

WHITE OAK DISTRICT

PINEWOOD DERBY (PWD)

2024

SCOUT BUILDERS' GUIDE

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OFFICIAL BUILDING RULES

(Adapted from the

**Standardized NCAC, Camp
Snyder PWD Building Rules)**

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Introduction

The goal of the PWD is to allow Scouts to enjoy the process of designing, building, and racing a car against his/her peers, with assistance from a parent/relative/Scout Leader based on the ability of the Scout.

The NCAC Camp Snyder Staff reviewed the rules from all the districts in NCAC and developed this set of construction rules as a standard for the building a PWD car. The goal is to standardize the rules across all groups, and it was found that with a few exceptions, the rules from the districts all followed the same general guidelines.

Scout Spirit

Ever since Cubmaster Don Murphy dreamed up the idea for the Pinewood Derby in 1953, there has been continual energy spent by Scouts and Parents to build the fastest cars, as is appropriate. Unfortunately, this has led to three developments:

- Cars built in part or entirely by parents, including professional engineers
- Developing and marketing of professional kits, wheels, axles that far exceed the technical specifications of the standard BSA Pinewood derby kits
- Professional car builders offering their services to build and tune cars for Scouts

The use of consultants or materials not found in the BSA standard kit are NOT allowed.

Parents should HELP their Scouts build cars, NOT build the cars themselves. The goal is to teach your scout the skills they need to build their cars.

In this document, provides guidelines as to the level of support that is appropriate for each rank at each step.

Remember, it is all about the Scouts and a fair competition.

Car Components

- An official Cub Scout Pinewood Derby Car Kit car kit is required.
- The main body connecting the two axles must be a single piece of wood.
- Only axles from an official Cub Scout Pinewood Derby Car Kit or from BSA approved wheel kits such as the colored wheels available separately at

the Scout store. These wheels will have Made In U.S.A. molded on the inside of the wheel.

- Legos, plastic drivers, and other addons for aesthetic purposes are allowed.

Car Dimensions (Length, width, clearance, height) See diagram on next page.

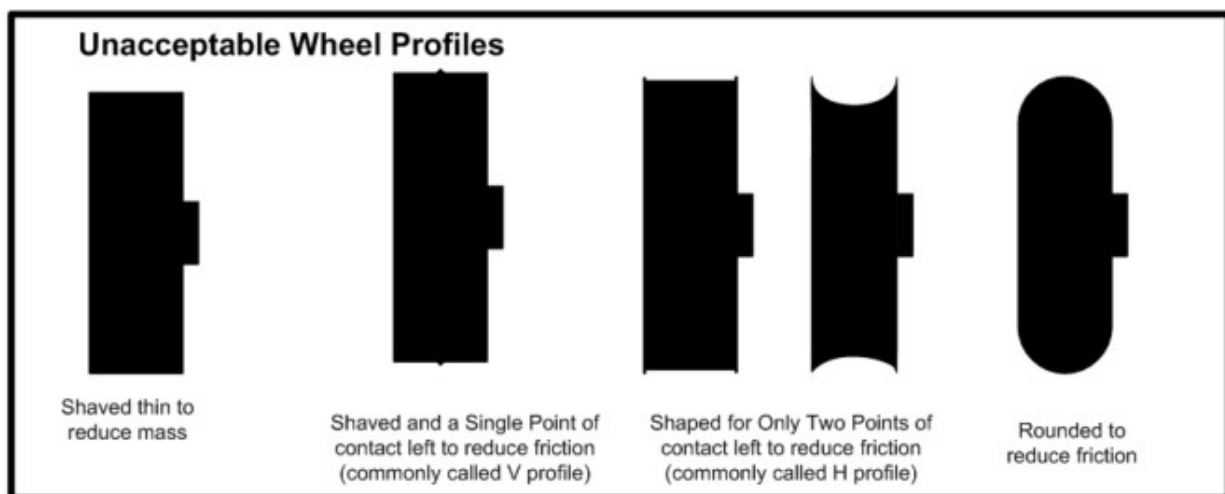
- **Width** - Maximum car width (including wheels and axles) shall not exceed $2 \frac{3}{4}$ inches.
- **Minimum spacing between wheels** - shall be $1 \frac{3}{4}$ inches.
- **Clearance** - Between the bottom of the car and track shall be $\frac{3}{8}$ inches so the car will clear center guide strip. The center guide strip is $\frac{1}{4}$ " tall and $1 - \frac{5}{8}$ " wide. If the car cannot clear the guide strip it will be disqualified.
- **The wheels** are the only part of the car allowed to touch the track at any time.
- **Length** - Car length shall not exceed 7 inches. This measurement includes any additional decorations added to the car such as wings and spoilers. Wheels may not extend past the front of the car.
- **Wheelbase** – The wheelbase of car may not be modified.
- **Height** - shall not exceed $4 \frac{1}{2}$ inches.
- **Nose** - No part of the car may protrude beyond the starting pin. The front edge of the car must not be more than 1 inch above the wheel lane of the track and must be at least $\frac{1}{2}$ inch wide at the center of the car.

Wheels and Axels - Tuning and Modifications

As previously noted, only wheels or axles from an official Cub Scout Pinewood Derby Car Kit or from BSA approved color wheel kits may be used. These wheels will have Made In U.S.A. molded on the inside of the wheel. Axles may be polished. Wheels may be lightly sanded to remove the mold projection on the tread. This light sanding is the only wheel modification allowed.

- **ALL FOUR WHEELS MUCH TOUCH THE TRACK.** Three wheels touching the track is NOT an authorized modification.
- The use of beveled, tapered, thin sanded, wafered, or lathe-turned wheels is prohibited. Any attempt to reduce the running surface of the wheel in this fashion will disqualify the car.
- Any attempt to reduce the weight of the wheels will disqualify the car.

- The use of bearings, bushings, or spacers between the wheel and car body are prohibited.
- The car must be free-wheeling with no starting devices, springs or other methods of propulsion.
- Coverings placed on the wheel rim to hold graphite or lubricant around the nail axle head are not permitted.
- Axle dressing is allowed to include straightening, sanding, polishing, and canting.
- Use of an Axle Redrill Tool is allowed but cannot be used to change the wheelbase of the car.



Successful cars are generally those that are aligned to roll straight and not run up against the track rails. General tuning to achieve a straight running car is encouraged but should be performed by the Cub to the level of his/her ability.

Lubrication

- Dry lubricants only (e.g. graphite, molybdenum, tungsten disulfide, powdered Teflon, wax).
- Liquid lubricants are prohibited (e.g. Krytox 100, oil, silicone)
- Cars must be clean of excess lubricant (lubricant should not fall onto the track or make the hands dirty).

Weight And Appearance

- Weight – 5.0 Ounces or less to 2 significant digits (5.00)
- Mercury, Uranium, Plutonium, or other dangerous materials shall not be used in adding weight to the car.