"Scout Billy Kart Challenge"

Billy Kart Specifications

- ★ Billy Kart Minimum width 750mm. Maximum length 1500mm; (Minimum width to reduce roll over probability)
- ★ No steel (or other metal) framed billy karts; (Reduce penetration or sharp corner penetration or crush injuries. Getting hit in the shins or the back of the ankles with a wooded cart hurts, but it is a lot less likely to cause serious injury than a metal framed cart).
- ★ The billy cart centre stay and cross pieces are to be constructed of wood and the centre stay should be of hard wood. (Reduce splintering of the centre stay on impact).
- ★ No sharp protrusions;
- ★ No fixed steering wheel or other fixed devices (eg Braking bar) which may cause a chest crush injury in a collision or roll over;
- ★ Foot steering on front axle with rope control; (to maximise steering control – billy kart needs to accommodate scouts of differing leg reach)
- ★ Foot braking systems only (so that scouts do not need to let go of the rope steering mechanism)
- ★ Steering limiter (A block of wood must be secured to billy kart centre stay so that the steering axle can only rotate 45 degrees in either direction).
- ★ Wheel diameter is to be a maximum 260mm and spoked wheels or wheels with any holes that a finger may enter are NOT to be used;
- ★ Billy karts must have four wheels (No three wheel billy karts – high probability of roll-over).
- ★ Push bars are acceptable but must not exceed the width of the billy kart and no sharp protrusions.

Billy Kart braking system (Recommended)
The Billy Kart braking system must be able to slow the billy kart to a controllable speed. It is not intended to bring the billy kart to an immediate stop unless sufficient downward force is applied. The intent is that the Scout will maintain full steering control with rope and leg pressure upon the front axle. Braking is achieved without removing the foot from the front axle. To brake (slow down) the Scout applies pressure to the braking pad by their heel whilst maintaining pressure to the front axle and thus maintaining direction control.

Similar braking (speed retardation) can be achieved by using the traditional cut up 'car tyre' braking system placed in a similar position.

Billy Kart braking system
On this billy kart, the braking system pads (2 x Pieces of hardwood decking 90mm x 250mm x 19mm) are attached to the front axle using 200mm Tee hinges (made by syneco - $7.00 a pair from Bunnings). When no pressure is applied there is no retardation of billy kart speed and the upward movement of the brake pad is limited by the hinge mechanism itself.

Billy Kart steering limiter (Recommended)
The billy kart steering limiter stops the front axle from suddenly snapping back in an out of control or collision situation and thus minimises the risk of a serious ankle injury. The limiter can be placed to allow greater or less turning circle. The limiter is not to allow greater than 45 degrees movement of the front axle.

One needs to ensure the braking mechanism does not interfere with the steering limiter.

"Safety first"
In a potential collision or "out of control" situation the Scout has only seconds (or milliseconds) to apply a braking force to slow their kart, whilst maintaining some control of the billy kart. Repositioning their feet to find a foot brake, or 'letting go' the steering rope to locate a hand brake, is unlikely to avoid an accident. The recommended braking system may provide the reaction time necessary.