Passenger Car #1

O/On30 Scale

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Thank you for purchasing this kit!

The enclosed flatcar 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

We update instructions over time to improve them, show new techniques, etc. See our website to download the latest instructions.

The instructions for this kit are a bit segmented. They are designed to keep the modeler moving forward. It won't look that way at first, because there are a lot of starts and stops associated with bracing and painting.

We've tried to accommodate the O scale crowd as well as the On30 crowd with this kit.

KIT CONTENTS

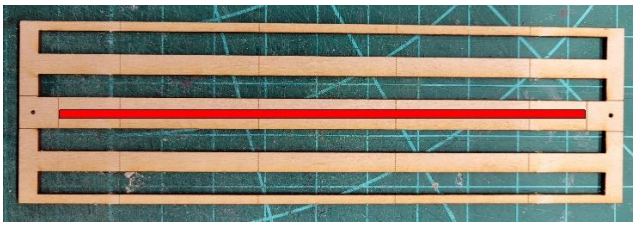
Items not identified

1. The side walls. Hopefully they're self-explanatory
2. The end walls are to the left of the side walls.
3. The queen posts are inside the doorways of the end walls.
4. The brake wheel support is in the first window of the top side wall.

BRACING

☐1. Remove the frame from its carrier. Note there is a side with lines that denote where the bolsters and queen posts go. This is the underside. You'll also note where the coupler boxes go.

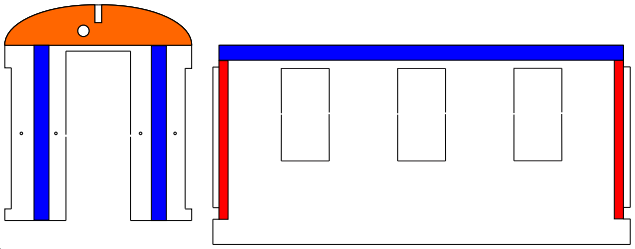
☐2. Plan out where you'll want to add weights. The NMRA, in RP-20 (essentially) states that the 24-footer should weigh 10 ounces. An unweighted example with Tichy trucks weighed 2.15 ounces. Failure to add weight will result in a very uncooperative car that doesn't stay on the tracks. We recommend **tungsten putty**. It's available from Amazon, but can probably be found elsewhere. It works well on the rolling stock. Once you've applied the decking, bolsters and queen posts, fill in the gaps on the main body with tungsten putty. You should also add weight inside the cabin.



☐3. Size, cut and glue down the 1/8 x 1/8 stripwood to the underside of the body.

☐ - It should be centered (better than in the photo) and between the dashed lines used to designate where the coupler boxes go.

☐ We found the hard way that if this brace isn't perfectly straight, your car will sit at an angle, probably not ride the track properly and have other consequences down the road. Add weight to ensure the bracing holds the frame flat.



☐4. Cut out both of the end walls, both side walls and two of the roof supports as shown above. (Only one set shown for clarity.) Roof support shown in orange.

☐

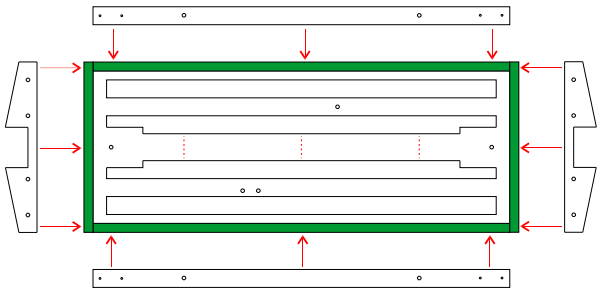
☐- When the time comes, paint one of the right 1/8 braces black. This will serve as the stovepipe for your potbelly stove.

☐5. Fit, cut and glue into place the roof support (no need to remove the wiring hole), and bracing as shown. 1/16 shown in red. 1/8 shown in blue.

☐- Ensure the 1/8 and 1/16 bracing from the side walls will match up with the end walls and not protrude any lower than the bottom of the end walls. The two should fit together like a tab and slot.

☐- Add weights to ensure the glue sets properly.

We had considered adding extra support to the interior of the side walls. However, doing so reduces the area available for seats. That is why the only horizontal support is at the top of the wall.



☐6. When the center beam for the body has dried, locate the sides and ends for the body piece.

- There is a narrow center opening set of the ends for On30 couplers and a wider center opening set for O scale couplers. Use the appropriate set for your application.

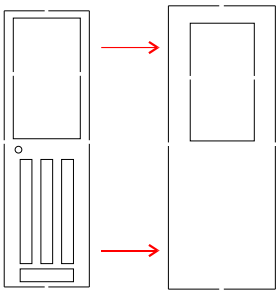
☐7. Glue those pieces into place vertically as shown above. The pieces in the kit will look slightly different than on the illustration above and below.

☐8. Add weights and other bracing/support to ensure the end and side pieces will adhere at a 90' angle.

PAINTING

If you choose to duplicate what we've done with the weathering, stain the side and end walls before painting.

Ensure that the bracing has been done and dry before proceeding.



The doors are made of two pieces each. If you are planning on painting the trim on the door one color and the door themselves another, adjust accordingly.

The instructions assume that you are painting the car green with white trim. Please use different colors!

☐ **PAINT WHITE**

- 6x Windows
- 2x Doors
- 1x 1/16 x 1/16 stripwood – door frame

☐ **PAINT GRIMY BLACK**

- 8x NBWs (nut, bolt, washers). You will need to remove them from the 3D printed joiner.
- 4x Turnbuckles
- Brake wheel
- Needle
- 2x Trucks
- 2x Coupler pockets
- Smoke jack
- Potbelly stove
- 4x Bolsters (or 8 if not yet assembled)
- 2x queen posts
- Underside of the frame (optional, it won't show)
- 4x Stirrups

☐ **PAINT GREEN**

- 2x End walls
- 2x Side walls
- 2x 1/16 x 1/16 Door trim
- 4x 1/32 x 3/32 Corner trim
- 2x 1/32 x 3/16 Roof trim

☐ **PAINT RED**

- 8x Seats

☐ **PAINT BEIGE**

- Paint the interior walls of the car when the exterior walls are dry. (Optional)

☐ **STAIN GREY**

- Outside and top deck of the car frame
- Support piece for the brake wheel
- 6x 1/32 x 3/16 stripwood (multiple colors/shades)

☐ 1. Using masking tape, set out two lines as shown above. Tuck the ends under so they stick to your chosen surface. We use old cardboard soda cartons.

☐ 2. Adhere the above noted stripwood to the masking tape.

☐ 3. Stain the stripwood, using multiple colors and varying amounts. This will add character to the wood.

- We'll address painting the interior floor later.

☐ 4. Add weights to flatten until dry.

☐ **STAIN LIGHT BROWN**

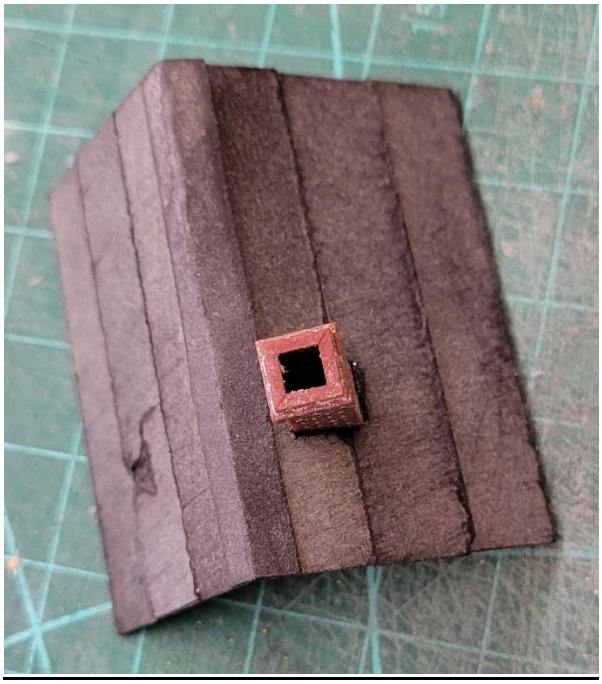
- Scribed side and edges of wood roof piece. Flatten when finished.

ROOFING MATERIAL PREP

☐ 1. Find the black construction paper carrier sheet with the roof. In examining real passenger cars, this section appears to be a single piece of rubberized material. There are probably seams, but they are well-covered for waterproofing. We will use most of our tarpaper roofing technique to finish it.

☐ 2. You could use it the way it is to represent a brand-new roof. However, we recommend very quickly spray painting it with three different shades of grey as shown above. You don't want a uniform cover. Half-sprayed splotches are great.

☐ 3. Take either a 400-grit sanding sponge or sandpaper and gently run it across the construction paper strip lengthwise. The goal is to blend the paint colors together.



☐ 4. If you so desire, you can use the sanding sponge to dig into the edges and sides of the construction paper so that the black comes through to show roofing age/damage. It's your model, your call. (Roof of Madam Marie's shown to demonstrate the objective.) We chose very minimal damage for the passenger car roof.

DECKING

One thing we haven't really touched upon with the deck boards is the use of a ponce wheel to add decking nails. Should you choose to add nails, you could add them either after step 2 or after step 5.

☐ 1. When the frame and stripwood for the decking has finished drying, you can prepare the deck boards.

☐ 2. Measure out and cut each piece of 1/32 x 3/16 wood to match the width of the frame. Only do this after you have constructed the body. We purposefully didn't include an exact dimension because the width can vary from build to build or builder to builder. Our Ultimation Slicer to quickly and accurately produce the deck boards.

☐ 3. We prefer to take our pile of deck boards and mix them up. It ensures lots of variation in the wood colors.

☐ 4. Beginning at one end, glue down the deck boards, one at a time. Ensure they are straight with small gaps for expansion/contraction.

- As you get closer to the other end, add boards to the end and work your way towards the middle.
- This step is important because if you end up with a gap, it is easier to hide when it's not on an end.
- If you do end up with a gap, cut down a piece of the deck board to fit. In the photo above, the piece that was cut down is seventh from the top. You can't tell.
- Do not worry about the unstained wood cuts, you will cover that up later.

☐ 5. When all the deck boards are in place, flip the body over and add weights. You want the car deck to dry evenly.

UNDER DECKING

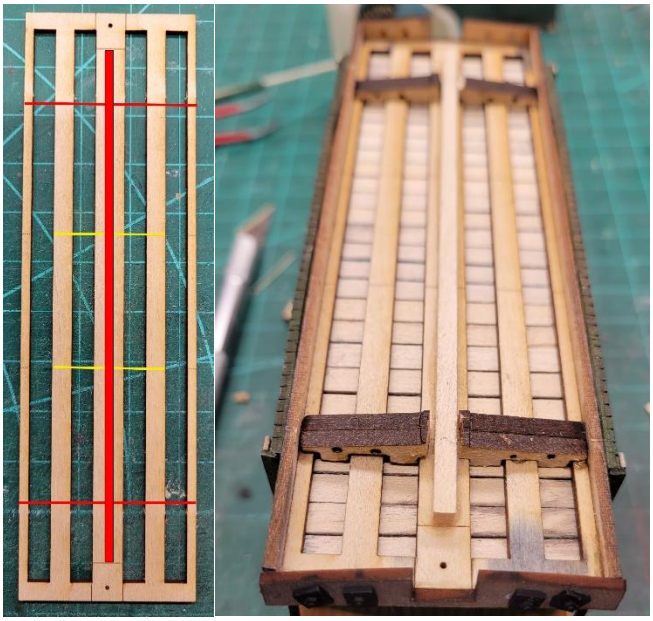
We've included two different ways to model the truss rods in this kit. You can either use the wires or the thread. We will describe each separately.

For this kit, we redesigned the bolsters because of the center beam.

☐ 1. Locate the eight bolster pieces.

☐ 2. Match them up into four pairs, ensuring they will fit together properly. Laser cutters doesn't make a perfect 90' cut. We've found that most of the time this doesn't matter. Here it matters.

☐ 3. Glue together each pair, ensuring that the needle will go through the truss rod holes.



☐ 4. Glue the bolsters to their respective positions on the underbody. Marked here in thin red. The center of the bolster should match up with the laser cut line.

☐ 5. We had to cut our bolsters to fit because we didn't get the alignment of the center beam right. If you did that too, you can cut the bolsters to fit. You may choose to use wood putty to fill in the open space.

☐ 6. Lay the two queen post pieces on the underdeck as shown below. Do not glue them in place.

Wire Truss Rods (Optional)

You have the option to install either wire truss rods or thread truss rods. If you want to install thread truss rods, disregard this section and proceed to the next.

☐ 1. Take one piece of wire and add a small, 90' bend at one end.

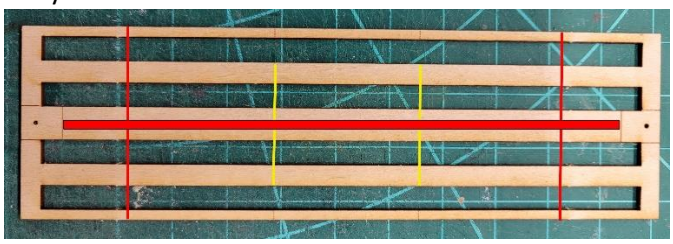
☐ 2. Feed the wire through one hole in the bolster.

☐ 3. Add a turnbuckle to the wire.

☐ 4. Run the wire across and through the corresponding hole on the opposite bolster as shown below.

☐ 5. Repeat for the remaining three wires.

☐ 6. Add glue to the bottom of the queen posts and slide them into place vertically. Ensure the wires run across their respective notches in the queen posts and that the turnbuckles are between the queen posts. They have a laser-marked position and their placement is also identified on the photo below in yellow.



☐ 7. Add glue (preferably CA, but your choice) to the bent end around the holes. (Just one end)

☐ 8. When dry, cut the excess wire from the bent end.

☐ 9. Gently pull the wires to remove sag from the end not glued into place. You probably won't get it all, but work it until you are happy with it. Be careful not to break the queen posts.

☐ 10. Bend the wire on the end where it's excess to lock it in place.

☐ 11. Add glue (preferably CA, but your choice) to this end around the holes.

☐ 12. Add some glue to each turnbuckle. Random positioning between the queen posts is perfect.

☐ 13. When dry, cut the excess wire.

Threaded Truss Rods (Optional)

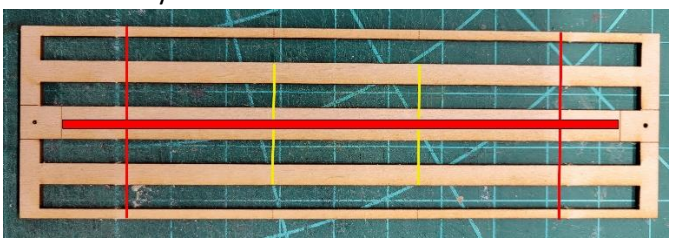
☐ 1. Take the length of thread and put an overhand knot in one end (We used three and a dab of CA at the first bolster because the thread is thin)

☐ 2. Gently route the thread through the bolsters as shown below, adding a turnbuckle to the thread between each bolster. You should end up with one turnbuckle for each span of the truss rods. (4 total)

☐ 3. The wooden queen posts have notches for the truss rods to pass over.

☐

☐4. Add glue to the bottom of the queen posts and slide them into place vertically. Ensure the thread truss rods each run across their respective notches in the queen posts and that the turnbuckles are between the queen posts. They have a laser-marked position and their placement is also identified on the photo below in yellow.



☐5. Gently pull the thread to remove sagging. Be careful not to break the queen posts.

☐6. Once taut, add the final knot (or several) as close to the bolster as you can get it and cut the excess when it's time (NOT NOW).

☐7. Apply some CA to the thread at the end of the threading to hold it in place.

☐8. We hung the whole assembly from the workbench with a small clamp while it dries to keep tension on it. It doesn't hurt to add CA to each bolster where the thread carries through.

☐9. When it's dry, cut the excess thread.

Cabin Building

☐1. Assemble the walls, two at a time by putting one end wall and one side wall together at a 90' angle. The walls are set up to be somewhat tab and slot, so they should fit together easily.

☐2. Once you're happy with the shape of the walls, glue all four together.

☐- It may help to get a large rubber band and utilize the car body to help form the shape.

- Do not glue it down unless you are happy with the alignment. We'll do the alignment later.

- The side walls will droop over the body and should be even with the bottom of the side rails.

☐3. Let dry.

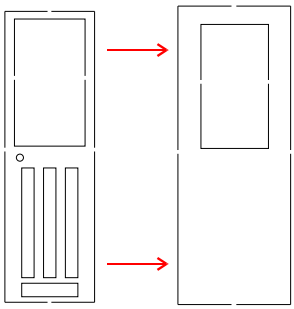
☐4. If you haven't done so already, center the cabin on top of the body.

☐ - If you choose to paint the cabin floor, mark the position, remove the walls and paint the floor now.

☐5. Glue the cabin into place.

☐6. Take a piece of 1/32 x 1/16 stripwood and fit, cut and glue it across the top of each side of the car.

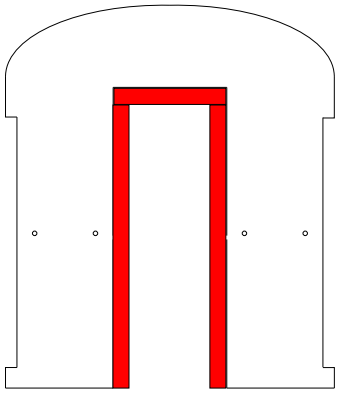
☐7. Take pieces of 3/32 stripwood and wrap each corner so that you cover the seams where the walls come together. Notice how it wraps around the stripwood from the previous step.



☐8. Glue the two doors together as shown above with the detailed piece on top.

☐9. Add the glazing to the doors utilizing a clear-drying glue. The glazing goes behind the lesser detailed piece.

☐ 10. Add the glazing to the windows utilizing a clear-drying glue.



☐ 11. Use your 1/16 x 1/16 that you prepped for door trim to form the door trim as shown above.

☐ 12. Glue the grab irons into place. A scrap piece of 1/8 stripwood helps keep the depth uniform.

☐ 13. When dry, glue the doors and windows into place.

☐ 14. Cut the window blinds as you desire and glue them into place. While making them uniform looks nice, varying heights indicates signs of use.

☐ 15. Glue the potbelly stove into place against the bracing you painted black.

☐ 16. Glue the seats into place as shown above.

ROOFING

☐ 1. Place the roof supports on top of the side walls. You will need to hold them in place with the ridge beam. (Yours will fit better than they did on the pilot model)

☐ 2. Glue the roof supports and ridge beam into place.

☐ 3. Add glue to the tops of the walls and roofing supports.

☐ 4. Put the wood roofing piece in some water. Get it good and wet. After a few minutes it will start to warp. Proceed to the next step while you're waiting.

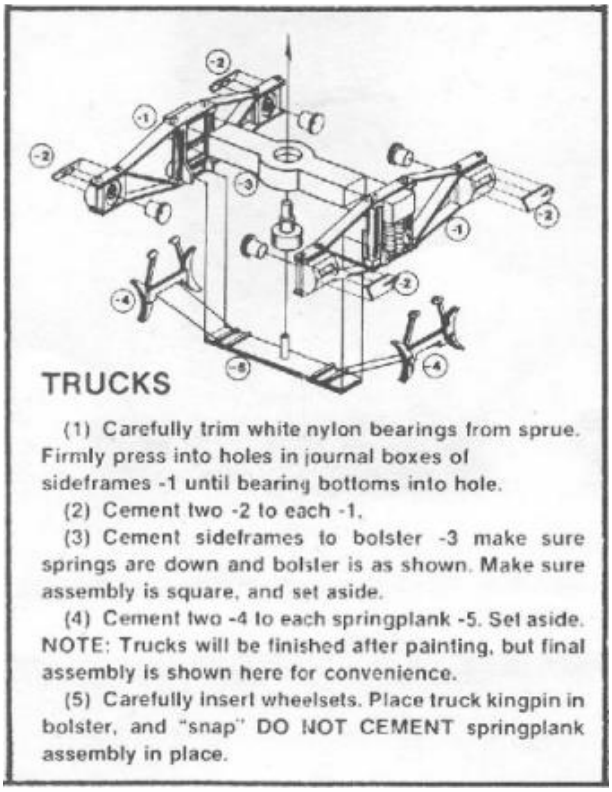
☐ 5. Apply glue to the top of the ends, sidewalls and roof supports. We used a slower glue to give us time to get it positioned properly. Be careful not to add too much glue – you don't want a drippy mess.

☐ 6. Carefully, but quickly, position the roof where you want it and secure with rubber bands. We used some stripwood to apply pressure to the top and lower sides of the roof.

☐ 7. When dry, take the prepped roofing material and glue it down using the method from the above step.

TICHY TRUCKS (OPTIONAL)

☐ 1. If you purchased the Tichy trucks, assemble the trucks and coupler boxes (some kits) as shown below.



TRUCKS

(1) Carefully trim white nylon bearings from sprue. Firmly press into holes in journal boxes of sideframes -1 until bearing bottoms into hole.
(2) Cement two -2 to each -1.
(3) Cement sideframes to bolster -3 make sure springs are down and bolster is as shown. Make sure assembly is square, and set aside.
(4) Cement two -4 to each springplank -5. Set aside. NOTE: Trucks will be finished after painting, but final assembly is shown here for convenience.
(5) Carefully insert wheelsets. Place truck kingpin in bolster, and "snap" DO NOT CEMENT springplank assembly in place.

(Courtesy Tichy Train Group)

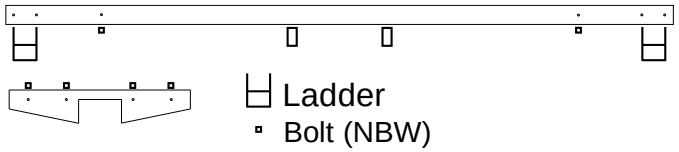
FINISHING TOUCHES

☐ 1. Trim the deck boards as desired. The under sides, side rails and end pieces can be further painted/stained and lettered at this point, or you can choose to do so later if you so choose.

☐ 2. 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).

☐ 3. 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. If the screws don't hold, add a drop or two of CA into the holes and try again.

☐ 4. Install the bolts and ladders using glue. Either CA or white/wood glue seems to work equally well. The bolts have holes cut for them. There are also holes cut to serve as guides for the ladders.



☐ 5. For the brake wheel run the pin through the brake wheel. 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!

☐ 6. Do any necessary paint touch-ups and final weathering.

☐ 7. Please share your photos on our Facebook page! https://www.facebook.com/ConowingoModels

Once again, thank you for your purchase!

If there are any parts missing, please e-mail us what you need to complete the kit and we'll send it your way. Also suggestions for improvement are welcome. Send photos!

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www.conowingomodels.com
Or our Facebook page
https://www.facebook.com/ConowingoModels/
for more exciting, funky buildings and rolling stock for your model railroad!

Many thanks to my family, Jeff Grove, Steve Milley and Mark Schreier for their support!