

**RESIN CAR WORKS**  
**RCW**

**P.O. BOX 42  
BYRON, IL 61010**

*Freight Cars of Every Description*

**Kit 9.00  
ACF Type 27  
Class 103/104  
8,000 Gallon  
Insulated Tank Cars**



*RCW Kit 9.01 Model and Photo by Frank Hodina*

## **Introduction**

Thank you for your interest in Resin Car Works and this kit. Resin Car Works is not a business in the traditional sense. Its purpose is to share in the fun of prototype railroad freight car modeling and their operations with others to provide unique and different equipment that isn't readily available. Several friends assist with various production phases so it's not quite a one-man operation. To list a few who helped with the production of this kit, I would like to thank: Ed Hawkins for his research, data, plans, detail drawings and just putting up with my countless questions on the design and construction of tank cars; Tom Madden for the 3D modeling which produced the patterns for the tanks and domes and for his gorgeous castings; Ken Soroos for the remarkable decal artwork which is taken directly from the prototype cars themselves and for help laying out the instructions and creating the box labels; and to Eric Hansmann the keeper of the website and blog.

This is a "CRAFTMANS" level resin kit and its construction should not be attempted by anyone who has not built similar types of models. The kit has been designed for those who wish to build a fleet of such cars with a minimum of work.

## **Warranty**

All sales are final. There will be no exchanges or returns. Resin Car Works will replace any part(s) found to be defective due to manufacturing or shipping to the original purchaser within the first 30 days after shipment. The damaged part(s) must be sent back with your request for replacement. As these are limited production kits, don't ask for replacement of parts that you damage or lose after the 30-day period.

## **Liability**

Resin Car works will not be responsible or held liable for any and all personal injury and/or health problems, short and/or long term that may result from the use and/or misuse of tools, adhesives, materials, castings, paints or any and all other product(s) used to construct and/or contained in this kit. This kit contains polyurethane castings. Although non-toxic in its cured state, dust is created during filing, sanding and drilling. Air circulation and/or ventilation should be provided. Always work in a well-ventilated room. Wear a dust mask or respirator and safety glasses for protection. Always wash your hands when you're finished working.

## The Car

This kit represents a standard American Car & Foundry (ACF) Type 27, Class 103/104, 8,000 gallon tank car with wood running boards, 2” of insulation and truck centers of 25’-8 1/4”. They were constructed from the end of 1929 to about mid-1943. 213 cars of this type were constructed (See table below). These cars were used for the transportation of asphalts, gasoline, chemicals and wine. For a more detailed history, please reference Sunshine Models “Prototype Data Sheets #36A and 36B”.

Standard ACF construction at this time consisted of an underframe composed of two 13” by 50# channels riveted along the top with a 22” wide

by 3/8” plate. End sills were 9” by 13.4# channels and the side sills were 7” by 9.8# channels. Cars were 36’- 2 3/8” long over the end sills and 9’- 5” wide over the running boards. All running boards and tank platforms were wood. The tank had an inside diameter of 78” and was constructed of 3/8” and 1/2” plate steel. Insulation was composed of one layer of 2” rockwool. Domes were 54” in diameter. Two styles of brake arrangements were used, one where the brake components were all located on the same side (AB1), and one where the reservoir was located on the opposite side of the cylinder and AB valve (AB2).

Road	Series	Qty.	Built	Lot No.	Tons	Dome Size	Brake Arrg't	Plat.	Dome Plat. Size	Ladders	H.P.	Draft Gear	Remarks	Commodity	Company	Paint Specs
HCHX	103 only	1	2-30	1026	40	30"x24"	KC	1	1 7/8" x 7 1/4" x 4'-0"	Short	-	Cardwell G-11-AA	Aluminum	Formaldehyde	Heyden Chemical Corp.	Black jacket, dome, heads, trim, u/f, white stencils
WRNX	200-1810*	100	12-29	1045	40	54 9/16"x22"	KC	1		Short	-	Cardwell G-11-AA	Multiples of 10	Gasoline	Warren	Gray top of jacket; black bottom of jacket, heads; trim, u/f, green dome (stripe color ?); black/white stencils, Warren trademark color?
DUPX	1650-1651?	2	12-29	1051	50	54 9/16"x13"	KC	3	7'-7" x 7'-7"	Tall	Yes	Cardwell G-11-AA	Aluminum, ARA Special, 3582369 dome platform, re# by 7/33	Acetic Acid	DuPont	Gray top of jacket; dome, heads, platform base; gray/black bottom of jacket; black trim, u/f, black/white stencils, white/red trademark
DTCX	400-403	4	5-30	1121	40		KC	1		Short	Yes			Tar, Asphalt	Dominion Tar & Chemical/Rotar	Black jacket, dome, heads, trim, u/f, white stencils
SCNX	625-651?	27	5-30	1133	40	54 9/16"x13"	KC	1		Short	-	Cardwell G-11-AA	Type 28 Mod	Gasoline	Columbian Gasoline Corp.	
MONX	802 only	1	8-34	1375	50	48"x14"	AB1e	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Edgewater B-32-KA		Dimethyl Phthalate	Monsanto Chemical Company	U.T.L. Red jacket, dome, heads, trim; black u/f, white stencils
MONX	804 only	1	2-36	1465	50	48"x14 3/8"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Edgewater B-32-KA	Zinc/tin lined	Lacquer Solvent	Monsanto Chemical Company	S-W Red Lead jacket, dome, heads, trim; black u/f, white stencils
SHPX	4004-4007	4	2-36	1469	40	54"x22 1/2"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA	Also Lot 1483/1507/1554	Edible Oil	Wecoline Products, Inc.	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4009-4014	6	2-36	1483	50	54"x22 1/2"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA	W/Lot 1469/1507/1554	Caustic Soda	The Mathieson Alkali Works	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4010 only	1	5-36	1507	50	54"x22 1/2"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA	W/Lot 1469/1483/1554 (renumbered?)	Caustic Soda	Mathieson Chemicals	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4015-4017	3	7-36	1529	50	54"x22 1/4"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	National M-17-A		Tar	Shippers' Car Line	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4018-4023	6	10-36	1554	40	54"x22 1/2"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	National M-17-A	W/Lot 1469/1483/1507	Edible Oils	Wecoline Products, Inc.	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4024 only	1	5-37	1631	50	54"x22 1/4"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	-	Cardwell L-25-SA		Wine	F. Pirrone & Sons	Aluminum top of jacket, dome, heads; black bottom of jacket, trim, u/f, black/white stencils
SHPX	4025-4028	4	5-37	1631	50	54"x22 1/4"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	-	Cardwell L-25-SA		Wine	Shippers' Car Line	Aluminum top of jacket, dome, heads; black bottom of jacket, trim, u/f, black/white stencils
MONX	813 only	1	6-37	1693	50	48"x15 1/8"	AB2	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Edgewater B-32-KA		Phthalate	Monsanto Chemical Company	Socony Red Lead jacket, dome, heads, trim; black u/f, white stencils
DOWX	C8404-C8405	2	4-38	1800	70	60" X 22 1/2"	AB1	2	1 7/8" x 10 3/4" x 8'-3" x 7'-6 3/4" across	Short	Yes?	Miner A-22-XB	Seel mud guards, 3149375 dome platform	Ethylene Dibromide	Dow Chemical Co.	Aluminum lengthwise rectangle on jacket, heads; black top, dome, platform, bottom of jacket, trim, u/f, black/white stencils
SHPX	4030 only	1	3-38	1802A	40	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA		Cocoonut Oil	Shippers' Car Line	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4033-4034	2	3-38	1802B	40	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA		Asphalt	Paluxy Asphalt Co.	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4031-4032	2	3-38	1802C	40	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA		Liquid Caustic	Mathieson Alkali Works	Black jacket, dome, heads, trim, u/f, aluminum stencils
SHPX	4035-4039	5	5-38	1805	50	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Short	Yes	Cardwell L-25-SA		Asphalt	Cities Service	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4058-4061	4	6-40	2053	50	60"x24 1/2"	AB1	1	1 7/8" x 7 1/4" x 6'-6"	Tall	Yes	C.W. NY-11-E		Asphalt	Shippers' Car Line	Black jacket, dome, heads, trim, u/f, white stencils
SHPX	4208-4210	3	10-40	2103	40	36"x24 7/16"	AB1	3	7'-7" x 6'-4"	Tall	-	Cardwell L-25-SA	Rubber lined tank, also Lot 2283	Formaldehyde	Heyden Chemical Corp.	S-W "Kem" Green top of jacket, dome, platform, heads, trim; black bottom of jacket, u/f, white stencils
SHPX	4212-4213	2	1-41	2169	40	36"x24 7/16"	AB1	3	7'-7" x 6'-4"	Tall	-	Cardwell L-25-SA	Rubber lined tank (see Lot 2103)	Formaldehyde	Heyden Chemical Corp.	S-W "Kem" Green top of jacket, dome, platform, heads, trim; black bottom of jacket, u/f, white stencils
MONX	821 only	1	6-41	2258	50	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Tall	Yes		Zinc/tin lined, steel mud guards, g/a dwg. in ACF tank car book p.231	Trichlorobenzene	Monsanto Chemical Company	S-W Kromik Primer jacket, dome, heads, trim; black u/f, white stencils
SHPX	4214-4217	4	5-41	2283	40	36"x24 7/16"	AB1	3	7'-7" x 6'-4"	Tall	-	Cardwell L-25-SA (verify)	Rubber lined tank, w/Lot 2103	Formaldehyde	Heyden Chemical Corp.	S-W "Kem" Green top of jacket, dome, platform, heads, trim; black bottom of jacket, u/f, white stencils
WRNX	5000-5240	25	7-43	2589	40	54"x22 1/4"	AB1	1	1 7/8" x 7 1/4" x 6'-0"	Tall	-	C.W. NY-11-E	Multiples of 10	Natural Gasoline	Warren	Cook's Gray top of jacket, heads; black bottom of jacket, trim, u/f, Cooks Green dome; black/white stencils, red "W" on dome

Data Chart compiled by Ed Hawkins

Platforms: (1) Simple side platforms; (2) Simple side platforms with railing extending across the tank; (3) Full platform with deck surrounding dome.

The cars were generally painted completely black with SHPX reporting marks. Cars were leased to Mathieson Chemicals Company (RCW Kit 9.02), F. Pirrone & Sons Wine (RCW Kit 9.04), Wecoline Products Inc. (RCW Kit 9.05), Paluxy Asphalt (RCW Kit 9.06), and Cities Service Oil Company. Cars were also equipped with heater pipes, which would have been needed to unload the asphalt products carried by these tanks.

### List of Parts

Resin castings; upper and lower tank, dome, underframe, parts fret and handrail bending jig.

Elgin Car Shops etched stirrups and eye bolts.

Plano Models etched placard boards.

Precision Scale Company handrail stanchions, pipe tee, air hoses and air hose brackets.

Tichy AB brake set; turnbuckle sprue; 0.010", 0.0125", 0.015" and 0.020" wire; and 18" straight wire grabs.

Tahoe trucks.

Decals.

### Construction

Before you start construction, you need to familiarize yourself with the instructions and additional prototype information and photos on the Resin Car Works website ([www.resincarworks.com](http://www.resincarworks.com)) that pertain to this kit. Especially helpful are a series of prototype drawings that show the placement of the various car parts. Instructions are available only on line as to not limit them to a set number of pages.

► First, give the resin parts a good cleaning with Dawn and a toothbrush to remove any mold releasing agents. A light sanding of joints also helps parts to bond.

► The cast parts are best attached with ACC. When the term "cement" is used in these instructions, it refers to ACC. ACC is a strong adhesive which dries quickly. It can easily attach a part where it is not supposed to be. It will glue skin. Be careful. Place a few drops on a plate of glass and use a wire or pin to transfer small amounts of ACC to the area to be joined. Always wear safety glasses. ACC debonder is a useful tool for removing smudges

of ACC from surfaces where it shouldn't be. Place a drop on the offending spot and wipe up.

► GOO, or other such products, is not recommended for construction except in small quantities, as it will soften the casting material.

► When a measurement is given, it's in prototype feet and inches.

### Note

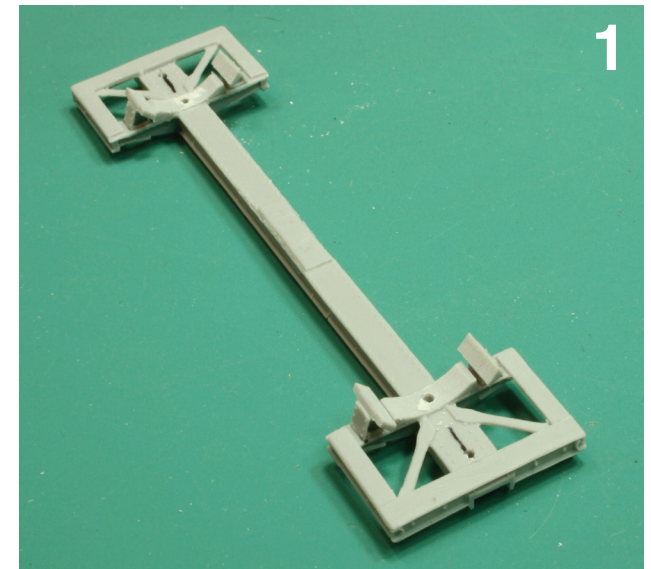
Construction photos that follow were taken from the assembly of a Resin Car Works 10,000 gallon insulated car. However, steps are the same for this RCW 8,000 gallon version. The major difference is the diameter of the tank.

### 1. Underframe

The underframe has been partially detailed to speed up the model construction. Note that there is a "B" or brake wheel end to the part. Consult the drawings and photos on the website to help with the location of various underframe details. This first release of this kit is composed of cars with only the solid running board supports. These are one-piece tapered channels that attach to the underside of the running boards and under the lip of the top of the center sill. These channels face towards the end of the car.

As noted above, the cars had two styles of brake arrangements: one where the brake components were all located on the same side (AB1), and one where the reservoir was located on the opposite side of the cylinder and AB valve (AB2).

a. Clean any casting flash from the underframe and tank castings. Remove the four bumps from

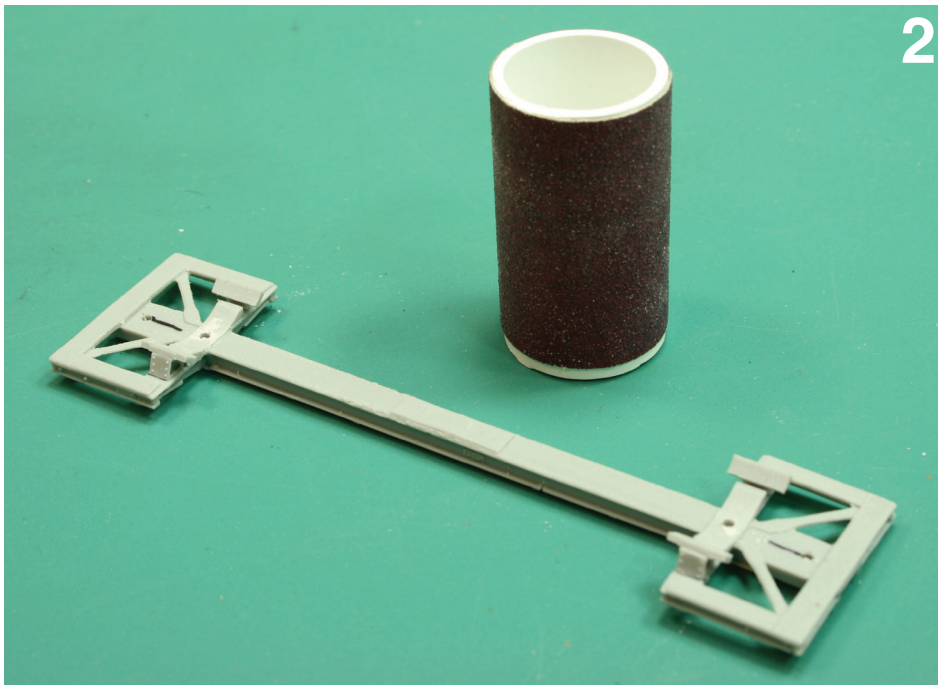




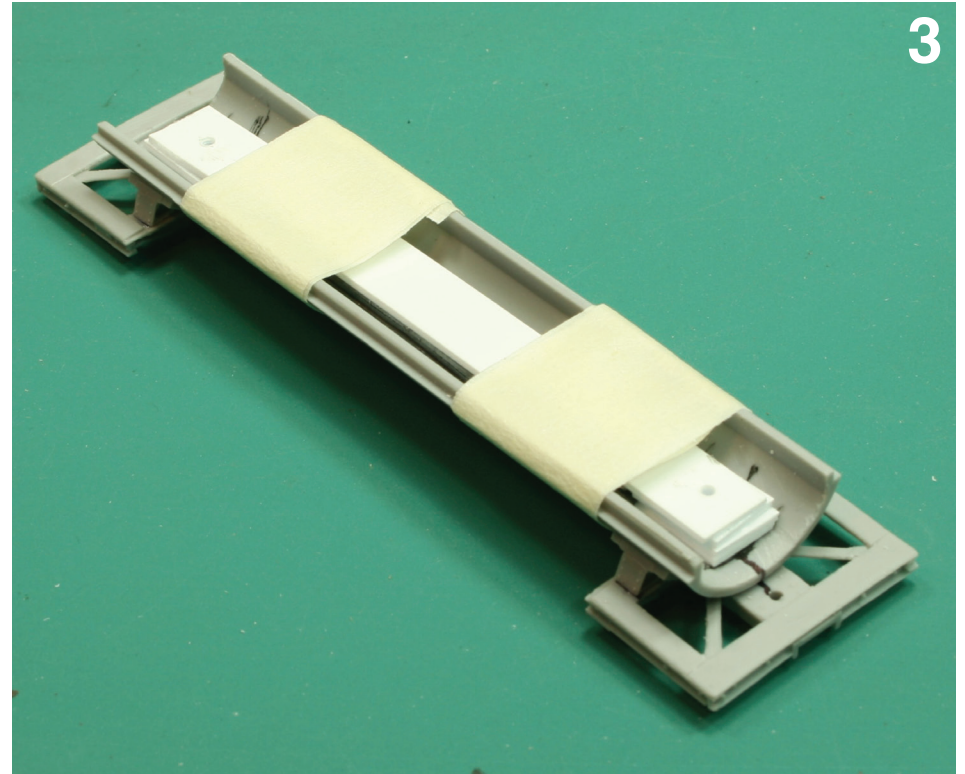
each end of the underframe platform and from the top of the center sill as these are casting vents. Do not remove the raised rectangular pad from the top of the center sill as this locates the tank. For this reason, clean the edges of this pad, making sure they are square. Clean and square off the edges of the end platform running boards so there will be a good joint for the long running boards between the platforms [Photo 1].

b. Cement the center tank support and two saddles on either side of the support to the top of the bolster. The saddles are located three inches from the back of the running board. When dry, sand the top of the supports and saddles to fit the tank. A good tool for this is a styrene pipe or wood dowel, matching the diameter of the tank, with a piece of sandpaper attached to the dowel with double-sided tape. Go slowly, making sure that the center support and saddles are sanded evenly. Sand until the center support is almost gone in the middle and the wood block parts of the saddles are about 4" thick. Due to the insulation, the tank sits almost on top of the frame [Photos 1, 2].

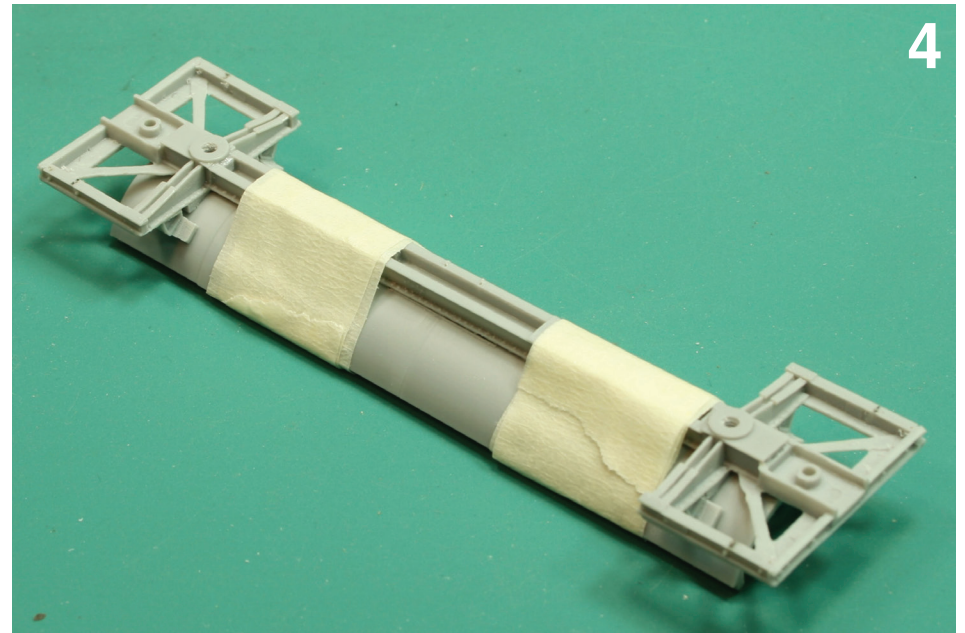
c. Add the weight of your choice to the bottom of the tank. I like using flat lead sheet (available from McMaster-Carr, [www.mcmaster.com](http://www.mcmaster.com)) held in part



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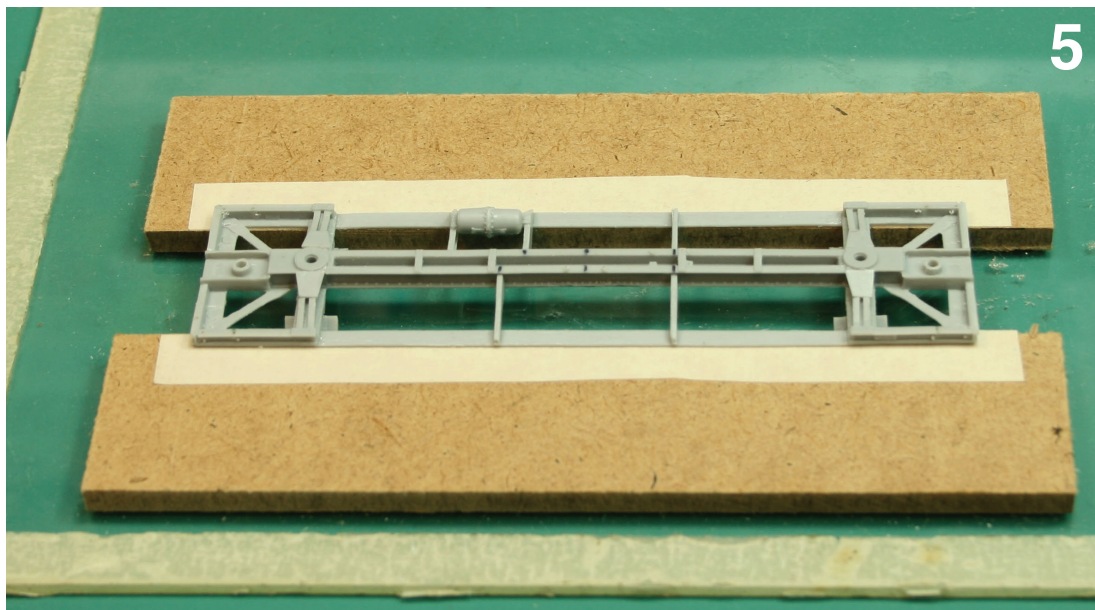


with a cover made of 0.040" styrene. When dry, temporarily attach the bottom of the tank to the top of the frame. The pad on the top of the frame will locate and center the tank bottom. DO NOT ATTACH the tank at this time. Hold the tank bottom to the frame with small clamps or with a couple pieces of tape. Drill and tap couplers pockets and bolsters for 2-56 screws [Photos 3, 4].

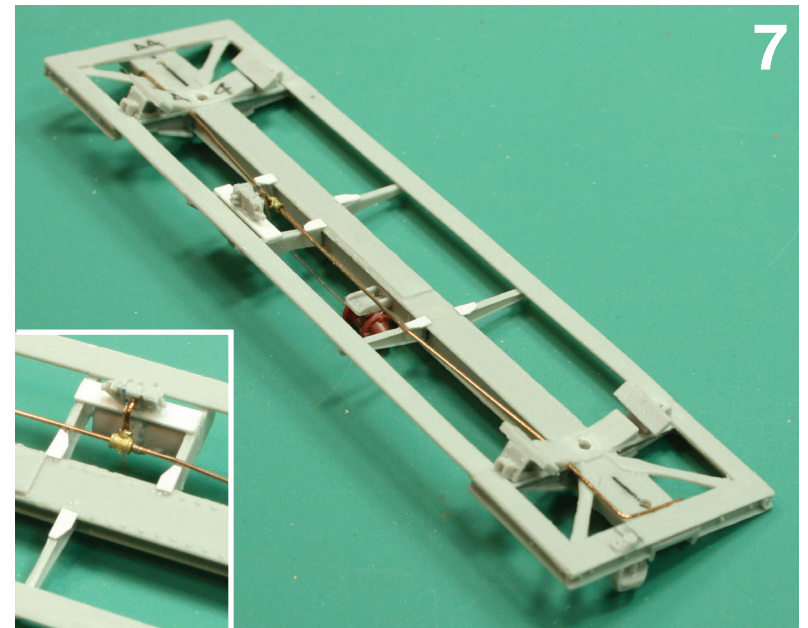
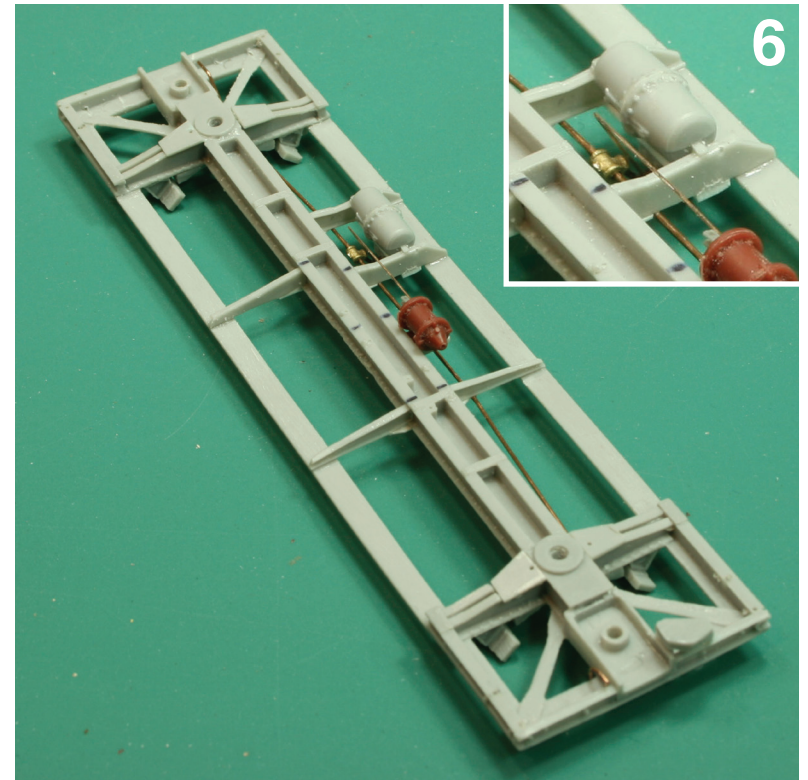
d. At this point I like drilling all the holes in the frame for the grabs, brake hangers, stirrups, etc. For the stirrups, a #76 drill is used. Use a #74 drill to drill four holes, two each in the center tank support ends, for the train line. These are located about 16" from the frame centerline. There is no need to drill through the supports, as only a shallow hole is needed to hold the train line [Photos 7, 9, 11]. A notch could also be filed to set the train line in.

e. Rough up the back side of the long running boards, fit them between the bolsters and cement in place. A trick to keep the frame and running boards straight is to mount the frame with double- sided tape on two pieces of 1/4" Masonite (or some other material) which has been mounted on a piece of plate glass, also with double-sided tape [Photo 5].

f. With the assembly flipped over on the Masonite, install the bolster bottom plates between the center bearings and cast-on angles. Find the center of the frame. On the "B" end only, four feet from the center, attach two of the running board supports on either



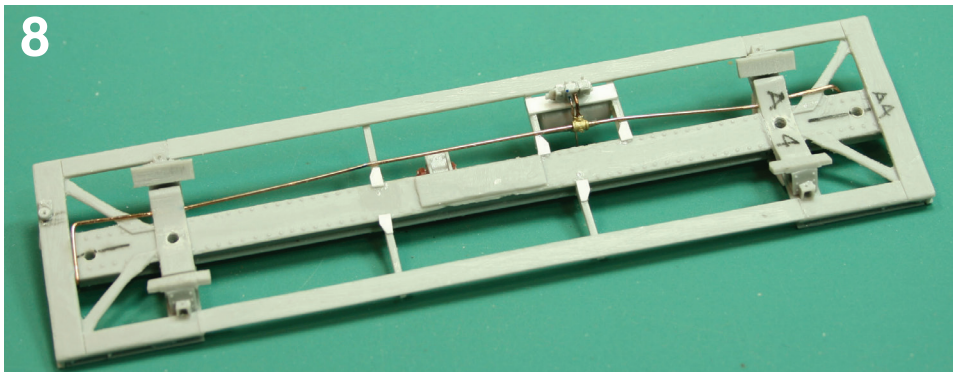
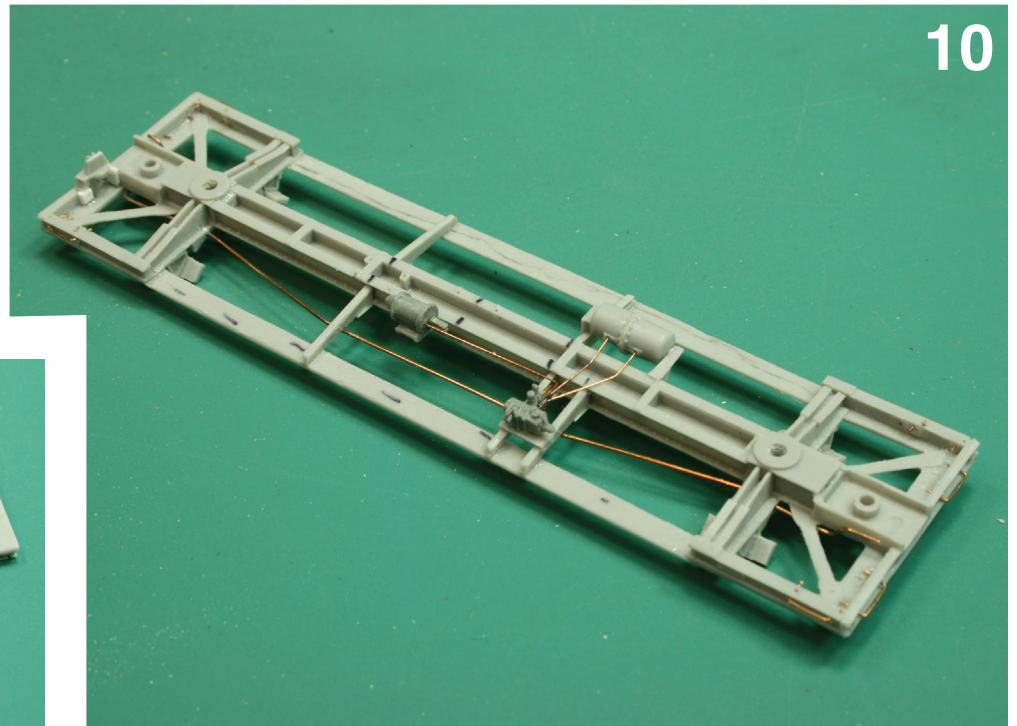
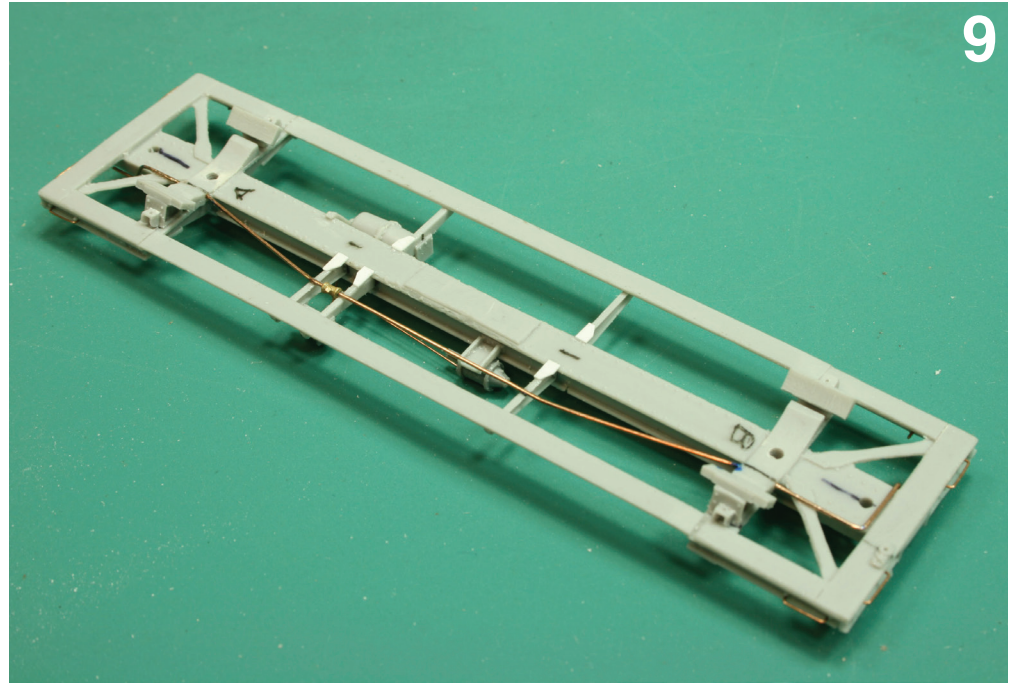
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side of the frame [Photos 5, 7].

g. **AB1 arrangement:** On the “A” end of the car, the running board support is mounted the same as on the “B” end, but only on the right side. The left side supports are two deeper channels, with one positioned 3 feet from the car center and the other approximately 3 feet from the first so that the reservoir is spanned between them. Both face each other to support the reservoir. Position the one nearest the center so that its upper surface is flat against the underside of the running board and it faces the end of the car. Note that its end that attaches to the center sill is angled and only the point of the angle contacts the center sill near the bottom of the sill. The gap between the top of the channel and top of the center sill is spanned with one of the five-sided plates. Using the reservoir as a guide, position and attach the other channel facing the first one. Fix the reservoir in position three feet from the centerline of the car with its mounting lugs resting on the lower edges of the channels. The two reservoir lugs should be at the “A” end and the outlet ports facing inwards. Now flip the assembly right-side up and attach a five-sided plate across the joint between the running board supports and top of the underframe. Place the valve platform above the reservoir with its ends resting on the channels. Attach the AB valve to the platform [Photos 6, 7, 8]. Form the train line from 0.020” wire as per the photos. For this brake arrangement the train line is about 21” from the frame centerline across the running board supports. Leave the wire overhanging the end sills some. The ends will be trimmed when the air hoses and brackets are attached. Before fixing the train line in place, thread the pipe tee, positioning it



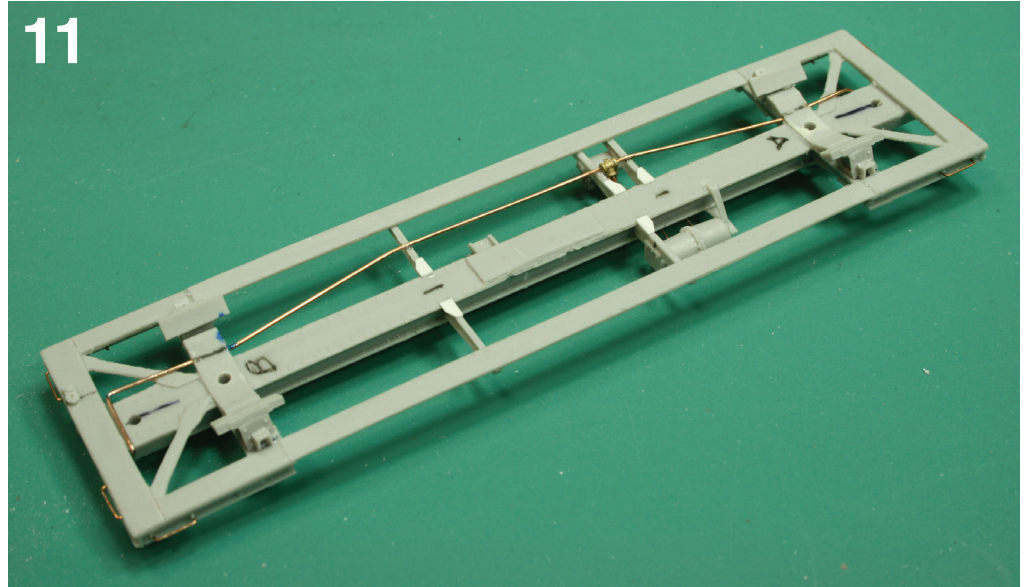


to just behind the AB valve. Add a short piece of wire from the pipe tee to the AB valve [Photos 7 (inset), 8].

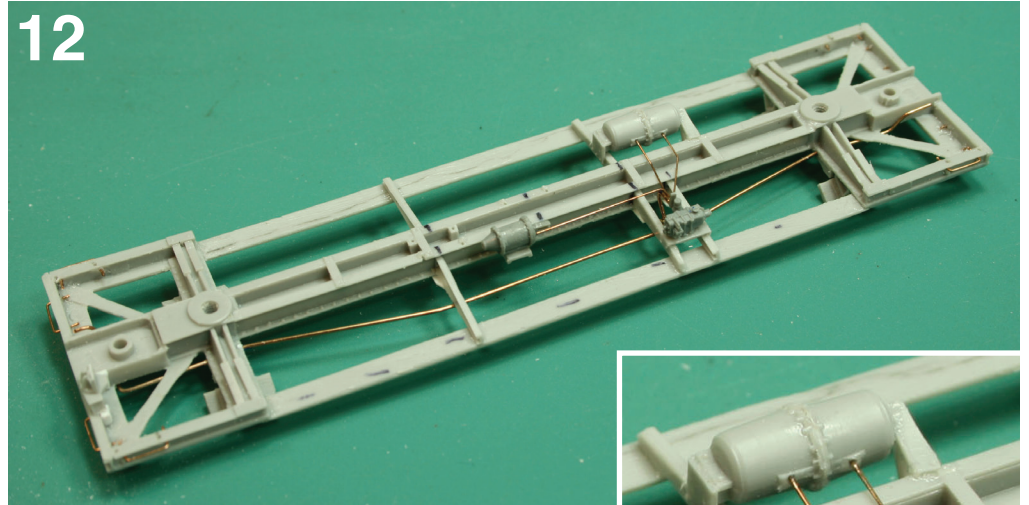
**h. AB2 arrangement:** On the “A” end of the car, the running board supports are each mounted four feet from the frame center, but in this case the support which holds the reservoir faces towards the car center. On the left side there are two channels for the running board support that also support the AB valve; both face each other. The closest one to the center of the car is directly opposite the one on the right side. The other one is located roughly 18” closer to the end of the car from the first. On the parts sheet there is a narrow channel with rivets on each end that has to span the two running board supports and sits down over them to serve as a platform for the valve. Space the second support from the first so that the narrow channel or valve platform will do just that. These supports also get the five-sided plates at their juncture with the center sill. When the running board supports are fixed in position, attach the valve platform just inboard of the running board. Turning to the reservoir (right) side of the car, supports for the reservoir need to be built up. There is a rectangular plate with three rivet heads on the parts sheet that attaches to the flat side of the running board support channel. This would be towards the “A” end of the car. There is also a C-shaped part cast to simulate two straps fastened together. This is the reservoir support at the single-lug end of the reservoir. The shorter leg of the support attaches to the underside of the center sill and the longer curved leg attaches to the top of the center sill. Using the length of the reservoir as a guide, position this support from the running board support and attach it to the center sill. A rivet may have to be removed from the top of the sill so the upper leg has a flat place to sit. Add the rectangular plate with the three rivets to the back of the running board support, so that the plate’s bottom edge rests on the horizontal reservoir support just added. The reservoir is 24” from the center of the center sill. Position the reservoir on the two supports with the two lugs towards the “B” end and the air pipe ports facing inward. Fix in place [Photos 9, 10, 11, 12].

Form the train line out of 0.020” wire [Photos 9, 10, 11, 12]. For this brake arrangement, the train line is about 2’-6” from the frame centerline across the running board supports. Again, leave the wire overhanging the end sills some. These ends will be trimmed when the air hoses and brackets are attached. Before fixing the train line in place, thread the pipe tee, positioning it just behind the AB valve [Photos 9, 11]. Add a short piece of wire from

11



12



the pipe tee to the AB valve.

i. Find the brake cylinder bracket on the parts sheet and remove it. Attach it to the center sill so that it lines the cylinder up with the lever hangers. Remove the rear of the cylinder from the parts sheet. It will have a clevis for the dead lever and an offset port for the airline. Assemble the front part of the Tichy cylinder to the cylinder body and attach the new end piece to the body. Drill out the end port for the wire airline. Attach the cylinder assembly to the bracket. Add the lines from the cylinder to the AB valve using the 0.010" diameter wire. On the AB2 arrangement, add 0.010" wire between the AB valve and the reservoir. Fix in place [Photos 9, 10, 12, 14, 15].

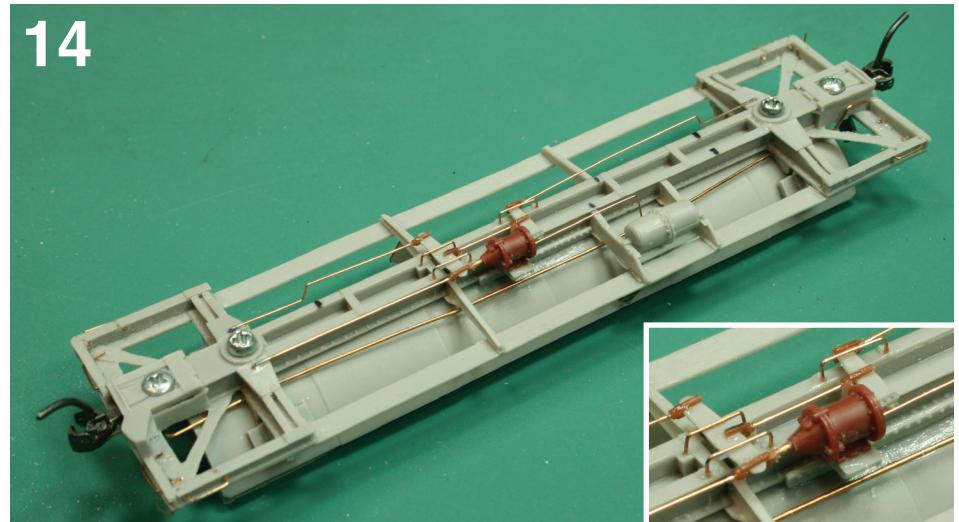
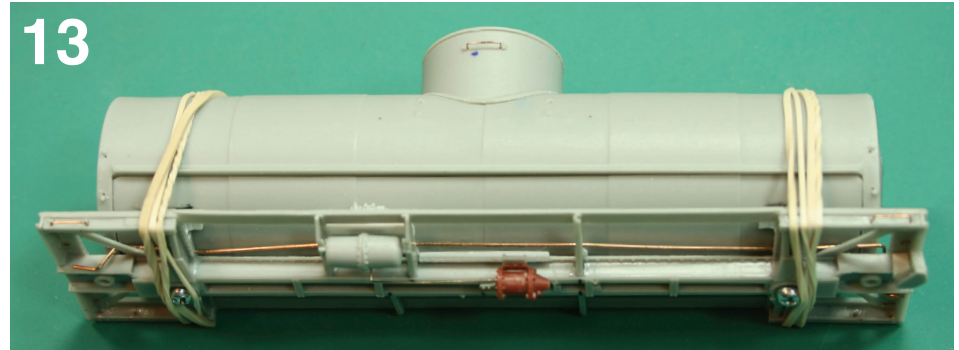
j. These cars had two types of geared handbrakes and there are castings for each on the parts sheet. One is a single piece that was an ACF design. The other is made up of two pieces and is a Superior design. Consult the data sheet for which type is required. In the first type, the brake stem is centered 20" off the car centerline. In the second, the brake stem is located 16" off the car centerline. Mark the location on top of the platform at the B end and attach the handbrake ratchet the correct distance from the center and just behind the end sill. Drill through the ratchet and platform for the 0.015" diameter stem. Stick a wire through the hole to aid in locating the gear assembly to be used. The inside edge of the first type will have to be trimmed as it fits against the wider-than-scale draft gear. Attach the handbrake gear to the end sill [Photo 17].

k. Attach the tank band connection gussets to the outside of the saddles. These are the "U" shaped brackets located inside the ladder rungs. Drill #76 holes in the tops of the gussets.

l. Add small blocks of styrene to the underside of the running board at the locations of the placard holders such that the blocks extend just inside the inner edges of the running boards. Drill them to accept the etched placard holders and install the holders. The holders are made in two pieces so that the retention bars can be placed over a placard decal to simulate the placard correctly slid behind the bars.

m. Reattach the tank bottom to the underframe with the truck 2-56 screws.

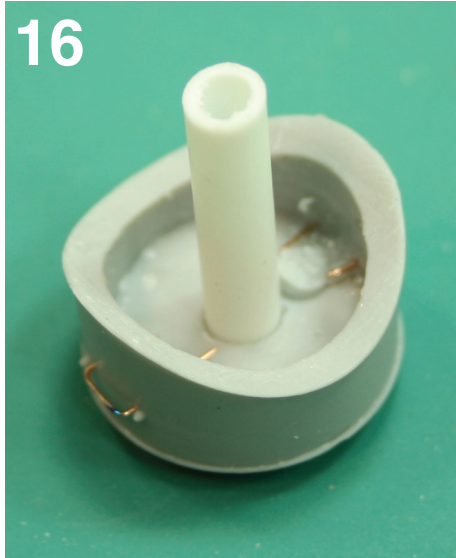
n. Temporarily attach the top of the tank to the bottom, holding everything together with rubber bands over the frame [Photo 13]. This is to keep the tank and frame straight while the bottom is attached to the frame. Permanently fix the bottom of the tank to the underframe by applying CA to the center





tank anchor and between the saddle blocks and tank. Apply the rivet strips from the parts sheet to both sides of the center sill where the tank anchor joins the center sill. The rivets should be aligned to the bottom [Photo 20].

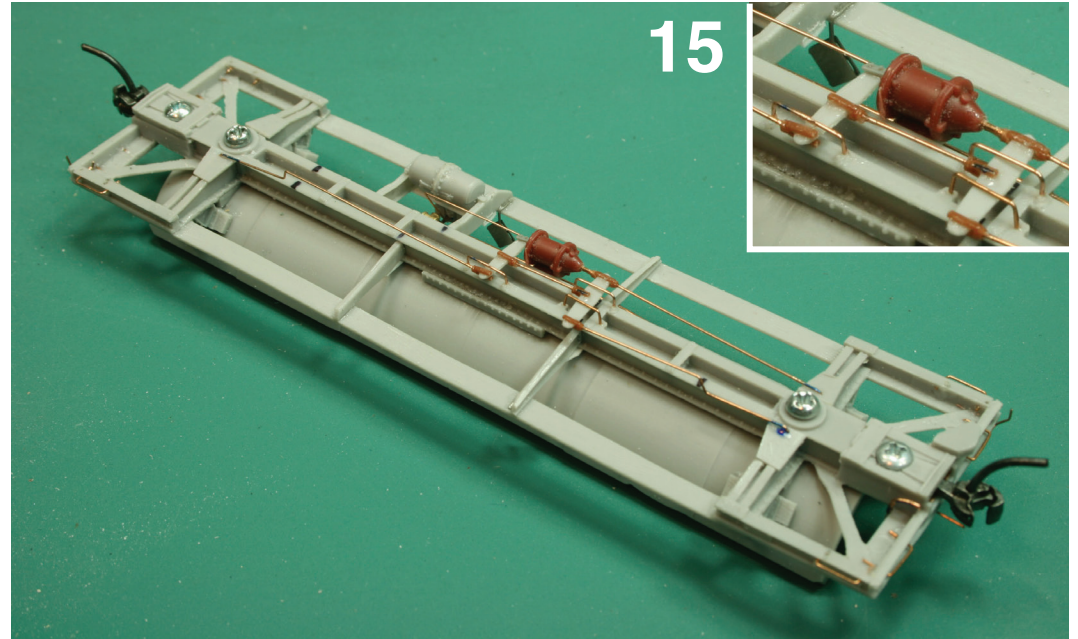
o. When dry, remove the tank top and flip the underframe over. Install the brake lever hangers onto the center sill [Photos 14, 15]. The one for the cylinder on the left side of the center sill is made from a drop grab as it is offset away from the center sill. Install the brake levers and rods. Plastic turnbuckles are provided which can be cut to create clevises for the brake rods. For the cylinder, use an entire turnbuckle, attaching it to the cylinder with a piece of 0.020" wire centered on the brake lever hangers. There is no chain connected to the cylinder, as that's part of the brake housing.



## 2. Tank

a. Sand the bottom of the dome slightly to insure a good fit over the tank. Cement the piece of 3/16" tubing to the inside of the dome at the hatch cover. Drill #78 holes to the inside of the bolts and washers on the dome side and install grabs [Photo 16]. Slip the tube through the hole in the tank, making sure that the dome is centered and an equal distance from the bottom of the tank. Cement in place. *(It's recommended for the WARREN tank to not attach the dome at this time to make it easier to paint.)*

b. Cement the dome hatch and vents to the top of the dome [Photo 20].

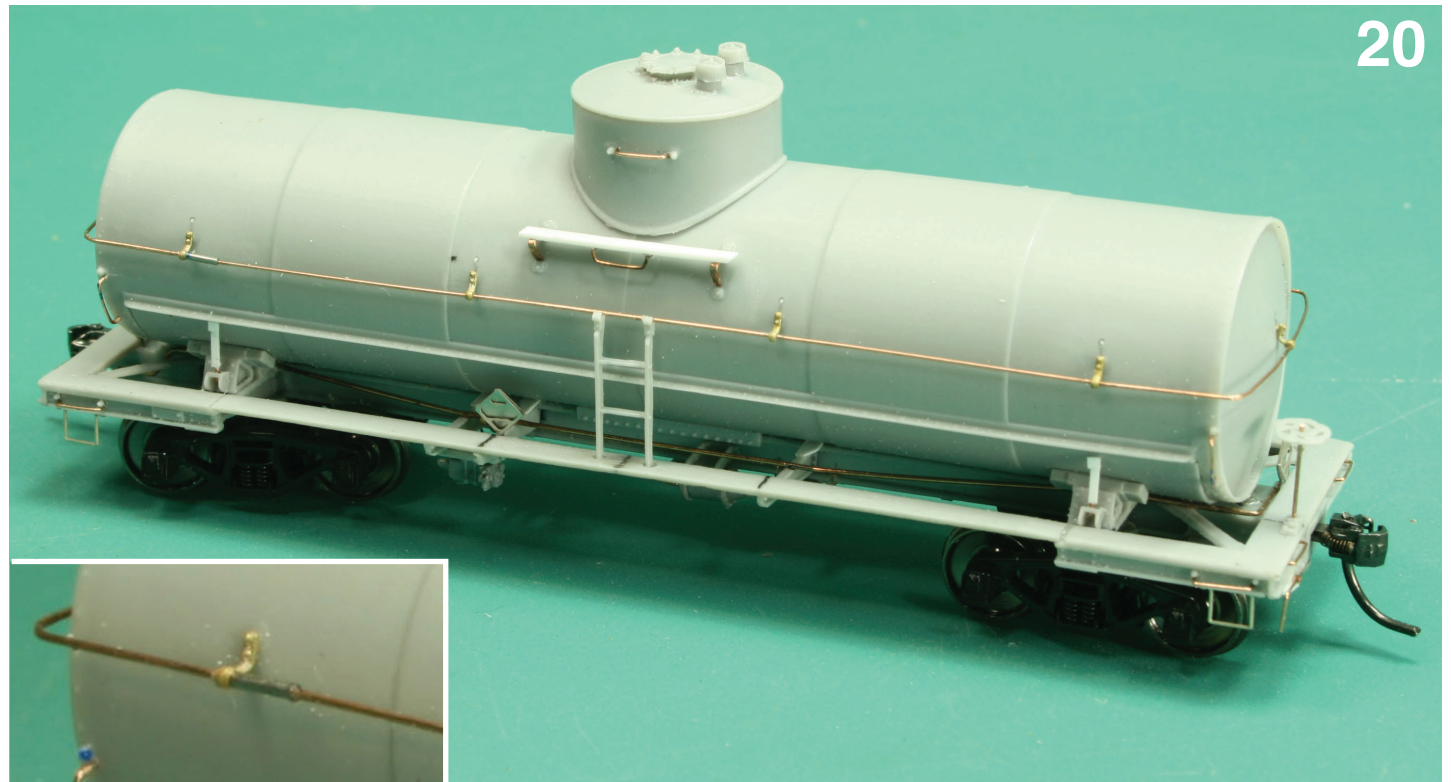




c. Drill for 0.0125" wire and form and install four grabs at the lower tank corners [Photos 17, 19, 20].

d. Pilot holes for the stanchions are provided around the tank. Complete the holes with a #76 drill [Photo 20]. Drill out the castings with a #77 drill to ensure that a 0.015" handrail wire will fit. (A note on prototype pipe sizes and model wire size: The handrails on prototype cars were constructed with 1 1/4" pipe. That's the inside diameter. In HO a pipe of this size has an outside diameter of 0.019", slightly larger than what's provided in the kit. Wire of 0.019" in size is available from such companies as Precision Scale. If you choose to use the larger size, care needs to be taken drilling out the stanchions so as not to bend them. Work progressing up in drill sizes, one number at a time, until the 0.019" wire slips through.)

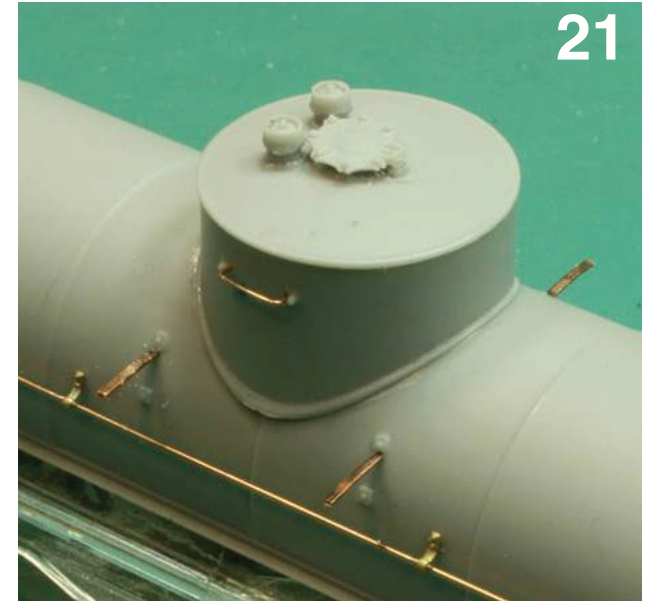
e. In each set, Precision Scale provides two castings with cylinders that are wider than the others (three extra handrail stanchions are provided in case you lose one). Place one of these on each side of the tank—on opposite corners is suggested [Photo 20, inset]. Place the remaining three on each side. Form the handrail by bending 0.015" wire using the jig provided, or by eye.





There will be two pieces, with each running down one side of the tank to the wide stanchion and including one curved end. Trim the ends of the pieces so that the ends of each meet within the wide stanchions. Fix the wire ends inside the wide stanchion castings with glue. Soldering with a low wattage iron also works. Straighten the handrails as necessary by adjusting the angle of the stanchions.

f. The dome platforms are composed of the cast wood plank and brackets made from A-line stirrups attached to the tank sides. There are four square “gussets” with rivets on them on each side of the dome and on both sides of the tank. These are the attachments for the platform brackets. Drill #76 holes just under the two top “gussets” as shown [Photo 21]. Now there are two ways of forming the platform support. One is to straighten and cut the “A-line” stirrups in half. Install them into the tank side in the drilled #76 holes. After the platform boards are installed, trim the “A-line” stirrups flush with the side of the platform. Use scrap 0.010”x0.030” styrene to finish the platform support from the bottom gusset to the “A-line” stirrups. The other method is to bend the “A-line” stirrup into the shape of the bracket and attach to the tank side [Photo 21].



### 3. Complete the Detailing.

Before proceeding we recommend that you use a cradle of foam to hold the model in order to ease installation of the final components.

- a. Install the etched placards using the photos as guides [Photos 17, 19, 20].
- b. Attach the tank top to the bottom by running some CA on the inside of the top section of the tank and pressing together. *(On multi-color paint schemes it's recommended that the upper tank be painted separately before attaching.)*
- c. Install the etched stirrups centered under the frame grabs. These are bent out slightly from the sideframe.
- d. The cars had two styles of cut levers, top and bottom. Form with 0.0125” wire and install as per the appropriate arrangement for the car being modeled. *(Note that the cars built in 1929 had Carmer cut levers, which are not supplied in the kit.)*
- e. Install the vertical brake staff and brake wheel. The top of the wheel is 2'-5" above the running board.
- f. Make four tank bands with scrap 0.010” x 0.030” styrene (about 1' long) and 0.015” wire using the photos and drawings as a guide. Insert the 0.015” wire through the previously drilled holes. Attach the styrene to the tank side.
- g. Before cleaning the ladders, drill #76 holes at right angles to the ladder where the ladder attaches to the handrail. Clean out the back side of the hole to create a slot to fit the ladder over the handrail. Clean out the ladder from the parts fret. Center the ladder on the car to locate holes in the running

board for the ladder attachment points. Drill #74 holes through the running boards. Slip the ladder through the drilled holes and over the handrail. Cement in place and, when dry, remove any protruding parts of the ladder from below the running boards. Slip the ladder through the drilled holes and over the handrail. Cement in place and, when dry, remove any protruding parts of the ladder from below the running board. *(For the Warren car, etched ladders are provided. You may want to wait to permanently install them until after the car has been painted and the large “WARREN” decal has been applied to the tank. To install these ladders, cut off the upper rung, bend the stiles just above the rung, trim to fit, and attach to the underside of the platform board. Tuck the remaining ladder under the rung attached to the platform while bending to press the bottom of the ladder to the inside of the frame running board. Cement in place. [See photo on page 13.]*

h. Precision Scale air brake hoses are provided if you choose to install them. Installation method is up to the modeler. *(I don't install air hoses on my models as I find that they get in the way during operations. The cars perform better without air hoses and even the brass ones break off.)*

i. Install couplers of your choice and draft gear covers.

## Trucks

We're supplying the closet available Tahoe truck sideframes with the kit. For kits 9.01, 9.02 and 9.03, that is the #TMW-006 Double Truss AAR 50-ton truck. For kit 9.04 it is the #TMW-008 Coil-Elliptic 50-Ton truck. And for kits 9.05 and 9.06 it is the #TMC-015 40-Ton ARA truck.

## Painting and Lettering

Wash the model again with Dawn and allow to thoroughly dry before painting. The vast majority of these

cars, including the trucks, were painted black. I like Scalecoat 1 No. 10 black as it provides a glossy surface for decals. Some cars had the upper tank section painted silver with the remainder of the car painted black.

For the WARREN paint scheme, first a note on “color.” I tend not to worry or get wound-up about what the “true color” is. Anyone who states that he or she is using the exact color for anything is dreaming. In reality, color is affected by light, density, reflection and even interpretation. One batch of paint may differ from another of supposedly the same color. Even more than that, paint is subject to fading, weathering, and wear. All this affects the color even before we have considered the fact that we are painting in scale, so there needs to be some compensation for the way light reacts to color at scale sizes. My layout time is set in late August. As such, my light is 6500 kelvins, which is equivalent to a bright summer day. The WARREN “grey” I mixed under my lighting is 50/50 Testor's Model Master Enamel camouflaged grey (FS 36622) and flat white (FS 37875). For the green dome, Floquil CNW green was lightened with yellow.

Once decals are applied and all the air bubbles have been removed, spray with flat glaze. Install trucks and finish with the desired amount of weathering. If the tank car is loaded, placards should also be placed in the placard brackets noting what's in the car.

