INTERMOUNTAIN RAILWAY COMPANY

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Instructions for the A.R.T. 24000-24449 Series Refrigerator Car

GENERAL INSTRUCTIONS:

Please read the instructions and study the drawings and parts before beginning assembly of this kit!! Many of the parts are very delicate in order for your completed model to be as attractive and authentic as possible. DO NOT ATTEMPT TO BEND, TWIST OR BREAK PARTS FROM THEIR SPRUE. The most effective tools to use in removing parts are an Xacto knife, fine clippers, or a single-edge safety razor blade.

It is best to test fit ALL PARTS before applying glue. The locators are sometimes slightly damaged in removing from the runner and must be trimmed before the locator holes will accept them. It is also helpful to open all locator holes with a pin vise using a #72 drill bit. Generally, very small amounts of glue are needed to affix styrene parts, so we recommend that glue be used sparingly. Also, when locator holes extend through the part, apply glue on the inside.

RECOMMENDED TOOLS:

Xacto Knife	Fine Clippers	Single-Edge Razor Blade
Small File or Emery Board	Pin Vise	Small Drill Set
Tweezers	Small Phillips Screwdriver	Liquid Styrene Cement

"Zap-A-Gap", "Super Glue" or equivalent

ASSEMBLY TIPS!!

Throughout the instructions we refer to the "roofwalk" and the "triple valve". We would like to note that these terms are not technically correct, but since they are commonly used in the model railroad hobby, they are used here to reduce confusion. The roofwalk is correctly called the running board, and the triple valve on this car is correctly called the AB valve.

End grab irons are found on two sprues in this kit, one of which is black and one of which is brown (BCR or boxcar red). Brown end grab irons are used on brown ends.

Our thanks to J.P. Barger, Jim Booth, Dick Harley, Ed Hawkins, Richard Hendrickson, Dan Smith, Tony Thompson and others for their invaluable help in improving this model to its present state. Their desire, and ours, has been to provide the most accurate representation of this popular freight car that is practicable.

ASSEMBLY INSTRUCTIONS:

Step 1: Completion of the Body:

The first step in building your refrigerator car kit is to add the Floor (b) and Ends (c) to the Body (a) shell. All three pieces have locator pins that aid in correct positioning of the parts.

(a) After removing the sprue from the hole in the middle of the bottom of the body, attach the floor to the body, placing the one locator pin on the inner side of the floor in the locator hole in the bottom of the body shell. After carefully test fitting, glue the floor in place.

(b) Install the ends. Note that the pattern of locators on the ends will allow them to be installed only in the correct location. Glue in place after test fitting.

Step 2: Underframe, Train Line and Brake System Assembly:

The underframe detail on this model is complex, and therefore very realistic when assembled. The Retainer Airline (u), Long Train Line (x), Air Supply Line (z) and Brake System Assembly (v) must be installed on the Underframe (f) before the underframe is attached to the floor of the car body.

(a) Remove the underframe from its sprue and remove any flash. Test fit to floor. Do not glue in place on the car body.

(b) Remove the retainer airline and long train line from the parts sprue. Place the underframe flat on your work table with the locator pin that goes into the floor to the left and facing upwards. There will be several grooves on the crossbeams on the side closest to you. Place the straight end of the retainer airline in the groove on the bolster on the right side of the underframe. Push the "collar" on the retainer airline up against the inner side of the bolster at the groove. It will extend to two additional grooves on the main frame members in the center of the underframe. The curved portion of the retainer airline should then point slightly downward and towards you. Do not glue it in place at this time. It will have to be correctly positioned after the brake system assembly is glued in place. Leaving the retainer airline in place, install the long train line in its ten grooves in the frame members and glue in place. Since it will be held closely in place when the underframe is installed on the floor, it is necessary to glue only the ends of the long train line.

(c) Remove the brake system assembly from its sprue. Install the brake system assembly on the underframe by gluing in place the three locators on the ends of the brake rods. Note that there are two locator holes in the structural frame members and one in one of the bolsters into which the three locators are to be placed. Once the brake system assembly is in place, locate the curved end of the retainer airline adjacent to the two existing air lines entering the triple valve and glue it in place. Then glue the retainer airline into the grooves in the underframe. Remove the air supply line from its parts sprue and glue in place with the "yoke" on one end of the part positioned between the two collars on the long train line. The other end of the air supply line is to be glued in place adjacent to the other three lines entering the back of the triple valve.

(d) Install the Air Line Extension (y) on the floor using the two locator holes provided. Note that the outside end of the air line extension is positioned in the locator hole away from the coupler box.

(e) Put the underframe in place on the floor of the car, using the locator pin on the bottom of the underframe and the locator hole in the floor. Glue the underframe in place, then glue the locators for the air tank, triple valve, and brake cylinder in their locator holes in the floor.

(f) Remove the two Short Retainer Brackets (aa) and the Long Retainer Bracket (bb) from the parts sprue and install them on the underframe using the six locator holes provided.

Step 3: Side Details:

(a) Install the two Side Ladders (gg) and four Side Grab Irons (mm) using the locator holes in the sides. Note that the side grab irons have offset locator holes. The side grab irons have a lower locator pin on the left side and an upper locator pin on the right side of each grab iron. The offset locators identify the side grab irons from the other grab irons.

(b) You may choose to use Drains (cc or dd) that are provided in either the open or closed positions. When you have decided which you will use, remove them from the parts sprue and install them in the four locator holes in the floor adjacent to the bolsters on each end of the floor. Be sure to remove the small segment of the pin on each drain so that, when installed, the drain height is correct.

(c) There are three types of stirrups. When you remove the stirrups from their sprue be sure to remove the gates. The locators for the stirrups are the indented, flat surfaces at the top of each stirrup. When installing the Left Corner Stirrups (jj) and Right Corner Stirrups (kk), the irregular side of the stirrup is located towards the car end in each case. The Center Stirrups (ii) are symmetrical and are located between two "dimples" behind the sill on each side of the car. Only two of each type of stirrup is to be installed on the car. The parts sprues have a "spare" of each type in case it is needed. * See below for sill step instructions.

(d) Install the two Small Tackboards (r) and two Large Tackboards (q) only when appropriate for the prototype car. Verify the tackboard locations for your model using pictures of the prototype.

Step 4: End Detail:

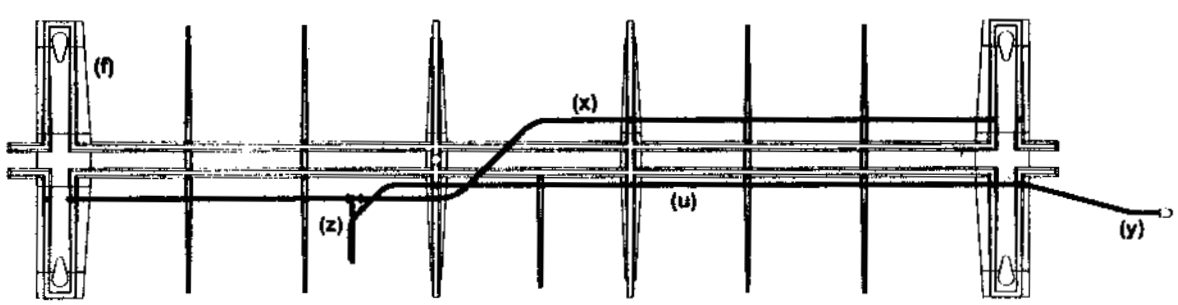
(a) Install an End Ladder (p), two Lower End Grab Irons (oo), and one Upper End Grab Iron (nn) on each end of the car. The lower end grab irons are easily identified on the end grab iron sprue. The upper end grab irons have a bracket molded on one end, and the other end locates with a single locator on one of the ribs on the end of the car.

(b) On the brake end of the car, install the detail in this order: Brake Step Brackets (m), Brake Mechanism (k), Brake Wheel (o), Air Valve & Air Line (l) (extends straight downward between the ladder and the brake step bracket, then angles inward), and Brake Step (n).

(c) Install the Bell Crank & Chain (ll) between the clevis on the lower end of the brake mechanism and the remaining locator hole on the adjacent bolster.

(d) Install large tackboards only if correct for your model. Verify the tackboard locations for your model using pictures of the prototype.

* **Sill steps**: Use angled corner sill steps included on the separate parts tree. These are the same as those used on A.A.R. box cars with the angled portion towards the center and the vertical leg at the corner.



(Underframe, Air Line Extension, Long Train Line, Retainer Airline & Air Supply Line)

Step 5: Roof & Roof Detail: Attach etched stainless steel Apex Tri-lok running board.

(b) Hatch Covers (h), Hatch Plugs (pp) and Hatch Levers (i). Remove hatch covers from parts sprue and clean thoroughly. Install Hatch Handles (g) on each of the four hatch covers. The hatch handles should be installed on each hatch cover with the vertical or "tall" part nearer to the outside of the hatch and the hatch cover should be oriented so that the hatch handle is nearer to the roofwalk, or on the "inside" of the hatch cover.

Remove the hatch plugs from the parts sprue and install one on the bottom of each of the hatch covers. (If you are going to model the hatches closed, you may choose to skip this step since the hatch plugs will not be visible.) Note that the small posts on the bottom of the hatch covers will not allow the hatch plugs to fit snug against the hatch cover. The posts, when fitted into the locator holes on the hatch plugs, provide accurate spacing between the two parts. This is the prototypical orientation of the hatch plug to the hatch cover when the hatch is open.

Insert hatch lever through opening in hatch cover. You can now install hatch covers in open, closed, or partially open position by gluing hinges on rear of hatch covers and hinge end of hatch lever to the three mounting positions adjacent to the hatches.

(c) Install Roof Grab Irons (j) on opposite corners of the roof using locator holes provided.

If you wish to weight your car, DO IT NOW before installing the roof on the car body. It is necessary to add 2.5 ounces of weight to bring the weight of your refrigerator car up to NMRA standard weight of 4.0 ounces. Those modelers who wish to run long trains of refrigerator cars may choose to increase the total weight to 5 ounces per car.

Once you have securely fastened the weights in the body of the car, test fit the roof and glue in place. Once the roof has been added to your model, install the two Roofwalk Support Brackets (s), one on each end of the car.

Step 6: Trucks, Couplers and Glad Hands:

(1) Install Glad Hands (t) on each end of the car floor next to the coupler box. Two locator holes are provided for each glad hand.

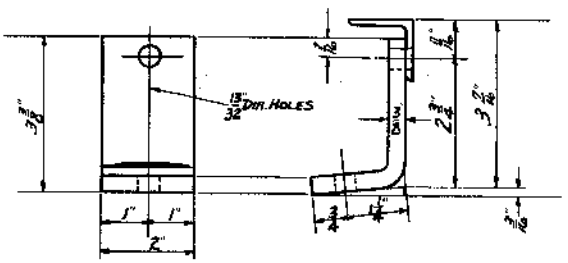
(2) Install the couplers of your choice, then press fit the Coupler Box Covers (hh) on the coupler boxes. You may want to lightly glue the coupler box covers in place for extended use.

(3) Assemble the trucks provided with your kit and fasten in place on the bolsters with the screws provided.

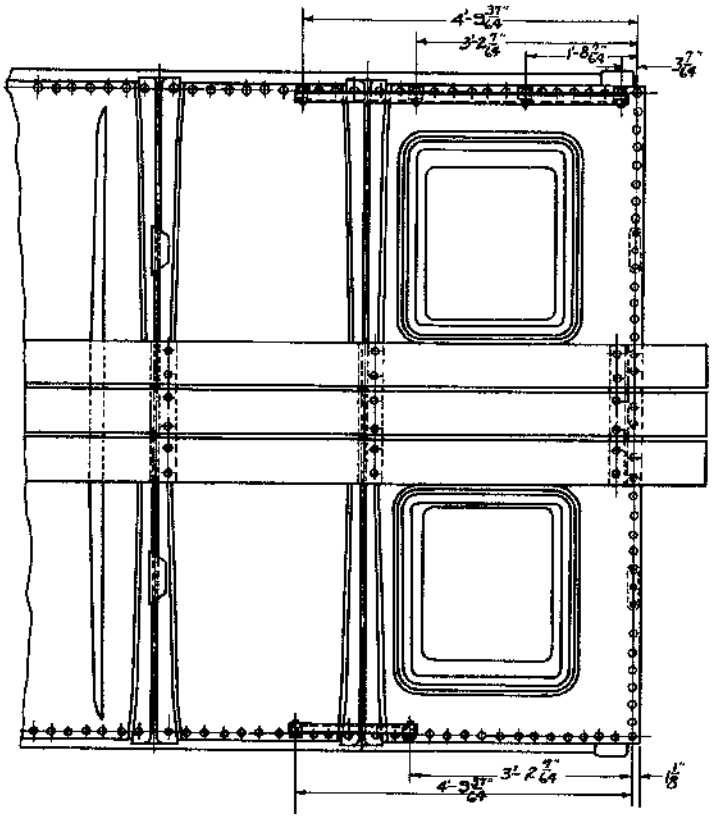
NOTE: Your car is now ready to put into service on your model railroad empire. We hope you have enjoyed building this exquisite model. We welcome your comments on this kit and also suggestions for future projects. If you find that a part is missing or damaged, or if you should break or lose one, please contact your dealer or the company for a replacement.

Note: The PFE-style push-pole pockets provided in this kit are entirely round. The A.R.T. push-pole pockets were "C" shaped. This can be modeled by filing off the outboard part of the pocket. While the push-pole pockets were part of the ends, the PFE R-40-10 kit was designed so that the push-pole pockets are part of the floor. The lower corners should be painted to closely match the ends.

A.R.T. Roof Guard Angles. Positions for both long and short angles are shown at right (and diagonally opposite). The open side of the angle is towards the side. See photo below.



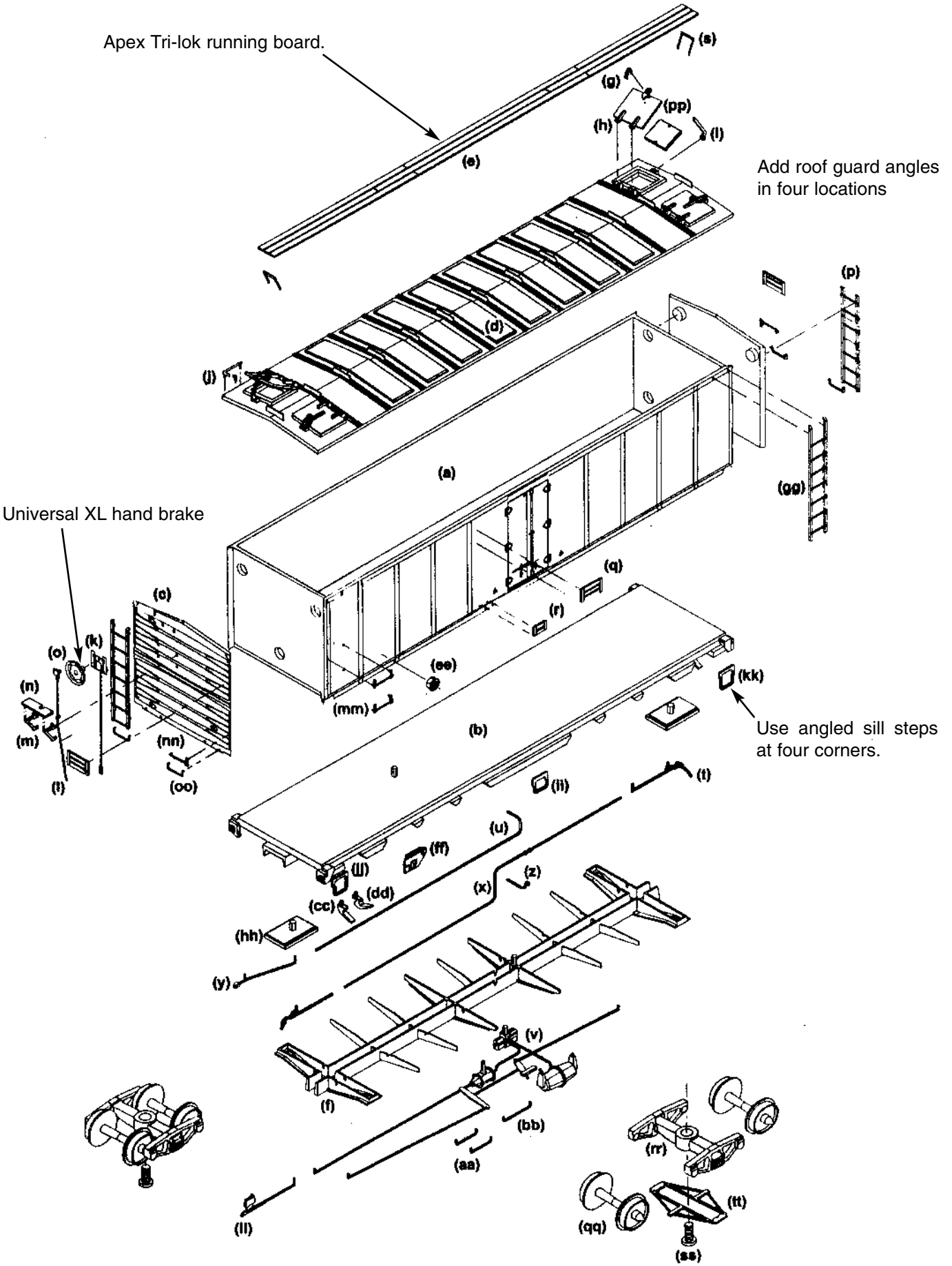
ROOF GUARD ANGLE SUPPORT
12 PCS - 2" x 3/8" x 0'-4 5/8"
12 PER CAR
901



APPLICATION OF GUARD ANGLES TO ROOF.

View of roof and long roof guard angle. Note this photo is from an earlier series of A.R.T. steel reefers, but the hatch and roof guard arrangement is the same for the 24000-24449 series cars.

Roof Color: The roof color on new A.R.T. cars built in 1939 and possibly those built into World War II was originally aluminum. By 1947 new and repainted cars received "Inco Red" roofs. It is not precisely known when the change occurred. The roof and running board in this kit are red. For a new car or one operating before the end of WWII, paint the roof, running board, and roof guard angles aluminum. The hatch cover hardware was freight car red.


Apex Tri-lok running board.
Add roof guard angles in four locations
Universal XL hand brake
Use angled sill steps at four corners.
(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)
(i)
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(hh)
(ii)
(jj)
(kk)
(ll)
(mm)
(nn)
(oo)
(pp)
(qq)
(rr)
(ss)
(tt)

HO Scale ART Reefer Kit
Premium Line

Parts List:

1. Body (a)
2. Floor (b)
3. Ends (c)
4. Roof (d)
5. Roofwalk (e)
6. Underframe (f)
7. Roof Hatch & End Detail Sprue:
   (4) Hatch Handle (g)
   (4) Hatch Cover (h)
   (4) Hatch Lever (i)
   (2) Roof Grab Iron (j)
   (1) Brake Mechanism (k)
   (1) Air Valve & Air Line (l)
   (2) Brake Step Bracket (m)
   (1) Brake Step (n)
   (1) Brake Wheel (o)
   (2) End Ladder (p)
   (4) Large Tackboard (q)
   (2) Small Tackboard (r)
   (2) Roofwalk Support Bracket (s)
8. Underframe Detail Sprue:
   (2) Glad Hand (t)
   (1) Retainer Airline (u)
   (1) Brake System Assembly (v)
   (1) Long Train Line (x)
   (1) Air Line Extension (y)
   (1) Air Supply Line (z)
   (2) Short Retainer Bracket (aa)
   (1) Long Retainer Bracket (bb)
   (4) Drain - Open (cc)
   (4) Drain - Closed (dd)
   (2) Preco Fan (ee)
   (2) Fan Plate (ff)
9. Body Detail Sprue:
   (2) Side Ladder (gg)
   (2) Coupler Box Cover (hh)
   (2) Center Stirrup (ii)
   (2) Corner Stirrup - Left (jj)
   (2) Corner Stirrup - Right (kk)
   (1) Bell Crank & Chain (ll)
   (4) Side Grab Iron (mm)
   (2) End Grab Iron - Upper (nn)
   (4) End Grab Iron - Lower (oo)
10. End Grab Iron Sprue:
    (2) End Grab Iron - Upper (nn)
    (4) End Grab Iron - Lower (oo)
11. (4) Hatch Plug (pp)
12. Truck Package:
    (4) 33" Wheel Set (qq)
    (2) 50 Ton Truck (rr)
    (2) Truck Retainer Screw (ss)
    (2) Brake Beam Assembly (tt)

Note: A.R.T. parts unique to this kit requires substitution (Universal XL hand brake, A.R.T. hatch covers (unlike the "dimpled" safety tread as with PFE's), and angled sill steps. Also added are the roof guard angles. All of these parts are included on separate parts trees in the kit.

A.R.T. Prototype Data (based on photos with build dates)

24000-24099 built 11-39
24100-24199 built 11-40
24200-24349 built 10-41
24350-24449 built 12-44 and 1-45

All cars in above roster were built by A.R.T. in their St. Louis company shops from kits furnished by American Car & Foundry Co. Beginning in 1948 a small Wabash flag was added above the reporting marks on the right side and red/white/blue Missouri Pacific Lines buzzsaw emblem on the left side. Beginning in 1951 cars were cycled through the A.R.T. shops and equipped with air circulating fans. The cars were then renumbered to 32000-33999 and received a "double-herald" scheme.

American Refrigerator Transit Co. photographs, Joe Collias collection.