

RESIN CAR WORKS
RCW

P.O. BOX 42
BYRON, IL 61010

Freight Cars of Every Description

Kit 6.00
ACF Type 27, Class 103
10,000 Gallon
Insulated Tank Cars



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

The first release of this kit is of a standard ACF Type 27, Class 103, 10,000 gallon tank car that was constructed from the end of 1936 to about mid-1938, for a total of 284 cars (see table below). 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" plat. End sills were 9" by 13.4# channels while 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. The truck centers were 25'- 11 1/4" apart. The tank had an inside diameter of 87 1/4" and was constructed of 3/8" and 1/2" plate steel. All running boards

and tank platforms were wood. Insulation was composed of one layer of 2" rockwool. Domes were either 60" or 67" 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). The cars were painted completely black with SHPX reporting marks. Cars were leased to United States Rubber Products, Paluxy Asphalt 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.

Road	Series	Qty.	Built	Lot No.	Dome Size	Brake Arrg't	H.P.	Draft Gear	Commodity	Company	Paint Specs
SHPX	10847-10865	19	12-36	1568	60"x22"	AB2	Yes	National M-17-A	Asphalt	Shippers' Car Line	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	10866-10871	6	12-36	1568	60"x22"	AB2	-	National M-17-A	Asphalt	United States Rubber Products	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	10872-10885	14	2-37	1596	60"x22"	AB2	Yes	National M-17-A	Asphalt	Shippers' Car Line	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11000-11009	10	10-37	1743	67"x23"	AB1	Yes	National M-17-A	Road Oil/Tar Products	Shippers' Car Line	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11010-11059	50	10-37	1743	67"x23"	AB1	Yes	National M-17-A	Asphalt	Paluxy Asphalt Co.	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11060-11079	20	10-37	1743	67"x23"	AB1	Yes	National M-17-A	Asphalt	Shippers' Car Line	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11080-11099	20	10-37	1743A	67"x23"	AB1	Yes	National M-17-A	Asphalt	Shippers' Car Line	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11800-11884	85	5-38	1804	60"x21 3/4"	AB1	Yes	Cardwell L-25-SA	Asphalt	Cities Service	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11885-11919	35	6-38	1804A	67"x23"	AB1	Yes	Cardwell L-25-SA	Asphalt	Shippers' Car Line (The Barrett Co., New York)	Black jacket, dome, heads, trim, u/f; white stencils
SHPX	11920-11944	25	5-38	1804A	67"x23"	AB1	Yes	Cardwell L-25-SA	Asphalt	Paluxy Asphalt Co.	Black jacket, dome, heads, trim, u/f; white stencils

TOTAL 284

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) that pertain to this kit. Espe-

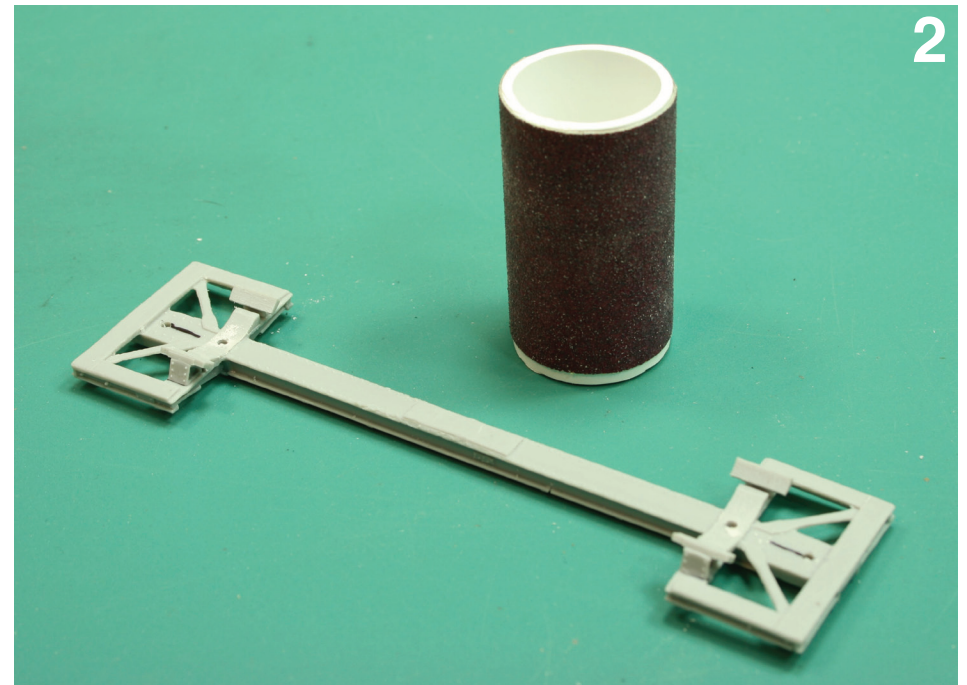
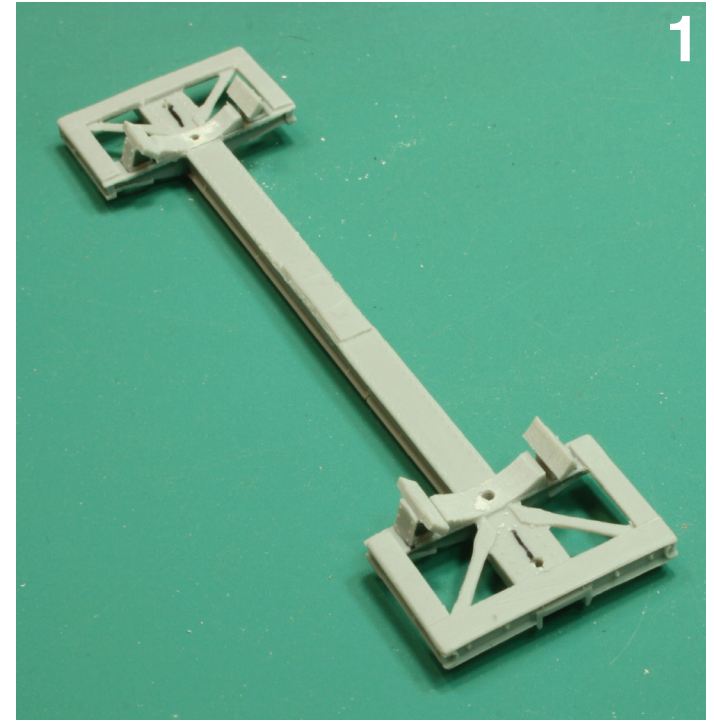
cially helpful are a series of prototype drawings that show the placement of the various car parts. Instructions are available only on line as to not limit them to a set number of pages.

- 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.

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).

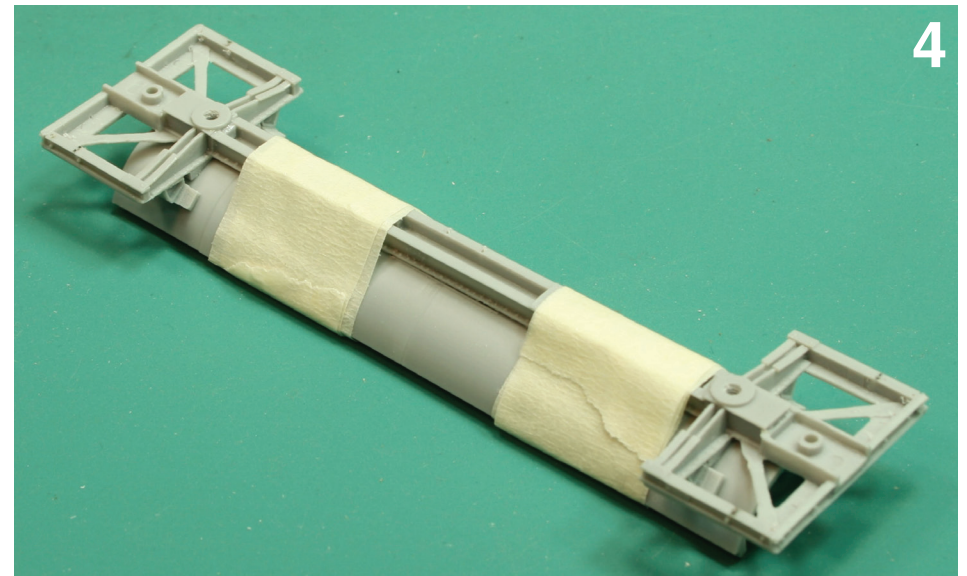
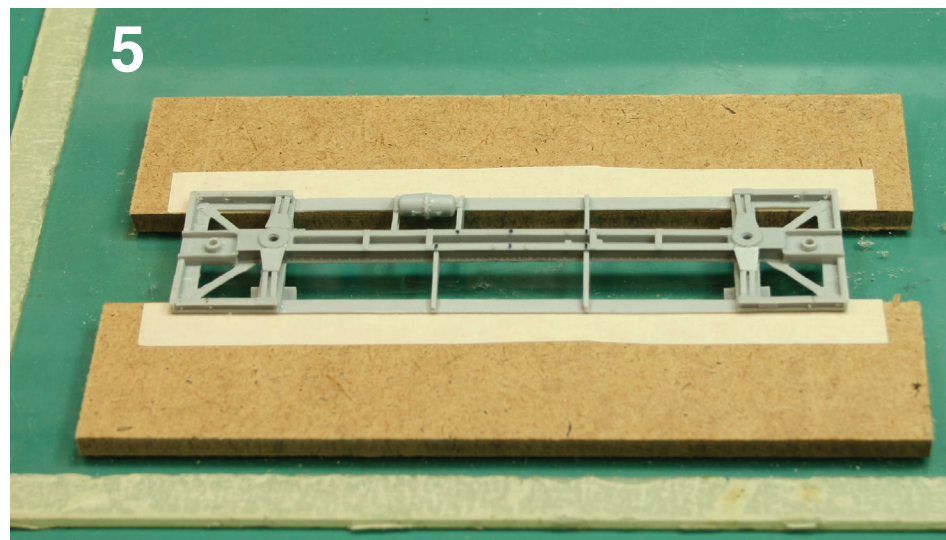
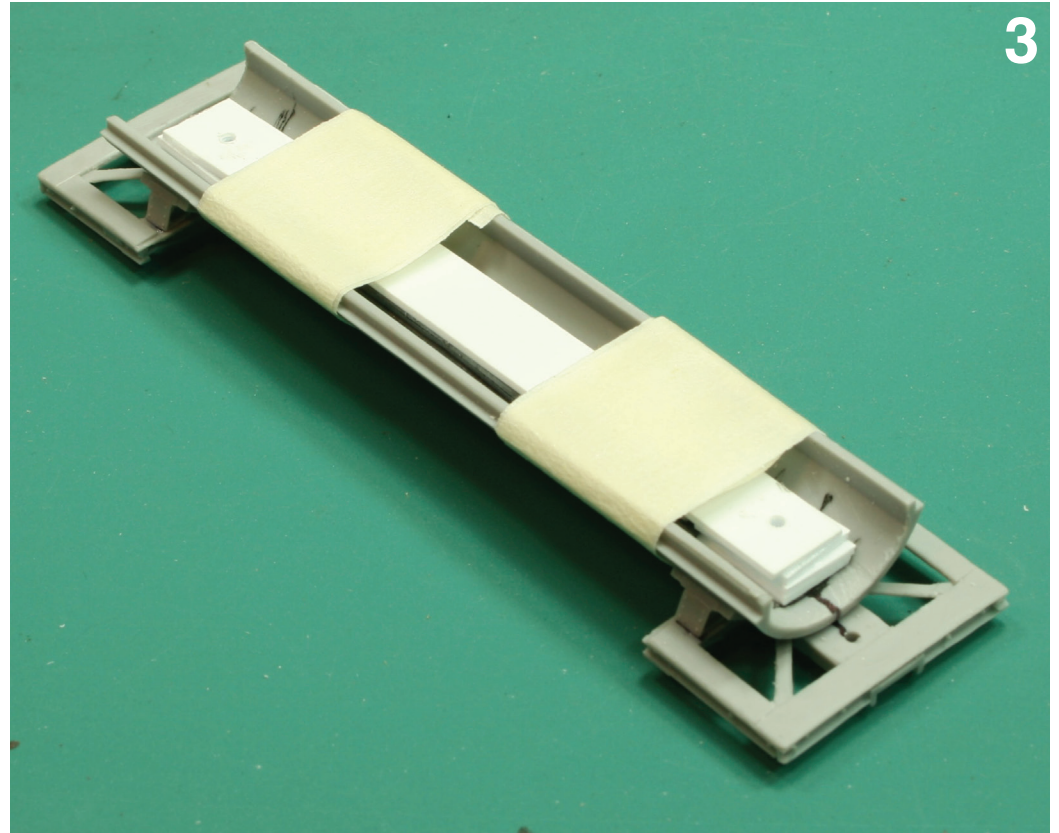
a. Clean any casting flash from the underframe and tank castings. Remove the four bumps from each end of the underframe platform and from the top of the center sill as these are casting vents. Do not remove the raised rectangular pad from the top of the center sill as this locates the tank. For this 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) held in part 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 bot-



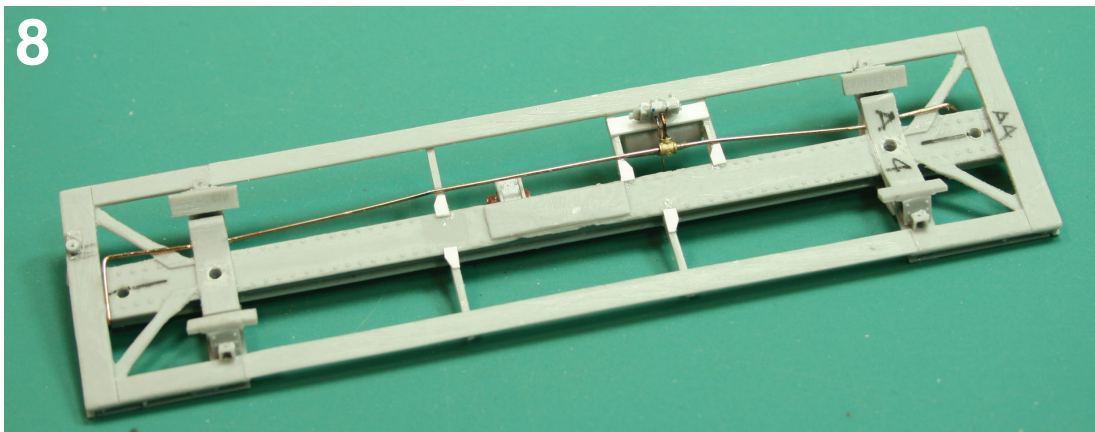
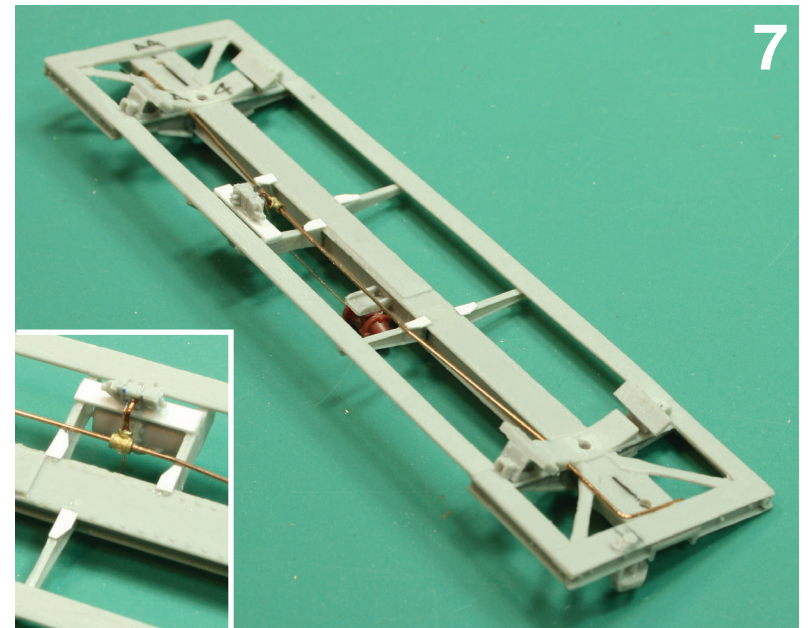
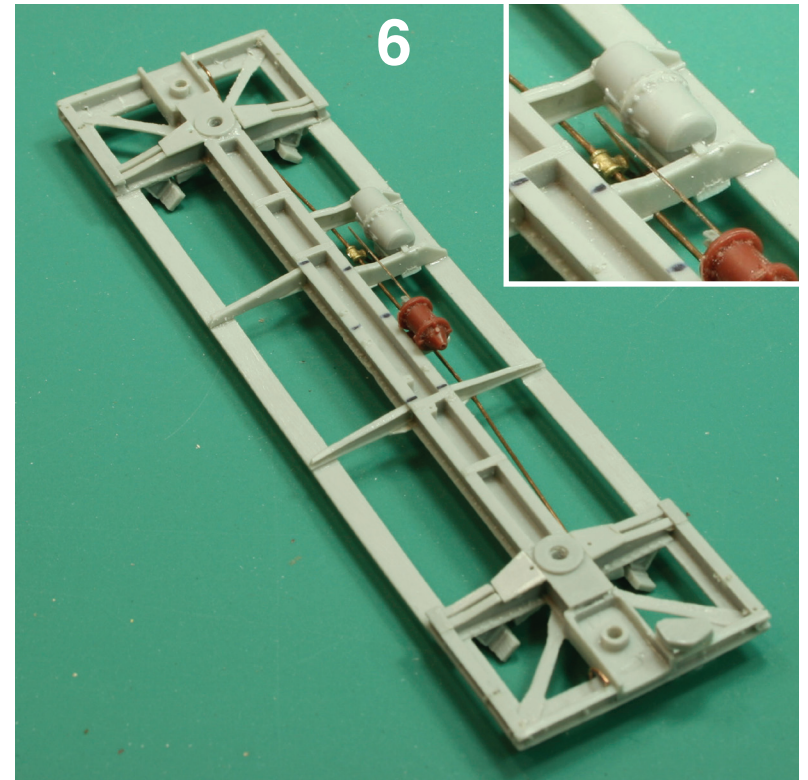
tom to the frame with small clamps or with a couple pieces of tape. Drill and tap couplers pockets and bolsters for 2-56 screws [Photos 3, 4].

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].

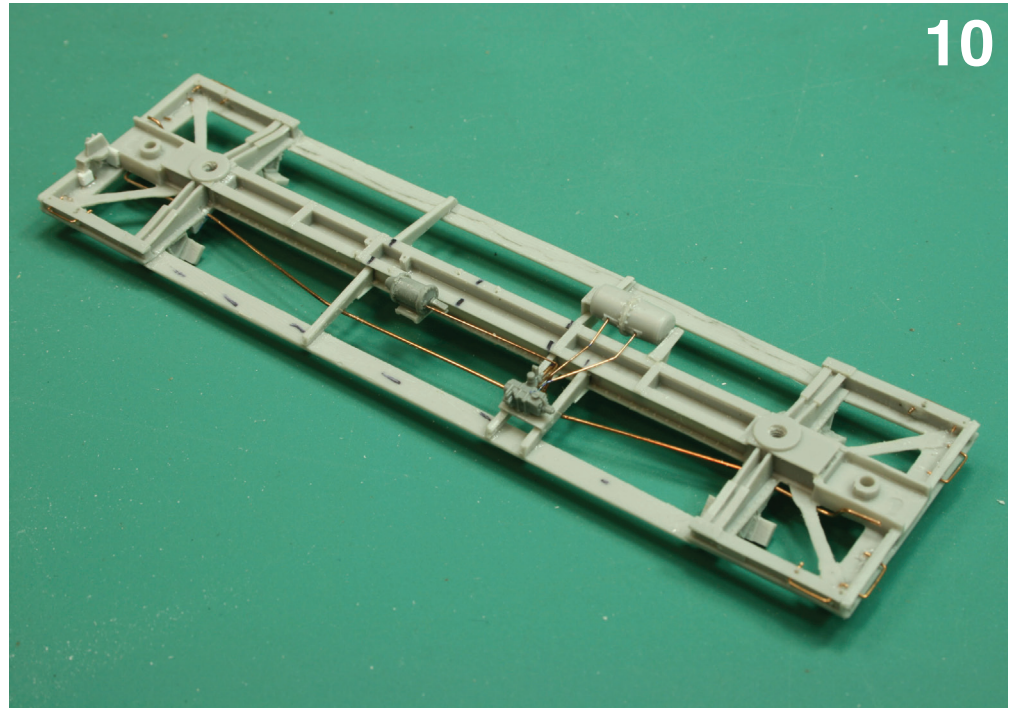
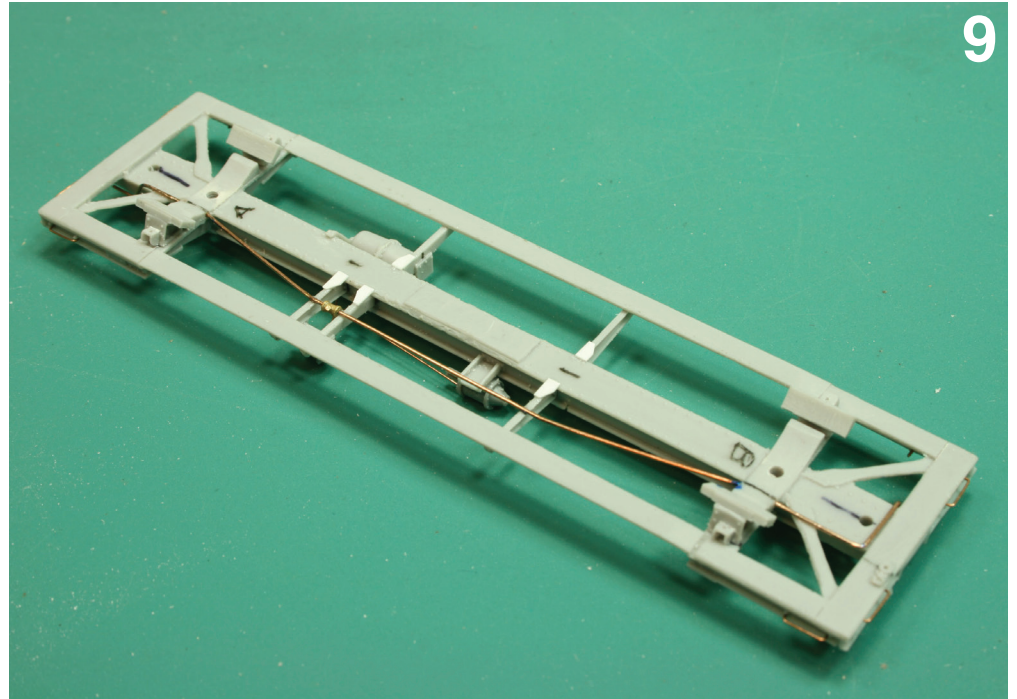
f. With the assembly flipped over on the Masonite, install the bolster bottom plates between the center bearings and cast-on angles. Find the center of the frame. On the "B" end only, four feet from the center, attach two of the running board supports on either side of the frame [Photo 5].

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.

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

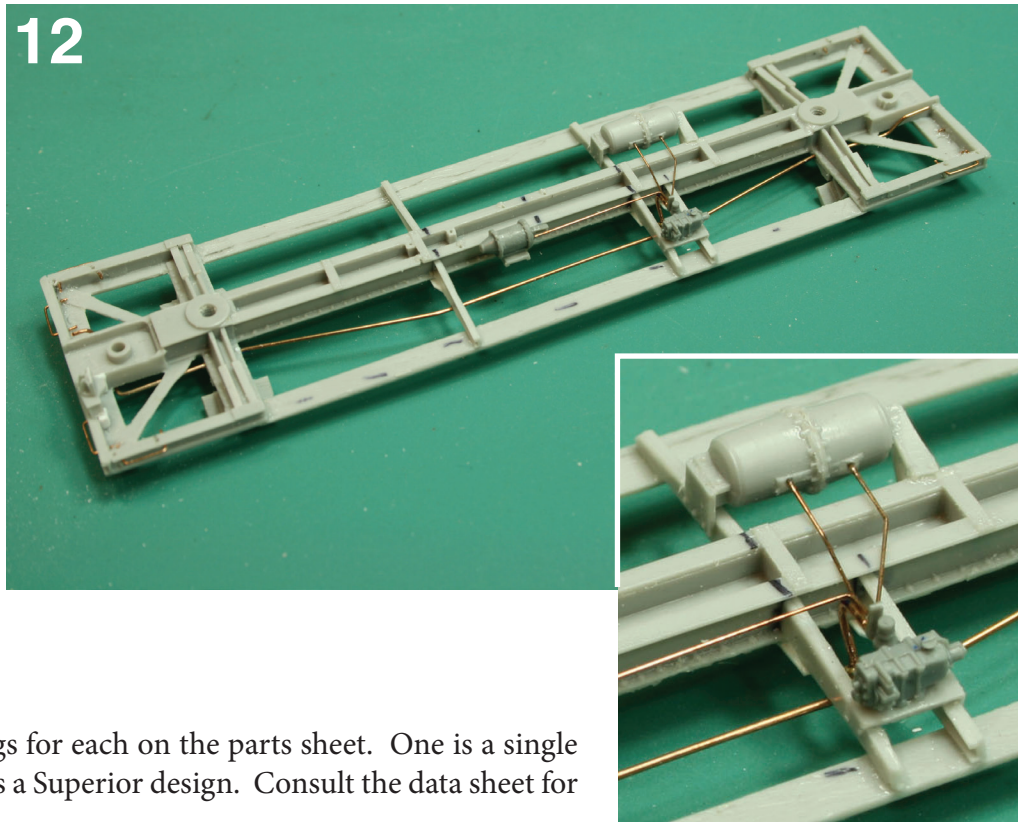
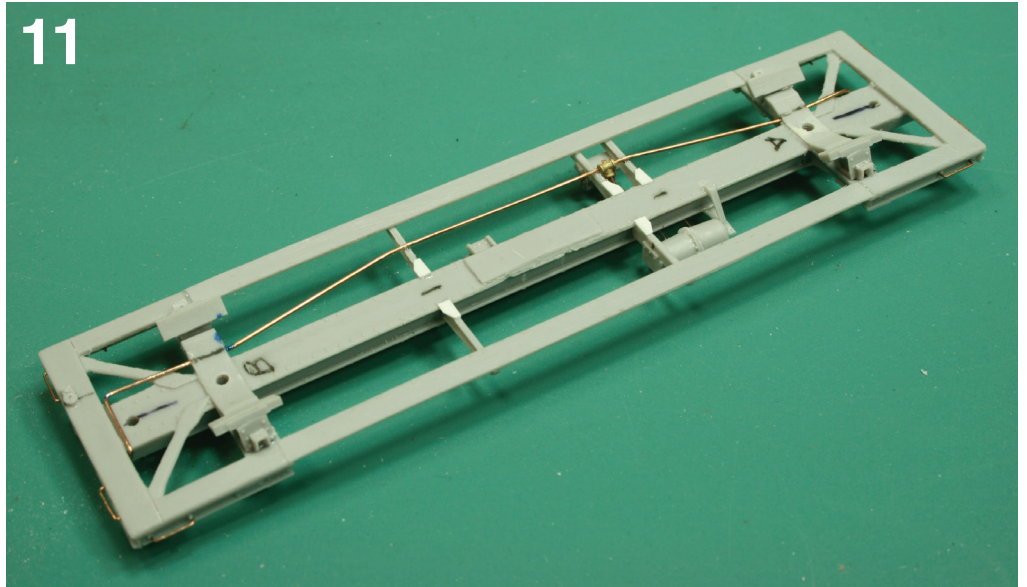


running board support channel. This would be towards the “A” end of the car. There is also a C-shaped part cast to simulate two straps fastened together. This is the reservoir support at the single-lug end of the reservoir. The shorter leg of the support attaches to the underside of the center sill and 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 inwards. 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 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].

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].

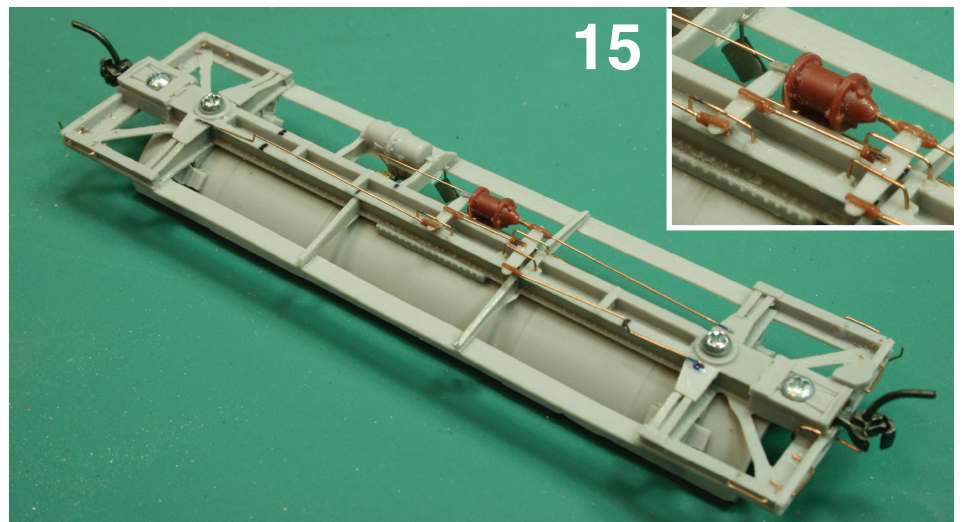
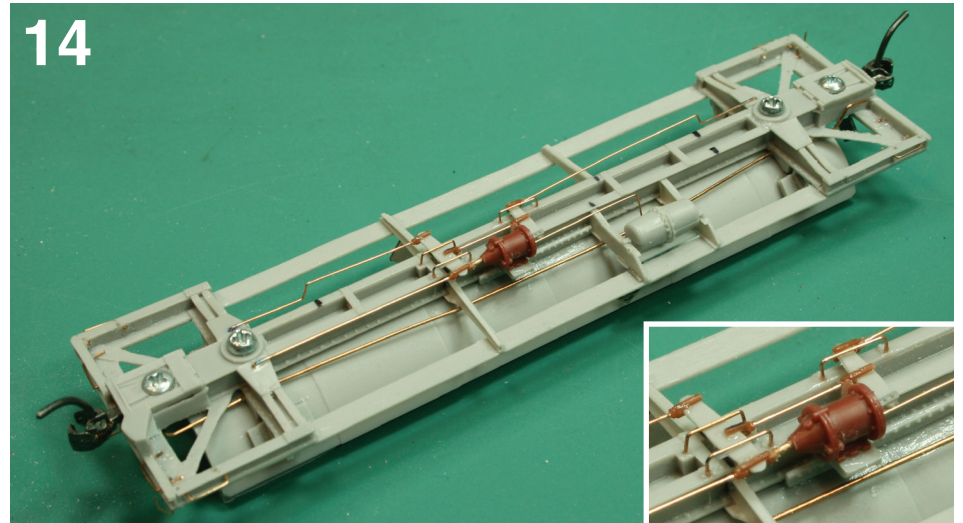
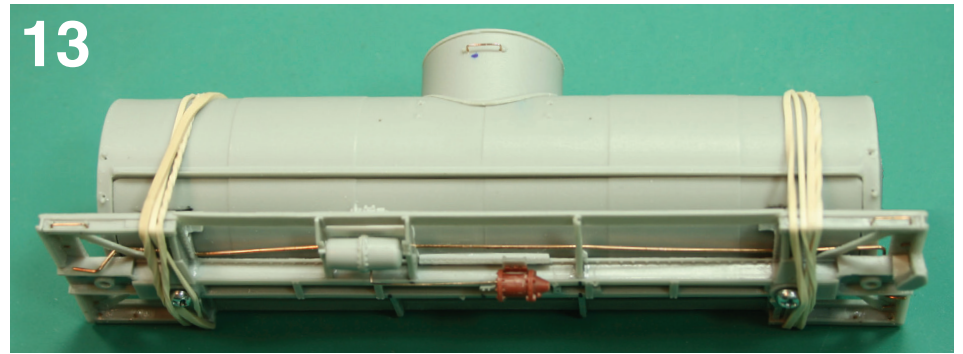
k. Attach the tank band connection gussets to the outside of the saddles. These are the "U" shaped brackets located inside the ladder rungs. Drill #76 holes in the tops of the gussets.

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 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.

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

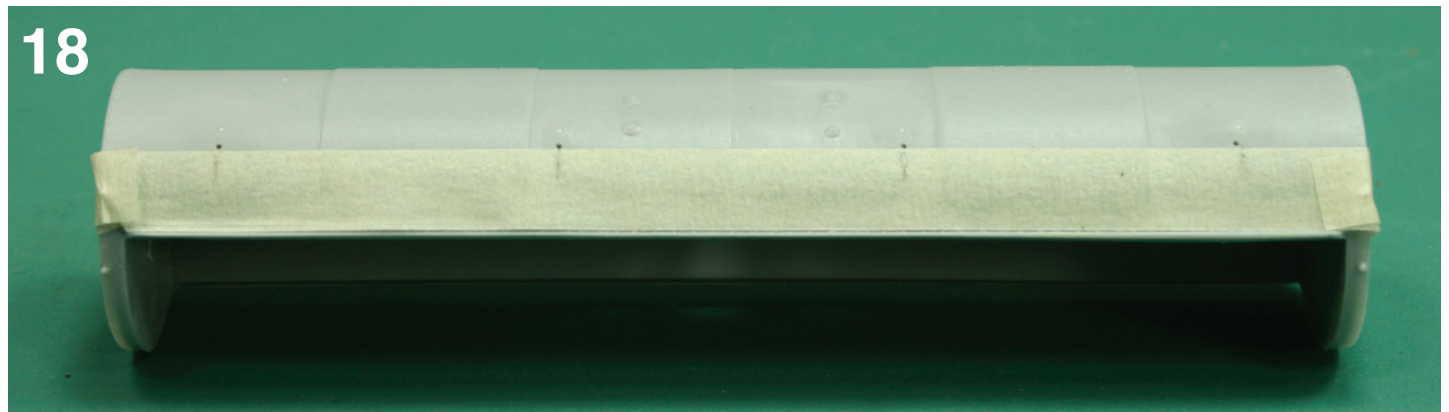
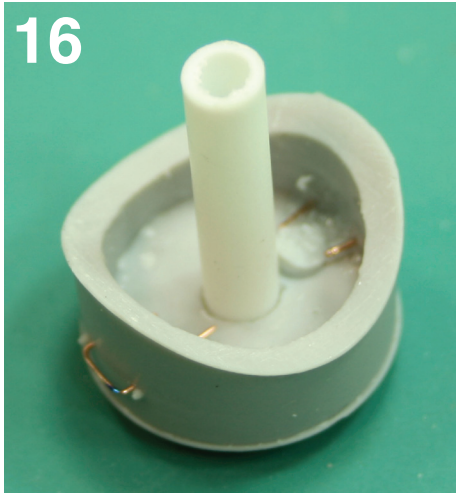
Before starting tank construction, determine which size dome is correct for the tank you're modeling. There were two sizes of domes fitted to these cars: 60" and 67" inside diameter.

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.

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. I found out after the fact that the handrail isn't located at the same distance above the running board on all cars. To set the handrail at the appropriate height for this series of kits the pilot holes need to be filled. This is easily done with thick ACC. When dry sand smooth. To locate the holes for the stanchions cut several pieces of masking tape 2'-2" wide and place above the angle that runs



along the bottom of the top tank section. Also place tape on the ends even with the top of the tape on the sides. Create new pilot holes below the filled ones. Complete the holes with a #76 drill [Photo 18].

e. Precision Scale handrail stanchions are provided for the handrail. Drill out the castings with a #77 drill to ensure that a 0.015" handrail wire will fit. Extra stanchions have been provided if you break one. (A note on prototype pipe sizes and model wire size: The handrails on prototype cars were constructed with 1 ¼" 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.)

f. 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 sug-

