PH132 Physics II: Train Project Mechanical Description Online

Paragraph 1: Describe major mechanical parts referring to figure 1.

Figure 1: Schematic of Mechanical portions

Paragraph 2: Short description of gear reduction

Eqn 1: Gear Ratio

Figure 2: Gear reduction

Paragraph 3: Newton's 2nd Law for rotations applied to flywheel motor assembly

Eqn 2: Result of above

Paragraph 4: Newton's 2nd Law for rotations applied to gearbox wheel assembly

Eqn 3: Result of above

Paragraph 5: Newton's 2nd Law for translations applied to whole train

Eqn 4: Result of above

Paragraph 6: Connect angular accelerations to linear acceleration

Eqn 5and Eqn 6: Result of above

Paragraph 7: Connecting Equations 1 to 6 through eliminating a list of variables

Eqn 7: Result of above

Paragraph 8: We will use our mechanical description to connect with the electro-magnetic theory to predict our train's performance.