Billy Cart Rules and Specifications Booklet

Compiled by Chris Rowe – 22nd June 2016

NDMA Billy Cart/G-Bike Rules

Open Billy Cart Rules:

1. **Description**

   The Billy Cart is a single seat vehicle where its only power source is "Gravity". To be classed as a Billy Cart the vehicle must have at least four wheels with a minimum diameter of 200mm (8") and a maximum diameter of 700mm (27") fitted to a minimum of 2 axles, so basically a wheel on the four corners of the Billy Cart. The carts maximum weight is 80kg which includes any ballast.

   At no stage shall there be a motor or any form of mechanical assistance (Magnet, any type of chain drive or gravity motor) to aid in the propuslion of the vehicle, if any are found the vehicle shall be disquallified instantly from the event.

2. **Decisions on Specification changes**

   2.1 NDMA will have the final say on anything that comes up that is not mentioned in the current Specifications document.

   2.2 Any change to the current Specifications Document (be it general or safety orientated) the changes will be published on the NDMA web page as soon as possible.

3. **Specification Compliance**

   3.1 Until your vehicle has passed Scruitineering, it is not to be operated on the track be it practice or racing

   3.2 At no time through out the event shall you alter your Billy Cart such that it breached the Specifications, it must remain as it was once Scruitineered.

   3.3 At no time shall you add extra ballast to your Billy Cart after Scruitineering, we reserve the right to inspect any cart during the event. We will also have the scales set up at the finish line to be able to weigh the carts as they go through the event.

   3.4 All carts ***CAN & MAY*** be weighed upon completion of the elimination rounds to ensure a good and fair competition.

   3.5 Everyone that competes in or builds these carts is reminded that they have a duty of care in the construction of the carts and their use in the event. The driver must keep an eye on the cart to ensure its integrity doesn't change such that it can effect their safety and others in the event.

   3.6 Should anyone have any questions on the Specifications documents that follow this document, please feel free to contact the NDMA Billy Cart Committee at any time for clarification.

4. **Cart, Driver and Spectator Safety**

   4.1 Each Driver/Team is responsible for their own vehicle complience to the Specifications document and safety complience at all times.

   4.2 At no time does NDMA take responsibility for injury of the driver, all vehicles are driven/ridden at the drivers own risk.

4.3 The use of non metalic, composite materials must be such that it provides the upmost safety for the Driver and all competing at the event, and that it is capable of withstanding the pressures exerted onto it from the event course. It may be necessary to prove to the scruitineers the strength of this material.

4.4 The major design consideration of any vehicle must be such that it provide the maximum protection for the driver during a roll over or a collision during the event.

4.5 All vehicles must be such designes to ensure there are no protrusions or anything else in the design that can cause any interference or injury to the driver or any other person on the track.

4.6 The design of the roll over protection must be such that there must be at minimum 50mm clearance above the helmet, if this is not present the vehicle will be not allowed to compete in the event. This clearance shall be monitored through out the event and should it be seen that this clearance has changed the vehicle will be not allowed to continue.

4.7 The Rollover protection for the vehicle needs to be structually integrated with the vehicle chassis/frame, it needs to be rigid and robust enough to meets it purpose and it must also entirely encompass the driver when viewed from the front or rear.

4.8 All steel tubing that is to be bent shall be bent as per the minimum bending radius recomemnded by the manufacturer to ensure maximum strength is maintained in the structure.

4.9 The Drivers cockpit area needs to ensure the ability for full movement of the drivers head (in a helmet) to be able to see to the LHS and the RHS of the vehicle.

4.10 Any body panels that are required to be closed and opened to gain entry/exit to the vehicle must be able to be opened from either the inside by the driver or externally by another person with out any assistance from the driver.

4.11 Should you feel the need to fit lights or similar to your vehicle, the use of Lead Acid Batteries (Liquid filled) are not to be used. All batteries are to be securely mounted so as to protect them from shorting/damage out in the event of a collision or a roll over or in general coming loose during the event/race.

4.12 At no stage shall there be any body part of the vehicle body with in 300mm of the horizontal plain of the drivers face. For example, the edge of the cockpit wraparound/opening, this includes all materials that are deemed to be rigid (metalic or non metalic)

4.13 At no stage shall body weights be added to the rider, shall weights be found on the driver during the event, they shall be disqualified.

5. Drivers Riding Position

The driving position for all vehicles shall be such that the drivers feet are forward of the seat position and the drivers eye level must be at a minimum 600mm from the road.

6. Vehicle Construction

6.1 There are no limitation as to what you can use in the construction of your vehicle, you are able to use any type of bike system, brake system, wheels and hubs etc in your build including the entire bicycle frame.

6.2 You are able to utilise an existing frame from a Go-Cart or a Motor Bike frame as the basis of your build also.

6.3 The use of bicycle front forks for anything but in the front of the vehicle is prohibited, and when used in the front they can be used in a verticle position or with no more than a 15° of rake.

6.4 The use of the rear bicycle frame is permited to be used at the rear of the vehicle due to its rigid design.

6.5 At any stage you are unsure of certain components you wish to utilise in your build, please feel free to contact the NDMA Billy Cart Committee for clarification.

7. <u>Wheelbase, Wheels and Track Specifications</u>

With the design of the NDMA Start Ramps, there is a requirement for all vehicles to meet some minimum and maximum dimensions and they are as follows:

- Maximum Length: 2500mm
- Maximum Width: 1500mm
- Maximum Track Width: 1100mm
- Minimum Wheelbase: 1300mm
- Maximum Weight: 80kg

Please consult the Specifications document for further referance as there is a very basic drawing showing the measurements as stated above.

8. <u>Floor Pan of Vehicle</u>

8.1 All vehicles MUST have a floor pan fitted to them such to provide protection for the drivers feet, legs or hands coming in contact with the road surface below when seated in the vehicle.

8.2 The floor pan must cover enough area to provide ample protection of the rider as above in 8.1

9. <u>Protection of Moving/Rotationg Parts</u>

9.1 All moving and rotating parts are to be treated as dangerous and thus must be protected/guarder to ensure that no part of the rider or their clothing can make contact with them or become entangled in them.

9.2 If there is a chance that the rider can make contact with spoked wheels then these will also need to be guarded to prevent this from happening also.

10. <u>Seat Belts</u>

10.1 All vehicles shall be fitted with an approved Seat Belt

10.2 At minimum a Lap Sash style of belt can be used but a four point harness is recommended to ensure the driver is held in the vehicle securely during a collission/rollover.

10.3 All belts and their mounting points shall be inspected thoughly during scruitineering and frayed, cut or restitched belts will not be accepted and at no time will ratchet straps be accepted.

11. <u>Steering Systems</u>

11.1 There will be a requirement for your vehicle to turn to the right and the left, and you may be asked to prove your steering ability at scruitineering.

11.2 The steering must be such that it can move through its entire movement smoothly and uninterupted and with out binding on any body part of the vehicle or the driver.

11.3 The steering must also have some sort of a steering maximum lock so as to stop the chance of the steering system binding up or hitting any part of the body.

11.4 The steering wheel must be positioned such that it is no closer than 300mm from the drivers face so as to limit injury in the event of an accident. The controls general design and layout must also be designed and constructed so as not to injure the drive should it be involved in an accident.

11.5 Under no circumstances shall a rope steering system be used as they lack the ability of full control of the vehicle.

12. <u>Vehicle Braking Systems</u>

12.1 All vehicle shall only have rear Brakes fitted to to act on BOTH Wheels/Rims

12.2 Brakes can be either bicycle style Rim Brakes or friction style on the tyres

12.3 Disc Brakes and or Drum Brakes are also permited for use

12.4 Front brakes are not permitted what so ever on the vehicles as per item # 12.5

12.5 All braking systems must be such that they operate efficiently in all conditions and do not interfere with the vehicles directional control when they are operated.

12.6 The brakes must be such that they still operate efficiently as they wear down through out the event.

12.7 All brake controls must be positioned in an accessable location and away from all moving parts such as to restrict the chances of injury to the driver or even to comprimise the braking system of the vehicle.

12.8 The vehicle braking system WILL be tested thoughly during the scruitineering process.

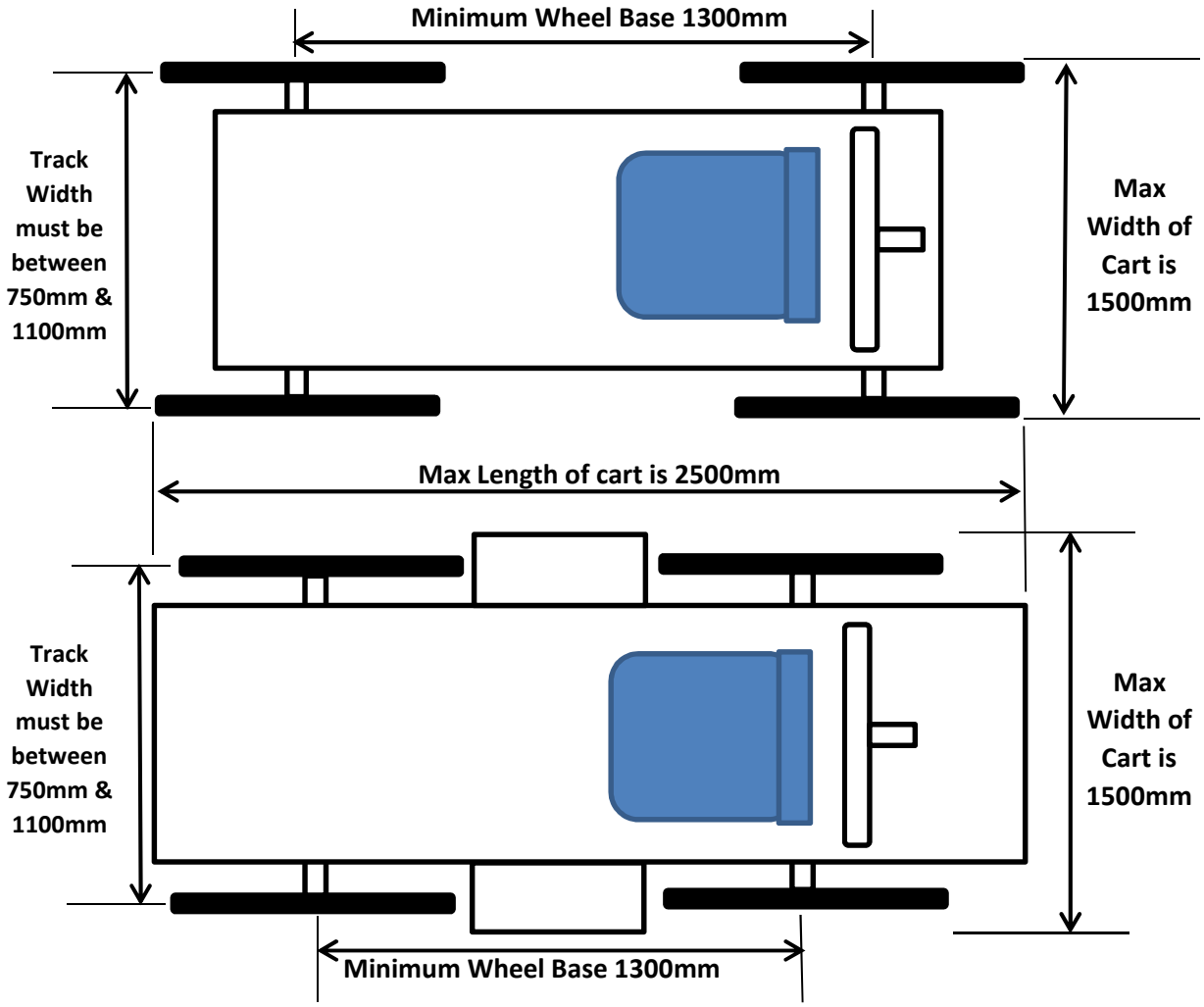
13. <u>Drivers Vision</u>

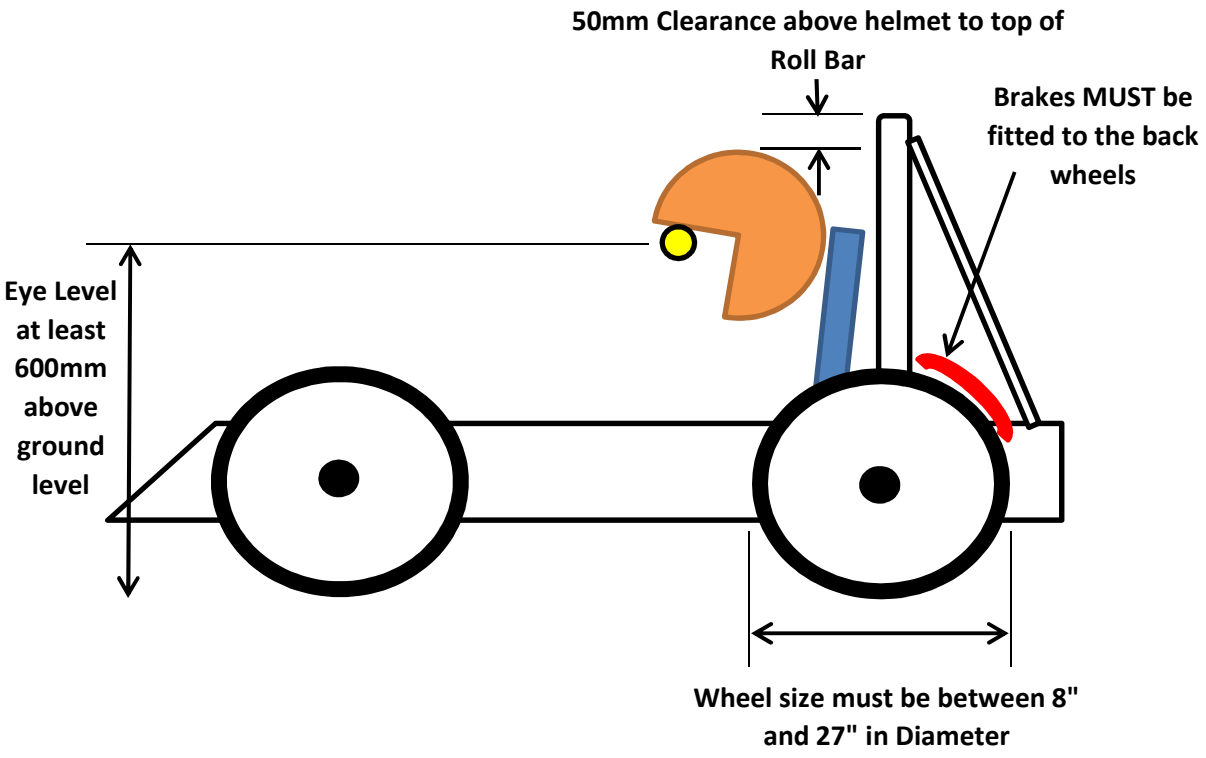
The driver when seated in the vehicle MUST be able to see at minimum an object on the road 5m infront of the vehicle

Please consult the following Specifications Sheets for the Open Billy Carts and don't forget to feel free to ask any questions prior to arriving at the event to assist in your build process..

Billy Cart Dimensions as per the Design Rules and Regulations

Open Billy Cart





Wooden Billy Cart Rules:

14. Description

The Wooden Billy cart is just as it sounds, it frame is totally made of wood, it is the most basic of the Billy Cart Family and treated as entry level design. It is a single seat vehicle where its only power source is "Gravity". To be classed as a Billy Cart the vehicle must have at least four wheels with a maximum diameter of 700mm (27") fitted to a minimum of 2 axles, so basically a wheel on the four corners of the Billy Cart. The carts maximum weight is 50kg which includes any ballast.

At no stage shall there be a motor or any form of mechanical assistance (Magnet, any type of chain drive or gravity motor) to aid in the propuslion of the vehicle, if any are found the vehicle shall be disquallified instantly from the event.

15. Decisions on Specification changes

15.1 NDMA will have the final say on anything that comes up that is not mentioned in the current Specifications document.

15.2 Any change to the current Specifications Document (be it general or safety orientated) the changes will be published on the NDMA web page as soon as possible.

16. Specification Compliance

16.1 Until your vehicle has passed Scruitineering, it is not to be operated on the track be it practice or racing

16.2 At no time through out the event shall you alter your Billy Cart such that it breached the Specifications, it must remain as it was once Scruitineered.

16.3 At no time shall you add extra ballast to your Billy Cart after Scruitineering, we reserve the right to inspect any cart during the event. We will also have the scales set up at the finish line to be able to weigh the carts as they go through the event.

16.4 All carts ***CAN & MAY*** be weighed upon completion of the elimination rounds to ensure a good and fair competition.

16.5 Everyone that competes in or builds these carts is reminded that they have a duty of care in the construction of the carts and their use in the event. The driver must keep an eye on the cart to ensure its integrity doesn't change such that it can effect their safety and others in the event.

16.6 Should anyone have any questions on the Specifications documents that follow this document, please feel free to contact the NDMA Billy Cart Committee at any time for clarification.

17. Cart, Driver and Spectator Safety

17.1 Each Driver/Team is responsible for their own vehicle complience to the Specifications document and safety complience at all times.

17.2 At no time does NDMA take responsibility for injury of the driver, all vehicles are driven/ridden at the drivers own risk.

17.3 The use of non metalic, composite materials must be such that it provides the upmost safety for the Driver and all competing at the event, and that it is capable of withstanding the pressures exerted onto it from the event course. It may be necessary to prove to the scruitineers the strength of this material.

17.4 All vehicles must be such designes to ensure there are no protrusions or anything else in the design that can cause any interference or injury to the driver or any other person on the track.

17.5 At no stage shall body weights be added to the rider, shall weights be found on the driver during the event, they shall be disqualified.

18. Drivers Riding Position

The driving position for all vehicles shall be such that the drivers feet are forward of the seat position and the drivers eye level must be at a minimum 600mm from the road.

19. Vehicle Construction

19.1 There are no limitation as to what you can use in the construction of your vehicle.

19.2 At any stage you are unsure of certain components you wish to utilise in your build, please feel free to contact the NDMA Billy Cart Committee for clarification.

20. Wheelbase, Wheels and Track Specifications

With the design of the NDMA Start Ramps, there is a requirement for all vehicles to meet some minimum and maximum dimensions and they are as follows:

- Maximum Length: 2500mm
- Maximum Width: 1500mm
- Maximum Track Width: 1100mm
- Maximum Weight: 50kg

Please consult the Specifications document for further referance as there is a very basic drawing showing the measurements as stated above.

21. Floor Pan of Vehicle

21.1 All vehicles MUST have a foot rest fitted to them such to provide protection for the drivers feet coming in contact with the road surface below when seated in the vehicle.

22. Seat Belts

22.1 N/A For Wooden Billy Carts Category

23. Steering Systems

23.1 There will be a requirement for your vehicle to turn to the right and the left, and you may be asked to prove your steering ability at scruitineering.

23.2 The steering must be such that it can move through its entire movement smoothly and uninterupted and with out binding on any body part of the vehicle or the driver.

23.3 The steering must also have some sort of a steering maximum lock so as to stop the chance of the steering system binding up or hitting any part of the body.

23.4 The steering loop must be positioned such that it is no closer than 300mm from the drivers face so as to limit injury in the event of an accident. The controls general design and layout must also be designed and constructed so as not to injure the drive should it be involved in an accident.

23.5 Under no circumstances shall a rope steering system be used as they lack the ability of full control of the vehicle, it MUST be a steel loop to provide maximum steering control.

24. Vehicle Braking Systems

24.1 All vehicle shall only have rear Brakes fitted to act on BOTH Wheels/Rims

24.2 Brakes can be either bicycle style Rim Brakes or friction style on the tyres

24.3 Disc Brakes and or Drum Brakes are also permited for use

24.4 Front brakes are not permitted what so ever on the vehicles as per item # 24.5

24.5 All braking systems must be such that they operate efficiently in all conditions and do not interfere with the vehicles directional control when they are operated.

24.6 The brakes must be such that they still operate efficiently as they wear down through out the event.

24.7 All brake controls must be positioned in an accessable location and away from all moving parts such as to restrict the chances of injury to the driver or even to comprimise the braking system of the vehicle.

24.8 The vehicle braking system WILL be tested thoroughly during the scruitineering process.

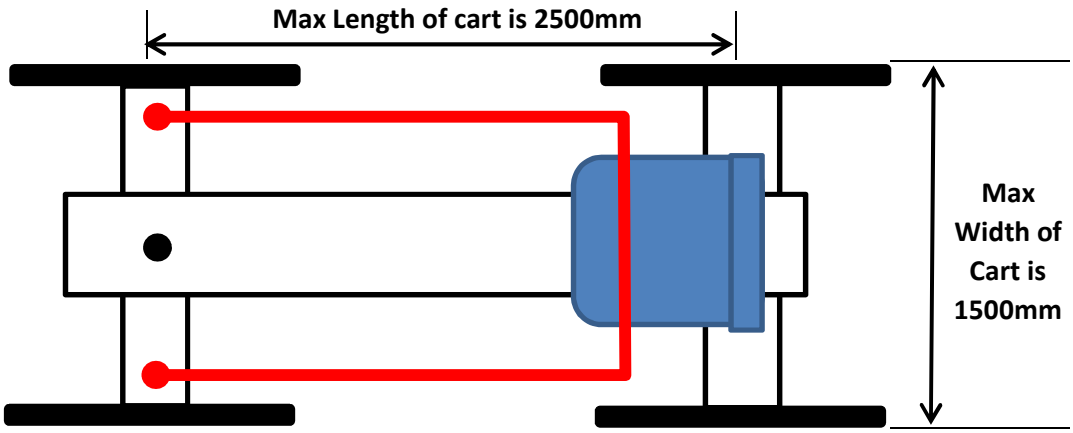
25. <u>Drivers Vision</u>

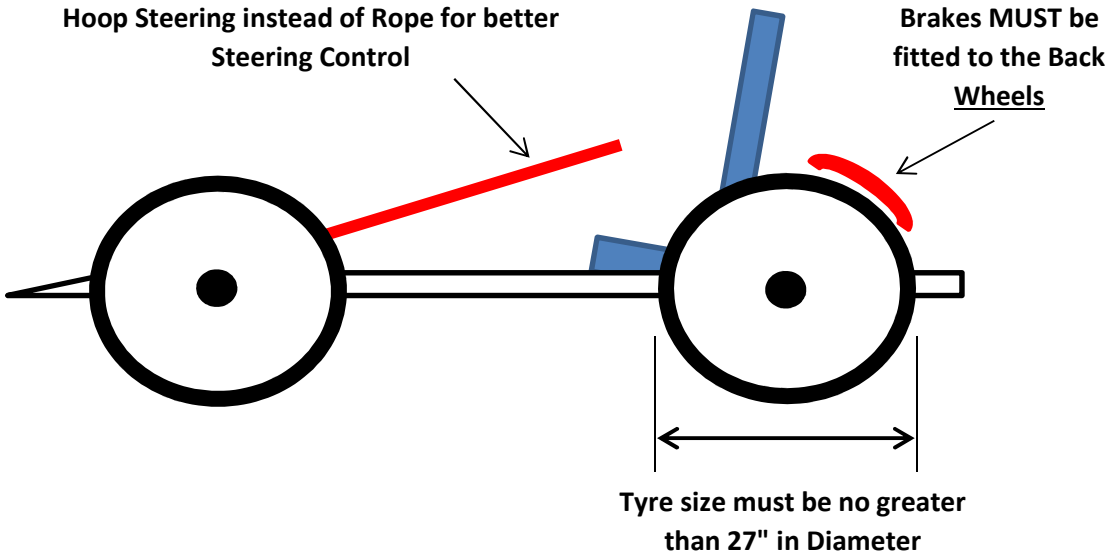
The driver when seated in the vehicle MUST be able to see at minimum an object on the road 5m infront of the vehicle

Please consult the following Specifications Sheets for the Wooden Billy Carts and don't forget to feel free to ask any questions prior to arriving at the event to assist in your build process..

Billy Cart Dimensions as per the Design Rules and Regulations

Wooden Billy Cart





G-Bike Rules:

26. Description

The G-Bike is a single seat bike style vehicle. It shall have no more than 2 wheels at a maximum of 26" diameter. The G-Bike's maximum weight is 35kg, no ballast is permitted to be added to the bike.

At no stage shall there be a motor or any form of mechanical assistance (Magnet, any type of chain drive or gravity motor) to aid in the propuslion of the vehicle, if any are found the vehicle shall be disquallified instantly from the event.

27. Decisions on Specification changes

27.1 NDMA will have the final say on anything that comes up that is not mentioned in the current Specifications document.

27.2 Any change to the current Specifications Document (be it general or safety orientated) the changes will be published on the NDMA web page as soon as possible.

28. Specification Compliance

28.1 Until your G-Bike has passed Scruitineering, it is not to be operated on the track be it practice or racing

28.2 At no time through out the event shall you alter your G-Bike such that it breached the Specifications, it must remain as it was once Scruitineered.

28.3 At no time shall you add ballast to your G-Bike after Scruitineering, we reserve the right to inspect any G-Bike during the event. We will also have the scales set up at the finish line to be able to weigh the G-Bikes as they go through the event.

28.4 All G-Bike will be weighed upon completion of the elimination rounds to ensure a good and fair competition.

28.5 Everyone that competes in or builds these G-Bike is reminded that they have a duty of care in the construction of the G-Bikes and their use in the event. The driver must keep an eye on the G-Bike to ensure its integrity doesn't change such that it can effect their safety and others in the event.

28.6 Should anyone have any questions on the Specifications documents that follow this document, please feel free to contact the NDMA Billy Cart Committee at any time for clarification.

29. G-Bike, Driver and Spectator Safety

29.1 Each Rider/Team is responsible for their own vehicle complience to the Specifications document and safety complience at all times.

29.2 At no time does NDMA take responsibility for injury of the driver, all G-Bike are ridden at the riders own risk.

29.3 The use of non metalic, composite materials must be such that it provides the upmost safety for the Rider and all competing at the event, and that it is capable of withstanding the pressures exerted onto it from the event course. It may be necessary to prove to the scruitineers the strength of this material.

29.4 All G-Bike must be such designes to ensure there are no protrusions or anything else in the design that can cause any interference or injury to the driver or any other person on the track.

29.5 All steel tubing that is to be bent shall be bent as per the minimum bending radius recomemnded by the manufacturer to ensure maximum strength is maintained in the structure.

29.6 Should you feel the need to fit lights or similar to your G-Bike, the use of Lead Acid Batteries (Liquid filled) are not to be used. All batteries are to be securely mounted so as to protect them from shorting/damage out in the event of a collision or a roll over or in general coming loose during the event/race.

29.7 At no stage shall body weights be added to the rider, shall weights be found on the driver during the event, they shall be disqualified.

30. Drivers Riding Position

The riding position for all vehicles shall be such that the driver has a leg on each side of the G-Bike frame when seated.

31. Vehicle Construction

31.1 There are no limitation as to what you can use in the construction of your vehicle, you are able to use any type of bike system, brake system, wheels and hubs etc in your build including the entire bicycle frame.

31.2 If the bike has peddles still fitted they must be either removed or locked in position to disable them.

31.3 In the Stock Class, the frame and forks must be from a normal production bike and not specially constructed.

31.4 In Stock Class no body kits are allowed.

31.5 In Clustom Class, body kits are accepted but must be made from mon metalic materials, plastic, fibreglass, paper, carboard or aluminium is permitted.

31.6 Foot pegs and kneeler boards are permitted for use.

31.7 At any stage you are unsure of certain components you wish to utilise in your build, please feel free to contact the NDMA Billy Cart Committee for clarification.

32. Wheelbase, Wheels and Track Specifications

There is a requirement for all vehicles to meet some minimum and maximum dimensions and they are as follows:

- Minimum Wheelbase: 1270mm
- Handle Bar width shall be no wider than the rider.
- Maximum Weight: 35kg

Please consult the Specifications document for further referance as there is a very basic drawing showing the measurements as stated above.

33. Protection of Moving/Rotationg Parts

33.1 All moving and rotating parts are to be treated as dangerous and thus must be protected/guarder to ensure that no part of the rider or their clothing can make contact with them or become entangled in them.

33.2 If there is a chance that the rider can make contact with spoked wheels then these will also need to be guarded to prevent this from happening also.

34. Steering Systems

34.1 There will be a requirement for your vehicle to turn to the right and the left, and you may be asked to prove your steering ability at scruitineering.

34.2 The steering must be such that it can move through its entire movement smoothly and uninterupted and with out binding on any body part of the vehicle or the driver.

34.3 The steering must also have some sort of a steering maximum lock so as to stop the chance of the steering system binding up or hitting any part of the body.

35. <u>Vehicle Braking Systems</u>

35.1 All vehicle shall only have front & rear Brakes fitted to them.

35.2 Brakes can be either bicycle style Rim Brakes or Disc/Drum Brakes

35.3 All braking systems must be such that they operate efficiently in all conditions and do not interfere with the vehicles directional control when they are operated.

35.4 The brakes must be such that they still operate efficiently as they wear down through out the event.

35.5 All brake controls must be positioned in an accessable location and away from all moving parts such as to restrict the chances of injury to the driver or even to comprimise the braking system of the vehicle.

35.6 The vehicle braking system WILL be tested thoughly during the scruitineering process.

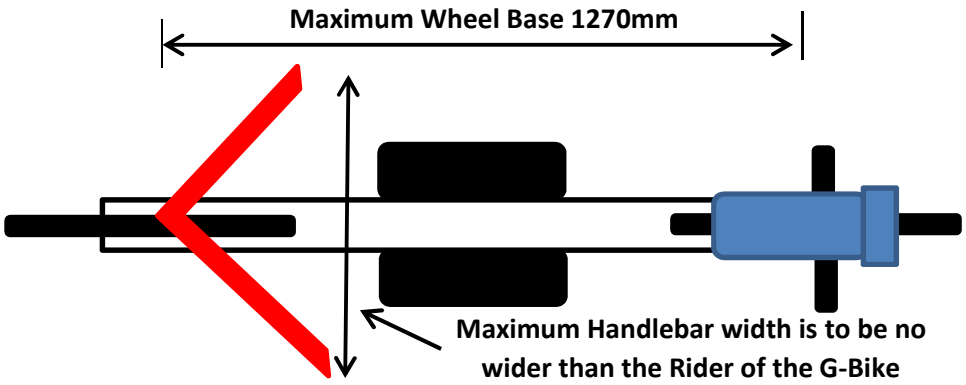
36. <u>Riders Vision</u>

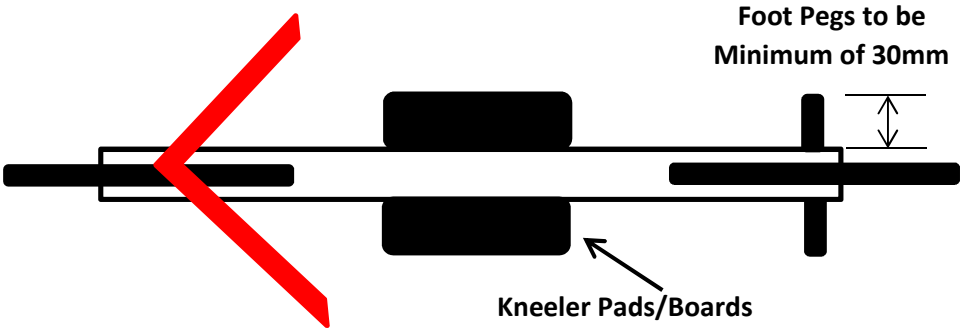
The Rider when seated in the vehicle MUST be able to see at minimum an object on the road 5m infront of the vehicle

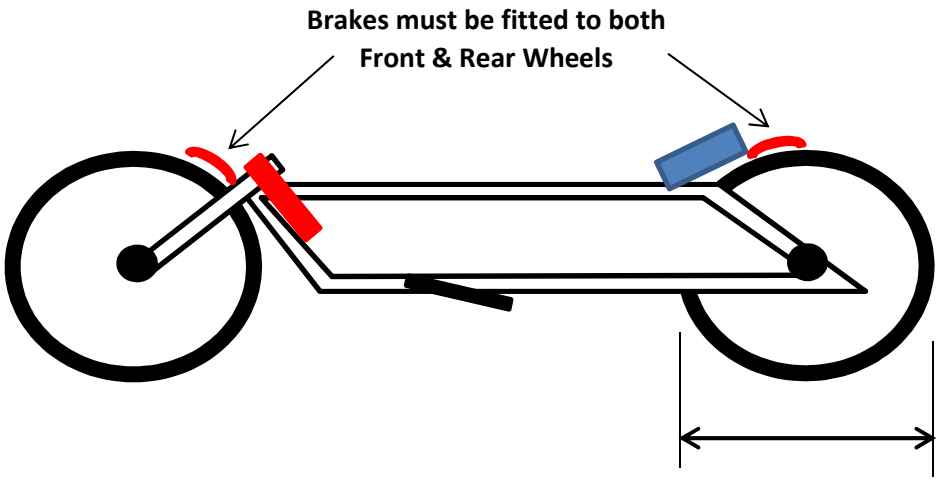
Please consult the following Specifications Sheets for the G-Bike and don't forget to feel free to ask any questions prior to arriving at the event to assist in your build process..

Billy Cart Dimensions as per the Design Rules and Regulations

G-Bike Basic Specs







Maximum Wheel is 26" in Diameter