

# How to build an Ultimate Pinewood Derby Car

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## Overview

Design Selection & Cutting Out Profile

Wheel Prep

Axle Head & Shaft Prep

Weighting

Lubrication

Alignment

Storage & Transport





The #1 Choice for Hi-Performance Pinewood Derby Tools & Wheels

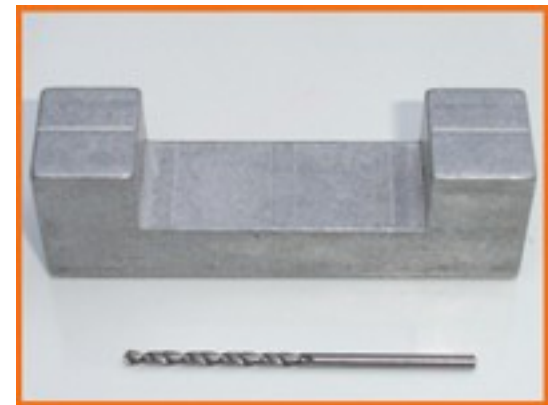


- Pro-Body Tool
- Pro-Wheel Shaver
- Pro-Wheel Mandrel
- Pro-Bore Polisher
- Pro-Hub Tools (Inner & Outer)
- Pro-Axle Press
- Pro-Axle Guide

# The Pro-Body tool

Pro-Body tool will help improve the speed of your pinewood derby car by:

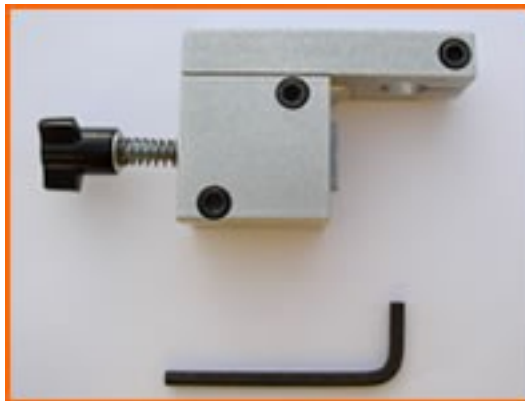
- Axle Slot Preparation
- Axle Hole Drilling
- Axle Hole Re-drilling
- Patent # 6,904,694



# Pro-Wheel Shaver XT

For more accuracy and ease of use, the Pro-Wheel Shaver XT is equipped with screw-adjustable blade depth!

- The Pro-Wheel Shavers are intended for use on wheels made of a hard plastic, such as those included in kits offered by BSA, PineCar, Royal Rangers, S&W, and Royal Ambassadors.
- The Pro-Wheel Shavers are not intended for use on wheels made of a soft plastic, such as those offered by Awana and PinePro.
- A Pro-Hub Tool is required to use a Pro-Wheel Shaver.



# Pro-Wheel Mandrel

A precision-machined tool to accurately hold the wheel in the chuck of a drill.

- Accurately machined shaft allows for precision use in any drill chuck or Dremel-type tool.
- Step-down on shaft allows BSA wheels to be mounted with the 'spokes' facing the drill chuck, simplifying work on the inside edge of the tread.
- Knurled thumb screw eliminates the need to use a screwdriver to mount a wheel.
- Beveled thumb screw ensures that the wheel mounts accurately on the mandrel.



# Pro-Bore Polisher

The Pro-Bore Polisher will improve the speed of your car by reducing friction inside the wheel bore.

- Eliminates plastic debris and minimizes flaws inside the wheel bore
- Polishes the wheel bore to a high shine



# Pro-Hub Tools (Inner & Outer)

The Pro-Hub Tool is required for the Pro-Outer Hub Shaver and the Pro-Wheel Shaver.

- Ensures accurate rotation by squaring the outer wheel hub to the wheel bore for proper mounting on the Pro-Wheel Mandrel.
- Improves wheel hub to axle head contact by eliminating flaws on the outer wheel hub.

Note: The Pro-Outer Hub Shaver is intended for use on only BSA and PineCar wheels.



# Pro-Axle Press

Perform three critical procedures on nail type axles to improve wheel rotation for greater speed:

- Axle Straightening - Ensures accurate wheel tracking.
- Axle Rounding - Ensures accurate wheel rotation.
- Head Squaring - Ensures proper wheel rotation by squaring the axle head to the axle shaft.
- Raised Wheel and Alignment Adjustments - When it is necessary to purposely bend an axle (to raise a front wheel or make an alignment adjustment), the Pro-Axle Press serves as a handy clamping device for holding the axle while making the bend.





# Pro-Axle Guide

A precision machined aluminum block with a laser cut tab designed to fit in the axle slot. The tab is designed to precisely space the wheels from the body.

- Axle Insertion - Ensures accurate mounting of axles (in axle slots) to improve alignment.
- Wheel-to-body Spacing - Establishes the correct gap between the wheel hub and car body. The proper gap minimizes car wander and reduces excess contact between the car body and the wheel hubs.
- Reduced Risk of Block Damage - During the insertion process the Pro-Axle Guide provides support to the wood around the axle slot, minimizing the risk of damage.

