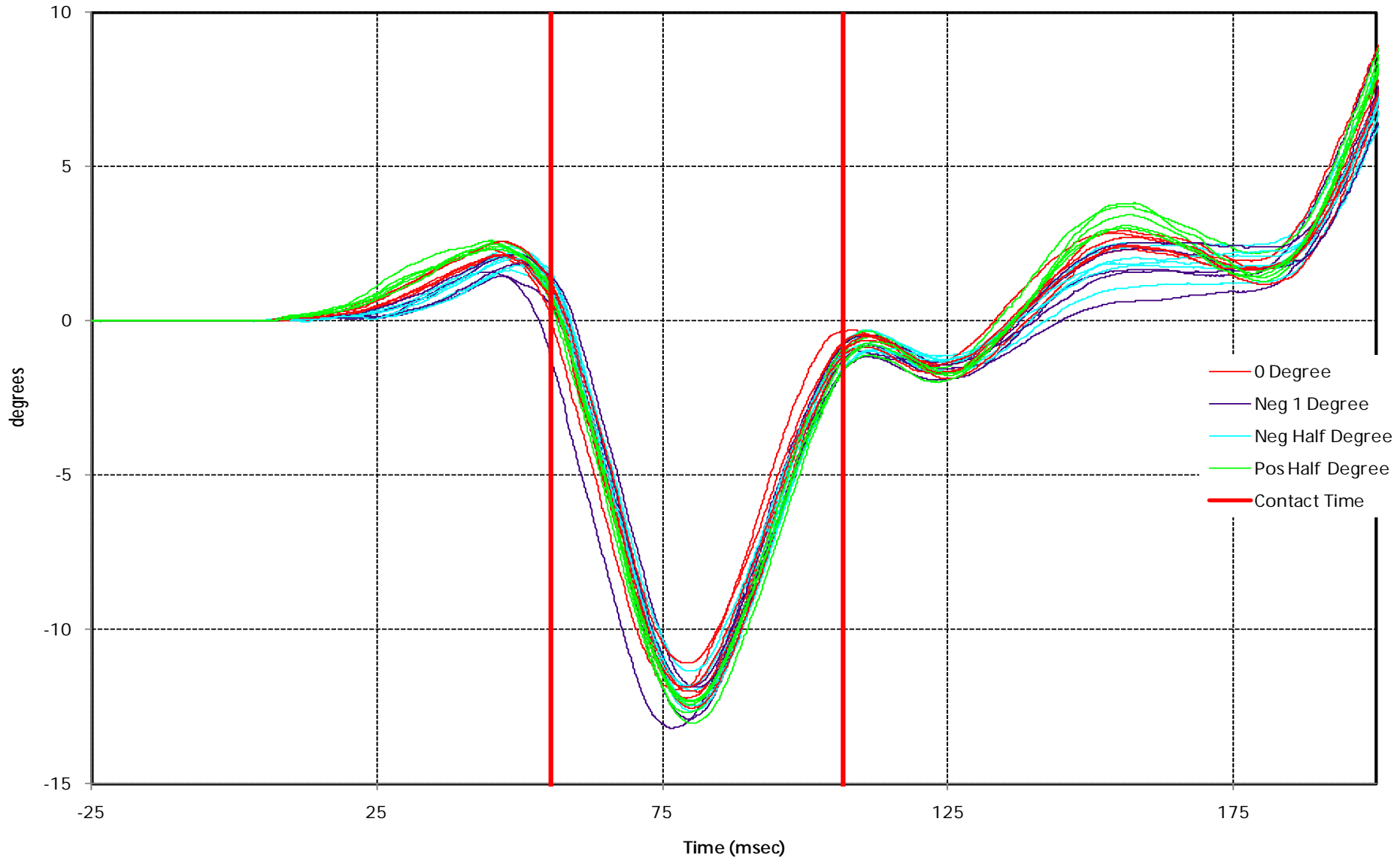
Lower Neck Force FZ (T1 load Cell)



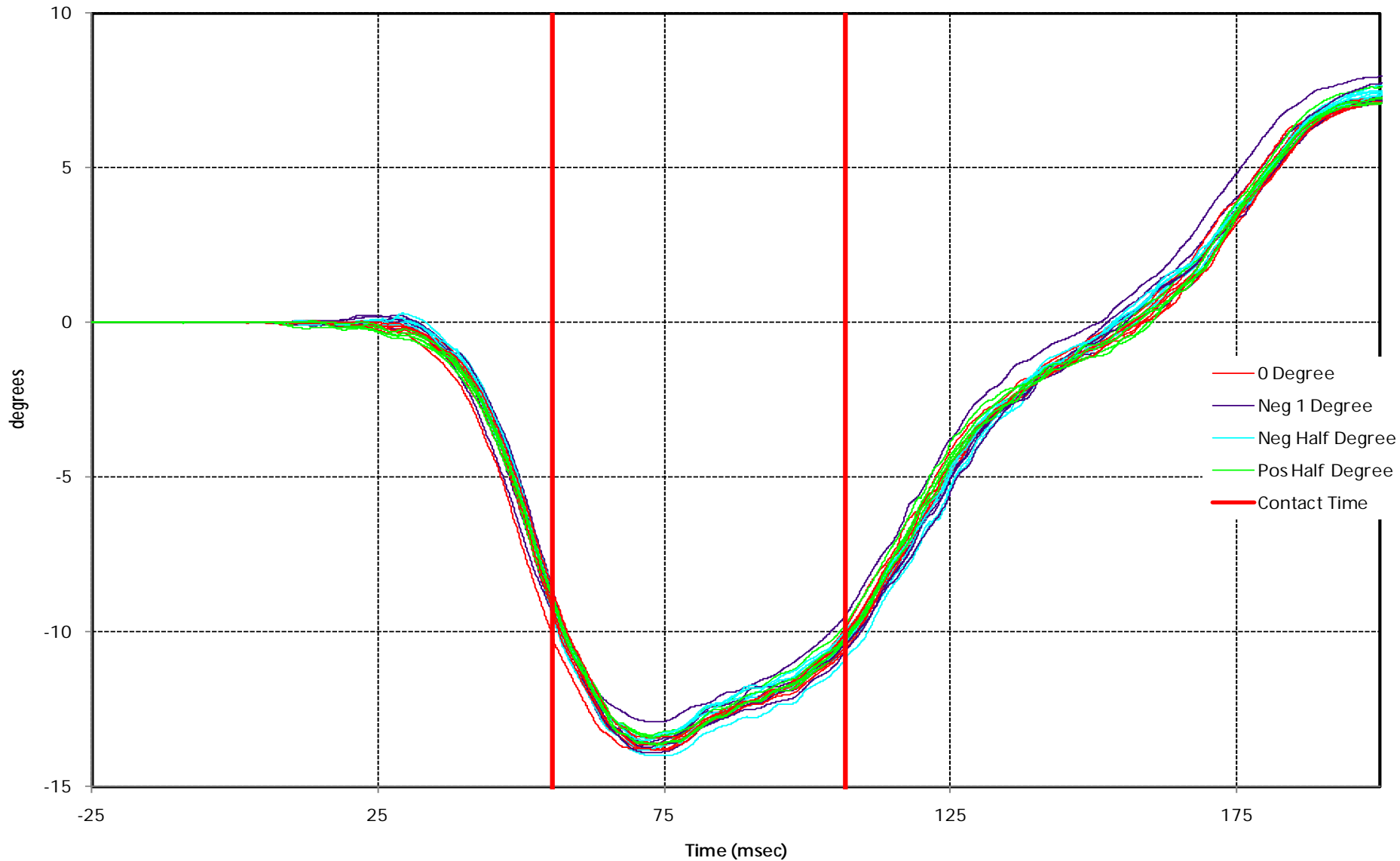
Pot A - Head Pot



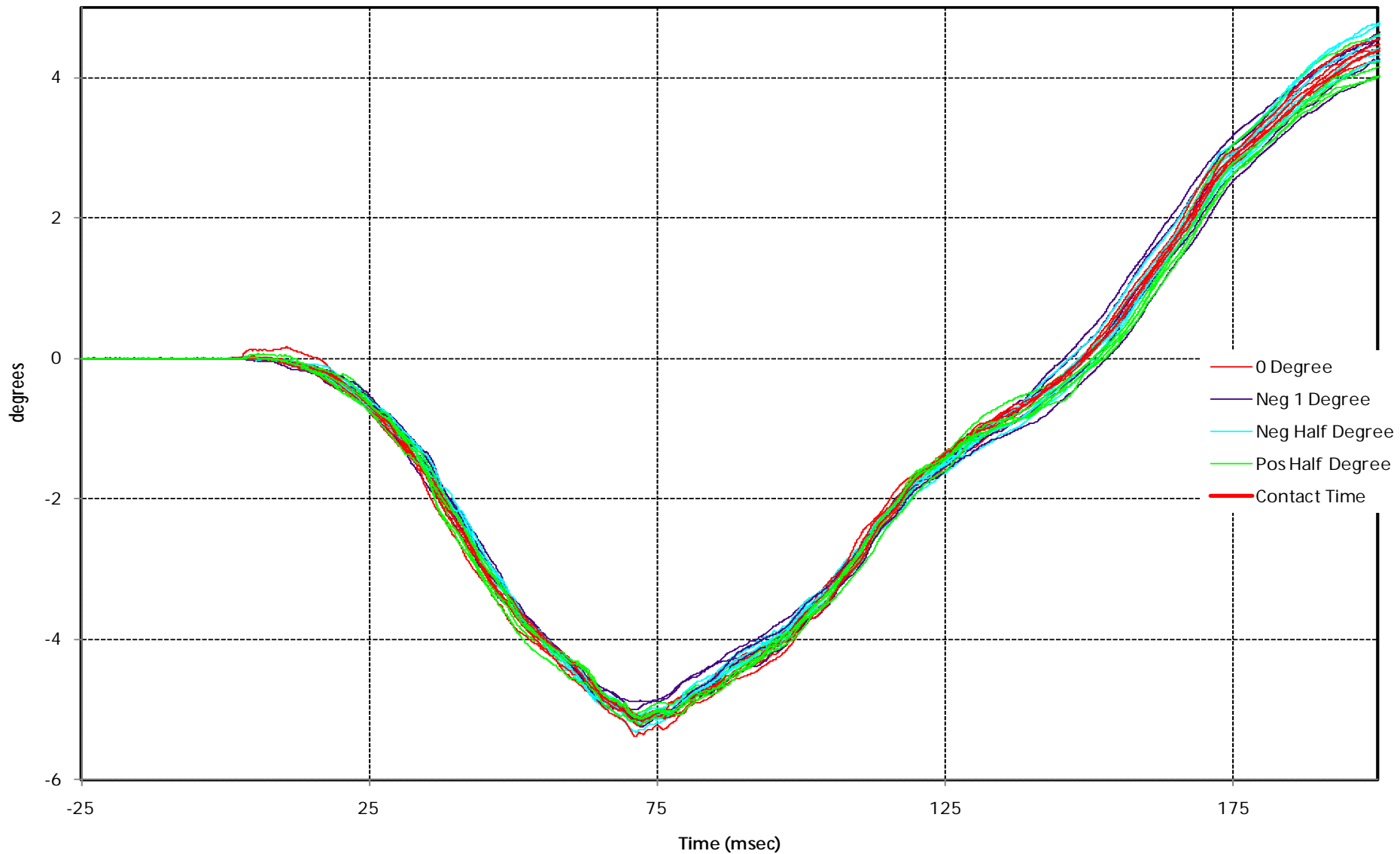
Pot B - Neck Link Pot



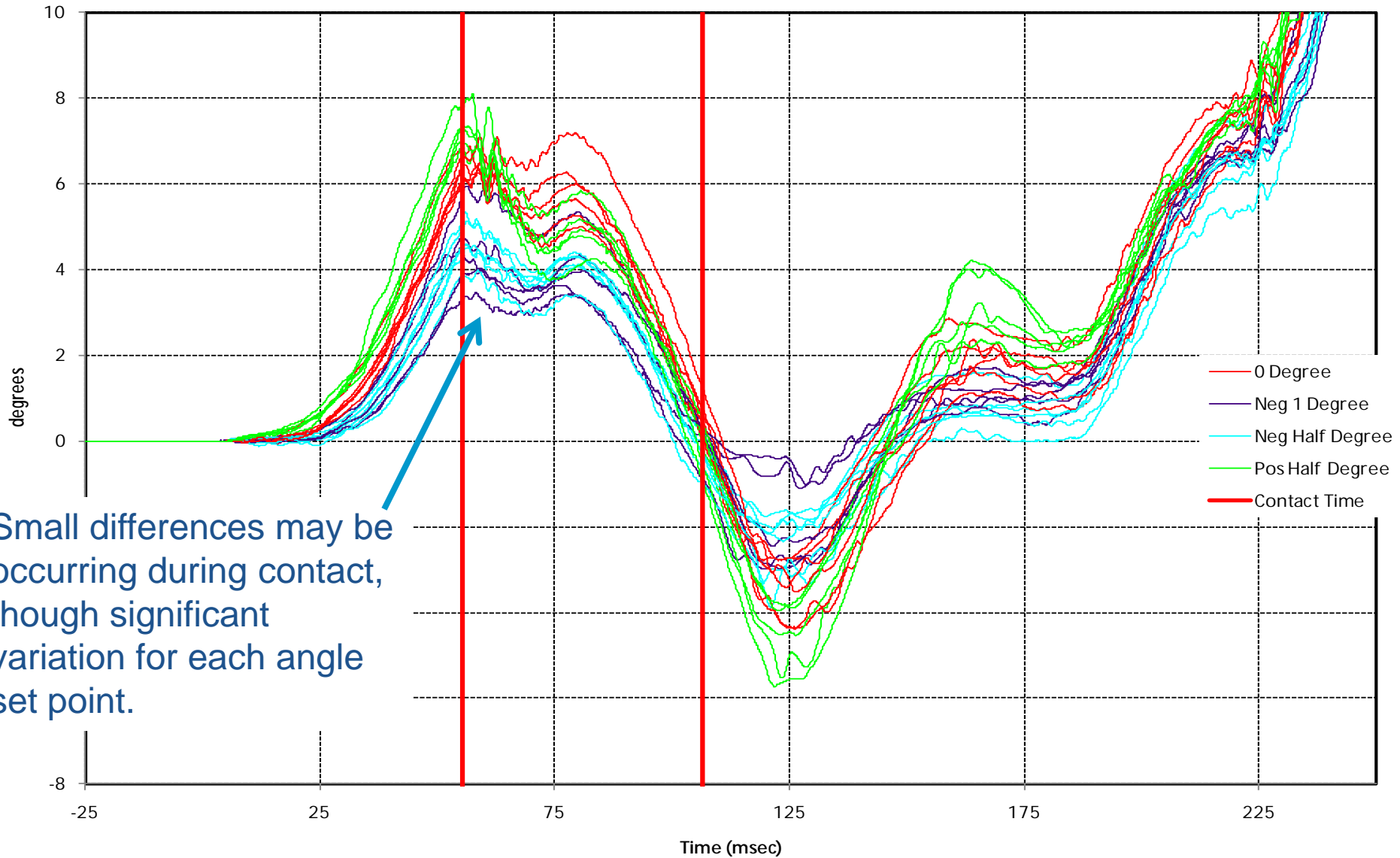
Pot C - T1 Pot



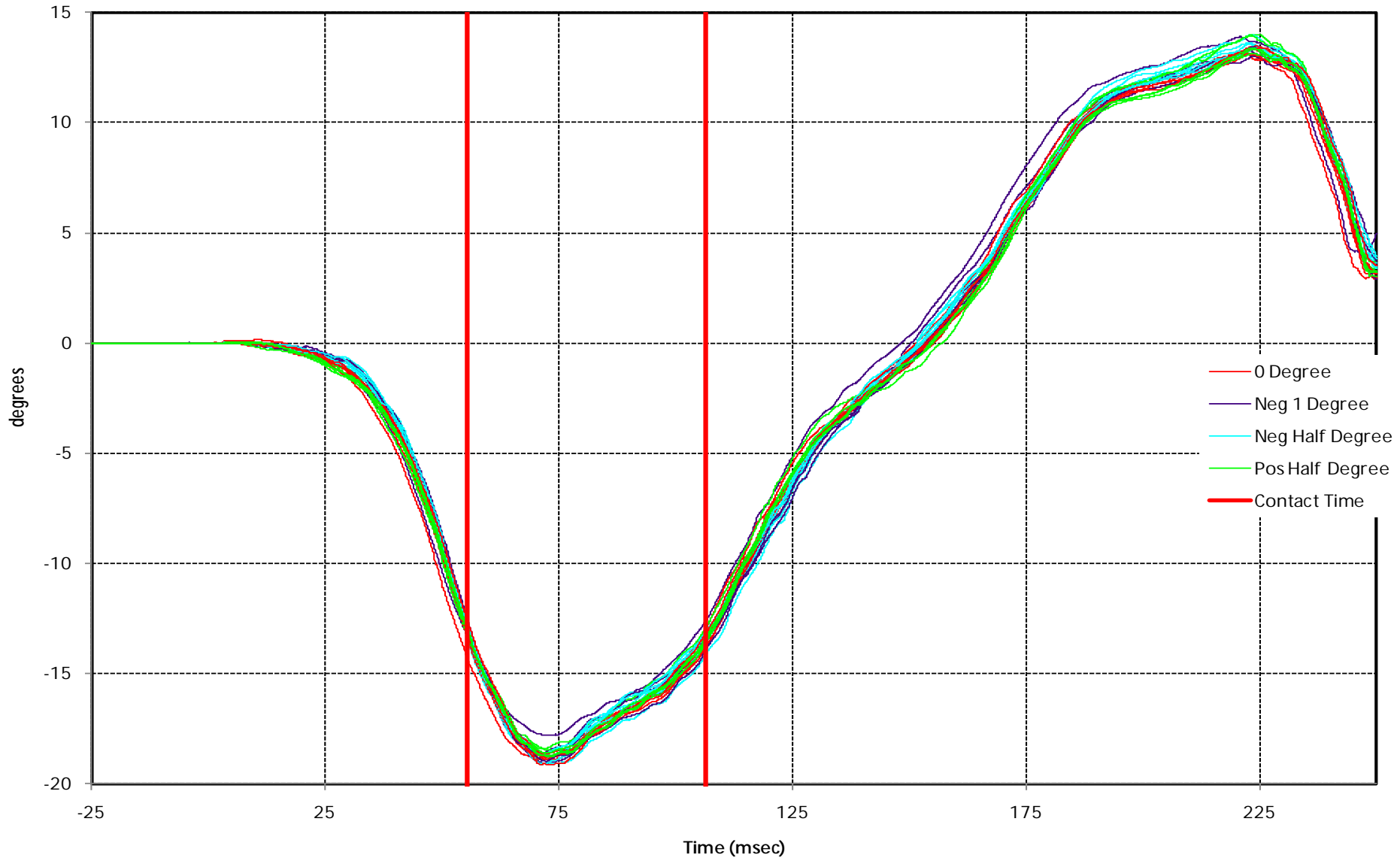
Pot D - Sled Pot



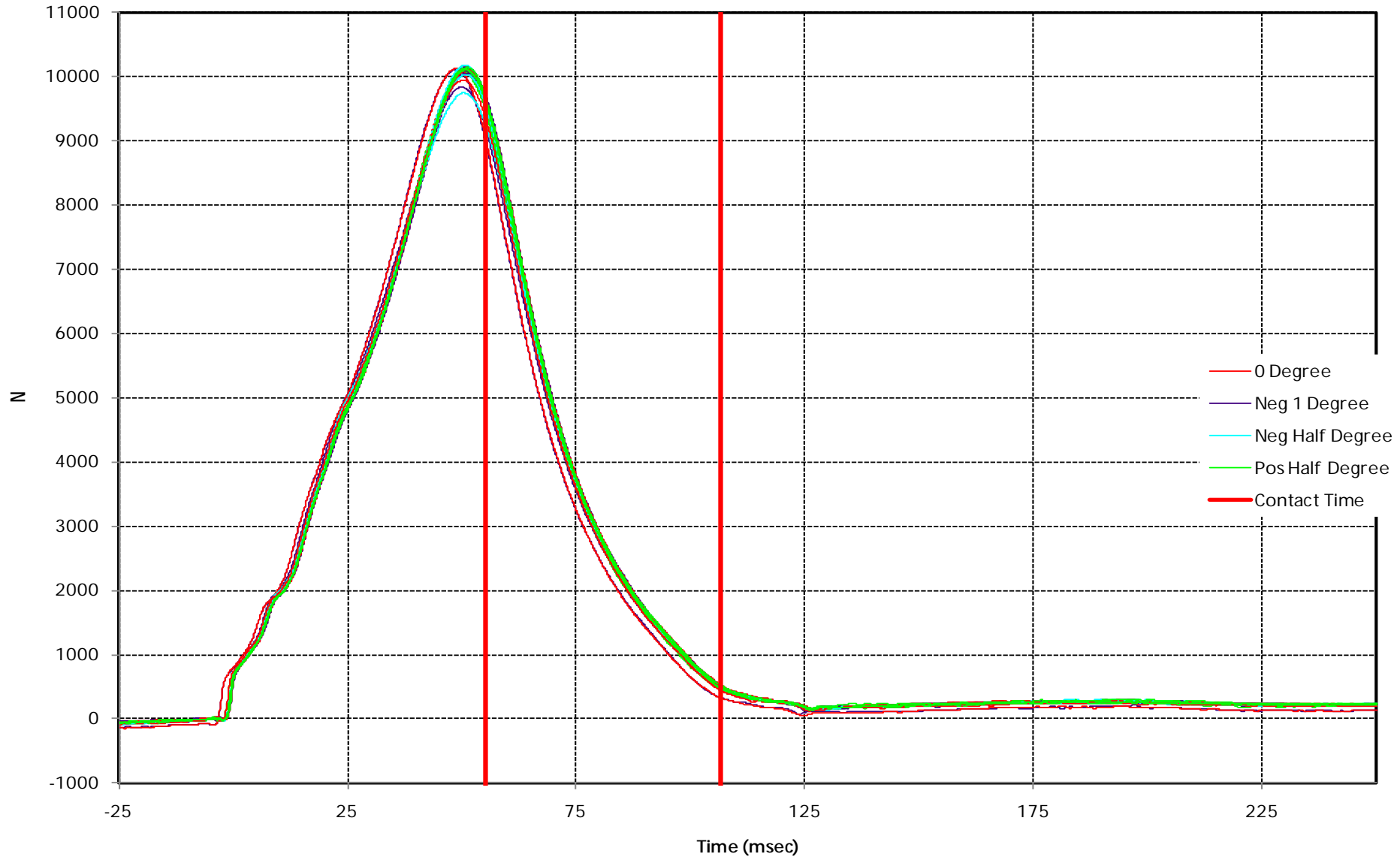
Total Head Rotation



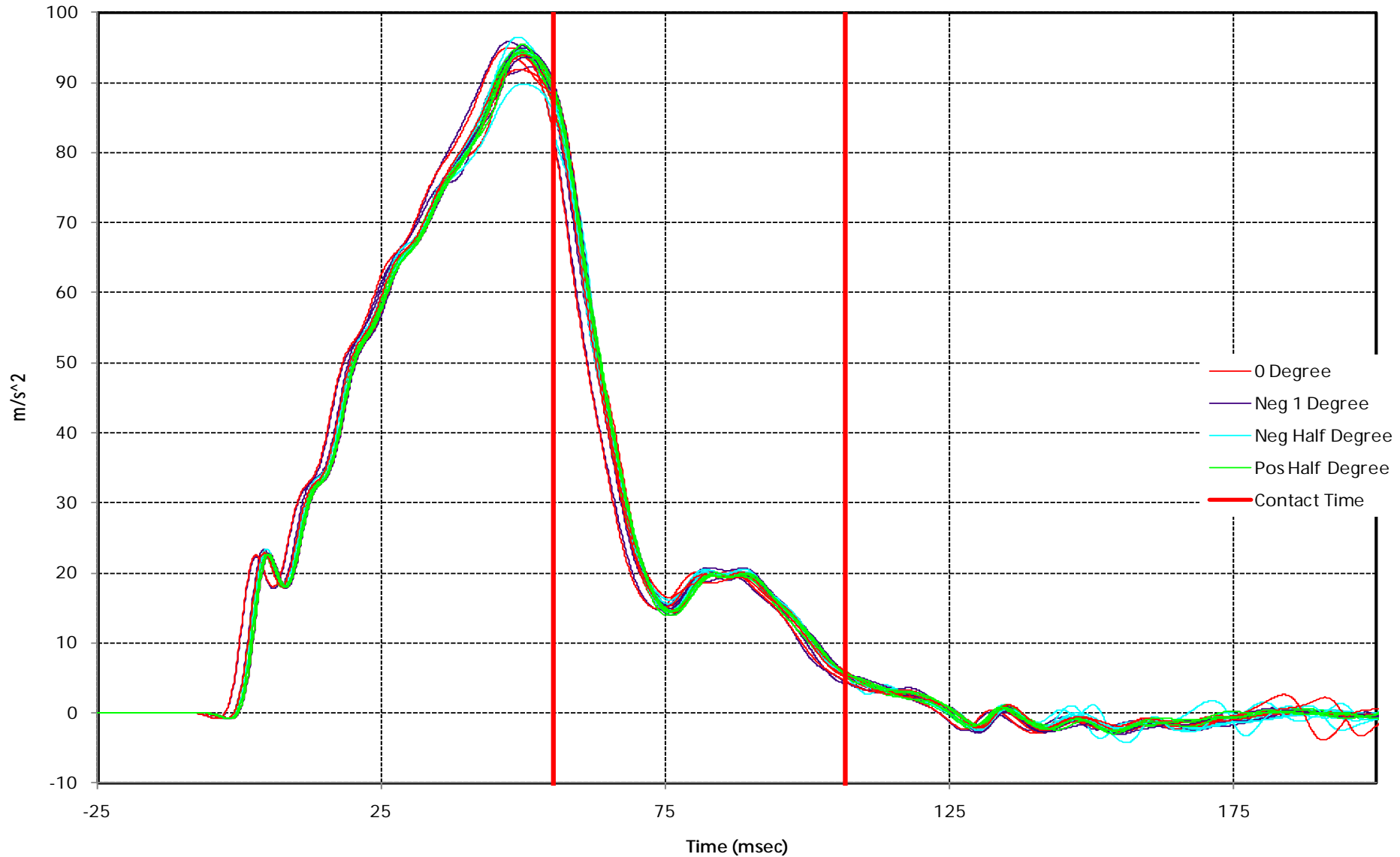
Total Thoracic Rotation



Pendulum Force



Sled Acceleration



Sled Velocity

