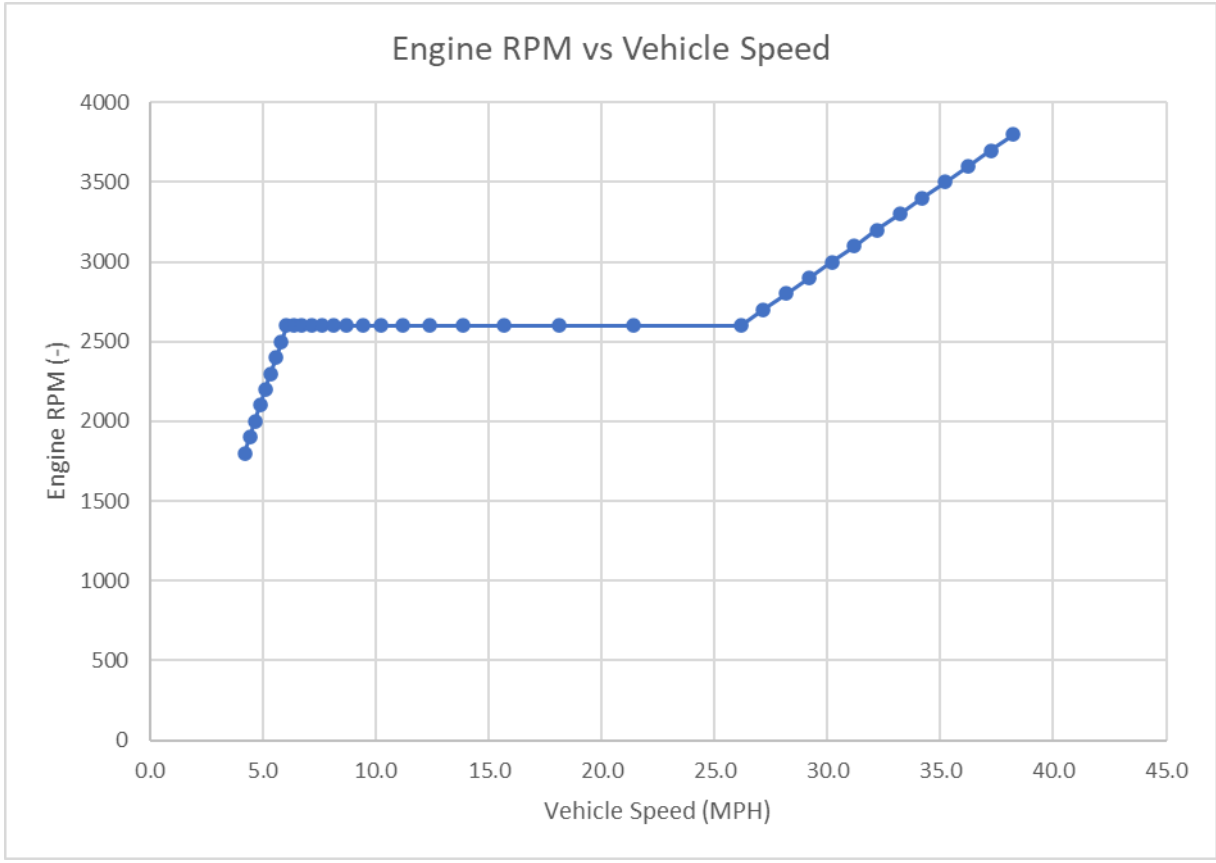
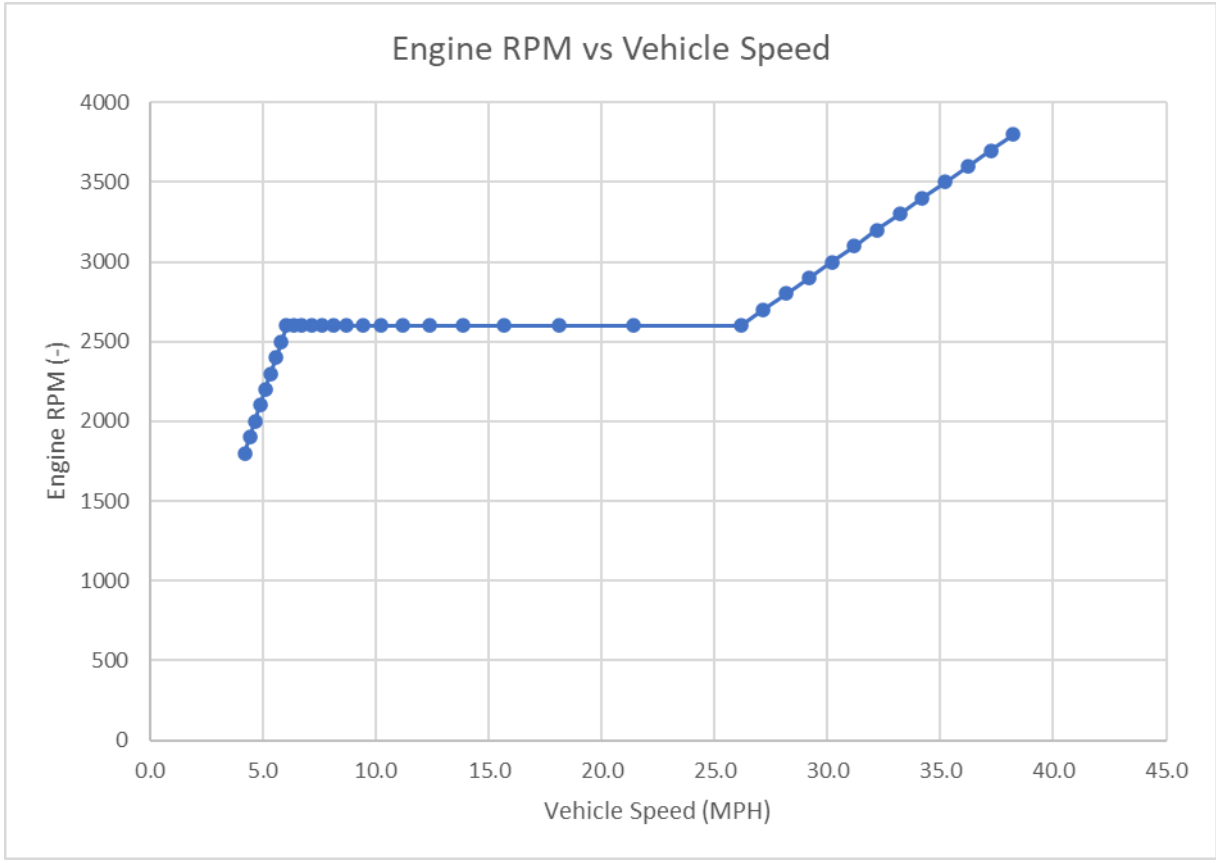
# Shifting Stages

1. Disengaged
   - Only primary clutch spinning, spring pretension greater than flyweight force
2. Engagement
   - Flyweight force just overcomes spring pretension
3. Low Ratio Acceleration
   - Flyweight force greater than pressure spring but less than secondary belt force



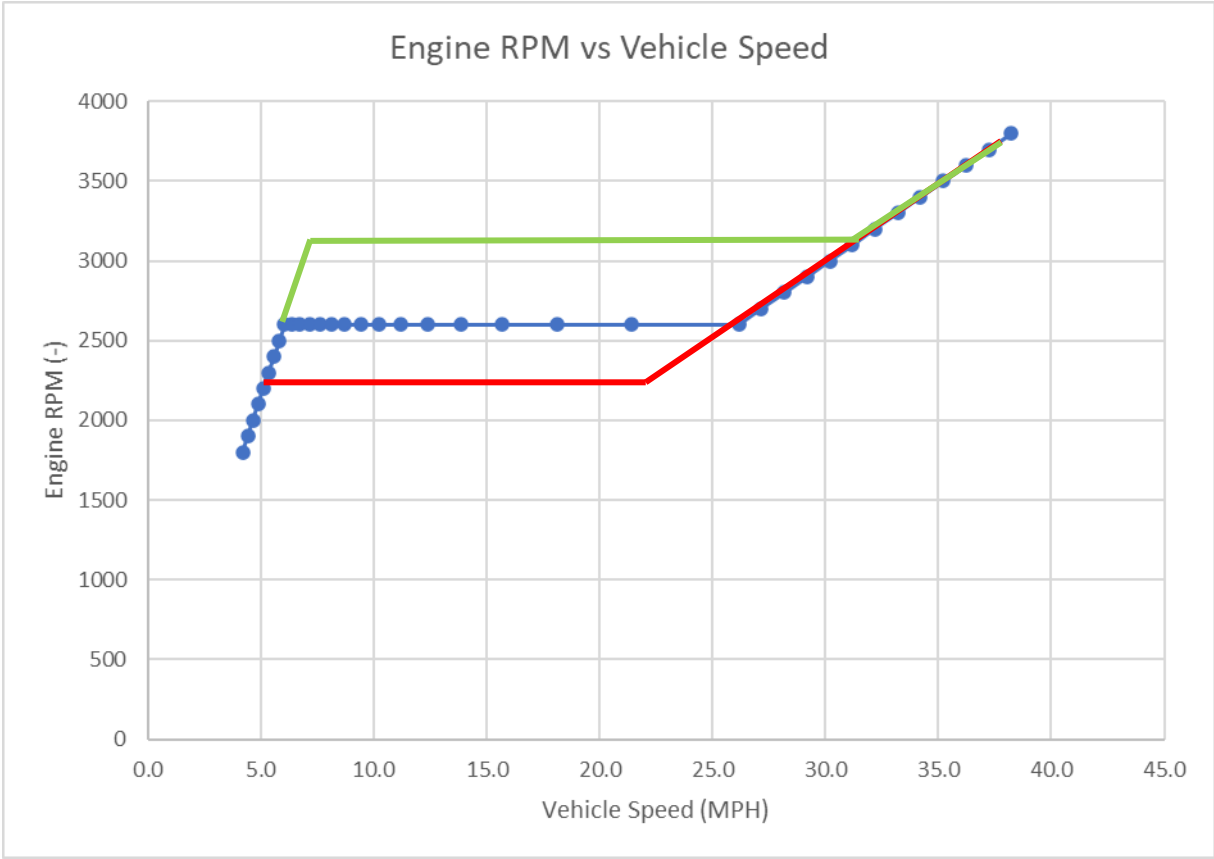
# Shifting Stages

4. Shift Point
   - Flyweight force just overcoming secondary tension
5. Straight Shift
   - Matching curvature and spring rates
6. Overdrive
   - Clutches shifted all the way out, engine speed increases



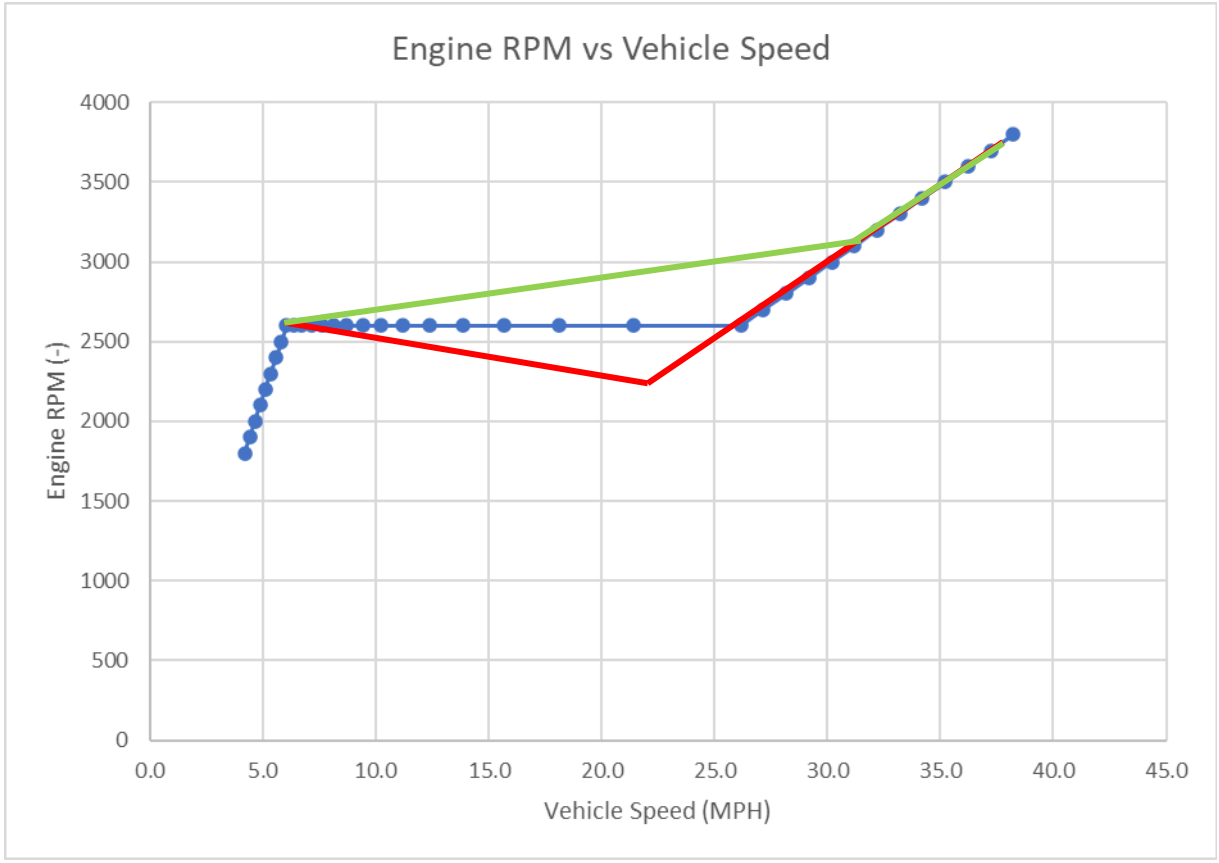
# Flyweight Mass

- Used to control the rpm shifting begins at
- Higher flyweight mass makes shifting happen earlier in rpm range (low rpm)
- Lower flyweight mass makes shifiting happen later in rpm range (high rpm)
- Used squared relationship to approximate mass change
- $\frac{3200^2}{2600^2} = 1.51, m = \frac{110g}{1.51}$ =73g



# Primary Spring (Rate)

- Used to control the rate of rpm climb during shifting
- Stiffer spring increases rpm at overdrive
- Lighter spring decreases rpm at overdrive
- Side force is flyweight force minus spring force. Increasing spring rate decreases belt clamp



# Primary Spring (Pretension)

- Used to control engagement speed (when the rear wheels start turning)
- Higher pretension increases engagement speed
- Lower pretension decreases engagement speed
- Engagement is very much a balancing act between launch torque and driver feel