


# Assembly Instructions for Santa Fe 500 and 2201 series Caboose from Sunshine Models Kits

1. Wash all castings and carefully clean all flash from the parts. DO NOT REMOVE THE DIAGONAL BRACES ON THE END OF THE CAR SIDES AT THIS TIME.

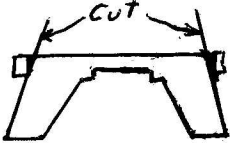
2. Make sure the two end/step castings and the two add on cupola wall pieces are the same width.

3. Beginning about 1953, these cars began to be equipped with electric lights and radio, however this took many years to complete. If you want your model to represent one with electric lights and radio, you need to cut a 3' 4" wide by 1' 10" high opening in the car side with three windows using the photo of car 2219R as a guide to locate the opening. Very carefully cut this opening and check the fit often until the battery compartment door fits snugly. Glue the door  into the opening flush with the side of the car. Glue from inside the car.

4. The two end/step castings are slightly taller than the car sides and will need to be sanded down to the same height as the car sides. Now glue the two end wall/step castings and the two car sides together aligning them at the top of the side fascia.

5. Carefully align the top of the two add on cupola walls and glue into place from inside.

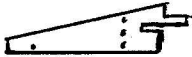
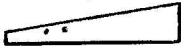

6. Fit the floor into the car and glue it into place. The "B" end of the floor has a small X on the floor and this end goes into the cupola end which is the "B" end of the caboose. Align the floor with the bottom edge of the sides.




7. Now take the end sill/step end plate castings and lay it face down and cut out the casting gates from the back of the end beams on the same angle as the step end plates. excess material from the back of the end beams. Next on  four dimples, one on each end of the end sills and one through with a #77 drill all the way through the end sill. Cut on this angle and remove the top of the end sills there are 17" in from those. Drill down These holes are for the end hand rails to be added later.

8. Add the end sills and step end plates. This can be done easier by using the center sill/coupler pocket casting. Holding the center sill/coupler pocket in place on the underframe, put the end beam on top of it and align the step end plate with the steps and tack glue the end plate in a couple of places. Now remove the center sill/coupler pocket from the bottom, and if the end plate is in the proper location finish gluing it into place.

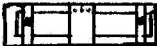
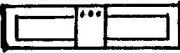
9. Trim and add on the center sill/coupler pocket. You can either drill the coupler box for a 2-56 X 3/32" screw or simply glue the coupler box cover in place. When you have done this glue the center sill/coupler box in place. For the 2201 series car the coupler box should extend out from the end sill 12". For the 500 series cab the coupler pocket should be even with the end sill.




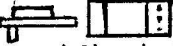



10. Add the bolster cover plates  to the bolsters.





11. Add the four floor cross bearers in place against the back of the steps. On the 2201 class cab  they look like this. On the 500 class cab they look like this  glue into place. Also on the 2201 class cab, add the four flat triangle shaped plates  one on each side of the coupler box housing under the end porch with the wide end up against the floor cross bearers and the narrow end towards the end sill.

12. Add the four small center sill tie plates across the center sill at the cross bearers. For the 2201 class car these are four plates the same length.  Add one at each cross bearer. For the 500 class cab there are two different lengths. The short ones  go on the two center cross bearers, and the two long  ones are for the end cross bearers.

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13. On the 2201 class cab there are two add on center sill cover plates. These mount on the sides of the center section of the center sill. This one  goes on the three window side and this one  goes on the five window side of the center sill. The center plate, on these two parts, have three rivets on one side and these go down away from the car floor.

14. Add the brake equipment. With the cupola on the right add the small reservoir bracket  to the left mounting pads on the underframe, and the large one  on the right mounting pads. Drill #78 holes in the air reservoir and brake cylinder. Cement the air reservoir to the mounting brackets. Next add the brake cylinder mounting bracket to the floor. On the 2201 class cab it looks like this,  and on the 500 class cab it looks like this.  Add this on the opposite side of the center sill from the air reservoir. (see the underframe pictures) Glue the brake cylinder onto the mounting pad. Add the long  brake lever in the end of the brake cylinder. On the 2201 class cab you need to add the dead lever mounting pad  just to the left of the left center cross bearer and with the flat end on top of the small bracket and the small triangle towards the floor. On the 500 class cab this pad is cast into the center sill. Now add the dead lever  to the mounting pad.

15. Next add the hand brake lever mounting pad. On the 500 class cab  this glues across the center sill about 6 scale inches in front of the large brake lever. On the 2201 class cab the pad  sits over the center sill and mounts about 1 scale foot in front of the large brake lever. Make sure that the wheels clear these pads and hand brake levers. Now add the extra hand brake lever  to the mounting pads. (see underframe photo) Add the control valve mounting bracket next,  be sure to check the location on the underframe as the two cars are different.


16. Add as much of the brake rods and piping as you desire using the underframe photo for your class of caboose.

17. Drill #78 holes and add three 18" grab irons for the brake lever hangers.

18. Add the trucks. Both classes of cabooses were built with ASF A-3 Ride Control trucks. Both Kato, #31-601 and Kadee #504, offer these trucks. This model was built to use the Kato truck, however if you prefer to use the Kadee truck cut off the raised boss on top of the bolsters. Drill and tap for a 2-56 X 1/4" screw and mount the trucks.

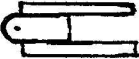

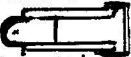
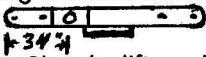
19. Add the large tool boxes with the flat sides up against the car floor and the other facing the car sides. Next add the tool box door plates.

20. Add the two upper porch boards. These pieces are a five board section that centers on top of the two end porches, now glue into place.

21. Add the car body grab irons. On the upper car ends on each side of the door, drill two #78 holes  on the upper grab iron brackets bend and add two on each of the upper car ends. Add the lower end grab irons on the end walls. There are small pads cast onto the car ends, one at the bottom outside edge and one 2 1/2' feet above that and a dimple in each side of the door jam. Drill #78 holes, bend and install these grab irons from .015" wire. Use an eye bolt in the center of these to attach it to the car end. Drill #78 holes on the sides at the four corners for the curved side hand rails. These locations also have a small mounting pad cast into the car sides. Using the curved bending jig make four curved side grab irons using .015" wire. Bend down the two legs at the notches on the bending jig this will make them the correct length.

22. On the end sills drill below the rivet heads with a #78 drill and add four 18" straight grab irons, two on each end.

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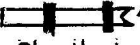





23. Add the two hand brakes. Locate the two upper  and two lower  parts of the hand brake. The bottom of the upper part angle irons needs to have a slight angle sanded on them so the two angle irons are of equal width all the way down. Drill a #79 hole into the bottom of the Ajax brake housing to accept an eye bolt and brake chain at a later time. Now lay the part on its flat side and slide the lower part up onto the open bottom of the upper half.  When glued together the brake stand should be 45" tall. Tack glue the parts and make any adjustments before finish gluing these parts together, so when it stands up on the car end sill it stands straight up and does not lean to either side. Now drill into the Ajax hand brake gear box with a #68 drill and add the brake wheels. Next drill a #55 hole down through the cars end sills at a location in 34" from the left end of the end sill for the hand brake chain to pass through.  Take a lift eye and slightly open the loop and slip the brake chain end onto it and close the loop. Glue the lift eye into the bottom of the Ajax hand brake. Drop the chain down through the hole in the end sill and pull it tight so the brake stand is upright and in position. The left side of the brake stand should be 24" in from the end of the end sill and even with the outside of the end sill. Now glue it into place. Put a drop of ACC into the brake chain hole and cut the chain off with two links hanging down below the end sill. Now mount the hand brake clevis under the floor and under the hand brake chain.

24. Now bend from .015" wire two 42" high end railings using the bending jig. Now cut these railings at a point centered behind the Ajax hand brake housing and bend the ends down at a 45 degree angle. Drill two #78 holes into the top of the hand brake housing, one on each side, and plug in the angled ends of the hand rails and the other end goes down through the end of the end sill. Some cutting and fitting is necessary to fit these end railings. When satisfied glue the hand rails into place so that they are 42" high above the end sills.

25. Now cut four pieces of .015" wire four scale feet long and insert them up through the four holes that are 17" in from the end of the end sills you drilled earlier and either glue them or solder them up against the bottom of the hand rails.


26. Add about 2 1/4 oz. of weight inside of the car body.

27. Add the roof sections. Add the two main roof sections, one long and one short, to the top of the car body. These two main sections can be left loose if you would like to add an interior in the car (not included) at a later time. Next glue the porch overhang extensions to the top of the caboose sides. The plain end tucks up under the main roof sections under the roof rib on each end of the caboose. These should extend the roof out another 24" on each end. Now glue on the cupola roof section. Now you can remove the four diagonal roof braces over the porches.

28. Take the lower part of the smoke stack  and file a U shaped groove into the top to accept the upper round part  of the smoke stack. Glue the two parts together and trim the length of the upper part. It should be cut on a 45 degree angle  and close to the vertical shaft. (see photos) When installed on the roof it should stand 48" above the  roof. Drill a #79 hole through the top of the smoke stack at the joint and insert a piece of .010" wire through  the hole and bend it down so it has two guy wires about a foot longer than the smoke stack. On the long roof drill two #79 holes at the outer edges  of the smoke stack base plate and install the smoke stack and guy wires in the base plate. *File U* *Drill 2 places*

29. Add the cupola hand rails. Drill the 12 handrail mounting brackets with a #78 drill, make the holes just to the outside of the cast on rivets. You may need to angle them in slightly so as not to break through the edge of the cupola roof. Now bend either one continuous grab iron of .015" wire and solder the two ends together on the side after stringing 12 lift eyes onto the wire or bend four corner grab irons and use a lift eye in each corner, whichever you prefer. These cabooses came with both types of hand holds on the cupola roof when built.

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30. Add the two cut lever mounting brackets  under the end sills left side. Drill a #79 hole in each and add a lift eye to hold the cut levers.

31. Cut the two ladders so that they have five rungs and the side rails are 7' 8" long. Now cut four pieces of .020" x .040" styrene 3/32" long and glue a piece to the top of each ladder rail inside at the top, these are the attachments to the roof edge and will also be drilled to accept the roof grab irons. Attach the ladders so that the right leg is 21" from the right end of the end sill, and also glue the upper spacers to the roof edge.

32. Add the roof walks next by adding the center walks first, then the ones on either side of the cupola and finally the lateral walk on the long end.

33. Bend from .015" wire four roof walk end grab irons using the bending jig. Drill down into the top of the upper ladder brackets with a #78 drill and cut and fit these grab irons so they stand 27" above the roof walk. Glue these into the top of the ladders.

34. Add the cupola awnings to the side of the Cupola and centered over the side windows:

35. This completes construction and your way car is ready to paint.

36. Painting and lettering. Refer to the Prototype Data Sheet and photos. Remove the trucks and couplers and wash the car with soapy water and a toothbrush. Rinse and let Dry. Paint the entire car and trucks ATSF Mineral Brown. All the lettering is white. Apply the decals over a glossy surface. When finished and the decals are dry, overspray them with a flat finish to seal the decal edges. Beginning around 1953/54 some cars got their step edged and hand rail edges painted white.

37. Add the windows and screens.

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