

MAKING WOODEN CARS/TRUCKS/BUSSES

By Ron Frame

First of all, you will need to select a pattern you wish to use for your vehicle. I have made plastic templates of the cars that I make.

Select suitable stock. I prefer stock at least 1-1/2" thick and no more than 2 ft long. Be sure to check for nails/staples/screws or foreign objects that may damage your bits/blades/equipment and the holes that these make, and work around them. I salvage a lot of wood to use for making toy cars, so this is a priority to me.

I begin by sanding both face surfaces, rough to finish (220 grit) in thickness sander.

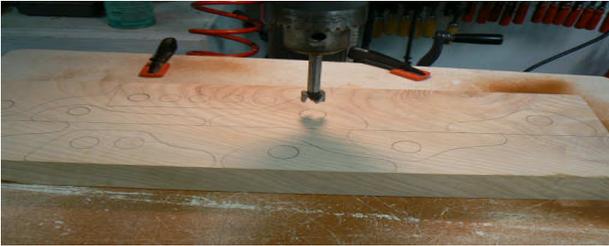
Depending on size and design of your pattern templates, rip and joint both edges of each board to ensure that you have a true 90* angle, edge to face of each corner.

Using my plastic template, I trace the image of car/truck/bus, including location of windows. Squeeze as many images on each board as possible, avoiding knots and really hard areas. **ALWAYS USE THE JOINTED EDGE OF WORKPIECE FOR THE BOTTOM OF YOUR VEHICLE.** This will save you from sanding the band saw marks from the bottom of the vehicle.



Set up drill press, with a wooden auxiliary table. With your choice of size of Forrester drill bit, for drilling the window holes. I use

either a 3/8" or 1/2" Forrester Bit, depending on size of vehicle. Chuck up Forrester bit, adjust table height for drilling thickness of stock chosen. Adjust the positive depth stop so that point of Forrester bit just pierces bottom side of work piece. Drill all windows on that work piece. Turn work piece over, and using the pierced hole as a guide, slowly advancing drill bit to the hole in work piece, drill hole trough. This cuts way down on splintering the wood around window hole on both sides of car. Do each window on this work piece. Drill remainder of work pieces you may have prepared to this point.



The next step is at the bandsaw. Insure that your bandsaw is properly setup with sharp scrolling blade, and make sure that your table is as nearly to 90* to the saw blade as humanly possible. Scroll saw all cars on each work piece, on the outside of the traced line.

Once all cars are cut out, its time to sand the bandsaw blade marks from each car. I do this on my Sears Oscillating Spindle Sander. Taking into account the contour of the vehicles prepared to this point, I use the largest spindle sander that will clean up the smallest inside radius. I use 50, 80, and 150 grit sanding sleeves.



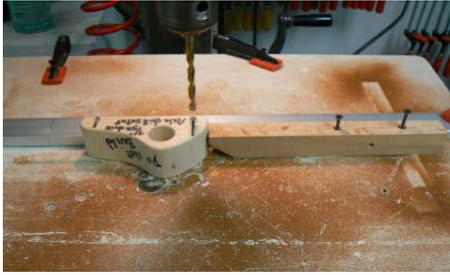
Next step is the router table, equipped with a 1/8" round over bit with carbide blades. I route all sharp edges, all around both sides, including the window holes. This reduces sharp edges and chances of splinters.



Next step is drilling holes for the axle pins. First, I choose 1 car that is prepared to this step and with a sharp pencil, mark a vertical line, 1/2" from both front and back edges of the car, and one horizontal line along the lower side of the car, 3/16" from the bottom of the car. At the points where the horizontal line cross the vertical lines is where I drill the axle holes. Then take sharpie marker and write "Do Not Build" on top and sides of this car. This will be your "setup" car for setting up your drill press for future setups. I chuck up a 7/32" twist or brad point drill bit into the drill press. Set depth positive stop to drill 1/2 way through the car, and drill the two axle holes, both on one side of the setup car, 1/2" from front and back edge of car, and 3/16" from the bottom of car.

Now, using your "setup" car laid on its side, with drilled axle holes facing up, drill press turned OFF, lower drill bit into rear axle hole, trapping car to the auxiliary table, move fence so that edge of the fence touches the entire length of the bottom of the car. Clamp fence to the auxiliary table. Using a piece of scrap wood, make a stop block with 2 screw holes. Again, lower the drill bit into rear hole on setup car, bring stop block up against the rear of car, and against the fence. Drive screws into auxiliary table. With this setup, you can drill REAR axle hole on one side of your car, turn car over and around, and drill FRONT axle hole on the other side

of car. Drill these two holes in all cars prepared to this point.



Using “setup” car in same manner, move stop block to the other side of drill spindle, screw into place, drill remaining two holes in each car.



ASSEMBLY OF WHEELS AND AXLE PINS

I begin this step by placing a handful of wheels and axle pins on the work table. I squeeze out some Titebond II glue on a 4X4 piece of Corian countertop material. With a small artist brush, I pick up a drop or two of glue, and spread it around on the inside of the two axle holes on ONE side of a car. I pick up an axle pin, assembled with a wheel, and with twisting motion, start the two axle/wheel assemblies into the holes with glue. I then place spacer (metal 6” rule) against car body, behind wheels and touching the axles. Using hand clamp, push axles into full depth.



Repeat on other side, BUT, before placing hand clamp on, place square wooden spacer over axle on opposite side, to prevent that axle from being pushed in too far. Set aside for glue to dry, after making sure that you do not have any glue squeeze out that could glue the wheel to axle or side of car.



What appears to be a square wheel in above picture is a spacer, placed over the axle pin, on that side of car, to prevent that axle from being pushed in too far, while pressing axle pin from opposite side of car.

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In this final picture, you will see the hand tools used to assemble the axle pins and wheels. The square piece of wood at the top with hole big enough to fit over the head of the axle pin. Next is the artist brush I use for applying glue into the axle hole. The 6" rule is used as a spacer, between the body of car, and inside of wheels, as axle pins are pushed in to full depth. This insures that the wheels will turn once assembly is complete. The hand clamp at bottom is

what I use to install the axle pins.



Don't be a bit surprised if you find that you see some glue squeeze out on the front or rear of your vehicle, as you push the axle pins in to full depth.