Campbell Scale Models

RR WATER TOWER, Kit #356
50,000 GALLON TANK

Ledged: GP = gangplanked, pc. = piece, pcs. = pieces

ASSEMBLY INSTRUCTIONS

Steam locomotives depended on fuel and water for the generation of their steam power. Of the two, an adequate supply of water was often the more serious problem. Maintaining the proper level of water in the boiler was of paramount importance: if there was too much, there would be insufficient space remaining for the required amount of steam to operate the locomotive—if the water was allowed to get too low, the boiler would explode with terrific force, scattering parts of the engine over a wide area, and killing the engine crew and any others in the vicinity. For these reasons, water tanks were to be found along the right-of-way of every railroad operating steam locomotives, at intervals to assure a plentiful supply of water wherever it might be needed. Every town, hamlet and junction had a water tank, and others were placed between these points wherever required—often out in the country, completely away from civilization.

In the early years, tanks were all built with tapered staves, so the tank was smaller at the top. This was required because the hoops were riveted to the required diameter, and driven down on the taper of the tank until they were tight. Sometime in the early 1900's sectional hoops, with lugs for tightening, were introduced. Most tanks from then on were built with straight sides. This is the style modeled in this kit.

NOTE: Changes in humidity and temperature sometimes cause the paper to shrink or swell, slightly altering the size of the templates. If the wood parts do not exactly fit the templates, work from the center, splitting the difference.

Before starting assembly, sort and identify the parts, (See Master List and Cross References on Drawings) and be sure you visualize each step. Most of the wood parts have been cut to length for you, and should need no further work. Some of the plastic castings may need a bit of filing to remove any flash and to smooth the parting line if it shows. Be careful with the castings as some are very small and can be easily broken.

If you intend to stain your model, this should be done before assembly, as most stains will not 'take' on the glued joints. If you plan to paint the model, this can be done later.

Step #1 Assemble Tank Wrapper

A4	6 pcs.	3/64 x 1-3/4 x 2-13/64”	Tank Wrapper (3/64” GP)

Glue the six pieces of Gang-Planking (1-3/4 x 2-3/16”)(A4) edge-to-edge on the template, Fig. 2, to form the sides or 'wrapper' for the round tank. In working on any of the templates, it is best to spread waxed paper over the drawing to prevent the glue from sticking to the paper. As you glue each piece in place, hold it with bits of masking tape so it will not shift. (Alternatively, apply short lengths of double sided Scotch Removable grade tape atop the template to hold the pieces together while they dry.) Make sure the top and bottom edges are exactly even. Wipe off any glue that squeezes out. Note that the edge plank on each side of each piece is 1/2 of a plank wide. When glued together these form full-width planks, and the glue joint disappears. Before removing the wrapper from the template, run a length of masking tape the full length at both the top and bottom, to give strength while handling the wrapper—carefully! Turn it over, and run a length of Scotch Mending Tape along the full length of the inside about 3/8" from the top edge, and another 3/8" from the bottom edge, for permanent strengthening.

Step #2 Assemble Tank Core

B16	1 pc.	1/2 Dia. x 2-13/16”	Tank Core Dowel
A7	8 pcs.	1/4 x 1/4 x 1-29/32”	Tank Core Spacers

Make the tank core as shown in Fig. 1. Divide each card tank disc (3-1/4 Dia. x 1/8”) into eighths and mark them as shown. Glue a tank disc at each end of the 1/2" dowel (B16), with the marks above each other. Glue the eight 1/4 x 1/4 x 1-29/32” (A7) wood spacers between the discs, in line with the marks. As you glue each spacer, rest the disc rims against the table, and press the spacer out flush with the edges of the discs. Repeat with all the spacers so they will hold the wrapper straight from top to bottom. Set the tank core assembly aside to dry thoroughly.

Step #3 Choose Frames (“Regular” or “Narrow”) Gauge Tower

While the tank sides and core are drying, make the frames for the tower. These are assembled on the templates in either Fig. 3A or Fig. 3B. To build the normal-height tank, as shown in the photograph and in the side view, Fig. 9, use the template in Fig. 3A. Some of the older and narrow gauge roads built lower towers under their tanks. For this construction, use the templates in Fig. 3B, and the method in Step 5 below.

Step #4 Assemble the “Regular” Gauge Leg Frames

B1	24 pcs.	3/64 x 1/16 x 2-3/4”	Cross Braces
B2	24 pcs.	1/16 x 1/8 x 2-13/32”	Tower Legs
A5	1 pc.	3/64 x 25/32 x 2-13/32”	Frost Box Side (use as spacer)
Diagonal Spacer & Depth Gauge Card			

The legs of the tower are made of 1/16 x 1/8 x 2-13/32” (B2 Bundle) wood, and are cut to length for the higher tower. Each leg is formed by two pieces which glue together as you assemble the tower frames to make the finished legs 1/8" square. The tower is made up of 12 frames, of which 8 are to be made on the right hand template of Fig. 3A and 4 on the left hand template of Fig. 3A. (Notice the alternate orientation of how the legs are joined together in the Top Down view of Fig. 4. Black is one and white is the other.)

Start by cutting 48 diagonal "X braces" from the 3/64 x 1/16 x 2-3/4” (B1 Bundle) wood, to fit the templates in Fig. 3A. The diagonals must be cut with their wider side against the template, while cutting the ends on the angles to fit between the legs. Cut them carefully and accurately. Cut the

two tower frame spacers from the printed card,(Diagonal Spacer & Depth Gauge Card) and glue them over the shaded areas in Fig. 3A, so the diagonals line up with the diagonals on the template. The thickness of the cardstock spacers place the two diagonals at the center of the legs instead of being at the edge of the legs.

Fasten the template on a piece of soft wood, and make an assembly jig by putting pins upright where indicated on the template. Use one of the frost box sides(A5) as a guide in fixing the distance between the legs. In making each frame, insert two legs in the jig, one of them on edge, and the other lying flat, as indicated. Glue the two diagonals in positions "X" first, holding them firmly down against the card spacer. The other two diagonals on each frame glue on top of the first ones, and are glued only to the leg that is on edge, and to the middle of the first diagonal "X". The other end is above the flat leg, and will glue to the next frame when you assemble the tower.

As each frame dries, mark the bottom and lift it carefully from the jig. Repeat, making four frames from the left, and eight from the right hand template in Fig. 3A.

Step #5 Assemble the "Narrow" Gauge Leg Frames

If you are building the lower "narrow gauge" tower, the procedure is the same as in Step #4, except that all the legs must be cut to the shorter length shown on the template, and there will be only two diagonals in each frame. For the lower tower use only the templates in Fig. 3B, with card spacers as described above. You will also have to use extra care in removing the frames from the template, and in assembling the tower, as the two legs of each frame are held together by only one diagonal until the frames are assembled into the tower.

Step #6 Cutting the Band Grooves

While the frames are drying, you can complete the tank itself. Place the wrapper over the template in Fig. 2, with the top and bottom edges lined up exactly with the template, and fasten it in place with double sided "Removable" tape so it cannot move. The short horizontal lines extending out beyond the ends of Fig. 2 are the positions for the tank bands. In order that the bands will be straight, we suggest that you lightly scribe all the way along the length of the wrapper for each band. When you pull the bands tight they will drop into the grooves and be held straight, and in place. Scribe the groove with a knife that is sharpened into a **broad "V"** edge, thus: A knife sharpened to a thin edge will not make a groove wide enough to hold the bands, and a dull knife tears the wood, making "fuzzy" edges.

In scribing the band grooves, be very careful that each one is exactly lined up on the marks, or the grooves will not meet when the wrapper is placed around the tank. It is best to scribe each groove lightly, several times, rather than trying to do it all in one stroke. Also BE CAREFUL not to make the grooves too deep, as this would weaken the sides and let them bow in between the core spacers.

Step #7 Glue Wrapper To Core

When all the tank band grooves are made, the wrapper may be glued to the core. Carefully hold the wrapper around the core, and cut off enough staves to allow a gap of about 1/16" between the ends of the wrapper. With one of the core discs resting on the table, glue one end of the wrapper to one of the core spacers (A7) leaving about 3/16" of the 1/4" face of the spacer exposed. Hold this firmly in place until the glue begins to set with the core against the table, and the wrapper straight out, with one edge resting on the table. This will assure that when you pull the wrapper around the core the edges will fit flush with the top and bottom discs. Remove the outer tape.

When the glue on the end of the wrapper has set, spread glue around the edges of both discs, and pull the wrapper around tight. Hold it in place with masking tape. Be sure the grooves for the tank bands line up, and that the edges of the wrapper are flush with the discs. DO NOT put glue on the 1/4 x 1/4" (Other A7) core spacers—just on the edges of the top and bottom discs. Set the tank aside until it is thoroughly dry. Consider painting the Tank prior to attachment of the Roof, Tank Bands and/or Tower Frame using a spray gun. This will give an even coat without brush marks and prevent overspray on unwanted portions that will be attached later.

Step #8 Tower Frame Assembly

The tower frames should now be ready to assemble. Note in Fig. 4 how these fit together. In this drawing the half-legs colored black are the two sides of one frame, and those left white are the next frame. By gluing these half-legs together, and to the un-glued ends of the diagonals, the complete tower framing is erected. **If you want the Tower Frame Assembly to have that Creosote look consider dipping the Leg Assemblies in a diluted solution of Isopropyl Alcohol and Dark Brown Shoe Dye prior to the final assembly of the entire Frame.** White glue will bind through this stain.

Step #9 Make Frost Box

A5	4 pc.	3/64 x 25/32 x 2-13/32"	Frost Box Sides
B3	4 pcs.	3/32 x 3/32 x 2-13/32"	Inside Frost Box corner posts
A2	8 pcs.	.023 x 3/64 x 5-1/2"	Scale 2 x 4's Door Frame (use one)
C1	18 Pcs.	1/2" #8	Bank Pins (use one)

The four sides of the frost box are assembled by gluing them to 3/32 x 3/32 x 2-13/32" (B3) wood inside corner posts. Note that the outside corners of the frost box will fit between the inner tower legs as shown in Figs. 4 and 5. The frost box sides are the same height as the legs, but if you are building the low tower, they must be cut down to the same height as the legs. The frost box door frame is cut from scale 2 x 4's (.023 x 3/64 x 5-1/2" (A2) and glued to one of the sides as shown in Fig.9. The door knob is the head of a small pin. (C1)

Step #10 Install Frost Box Inside Legs

When the tower is complete, put a little glue in the corner grooves of the frost box and slide it down inside the four inside legs.

Step #11 Glue Cap Timbers To Tops Of Legs

A6	4 pcs.	1/8 x 5/32 x 1-1/4"	Cap Timber (45° End Cuts)
A8	2 pcs.	1/8 x 5/32 x 3"	Cap Timbers
A9	2 pcs.	1/8 x 5/32 x 1-29/64"	Cap Timbers
A10	2 pcs.	1/8 x 5/32 x 51/64"	Cap Timbers

Glue the cap timbers to the tops of the legs, as shown in Fig. 5. These are all cut to length and beveled where necessary. Fig. 5 can be used as a template for assembling the cap timbers if needed.

Step #12 "Shingle" the Roof Sections

Cut the eight triangular roof sections from the roof card, using a sharp knife against a straight edge. Cut straight down through the card. Cut the shingle strips long enough for each row, plus a small overhang at each end. The shingle strips are gummed, and by only moistening the gum along the un-notched edge with a small paint brush, they can be applied along the guide lines while leaving the notched edge un-glued, giving a more uneven, natural texture. (Alternatively; apply a small bead of white glue just above each line as you work up from the bottom, one line at a time. Press the un-notched portion of the shingle material into this glue. Run your fingernail along the ridge formed by the previous course. This will seat the present course and force the unglued "shingle" portion to rise and thereby remain unglued). You can even warp some of the shingles up for an older look.

In applying the shingles, start with the bottom, allowing some overhang along the bottom edge, and with the un-notched edge of each row on the guide line. Omit shingles over the hatch.

Step #13 Join Roof Sections & Glue To Structure

Roof and Ceiling Card	Cardstock

With the shingles on all eight roof sections, trim the sides even with the card. Place the sections face down with their slanting edges touching and the top points together. Scotch-tape them together firmly, then join the two remaining outer edges to form an eight-sided pyramid, and tape the final joint. Cut the eight-sided ceiling from the roof card, cutting carefully along the outer straight lines, and fit it up inside the roof pyramid. Glue it in place with the printed circle showing down, and making sure each roof section overhangs an equal amount on all sides.

Step #14 Finish the Roof

A1	8 pcs.	.018"Dia. x 2-1/4"	Piano Wire Ridge Rods
C2	1 pc.	S8-4 plastic	Finial

If the roof is to be stained, do so now. **(Light Brown Shoe Dye diluted with Isopropyl Alcohol also works well.)** If the roof is to be painted, add the Wire Ridge Rods (A1) and Finial C2 (S8-4) before doing so. Drill a hole in the peak of the roof and glue in the finial. Cut the wires to reach from the Finial to the outer edge of the roof, and glue one between each roof section, working some glue down into the cracks between the sections. If the roof is to be painted, do so now. The wires and finial can either match or contrast with the shingles. Consider painting the Finial Floquil "Gold" before attaching to provide added accent.

Step #15 Apply Tank Bands To Tank

C1	18 pcs.	1/2" #8	Bank Pins
	15 ft.	12# Test	"Mono filament" fishing line

The tank bands are made of a single length of 12# Test "mono filament" fishing line, which is wound without cutting, as described below. (If you have painted the Tank and want the Bands to contrast with a Rusted Color consider dipping the "mono filament" in undiluted Dark Brown Shoe Dye prior attaching the Bands to the Tank) The first step is to press the small pins furnished in the kit, into the gap between the ends of the tank wrapper. Each pin should be in the middle of the gap, and just below one of the grooves in the tank wrapper. Let the heads of the pins remain about 1/16" out from the wrapper. Tie one end of the mono filament line firmly to another pin, and press this into the gap about 1/2" from the top, between two of the other pins, and drive it all the way in. Bring the line up along the gap and around the top pin then around the tank, tight in the groove in the wrapper. Now bring it over the top pin again, down the gap and all the way around the next pin, so it will come out above this pin and lined up with the second groove in the wrapper, as in the detail sketch, Fig. 6. Hold the mono filament line taut at all times, and continue as above, moving down the tank until all the bands have been wound. Bring the end of the line up the groove, and tie it to one of the pins. Press all of the pins in until their heads are flush with the tank wrapper.

This process is actually much easier than it sounds, and the grooves help greatly in preventing the bands from slipping out of position while you work. Winding the line around the pins in this manner makes both sides of each band line up. We will cover the gap in the wrapper, and the pin heads with the depth gauge in a later step.

Step #16 Floor Joist Template

Cut out the circle in Fig. 7, the template for the floor joists. The position for the spout is marked "Y", and the water gauge will be placed at either of the two positions marked "W". Glue the circle firmly to the bottom of the tank (the end where the bands are closest together), and with the gap in the tank wrapper at one of the two positions marked "W". (Choose the position that will show the water gauge best when the tank is installed on your layout.)

Step #17 Glue Joist To Bottom of Tank

B4-B12	18 pcs.	3/64 x 5/32 x 3-7/32 to 1-7/64"	Floor Joists

The floor joists are 3/64 x 5/32" wood (B4 thru B12), and are cut to length for you. Glue them firmly, on edge, to the bottom of the tank in the positions shown on the template, Fig. 7. **Consider dipping the Joist in diluted solution of Isopropyl alcohol & Dark Brown Shoe Dye to simulate Creosote prior to attaching to the bottom of the tank.** Drill a 1/16" hole in the floor between the joists, in the position marked for the discharge pipe. (The pipe will be installed later.)

Step #18 Tower Tie-Rods

A14	38 pcs.	.018"Dia. x 1-9/32"	Leg Tie Bolts (Tempered Piano Wire)

Wire is furnished for the steel tie-rods in the tower frames. In the tall tower there are three rods in each frame, and in the low tower there are two. In each case one rod goes through at each end of the X-braces, as shown in Fig. 9. Also note that the rods cross each other in each leg. Drill #76 holes for the rods, making sure they will pass each other where they cross. Placement for the rods can be measured from the drawing in Fig. 9. Cut the wire just long enough so that about 1/32" will extend out on each end, beyond the legs. (The "tie-rod" material is tempered piano wire and should be cut with an abrasive cutoff wheel in a Dremel Tool) **(Make sure you wear eye-protection)** Insert the rods and put a small dab of glue on each end.

Step #19 Paint or Stain Tower & Glue to Tank

If you are going to paint the tank, it would be well to paint the tower frame, the frost box, and between the floor joists before going further. Use any color you like, or have adopted as the standard colors for structures on your layout. Red, yellow or gray are often used, or yellow with brown trim (as on the frost box door frame, tie rods, etc.). **(If the tower is to simulate a construction from "Creosote Beams" dip the structure in a diluted solution of Isopropyl Alcohol & Dark Brown Shoe Dye)** Glue the tank to the tower frame by spreading glue on the top surface of the cap timbers. Notice in Fig. 7 how the spout location lines up with the cap timbers.

Step #20 Attach Frost Box Foundation & Leg Footings

C2	8 pcs.	S8-5 plastic	Concrete Footings
A11	1 pc.	1/8 x 1-1/8 x 1-1/8"	Frost Box Foundation

Glue the frost box foundation (A11) in place, centered over the walls of the frost box (it is 1-1/8" square and 1/8" thick). Using contact cement, glue the footings on the bottoms of the legs. Paint with Floquil "Concrete" paint. NOTE—Use contact cement or Five Minute Epoxy whenever metal or plastic castings are to be glued to dissimilar materials.

Step #21 Build Spout Hanger Assembly

B13	2 pcs.	3/64 x 1/16 x 3-1/16"	Frame Uprights
B14	1 pc.	3/32 x 3/32 x 1-1/32"	Beam, pulley hangers
B15	2 pcs.	3/64 x 1/16 x 45/64"	Spout hanger beam & Frame spacers
C2	2 pcs.	S8-2 plastic	Weight hanger pulleys

Build the spout hanger on the template in Fig. 10. Fasten a piece of waxed paper over the template and glue the parts to the waxed paper with tiny dabs of glue. (Alternatively, use double sided "Removable" grade sticky tape over portions of the template to both hold the parts in position and prevent gluing the parts to the template) Position the vertical frame uprights first (3/64 x 1/16" strips) (B13), cut to length to fit on the template. Glue the horizontal pulley hanger (3/32 x 3/32") (B14) to the uprights over its position on the template, and glue the horizontal spout hanger beam (3/64 x 1/16") (B15) in position. Also glue the two 3/64 x 1/16" (B15) horizontal spacers between the uprights. Cut these to length from the wood strips furnished. Drill out the pulleys (C2, S8-2) above the wheel to take the chain. This is a very delicate operation! Use approximately a #61 drill, centering the hole and working slowly so as not to break the casting.

When both pulleys are drilled out, glue them (with contact cement or Five Minute Epoxy) over their positions on the pulley hanger beam.(B15) Consider painting pulleys a Rust or Red/Brown before attachment.

Step #22 Build & Attach Platform

A3	1pc.	3/64 x 3/64 x 5-1/2"	Bracket material
A12	1 pc.	3/64 x 3/8 x 1-9/64"	Platform (3/64 G.P.)
B14	1 pcs.	3/32 x 3/32 x 1-1/32"	Beam on legs behind platform

The small platform (A12) or ledge below the spout should be built and installed now. Its floor is a piece of the Gang Planking cut for you. The brackets must be cut from the 3/64 x 3/64" (A3) wood strips. The 3/32 x 3/32" (B14) beam behind the platform is glued to the legs. If the platform is to have a contrasting color, consider painting or staining before attaching. The platform must be carefully positioned as shown in Figs. 9 & 10 for the regular height tower. For the lower "narrow gauge" tower see Step 24. Lift the Spout Hanger Assembly from the template and glue it in place on the tank, resting the bottom ends on the platform.

Step #23 Form & Attach Discharge Pipe

C3	1 pc.	#14 AWG x 1-3/4" Insulated Wire Discharge Pipe

Form the discharge pipe from the length of insulated copper wire furnished (C3). Cut away the insulation at one end for about 1/4". Form the bend over the drawing of the pipe in Fig. 9, and cut it to length as indicated. Paint either flat black or silver before mounting. Bring the stripped end of the wire in between the spacers on the spout hanger, and glue it into the hole you drilled in the bottom of the tank in Step 17 using Five Minute Epoxy. Let it rest on the lower spacer of the spout hanger.

Step #24 "Narrow Gauge" Discharge Pipe

If you are building the lower "narrow gauge" tower, it will be necessary to make several changes in the above procedure. First, when assembling the Spout Hanger Frame cut the uprights off at the top as indicated in Fig. 10. Make the discharge pipe as in Step 23, but the bend will have to be sharp enough to allow the pipe to stay completely up between the floor joists and above the cap timbers. Install the pipe, making sure it does not sag between the tank outlet and the end. Glue the spout hanger to the tank with the pipe between the spacers, and assemble the platform as In Step 22, so it comes up against the bottom of the two Spout Hanger Uprights.

Step #25 Water Depth Gauge U Shaped Channel

A13	1 pc.	1/8" Channel x 2-13/64"	Depth Gauge Guide

The water depth gauge is a wood channel 1/8" wide. Glue this in place over the gap in the tank wrapper, so as to hide the gap and the pin heads.

Step #26 Attach Tank Band Lugs

C8	52 pcs.	#S7 plastic	Tank band lugs

Glue the 48 tank band lugs (C8) in place (with contact cement or Five Minute Epoxy). Be careful when removing the flash (if any) not to remove part of the detail. The lugs are in three slanting rows as partly indicated in Fig. 9. They are to be staggered diagonally around the tank at about 2 stave intervals. Start the first row two or three staves outside the spout hanger. The second row should be started about 18 staves beyond the end of the first row, and the third row about the same distance beyond the second. It would be quite proper to vary this spacing to suit your taste, or to match photos or drawings of prototype water tanks. You will probably want to omit the lug that would come beneath the depth gauge.

Step #27 Paint Tank, Spout Hanger etc.

If you have not already painted the sub-assemblies as mentioned above, now is the time to paint the tank. At this last stage you will have to be careful to prevent overspray onto unwanted parts. It is best to use some form of spray gun or air brush in order to get a smooth and even coat. If you wish, the spout hanger, depth gauge and lugs can be a darker color than the base coat. See the suggestions in Step 19. Paint the footings and frost box foundation (installed in Step 20) concrete color.

Step #28 Glue Depth Gauge Scale In Channel & Roof to Tank

Cut the depth gauge from the card and glue it in the bottom of the channel installed in Step 25. Glue the roof to the top of the tank, being careful to center it exactly. Place the section with the hatch (See step 31) where you plan to install the ladder.

Step #29 Mount Spout & Attach Chain

C2	1 pc.	#S8-1 plastic	Spout
C4	1 pc.	#22 AWG -1-3/4"	Magnet Wire, Spout Yoke
C5	1 pc.	9" Black Chain	42 Link, Weight to Spout & Valve Trip Chain

Paint the spout (S8-1), and if necessary, drill out the holes for the yoke, which is to be formed of the soft copper wire (C4) furnished. With the wire in the holes, form the yoke as in Figs. 9 and 10. Cut a piece of the chain (C5) 5" long, and tie the center link to the spout band with a piece of fine thread. Bend the ends of the yoke around the spout hanger beam as shown in Figs. 9 & 10. Pass the ends of the chain through the holes in the pulleys, and glue the weights on the ends of the chain. If necessary, adjust the length of the chain so the weights just clear the platform when the spout is in the up position. Put a tiny dab of glue to hold the chain in the pulleys, with the spout in the up position so it will clear all locos and cars that will pass. Glue the valve-trip chain (remaining C5) with one end under the eaves over the spout, and looped as shown and the other end fastened to the bottom of the spout band.

Step #30 Water Depth Gauge Marker

C6	1 pc.	1/32 x 3/32 x 3/8"	Depth Gauge Marker Material

Glue a length of black thread up the middle of the depth gauge from the depth you wish indicated, and cut a marker from the small piece of 3/32" wide strip wood (C6) furnished for this purpose. Use the "Marker Template" to shape the marker. Paint it black or dark gray, & glue in the channel at the end of the thread.

Step #31 Build Ladder

A2	6 pcs.	.023 x 3/64 x 5-1/2"	Ladder side rails & rungs

Build the ladder over the template in Fig. 8. First cut the two long side rail pieces from the scale 2 x 4's (.023 x .046") (A2), to fit the template. Now cut 37 rungs (A2) each 7/16" long. Fasten a piece of double sided Removable grade Scotch tape, over the template, and place the rungs flat on their positions, & held by the tape with their ends projecting on both sides. Put a small dot of glue on each end of the rungs where the side rails will be placed and press the edge of each side rail in place over the template. When the glue is dry cut off the ends of the rungs flush with the side rails, and remove from the Scotch tape carefully.

The hatch (shown in Fig. 11) is Gang Planking the same width as the ladder. Cut and glue 2 x 4's (.023 x.046") on edge to the top & bottom of the hatch cover, and two more on the sides as ladder braces, with the tops flush, and bottom ends out beyond the roof edge to support the ladder. Glue three steps as shown. The hand rails are 2 x 4's as in Fig. 9, but may be omitted if you prefer.

Cut two more ladder braces (A2) x 1-3/32" long to brace the middle of the ladder to the tower legs.

Step #32 Install Water Tank

Install the Water Tank model so the end of the spout would swing down over the center line of the track—checking to be certain it clears all your cars and locos!

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