

Conowingo Models



24-Foot and 36-Foot Wood Tank Car

HO Scale



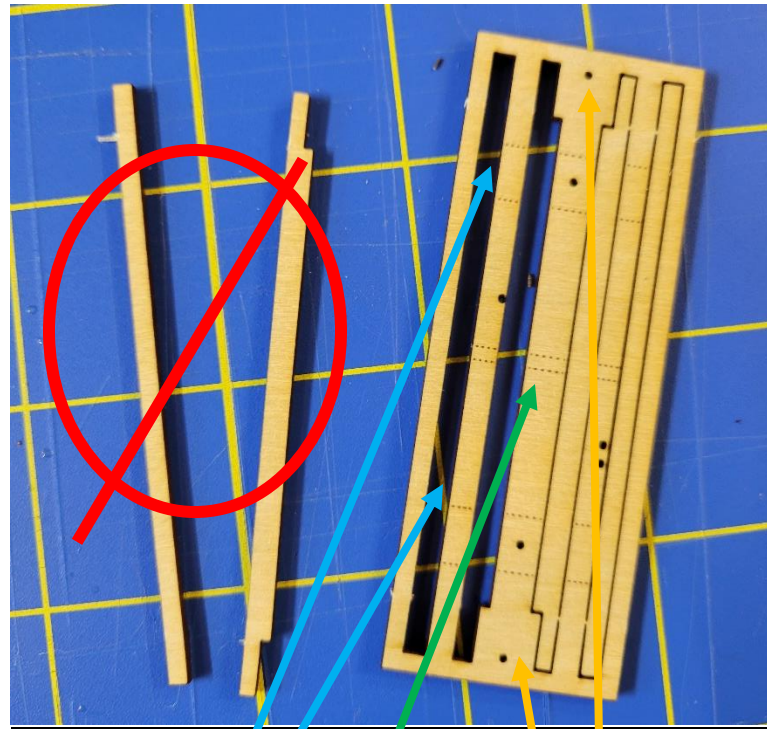
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February, 2023

Thank you for purchasing this kit!

The enclosed wood tank 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 frame from its carrier.
- 1a. Remove the four center pieces and discard. Two pieces shown removed above. (Or save for something else. They are pretty handy.)
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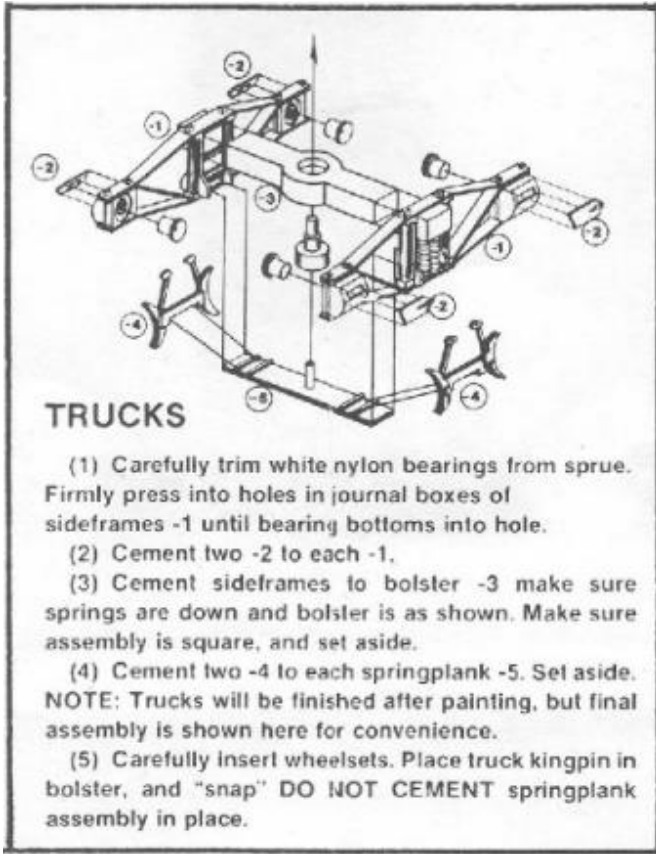
Note there is a side with dashed lines that denote where the bolsters and queen posts go. (Two on the 36-foot model) This is the underside.



You'll also note where the coupler boxes go.

1b. Plan out where you'll want to add weights. We suggest drilling into the dowel and adding weights there. The NMRA, in RP-20 (essentially) states that the 24-footer should weigh 2.75 ounces. An unweighted example we used weighed 1.1 ounces with Tichy trucks installed. Failure to add weight will result in a very uncooperative car that doesn't stay on the tracks. The 36 Foot example weighs in at 1.5 ounces without weights. According to RP 20, it should weigh about 3.875 ounces. We don't feel that they need that much weight, but our operational experience with them is very limited. See the Instructions Help file on our website for weight suggestions.

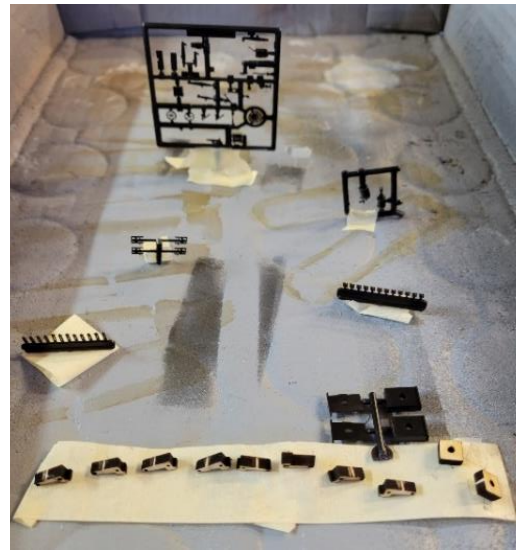
2. Assemble the Tichy trucks and coupler boxes (some kits) as shown below.



(Courtesy Tichy Train Group)

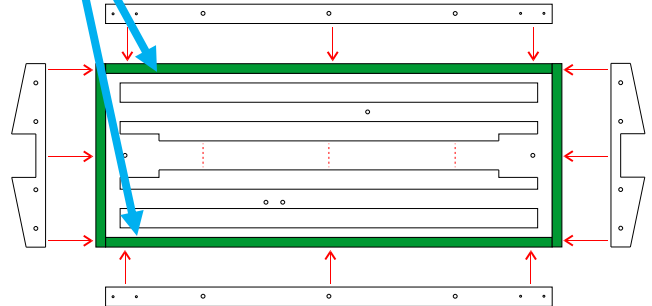


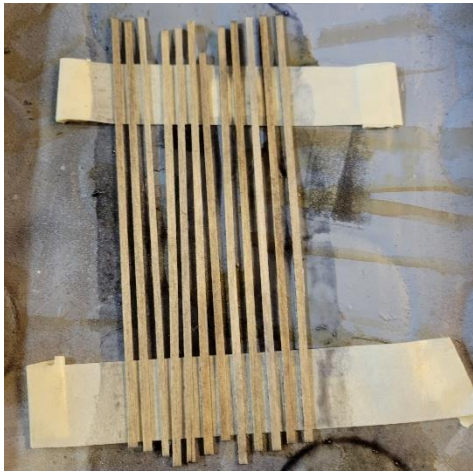
Kadee couplers are easy to put together. Simply add the coupler to the box and snap the cover into place with the lip sticking up. 2/56 screws (not included) can be added to provide additional strength once the car has been assembled.



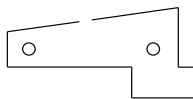
3. Paint the NBWs (Nut, bolt, washers), all bolster pieces, trucks, tank parts, valve, hose clamps and detail parts as desired. They should all be black. (Only some shown here.)
4. Glue the side rails into place before the end pieces. Ensure the side rails either fit snugly against where the decking will go. The end pieces should fit snugly against the side rails and the cut out on each end should match up to allow for the coupler box to fit.
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4a. Once that is complete, fit, cut and glue into place a piece of 1/16th stripwood against inside of the side rails. This will help prevent warpage. Let the glue set for 24 hours before proceeding. Even if you're using CA, as we've found it sets quickly, but still isn't full strength for a while.





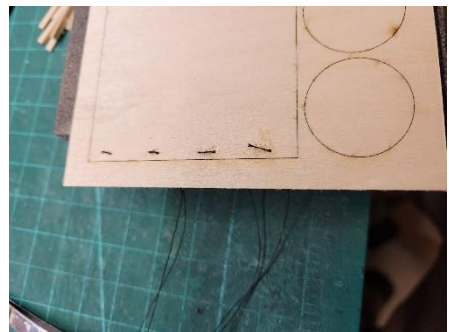
- 5. We recommend that if you are planning on staining the car, you stain those items now including the 3/32 wide stripwood for the deck. Add a lot of weight to flatten it and let it sit for 24 hours before continuing any step that utilizes the frame. This prevents warpage.
- 6. Take the included needle and run it through the holes in the end and side pieces as well as the truss rod holes and supports to ensure that there is no glue or errant laser residue in them.
- 7. Cut the stripwood for the decking to approximately 9.5 scale feet wide or 1 5/16 inches. You should compare them to the width of the frame and make them slightly larger. Scrape the pieces with a hobby knife, scuff them with a sanding block, cut the edges off of and add nail holes as you feel appropriate.
- 8. For those that have purchased rolling stock kits from us before, this step remains unchanged, but we've reworked the bolster pieces somewhat. 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.



- 9. 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. It looks better with spaces as well. A few not-so-perfectly-aligned pieces add life to it.
- 10. When 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.
- 11. Prepare the dowel. Ensure it is relatively smooth all the way around and that the ends are even. We recommend that any added weight goes in the ends.
- 12. **Tank Preparation – You have two choices of how to do this. (N/A on 36-foot version)**

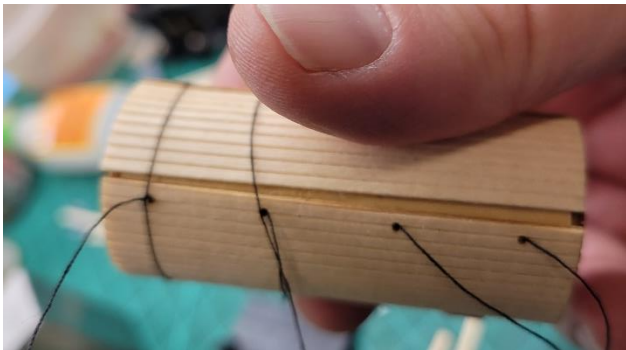
The first method uses thread- see step 12a. The second method uses construction paper bands. Go to step 14 if you are using this method.

- 12a. Cut out the large piece of 1/32 scribe wood. Cut two of the pieces of thread in half. The non-scribe side is the inside. You could also substitute other materials for the bands. We used thread because it's readily available and would fit all skill levels. If you have a better suggestion, please bring it to our attention and help make this kit better!



- 12b. Cut four pieces of the string to a length of approximately 9 inches. String a piece of thread through each of the holes on the scribe wood. You can put two overlapping, overhand knots on the inside. What knot you use doesn't really matter. The point is that the thread doesn't pull through the holes and is fairly low profile. All of the excess thread should be on the outside. Add a touch of fast drying glue to the inside.

- 12c. Put the 1/32 scribe in water. Let the water sink in for a minute or two, so it is malleable and starts to curl.
- 12d. Wrap the scribe around the dowel, ensuring that the ends of the scribe will come together. Trim if necessary.
- 12e. Add glue to the outside of the dowel. Be careful not to get it stuck to you or the outside of the scribe piece. We recommend a fast-drying glue, so it sets up quickly, but a slow drying glue will allow you more time to properly align the piece of scribe wood.
- 12f. Wrap the scribe around the dowel again as in step 12d. Ensure that the thread is on the outside and that the scribe wood has a slight and even overhang on both ends, so that the end pieces will fit inside. Use rubber bands to secure the scribe in place.
- 12g. On the end product you want the knots to be on the bottom and out of sight. One thing that bothered us on the pilot model is that the scribe on the end pieces isn't horizontal. It appears that the boards did run horizontally on prototypical tank cars. Add some glue to the sides of the dowel and add the end pieces so that the scribe runs horizontally. (If that matters to you).



- 13. Add a turnbuckle to each of the threads as you do the rest of this step.
- 13a. One at a time, route the thread around the tank and under itself at the spot the thread comes out of the scribe. Straighten it up as much as possible and sinch it tight.
- 13b. Add a drop of fast drying glue. (#1 sinched and glued. #2 about to be sinched.) Do this for all four bands. Cut excess when dry. Skip to step 15.

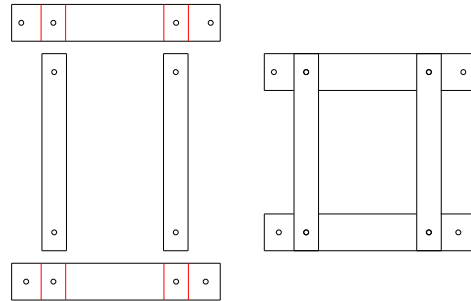
14. **Metal Bands** - Cut the metal bands from the piece of construction paper. The 24-Foot car comes with four bands. The 36-Foot car comes with six.

- 14a. One at a time, locate the starter point on the tank. It's laser etched. Using one drop of CA, glue an end to the starter point.

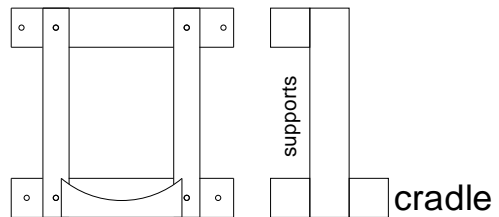
- 14b. Wrap the band around tightly and evenly.
- 14c. Using one drop of CA, glue the end back to the starter point, ensuring there is no slack.
- 14d. Glue the hose clamps to their desired locations on the bands. We recommend CA. Placement is up to you, but we recommend putting it in an area where they will not interfere with the restraint rods. We added two on each side, figuring that the pilot model would be seen from both sides.

- 15. **Supports-**
You have two choices of how to arrange the supports. Either way, they start the same. **Make sure you keep the A pieces together and the B pieces together on the same ends.** This will come into play when it comes to putting the truss rods together. If done incorrectly, the rods will contact each other.

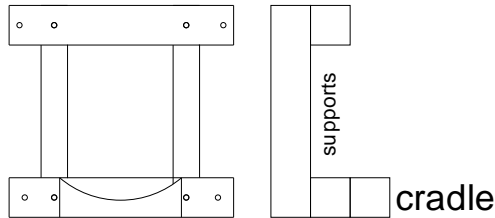
Begin by gluing the vertical supports to the horizontal supports so that the guide lines (shown below in red) are covered. You will end up with a Roman numeral II. Ensure they are straight. You don't need to match up the holes, but sticking a needle through them may help align them.



- 15a. The most realistic support puts the horizontal supports on the outside. (Or front and rear most ends). Glue together as shown. Again keep it straight. And assemble for both ends.



- 15b. The second way is shown below. We don't think you get as much restraint out of this method, but it's your railroad, do as you please. We did it this way by accident and it looks fine.



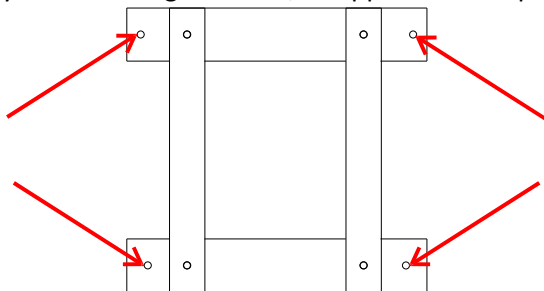
16. Cradle The Tank

- 16a. Situate how you want your tank to fit into the support ends. Adjust it to ensure how you want it all to go together, ensuring the tank fits in the cradled supports. When you're happy with it, glue the tank into the cradle, making sure that the end pieces of 1/32 are horizontal. We used a fast-drying glue, but slow-drying glue will give you more time to adjust.
- 16b. Put it on a level surface to ensure it sits level. Set aside to dry for a while.

Restraint Rods – There are two ways to do this. You can either use thread or the supplied pieces of .015 bronze phosphor wire. The wire method looks better, but is a little trickier.

Do this step one rod at a time.

- 17a. For thread, cut four pieces to four inches. For the wire on the 24-Foot version ONLY, mark the middle with a Sharpee or similar marker. **This is important.** Failure to do so will make adding the turnbuckles not fun. Wire cutters will leave a slightly upturned end, which will not allow you to add the turnbuckle because the clearances are that tight. Then, cut the wire in half. For the wire on the 36-Foot version, do not make any cuts.
- 17b. Add a turnbuckle (Do not add glue yet to the turnbuckle as it will gum up your work) and thread either the thread or wire through the upper hole and opposite lower hole (see below). For the wire, be gentle and try not to add a bend to it. Treat it like your threading it as an S, as opposed to a Z pattern.



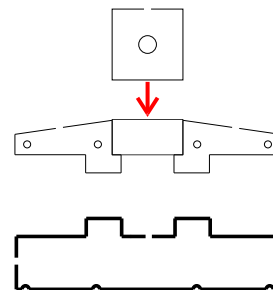
- 17c1. For the thread, simply tighten the thread and add a drop of CA (gently) to the hole from the outside to hold the thread in place. (see below)

- 17c2. For the wire, we found that bending it away from the tank (vertically as the car will sit) seemed to help straighten the bend caused by going through the holes. You can also add some pressure to the inside of the support.
- 17c3a. Add a drop of CA (gently) to the hole from the outside to hold the wire in place. (see below) (We glued the dome on early)

For both materials, repeat until all four rods are in place.



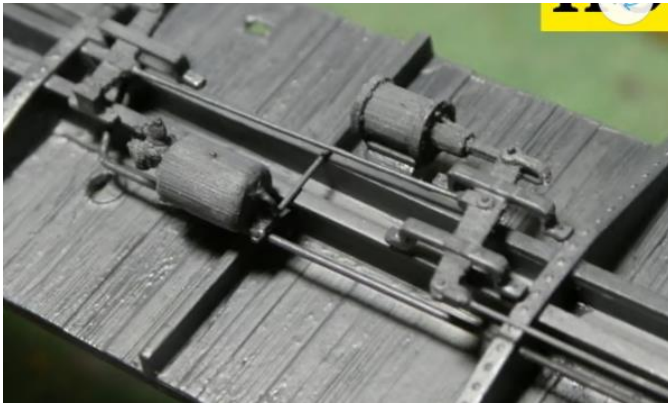
- 17d. Once dry, cut the material flush with the horizontal support beam. **Keep a small piece of the wire.**
- 17e. Gently add a little glue to the turnbuckles so they stay in place. Do not put them on top of each other as it won't look correct and they would lack functionality if they were real.
- 17. Glue the bolsters into place. The side pieces of the bolsters are notched to fit the under decking of the car. Ensure you use the 1/8-inch-thick bolster center pieces. There are 1/16-inch-thick pieces included in case you need them.



- 17a. The queen post (shown above) goes in the middle on the 24-foot version. Note the four notches where the truss rods go.

There is a dash line showing where it goes. The 36-foot version has two that are marked similarly, but

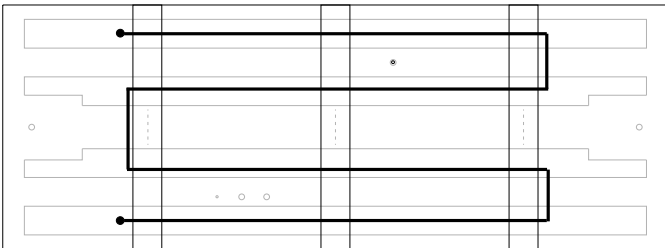
are offset from the center. If you are threading your truss rods, we recommend you glue the queen post(s) into place now. However, if you are using the wire method, we recommend you hold off until after step 21g.



- 18. Included is the standard Westinghouse K-brake system. 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.
- 19. Once again, you have a choice to use either thread or .015 phosphor bronze wire. This time it's for modeling the truss rods. The wire looks more realistic. If you go with the wire, skip ahead to step 21.

Threaded Truss Rods

- 20a. Take the length of thread (about 1 foot long) and put an overhand knot in one end (We used three knots 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.



- 20b. 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 my 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. Skip ahead to step 23.

21. Wire Truss Rods

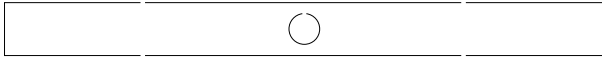
For the wire truss rods, you will need to do the following steps **four times**- one for each truss rod. Or less as you desire. Either way, you should use even numbers and be symmetrical. (outboards only or inboards only for two truss rods)

- 21a. For the 24-Foot version, mark the middle of the two remaining pieces with a Sharpee. This will make adding the turnbuckle easier.
- 21b. Cut the wire pieces in half. (For four truss rods.)
- 21c. Put a small 90° bend in the end you marked with a Sharpee.
- 21d. Thread the wire through the outboard hole on one of the bolsters so that the bent end is against the outside of the bolster. You will need to guide it over the notch in the queen post(s).
- 21e. Add a turnbuckle to the wire. Move it between the first bolster and the first queen post. You can move it into a permanent position later. Do not add glue yet to the turnbuckle as it will gum up your work.
- 21f. Now the tricky part. You will need to put it through the opposite outboard hole. Be gentle and try not to add a bend to it. What seems to work best is applying a little bit of pressure with an index finger where the wire enters the bolster. This is to straighten the approach angle. Then, using the opposite hand, push the wire through. **DO NOT USE TOOLS**, as they will cause a bend. Ask us how we know...
- 21g. Position the turnbuckles where you want them. A random look is good, as long as they are somewhere near center. **Repeat until all four rods are in place**
- *** **Add your queen post(s) if you have not done so by sliding it horizontally under the truss rods, adding a little bit of glue underneath and turning it/ them vertically until they are between the dashed lines.**
- 21h. Remove slack from each of the wires or leave it loose if you're looking for a worn-out look. Be careful as the outer holes on the bolsters don't take well to the pressure of removing the slack. If they break, simply glue the wire into place and cover with a cut piece of spare stripwood.
- 21i. Bend the ends upward and remove the bend from between the bolsters and the queen post.
- 21j. Add a drop of CA (gently) to the holes from the outside to hold the wire in place.
- 21k. When dry, cut the excess flush with the bolsters with wire cutters. They don't have to be perfect as long as

they won't interfere with the trucks and you paint the bolsters. Keep a piece of the wire that is about 1/16-1/8 inch long.

22. Once everything is dry, Center and glue down the cradled tank onto the deck.

23. **Tank cradle covers** - Locate the two pieces shown below and the mount for the valve. (Construction paper, square piece with a hole in it)



23a. Cut 1/16 stripwood to fit on the backside of each of the tank cradle covers. Leave room for the covers to fit snug against the cradles. You may need to trim around the valve hole also. Glue into place. (Presumably along the bottom)

23b. Glue the valve mount over the hole on the valve cover.

23c. Test fit the valve to ensure it fits in the hole.

23d. Once dry, glue the covers into place on either side of the tank ensuring that there is no daylight at the bottom. The pilot model needed to be modified because of this and you normally only notice it when taking photos.

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

25. 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, we've found that a dab of CA helps keep the spring planks in place. If the screws don't hold, add a drop or two of CA into the holes and try again.

26. Glue into place the NBWs, stirrups and detail parts. The NBWs and stirrups have cut holes where their respective parts fit. There are tons of NBWs on this little car. We installed the smaller dome on the top center of the tank for the 24-foot version and the larger dome for the 36-foot version. The Tichy Tank Car Detail Set <https://www.tichytraingroup.com/Portals/0/Instructions/4020.pdf?ver=2012-12-28-000306-000> is

included and it has lots of parts to go wild with. We've also included ladders with newer kits of both versions.

27. **Valve Installation** – Some valves are slightly thicker than what went on the pilot model. If this is the case, you will need to bore out the hole a little bit. Test fit it to be sure all is well.

27a. Remember the small piece of wire on step 21k? Pull it out and glue it to the top of the valve. CA is probably your best bet for this step. Then, glue one of the brake wheels from the detail set on top of the wire. It can slide down as far as you want. Paint when dry.

28. 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. We glued ours to the end of the car. Different variations are highly encouraged!



29. Glue the valve into place. It might look cool to add a piece of 1/32 stripwood under the valve where it crosses the car and hangs over the side.

30. Add the decals and weather as appropriate.

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

See Conowingomodels.com for more unique model railroad products.

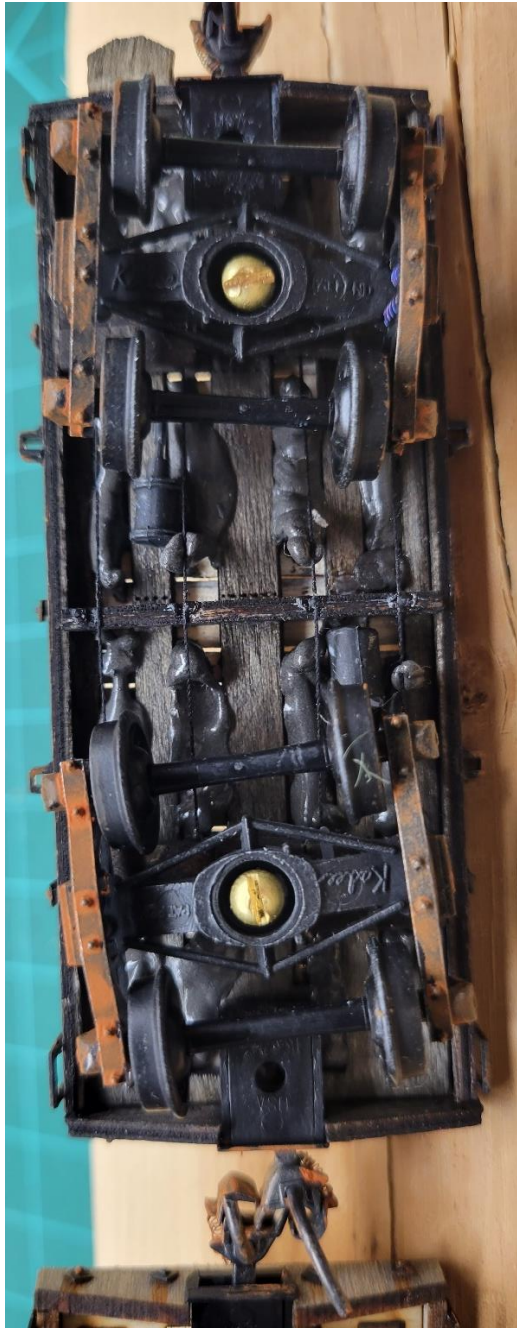
If there are any parts missing, please e-mail us conowingomodels@yahoo.com and we'll get those parts headed your way. We strive for a perfect kit, but mistakes do happen. We apologize if this happens.

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

Like the design? Want to see this car developed into other things? Please drop us an e-mail and/ or visit the Facebook page to see the latest development with it.

Visit conowingomodels.com or the Facebook page often to view any newly developed rolling stock.

We have been asked a few times for photos of the completed undersides. Here is a 24-Foot car with Tichy trucks and no weights added. The underside doesn't photograph all that well, but hopefully it provides everyone with what they are looking for.



24-foot version with tungsten putty for additional weights



36-Foot version



24-Foot version