



# South Waterloo Area Kub Kar

Registration & Tune Up nights **Feb 28/Mar 1**

Race – March 5, Southwood Secondary School

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**The following are various suggested methods of making your vehicle the fastest around.**

**They are presented in no specific order.**

**Do your best!**

**Thanks to 1<sup>st</sup> Merrickville for this great info!**

- 1 Weight the vehicle to the maximum allowed. Try using wood screws with washers under them you so can add or remove the washers as necessary.
- 2 Put the weight towards the rear of the car. In this manner, the weight has the highest distance to maximize potential energy.
- 3 Insure that your vehicle tracks straight. Watch it run down a shallow incline. Good tracking will minimize the wheels rubbing against the sides of the track.
- 4 Sand off any ridges on the surface of the wheels and polish the surface smooth.
- 5 Burnish the inside of the wheel hubs. Use a pipe cleaner or take a thin metal rod, insert through the axle hole, and roll the wheel while pressing down hard.
- 6 Ensure your wheels roll smoothly and are not binding. A good test is to spin each of your wheels with your finger and let them run to a stop. It should take 10-20 seconds for well tuned wheels to stop completely.
- 7 Never roll your competition vehicle on the ground or concrete. These rough and dirty surfaces can ruin the vehicle's wheels, axles and alignment.
- 8 Shape the vehicle to a low profile to minimize resistance to the air-stream. Character figurines glued to the car and other excessive trim can slow down a car. Multiple cars can be entered: make one for racing and one for the design competition.
- 9 Remove any metal webs/ridges that reach from the nail head to the shaft. These are small but will ride next to the outer wheel surface. Use a fine file to remove these webs. The axle can be mounted in a drill.
- 10 Axles should be polished to provide a surface for the wheel to roll without restriction. Use a good metal polish and soft cloth for this step. The axles can again be mounted in a drill.
- 11 File down the edges of the chisel point on the axle. If nails are inserted through the wheel without filing the edges, the inside hub of the wheel may be scored.
- 12 Use a wheel spacer to give 1/32" clearance between the wheel hub and the body. (take the spacer out before registration)
- 13 When positioning the vehicle on the track ensure it is pointing directly down the track and that all wheels are centred between the body and the nail head.
- 14 Give the vehicle a nice smooth paint job. Paint well before the race so the paint is not tacky and sticks to the wheels.
- 15 Ensure all four wheels rest on the track. Wheels that bob up and down decrease the energy available for speed.
- 16 Decrease the weight of the wheels. Ensure the wheel stays balanced and that the tread profile contacting the track is not changed.
- 17 Under cut the inside of the plastic wheel hub to reduce the contact area between the wheel and the axle.

**Ensure all race rules are obeyed to prevent disqualification**

**This document can be found on our web site at [www.scouts-sw.ca/KubKar.htm](http://www.scouts-sw.ca/KubKar.htm)**