

# PINEWOOD DERBY RULES, 2017

Compiled by Rich Dush, Pack 92

## ALL CARS MUST MEET THE FOLLOWING RULES AND SPECIFICATIONS

1. For the Den/Pack/District/Council race, each participant may enter only one (1) car. The car must be built for the same year it is to compete. No car that has raced in previous years is eligible.
2. The Tiger/Cub/Webelos Scout needs to be present for the car to compete. Any exception, such as hospitalization, may be considered by the Race Committee, provided that they are notified as far in advance as reasonably possible.
3. The race may be an elimination event or a best time event. The format used will be determined by the Race Committee prior to the start of the race.
4. ONLY the official Cub Scout Grand Prix Pinewood Derby wheels, axles and body are to be used. The finished car will meet the following specifications.
  - A. Width -overall width will not exceed 2-3/4".
  - B. Length – overall length will not exceed 7".

Wheels are not permitted to extend past the front or rear of the car body.
  - C. Width – between wheels – will not be less than 1-3/4".
  - D. Bottom Clearance – clearance between car and track will not be less than 3/8".
  - E. Height – will not exceed 5 1/2" so that it will clear track timer.
  - F. You may not significantly change the wheel dimensions. Wheels may be sanded/lathed/filed to smooth out molding imperfections in the tread area. The contact surface of the wheel must be flat as it sits on the track. Beveling, tapering, significant rounding, pointing, shaving, concave, wafering, etc. of the wheel contact area is prohibited. The outside (OD) wheel diameter cannot be less than 1.170 inches. All wheels must have the raised BSA – PINEWOOD DERBY letters on the outside surface of the wheel. The overall wheel width, including the sidewall but excluding the raised lettering, cannot be less than .320 inches. (See Pictures and Notes)
  - G. A Go-No-Go measuring device may be used to measure both the car body and its wheels. A car that is within the specifications will fit into the box with the door closed and pass wheel inspection.
  - H. Weight – will not exceed 5 ounces (141.7 grams) as weighed on official race day scale. Only one scale will be designated as the official scale.
5. Each car will be assigned a number for the race. That number (sticker) must be attached to the top of the car in such a manner so that the front end of the car is easily identifiable by the Race Committee. After registration, inspection and weigh-in the car will be impounded. You will not be allowed access to your car. A car cannot be repaired, lubricated, etc. after weighing-in, except at the discretion of the Race Committee. Race officials may authorize repairs when damage is caused by collision with another vehicle or object, or if a part of the car falls off which is necessary for the car to continue in the competition, such as a wheel.
  1. Repairs must be completed within a limited time allowed by the Race Officials.
  2. Cars that are repaired may be re-checked at the discretion of the Race Official.
  3. Other exceptions are allowed at the discretion of Race Officials.
6. Any part of the car that falls off, and is not required for the car to race i.e. plastic driver, weights, decals, etc., may not be replaced or repaired.
7. Any part of the car that becomes loose, or causes or may cause interference with another car, must be removed as determined by the Race Committee.
8. Angled (canted) axles and/or wheels are permissible.
9. Wheel bearings, washers, sleeves and bushings are prohibited.
10. The car is not permitted to ride on springs of any type.
11. Wheel covers or hub caps are prohibited, the head of the axle (nail) must be viewable for inspection.

12. The axils (nails) maybe polished, cleaned, rounded, etc. and stamping imperfections removed.
13. The wheel and axle lubricant is may be of dry powder type, such as powdered graphite or liquid oil . Solid powders or flakes, e.g., graphite or Teflon, or oils may be used but only if no excess is visible and will not harm the track. No lubricant can be used that alters the race conditions of the track.
14. Other Items - Details such as steering wheel, driver, paint, decorations and decals are permissible as long as these details do not exceed the width, length, height, clearance and weight specifications. All details must be securely attached to the car.
15. All cars will be freewheeling with no starting devices and powered only by gravity. The car may not be constructed or treated so that it uses the track's starting mechanism to gain momentum.
16. Liquids, magnets and slip weights are prohibited.
17. All weights must be securely attached to the car. The car body is to have no moving parts that may add to the cars speed.
18. Any car with wet paint, wet glue, etc. at the time of registration shall not be accepted. No part of the car is to be sticky or tacky to the touch.
19. No car will be permitted to race if parts are made to intentionally come off during the race or interfere with another race car.
20. The cars will rest against a starting pin; therefore it is advisable that they do not come to a sharp point in front. The car nose must be flat (not pointed) for at least 3/8" where it contacts the guide post.
21. No part of the car will be permitted to extend past the starting pin. Cars, which do have the front end extend past the starting pin may be raced backwards, providing none of the rear of the car extends past the starting pin. -- Any modifications are to be made prior to weighing in
22. If after a reasonable effort is made to stage the car at the starting line and it still unable to be properly lined up, the Race Committee may either disqualify the car or allow the car to be modified in order for it to be staged. Race Officials may re-inspect the car.
23. If, during a race, no car reaches the finish line on the track, the car that went the farthest in its lane, shall be declared as the heat winner. If it is a best time event, then a time will be assigned to any car that fails to cross the finish line.
24. A car which leaves the track in three (3) consecutive races, it is disqualified. EXCEPTION: When a car is caused to leave the track because of a collision with another car or a track defect.
25. If a car leaves its lane or fails to reach the finish line, the Race Chairman at his sole discretion, may inspect the track and, if a track fault is found which probably caused the Initial violation; the Race Committee may order the race and/or car(s) to be rerun after the track is repaired.
26. If, during a race, a car leaves the track without interfering with its opponent, provided it was not caused by a track problem, it shall be considered to have ended its heat at that point.
27. If, during a race, a car leaves its lane and, in so doing, interferes with another racer, then the car at fault shall be declared to have lost the race heat. If three or more cars are racing, the car causing the interference will not be permitted to run in that re-race. If a best time event, the car(s) that were interfered with will be re-raced and the car that caused the interference will be assigned a time or will be considered as did-not-finish for that round.
28. Scouts shall be responsible for presenting their own car at the Start Line staging area and returning it to the Pit Area after each race. Scouts are only allowed to handle their own car and should not touch or handle any other cars. Parents are not to handle or make adjustments to the car during the races.

## Rules and Rule Clarifications

**INSPECTION** Each car must pass an inspection by the Inspection Committee before it may complete. The inspectors have the right to disqualify any cars which do not meet the rules and specifications outlined above. If a car does not pass inspection, the owner (Cub Scout) will be informed of the reason for failure and will be given a time within the official registration period to make adjustments. The inspection tools used by the Race committee are official and final. It will not matter what any other scale/tape measure/micrometer/ etc. reads, the inspection tools used the day of the race are official. This ensures every car is inspected to the same standards. If the scale reads 5.01 oz., then the car is overweight and will not pass inspection. If the wheel gage slips over the wheel easily, then the wheel/car will not pass. The wheel gauge is sized one-thousandth of an inch smaller than the printed measurement. So if, for example, a wheel measures exactly 1.170, it will not fit into the 1.170 OD gauge and will pass inspection (because it complies with the 1.170 minimum OD specifications). If the Derby car does not fit correctly into the inspection box it will not pass inspection due to size specifications. All efforts to assure the accuracy of the inspection tools are taken prior to the race and will not come into question.

**EXTENDED WHEEL BASE/ CAR BODY:** The axel grooves provided in the block of wood can be, but do not have to be used. There are several problems with restricting builder to just slot positions. Wheel camber is not guaranteed horizontal, and the slot separation can vary up to 1/2" in different kits. The wheelbase may be extended, but the wheels are not to extend past the front or rear of the car body. Depending upon the track, the front of the car may rest against a short starting pin. It is therefore recommend *that* the front of the car which rests on the pin is no higher than 1/4" above the axle line. A flat nose is required for fair starting and finish line sensing.

**LUBRICANT:** **Dry powdered graphite and/or oils may be used., but you are not required to use any lubricant.** Both lubricants perform similarly in friction reduction. A myth from the earlier days of PWD racing, namely, is that oils can damage the polystyrene wheels. Actually, only aromatic liquid compounds (containing "ene" in the name) like benzene, toluene, xylene, naphthalene, etc. show damage to polystyrene. But nevertheless, the oil stigma persists, causing some local race officials to outlaw oils. Actually, non-aromatic oils are much easier to use and less messy than graphite and molybdenum dry lubricants. Plus there is no way a thin film of oil can be seen on inspection. So if a car enhancement can't be inspected, there is no sense having a rule prohibiting it.

**WEIGHT:** Maximum allowable weight is 5 ounces. The scale used the day of the race and weight recorded will be considered "OFFICIAL". Even though a car may have weighed at or under 5 ounces using the same scale at a previous race, we are concerned with the weight on the current race day. Once a car meets weight it will be impounded and weight is not allowed to be added. If the car is over-weight you will be allowed a limited number of opportunities, as determined by the Race Committee, to remove the excess weight and re-weigh the car.

**WHEELS / AXELS:** All wheels must have the raised BSA – PINWOOD DERBY letters on the outside surface of the wheel. The wheel surface contact area may not be rounded, beveled or shaved. (See illustrations). The wheel itself may be made round by sanding, lathing, filing, etc. so that it rolls in a more uniform manner. The BSA wheels will be inspected if necessary with a metal template to ensure they are not violating these specifications.

**GENERAL:** Each year the Cub Scout must construct a new car and cars are not to be used from previous years. The Cub Scout should play an active role in the design and construction of the car. It is understandable that a younger Scout will need more assistance from an adult and we encourage this along with explanations for the reason the wood is sanded, axles are polished, etc. and help with the use of power and/or hand tools.

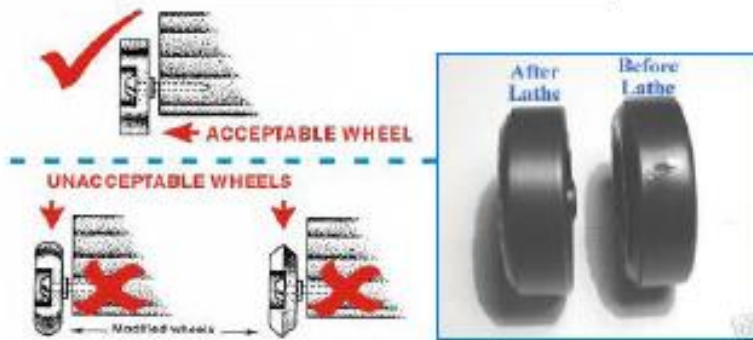
**Rules:** Any participant (including parents of the participant) may appeal to the Race Committee for interpretation or clarification of the rules. The Race Committee Chairman shall be the final judge of these rules. Un-gentlemanly or un-sportsman like conduct by a participant or spectator will be grounds for expulsion from the competition and/or the race area.

*These Rules, as with any rules, cannot be all encompassing and must be tempered in certain circumstances.  
In all incidences fair play **will** prevail in order to allow the Cub Scout the chance to race his car, have fun  
and learn good sportsmanship.*

**Any changes in the rules will be towards this goal and may be modified at any time.**

**ALL DECISIONS MADE BY THE RACE OFFICIALS ARE FINAL**

## PICTURES & NOTES



Wheels may be sanded or lathed to remove imperfections and flattened but may not be reshaped or shaved.



Only official Pinewood Derby wheels and axils may be used. Do not cover Axle. The head of nail must be viewable.

Wheels will be inspected for lettering; raised lettering may not be sanded off.



Axel imperfections can be removed and axels may be polished.



The axle slots may be used or the wheelbase may be extended by drilling new axel holes.  
Suggested axle hole placement below.



# WHEEL PROFILE EXAMPLES

What is and is not acceptable when preparing your Pinewood Derby Car wheels for the race? The graphic shown below demonstrates the correct shape for your wheels to use when coming in contact with the track – ***flat and squared off at the edges.***

