

Conowingo Models



24-Foot Tool Car

HO Scale



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Thank you for purchasing this kit!

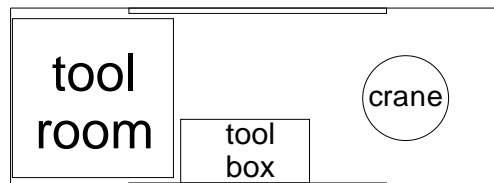
The enclosed Tool Car is fictional but based on some real-world information.

Supplied are the basic directions. For more tips and some additional instructions, please see conowingomodels.com

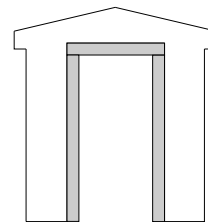
BUILDING

1. Start out by removing the body from its carrier. Note there is a side with lines that denote where the bolsters and queen post go. This is the underside. You'll also note where the coupler boxes go. Plan out where you'll want to add weights. The NMRA, in RP-20 (essentially) states that the 24-footer should weigh 2.75 ounces. An unweight example of the flatcar I used weighed less than .5 ounces. Failure to add weight will result in a very uncooperative car that doesn't stay on the tracks that you won't be happy with. Options for where to add weight to this car include the tool room and tool box.

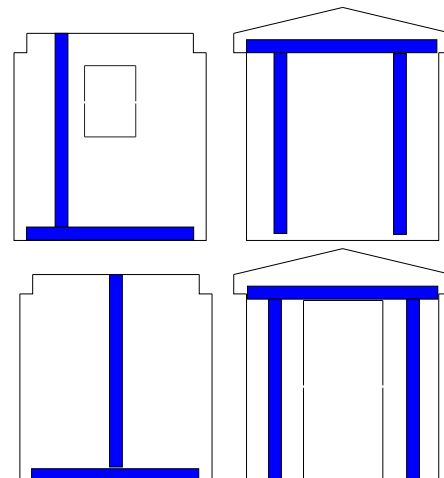
2. Decide what configuration you would like to use. Shown below is the configuration that we used on the pilot model. These instructions will lead you in that direction. You may also choose to add the smoke jack to the roof, put the window on the roof (skylight), block the window or flip the window to the other side. The crane should be no further forward than the center of the forward truck for weight and balance purposes.



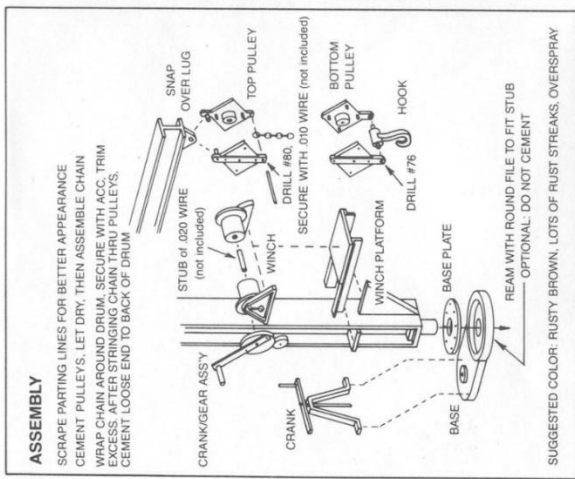
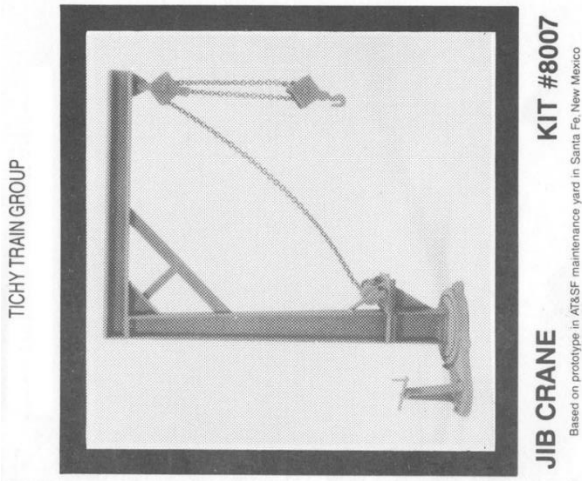
3. Cut and glue into place some 1/16 stripwood for door trim on the tool room.



4. If you are going to stain the car, we suggest staining the **BODY ONLY** at this time. Be sure to add a lot of weight to it to keep it flat and let it dry for 24 hours to prevent warping. This is to prevent unstained wood with glue on it from showing through the deck.
5. Cut out and brace the walls of the tool shed as shown below. Ensure you weight them down so the bracing and walls dry flat. Ensure the bracing doesn't interfere with the adjoining walls.

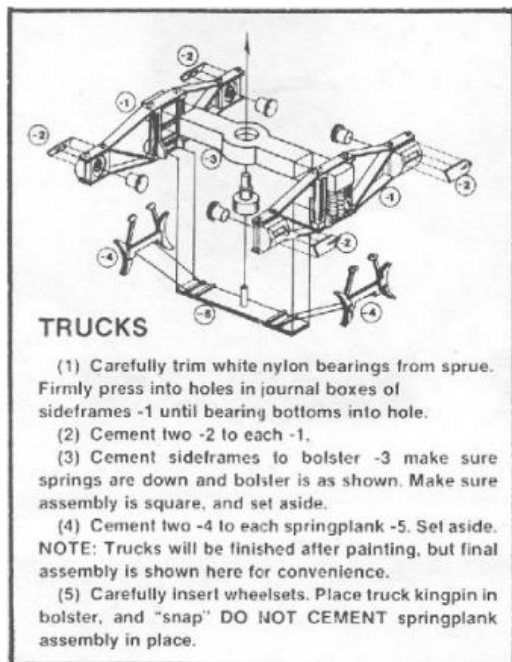


- Assemble the crane as per the instructions provided. We used CA to assemble ours.



(Courtesy Tichy Train Group)

- Assemble the trucks and coupler boxes (some kits) as shown below.

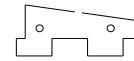


(Courtesy Tichy Train Group)

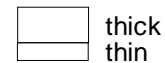
- Paint the brake parts, crane, details, NBWs, stake pockets, stirrups, trucks and windows as desired.
- Take both of the 1/32 plywood toolbox end pieces and glue them to the 1/16 scribed pieces (in green below) so that the laser scribed pieces 1/32 are on the outside and the 1/16 pieces will be on the inside, centered, but even on the bottom.



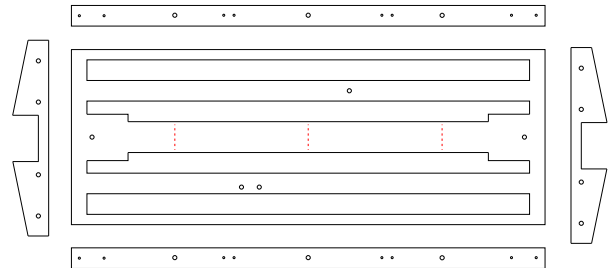
- Cut out the bolster pieces (See step 12 for illustration) as well as side and end pieces.
- Take the included needle and run it through the holes mentioned in step 10 to ensure that there is no glue or errant laser residue in them.
- Carefully cut the angled bolster pieces out and glue them together in pairs. You will end up with four pairs. Run the needle through the holes in the bolsters again to ensure they are properly aligned.



Do the same with the smaller square bolster pieces, using one thick and one thin piece for each. You will end up with two pieces.

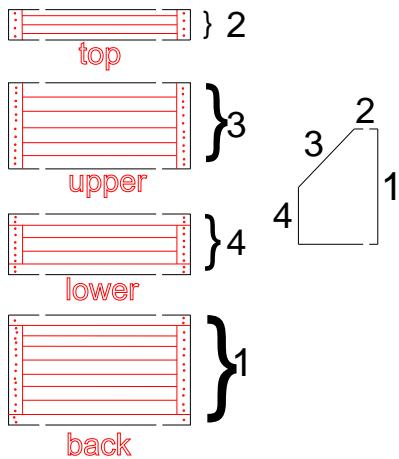


- Glue the side rails into place on the body before the end pieces. Ensure the side rails fit snugly against the body. The end pieces should fit snugly against both the body and side rails and that the cut out on each end matches up to allow for the coupler box to fit. (All parts except body shown sideways for clarity.)



- Cut four pieces of the 1/32 x 3/32 stripwood down to two pieces each that are 12 scale feet (1 5/8 inches) long. (8 pieces). Set these aside as they are for the side rails in step 35.

- Cut stripwood pieces to the width of the body. This will ensure a proper fit. See photo in step 19.
- Add nail holes to the edges of the cut stripwood and middle as you feel appropriate.
- To age the decking, scrape the stripwood with a hobby knife, scuff it with a sanding block and/or cut the edges off as you feel appropriate. We've found that painting/staining at this time is not a good idea because you'll trim the edges later and that will cause discoloration when you attempt to correct it.
- Assemble the tool chest as shown below. The numbers correspond to their respective positions on the end pieces.

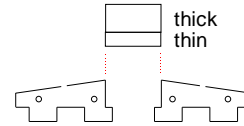


- With the top side is up, glue down the stripwood as shown. We covered both end pieces and side rails. Ensure you leave a small gap between the pieces to prevent buckling when you paint/stain it. IMHO it looks better with spaces as well. A few not-so-perfectly-aligned pieces add "signs of life" to it.

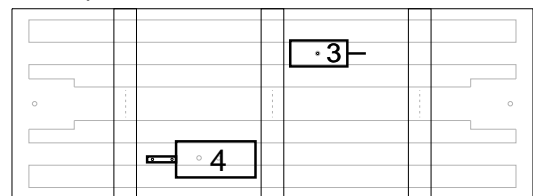


- When you have finished adding the decking, flip the bottom side up and flatten with a heavy object to prevent warping during the drying process. Be sure not to crush the side or end pieces. You may want to consider clamping the corners to something solid instead.

- Paint/stain the walls of the door, tool chest, underside of the tool room roof and tool room as desired.
- Glue the window glass into the window, if you plan on using it.
- For the tarpaper roof, prepare the construction paper. If you are unfamiliar with how to do this, go to **Jason Jensen Trains** on Youtube and look for episode 010. The width of the tarpaper should be cut to 3/8 inch.
- Once dry, glue the bolsters and queen post into place and secure with clamps as you see fit. The side pieces of the bolsters are notched to fit the under decking of the car. Ensure you use one of each thickness on the bolster center pieces.

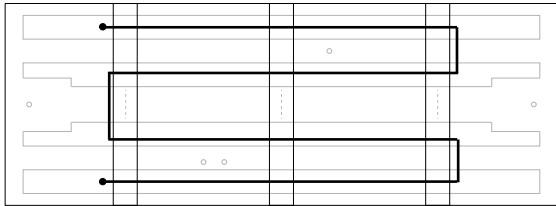


- Assemble the tool shed so that the notches in the corners interlock. The side walls are interchangeable. Ensure it is square.
- Glue the tarpaper onto the roof, except for the ridge cap. There is an etched outline for the skylight, should you wish to use it.
- Included is the standard Westinghouse K-brake system. I'm not that familiar with the system. If you are, please enlighten us on the Facebook page. Glue the brake reservoir (4), brake cylinder (3) and any other desired details into place on the underside. There are notches where they need to go. You may choose to add brake lines with the leftover thread from step 18 later.



- Run the included needle through the holes in the bolsters to ensure a clear pathway. The laser and glue can clog those when you least want it to.

29. Take the length of thread and put an overhand knot in one end (I used three and a dab of CA at the first bolster because the thread is thin) and gently thread it through the bolsters and queen posts as shown below. The wooden queen posts have notches for the truss rods to pass over. Initially, concentrate on just getting it threaded and then tighten it.



30. Once taut, apply a drop of CA to the thread at the end of the threading to hold it in place. We hung the whole assembly from the workbench with a small clamp while it dries to keep tension on it. When it's dry, add the final knot (or several) as close to the bolster as you can get it and cut the excess. A drop of glue on each rod can be used to simulate turnbuckles.

31. Glue the roof to the tool room and apply the ridge cap.

32. Glue the window and door to the tool room.

33. Glue the strap hinges to the tool chest so that the upper piece (see step 18) would open upward.

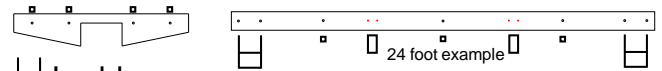
34. Trim the deck boards as desired. The under sides, side rails and end pieces can be painted/stained and lettered.

35. Install the coupler boxes. We recommend applying some CA to the frame where the coupler boxes will go, followed by appropriate 2/56 screws (unfortunately, the screws included with some kits are for the trucks and are too long for this application).

36. Install the trucks at this time using the screws and insulating fiber washers (some kits). For those unfamiliar, the washers go between the truck and bolster to smoothen truck movement. Tichy Arch Bar trucks (some kits) can now have the spring planks installed. Despite the instructions, I've found that a dab of CA helps keep the spring planks in place. There have been some issues where the screws do

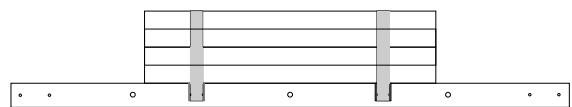
not fit properly. If this is the case, add a drop or two of CA before inserting the screws.

37. Install the bolts and stirrups using glue. The bolts and ladders have cut holes where their respective parts fit. Side center bolt has been removed from this kit.



- Ladder
- Bolt
- Stake Pocket

38. Add the 1/32 stripwood to fit in the stake pockets and glue them both into place. Add the 3/32 stripwood and cut all to size. Repeat for the other side.



39. Glue down the tool room, crane, tool chest and details as desired. Work from largest to smallest, keeping in mind ergonomics.

40. For the brake wheel, cut the head off the needle with wire cutters to a height of 4 scale feet (35/64 inch) or as desired. Glue the wheel and rod to the wood piece, sharpened end down and in the notch. I glued mine to the end of the car. Different variations are highly encouraged!



41. Weather the car as appropriate.

Please share your completed photos on <https://www.facebook.com/ConowingoModels/>

See Conowingomodels.com for more unique model railroad products.

If there are any parts missing, please e-mail me railrunner130@hotmail.com and I'll get those parts headed your way. I strive for a perfect kit, but mistakes do happen. I apologize if this happens.

Many thanks to Steve Milley, Jeff Grove and Mark Schreier for their help! Additional thanks to Don Tichy for all the parts and diagrams!