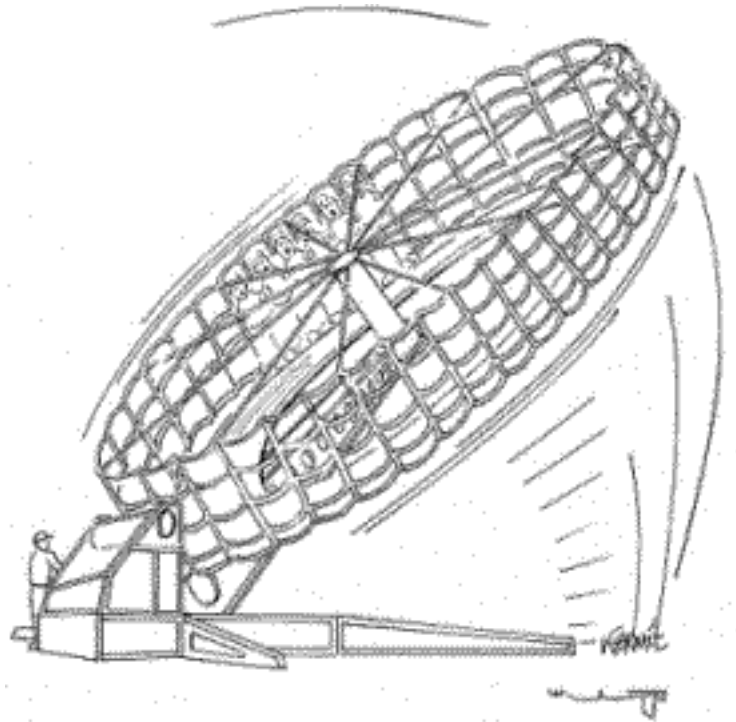
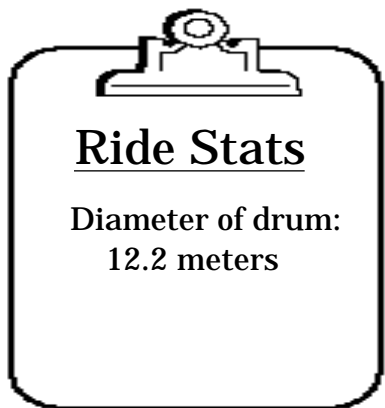


The Super Round Up



Measurements

Max. angle of incline: _____

Period of Rotation: _____

Notes:

For the following tasks, assume that the mass of a rider is 60 kg.

Task 1:

Calculate the following for a person just before the drum starts to tilt:

- a. their tangential velocity.
- b. their centripetal acceleration.
- c. the centripetal force on their body.

Task 2:

Using an accelerometer, measure the centripetal acceleration while riding on the Super Round Up. Record your measurements below. Describe any variations in the measurements. Compare your measurements to those calculated in task 1 and explain any differences.

Task 3:

Draw free body diagrams showing the forces on a rider at the highest and lowest points on the ride. Label the forces as follows:

centripetal force -- $\mathbf{f_c}$, force of static friction -- $\mathbf{f_s}$ the force due to gravity -- \mathbf{mg}