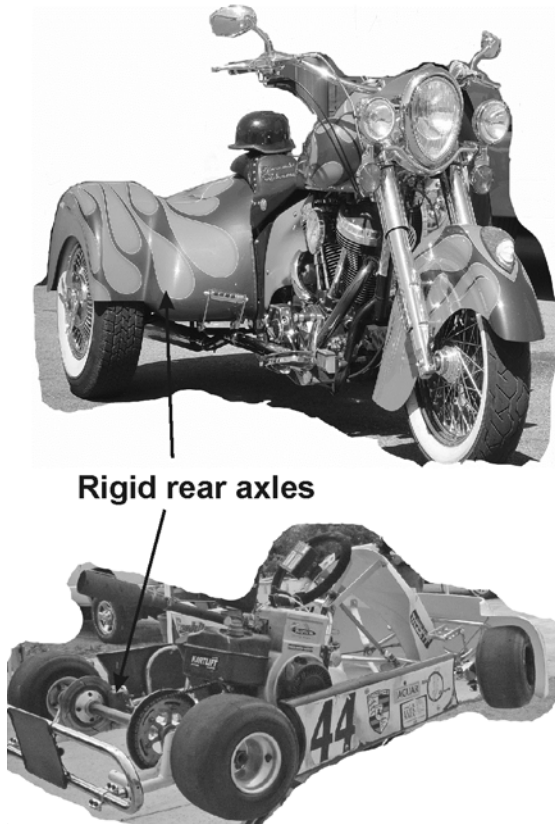


Chapter 8 Your “RIGID” or “STIFF” VEHICLE



Rigid rear axles

FIG. 8.1 Custom *Trike* and Racing Kart are Good Examples Of *Stiff Chassis*

Most racers have used the words of “*rigid*” or “*stiff*”, e.g., we talk about a stiff setup on a chassis. A rigid axle 3-wheeler (*Trike*) or Kart as shown in Fig 8.1 are such setups. However the terms “*rigid*” or “*stiff*” are relative, since rigidity really implies a resistance to being distorted, and all chassis distort somewhat. This chapter attempts to clear up some misconceptions and has three tech-laps: 1. *Rigid Behavior*, 2. *Laws of Motion*, and 3. *Comprehending Work and Energy*. All racers should complete the first lap which introduces the concepts of rigidity and deals with terminology that the racer might hear, e.g., axes-of-rotation. Many racers will find insights in the second lap dealing with “how your vehicle moves”. Other racers will find useful information in the last tech-lap that considers how energy “shape shifts” via conservation laws. “Buckle up” and don’t let a few equations scare you from reading the safety principles.

Section Details

1. Rigid Behavior :
Rigidity, Moment & Axes-Of-Rotation, Force & Rotational Directions, and Types of Motion.
2. Laws of Motion:
External Force, External Moment, Inertia Forces & Moments, and Conservation of Momentum.
3. Comprehending Work and Energy:
Work, Heat, Storable Energy, and Conservation of Energy.