PROJECT

Carving a Pine Wood Derby Car

DIFFICULTY LEVEL:

WHAT YOU NEED:

- Dremel® Digital or MultiPro® or 9.6V Cordless MultiPro
- Shaper / Router Table
- 16" Variable-Speed Scroll Saw
- Pine wood block

#650 1/8" Straight Router

#407 1/2" Drum Sander

#432 1/2" Sanding Band

#150 Drill Bit

1. Cut your basic car shape with a scroll saw or a band saw.

2. Routing the axle slots and creating slick custom racing lines is easy with the Shaper/Router Table and #650 router bit. Note: You cannot use the Cordless MultiPro with the Shaper/Router Table or routing bit.

3. Reduce wind resistance by smoothing all surfaces with the #407 drum and #432 sanding band.

4. The #150 drill bit effortlessly makes strategic bottom weight adjustments that are crucial to creating a winner.

Visit our Customer Service section for tips and FAQs.

Build An All-Star Winner At

LOWE'S

with

DREMEL® DERBY DAYS PIT STOP PINECAR®

Overview of Demonstration on Building a Derby Car

Derby cars are great projects for Scout, YMCA, church, club and camp groups of all ages. Young people can build competitive, great-looking cars, with minimum adult supervision. Be sure and check race guidelines before you build your car.

MOST COMMONLY USED GUIDELINES

1. Maximum car size, including wheels, is 7" long, 2 3/4" wide.
2. Minimum width between wheels is 1 3/4".
3. Minimum ground clearance between car and track is 3/8".
4. Maximum car weight is 5 oz. (142 g.). Metal or wood may be added.
5. No wheel bearings, bushings, springs, starting devices, loose or moving weights, or parts are allowed.

Cars that do not meet guidelines may be disqualified. Local rules may vary. Wheels and axles should be the same on all race cars. Remember as you build your car, most local derby officials present craftsmanship awards for the best-looking car entries!

MATERIALS CHECK LIST

- •Dremel Rotary Tool (4962-03)
- •Dremel Accessory Kit (683)
- •PineCar Basic Car Kit (P370)
- •PineCar Dry Transfer Decals
- •PineCar Alignment Tool (P456)
- •PineCar Speed Kit (P356) Includes:
  - -Hob-E-Lube Dry Graphite
  - -Wheel Turning Mandrel
  - -Axles & Polishing Kit
  - -Incremental Bar Weight

ASSEMBLY AND FINISHING

•STEP 1 DESIGN CAR BODY

Create car design on tracing paper. Cut out design and draw the design onto the PineCar Basic Car Kit (Fig. 1). Plan for the location of details such as fins, engines, exhaust pipes, windshields and decals.

•STEP 2 SHAPE AND SAND CAR BODY

Use a band saw or coping saw to remove large areas of wood, then cut-out and shape the basic car with a Dremel high speed Rotary Tool. We recommend adult supervision when cutting. Maintain an even cut by following your drawn lines on both sides of the wood block (Fig. 2). Finish shaping the car body using a sanding band accessory on the Dremel Rotary Tool (Fig. 3). Sand the body smooth with medium and then fine sandpaper.

•STEP 3 SEAL AND PAINT

Apply several coats of sanding sealer and allow to dry thoroughly. Sand the entire car with fine sandpaper between coats. Apply two coats of fast-drying paint in the color you prefer. Allow to dry between coats. Sand lightly. Paint the final coat and let dry thoroughly. Do not sand after last application.

•STEP 4 ADD DRY TRANSFER DECALS

Place PineCar Dry Transfer Decals on racer and rub with a dull pencil and remove the backing sheet (Fig. 4).

Fig. 1

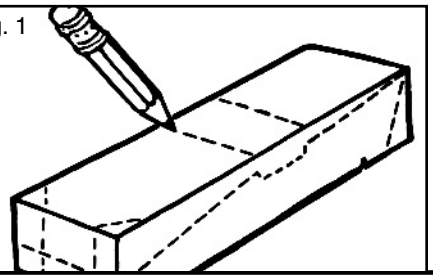


Fig. 2

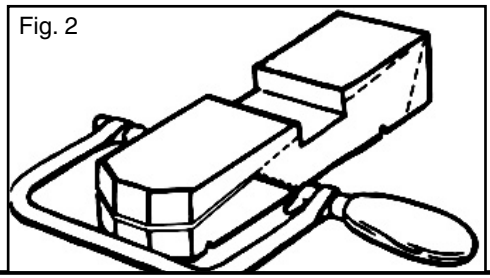


Fig. 3

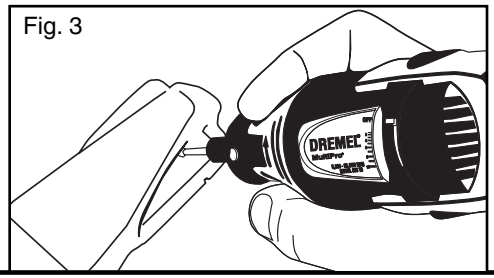
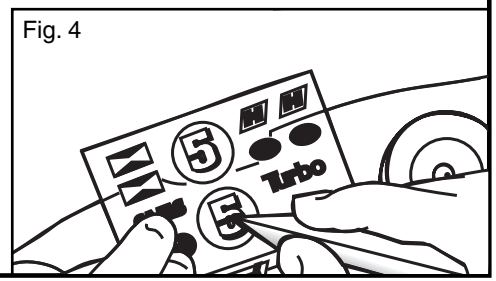


Fig. 4



•STEP 5 GLOSS FINISH
Before you apply your gloss finish, be sure and add your custom parts, i.e., exhaust pipes, engines, windshields and drivers (Fig. 5). Apply two or three coats of gloss finish. Sand lightly between coats. Do not sand after last application.

•STEP 6 WEIGHTS
The heavier your car, the faster it will go. Add PineCar Weights to make your car weigh the maximum that rules allow (Fig. 6). It is best if your weight is a PineCar Incremental Weight as it is adjustable. If your car is too heavy, you can adjust it at the official weigh-in. Race officials will disqualify a car that is too heavy. You may prefer to countersink the weight into the bottom of the car. Turn the car on its top. Trace around the weight. Use a Dremel Rotary Tool and a Dremel Router attachment to rout out a space for the weight. Test-fit the weight and then attach with two screws.

•STEP 7 PREPARE WHEELS AND AXLES
If your wheels have any rough spots on the tread, you must sand the wheel to remove it. To simplify the removal of this parting seam, PineCar offers a Wheel Turning Mandrel found in the Speed Kit. Put the Mandrel into the chuck of the Dremel Rotary Tool, which is mounted in a padded vice. Place the wheel on the Mandrel and tighten the screw. Turn on the Dremel and use a slow speed (15,000 rpm or slower) and hold a piece of medium grit sandpaper against the turning wheel for a few seconds (Fig. 7). Repeat, as many times as needed until the tread surface is smooth.
If using nail type axles, burrs from the nail head should be removed. Secure the pointed end of one of the Axles into the Dremel Rotary Tool, leave 5/8" sticking out, hold a fine cut file against the underside of the head and run for a few seconds. Repeat if necessary.

If using one-piece axles, use the PineCar Axles & Polishing Kit found in the Speed Kit, and a Dremel Rotary Tool. Secure one end of the axle in a Dremel Rotary Tool, while axle is spinning place a 3/8" wide piece of well soaked sandpaper underneath the axle. Move back and forth until smooth. Repeat if necessary.

•STEP 8 ATTACH WHEELS AND AXLES
Make two axle assemblies. Be sure wheels face the correct direction before installing hubcaps. Center axle assemblies in axle slots on bottom of car. Both wheels should clear the block enough to spin freely. Gently tap axles into slots with a hammer careful not to bend the axle. Place the car on a flat surface and adjust axles so all wheels touch the surface. Check wheel and axle alignment with the PineCar Wheel Alignment Tool.

•STEP 8 LUBRICATION
Pre-lubricate axles where wheels rotate (by hubcaps only, Fig. 8). Use Hob-E-Lube Dry Graphite (P358). Liquid lubricants may damage plastic wheels. Tap axle assemblies into axle slots.

Shop Lowe's for PineCar and Dremel products.

Visit www.Dremel.com for more information on Dremel tools, attachments and accessories.

See PineCar's complete line of car kits, speed accessories, decals and custom parts at www.pinecar.com.

Fig. 5

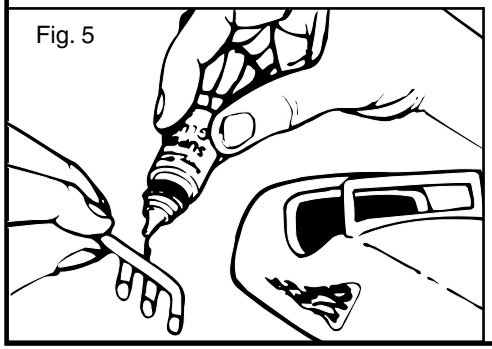


Fig. 6

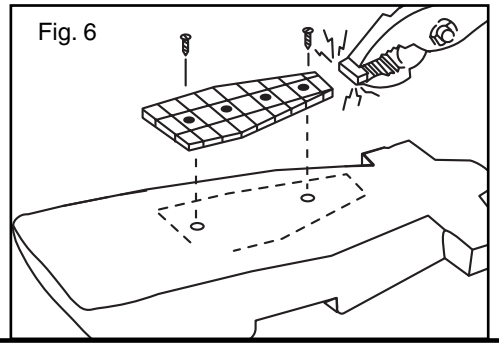


Fig. 7

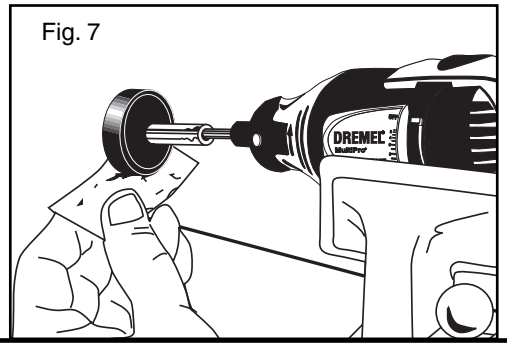


Fig. 8