BUILDING THE NYC DINER

Alex Schneider

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Adapted from an article of the same title in New York Central System Historical Society's Modeling Magazine (online), Summer 2023

DEDICATION

This clinic is dedicated to John Greene, owner of Bethlehem Car Works and creator of the kit we are discussing today. John passed away last month.

His sense of the needs of model railroaders and skill in creating kits to meet those needs made possible "short runs" of authentic "niche" models appealing to those following particular railroads, particularly in the northeastern part of the country.

He will be greatly missed by all those who enjoyed his kits and his friendship.

My condolences to his family.

Project Objectives

- One of the New York Central System Historical Society's missions is to encourage production of accurate, affordable models of NYC cars, engines and structures.
- The Society identified a need for a NYC heavyweight dining car, appropriate for layout settings from the Depression up through the 1950s.
- A specifically NYC heavyweight dining car has not been available since the 1970s, when Walthers offered a wood and metal kit, later updated with plastic roof. "Super detailing" using wood dowels and metal castings was generic at best.
- Subsequent plastic models were identifiable with other roads: Spectrum with PRR, AHM / Rivarossi with UP, Walthers with Southern.
- Kitbashing – e.g. NERS parts and an AHM Pullman – requires a high level of skill and a lot of time. Parts no longer in production.
- Brass cars are not affordable for most modelers and lead times span multiple years. Some announced projects are never brought to market. Quantities are limited to the number ordered in advance. Cars are very heavy.
- Bethlehem Car Works had a record of success with short runs of comparable cars, in many cases utilizing their stock of Branchline Pullman body and detail parts. These were purchased when that company exited the market about 10 years ago.

Choices, choices…The Modeling Committee considered a number of NYC lots of dining cars. Distinguishing features between the lots included

- Whether a service door on the kitchen side was present (1927 and later cars)
- Air conditioning (ice, Pullman Mechanical, electromechanical, or none)
- Truck styles
- Wide or narrow deck roof
- Railroad roman or Gothic lettering
- Prewar Pacemaker green with gold lettering or 1950s era two tone gray
- If pre-1936, would B&A, MC and Big 4 subsidiaries be covered?

Ultimately a narrow deck car with Pullman Mechanical AC, a kitchen service door, Pacemaker green paint and gold lettering was selected. Decals would be included for both Railroad Roman and Gothic lettering and extend back to the numbers as built but would not cover the subsidiary roads.

Car History

- Built in 1927 and 1928 by Pullman-Standard, lots 6070 and 6199
- Initially assigned to
  - New York Central Railroad
  - Michigan Central
  - CCC&StL
  - Boston & Albany
- Initial assignments included

• 20th Century Limited	New York / Boston to Chicago	#25 & #26
• Southwestern Limited	New York to St. Louis	#11 & #12
• The Wolverine	New York to Chicago via Detroit	#8 & #17
• Empire State Express	New York to Buffalo	#50 & #51

Car History (continued)

- Initially dining cars did not operate through from end to end, but were switched out and returned to point of origin, serving lunch and dinner on the outbound trip and breakfast on the return
  - New York to Syracuse and return
  - Boston to Albany
  - Chicago to "east of Cleveland", deadhead to Toledo, return
  - St. Louis to Cleveland
- On the 20th Century two diners were carried if a section had over 105 passengers (approximately 7 Pullman sleepers plus the observation car). Ten sleepers, plus club-baggage, diners and observation was the limit imposed by station platform length in Grand Central Terminal. Multiple sections were commonplace and at least once there were seven sections. For a given passenger load, sections were shorter in the winter.
- The 20th Century began carrying diners through about 1932 as part of a speedup to reduce scheduled time from 20 to 18 hours.

Car History (continued)

Year	Pullman Lot	NYC Lot	Road	Numbers as built	1936 Numbers	Air Conditioning (applied 1934)
1927	6070	2042	NYC	416-435	627-646	416 / 627 – Frigidaire EM; others PM
		2043	MC	143-145	647-649	PM
		2044	CCC&StL	1141-1142	650-651	Frigidaire EM
		2045	B&A	116-117	Same	PM
1928	6199	2089	NYC	385-390	654-659	PM

MC and Big 4 were merged into NYC in 1936 and road initials were removed from their cars when renumbered into the NYC roster.

Car History (continued)

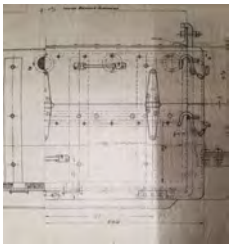
- The cars were "bumped" off of the 20th Century in 1938 and the Empire State Express in 1941 when streamlined cars were delivered.
- By 1942-43 the NYC began converting heavyweight coaches and combines to dormitory cars and carrying these near the front of overnight trains having dining cars. The timing suggests that berths had been reserved in the sleeping cars for the staff and during the war these berths were needed as revenue space.
- The NYC had to give up some of its oldest diners to other roads during the war but managed to keep these.
- Further streamlined diner deliveries bumped these even farther down in the pecking order, but some ran into the late 1950s.
- Some were converted internally for use as bar cars on commuter trains.

Car features as built – external

- Service doors in the kitchen and the passageway for loading provisions.
  - Change from earlier cars which had no service door in kitchen.
  - Preferred orientation: dining room in front, kitchen on right side.
- Vestibule, accessible from kitchen side only, usable by passengers.
- Trucks: six wheel, 11' wheelbase, drop equalizer, cast pedestal, 5½ x 10 inch solid bearings, built by Commonwealth Steel – NYC designations K-3-AX and K-5-AX. Similar to Pullman 2411 trucks.
- UC air brake system, two cylinders
- Four 8 cell battery boxes – 64 volt system
- Belt driven 4 KW generator at the kitchen end of the car.
- Two 4 foot storage cellars beneath the car, accessible through hatches in the floor.
  - B&A cars lacked these but had a tool box instead.
- Initially, no air conditioning.

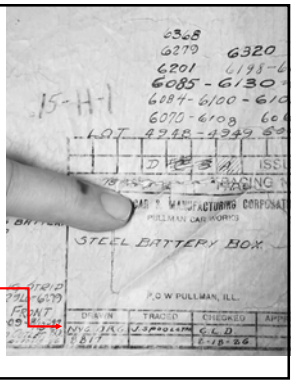
Pullman Construction Drawing 15-H-1

Courtesy Pullman Library, Illinois Railway Museum

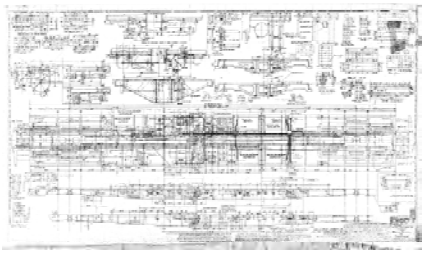


Left: Detail showing battery box front. Note that the top section of the box can be opened to check batteries

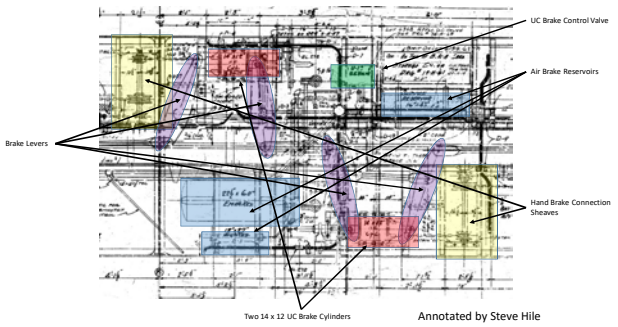
Right: Title block and list of Pullman construction lots using this drawing. Note reference to NYC Drawing 8817.



Pullman Construction Drawing 38-F-100 Brake System and Equipment

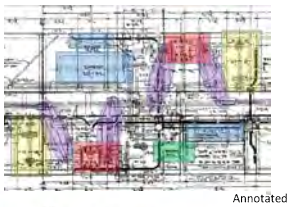


Braking System (as viewed from above)

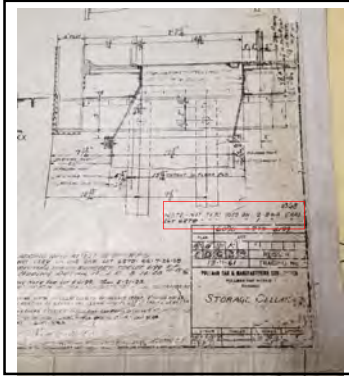


Annotated by Steve Hile

Brake System (as viewed from beneath)



Annotated by Steve Hile

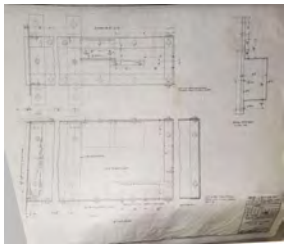


Pullman Drawing 19-H-61 – Storage Cellar

Not applied to B&A cars, but it was applied to 1930 cars having wide clerestory roofs.

Courtesy Pullman Library, Illinois Railway Museum

Pullman Drawing 19-H-27 – Tool Box Applied to B&A cars



Courtesy Pullman Library, Illinois Railway Museum

Internal Car Features

- Like most heavyweight steel diners, these cars seated 36 patrons, with tables for two on one side and for four on the other.
- Water for kitchen use was carried in tanks in the roof space and flowed by gravity to the kitchen sinks. No air was needed in the train line to pressurize the water system, so food preparation could begin while the car was still in the yard.
- Ice was used for refrigeration, with roof hatches for supply.
- The cars did not have washrooms.
- The cars did not have facilities for storing or serving alcoholic beverages, as Prohibition was in effect when they were built.

Car Lettering and Painting

- Letterboard: Gold lettering, Railroad Roman,
  - New York Central cars as built: 385-390, 417-435
  - New York Central cars 1936 -- 1940: 627-651, 654-660

NEW YORK CENTRAL

  - MC or Big 4 cars to 1936, B&A cars to early 40s

MC NEW YORK CENTRAL LINES MC

COOSTL NEW YORK CENTRAL LINES COOSTL

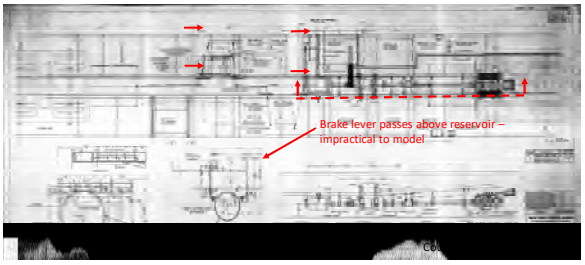
BOSTON AND ALBANY

- After 1940 a Gothic lettering style was substituted.
- Car Numbers in matching font
  - Centered above each truck to 1936
  - Centered on car thereafter

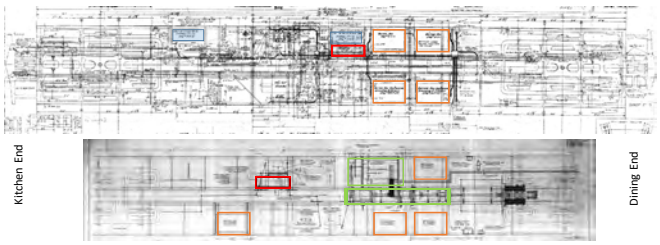
Air conditioning

- Most of these cars were equipped with Pullman Mechanical air conditioning in 1934, the work being done at the Calumet shops under lot A-6435.
- Power was obtained from a takeoff drive fitted to the innermost axle of the truck at the dining room end.
- This drove a motor generator, mounted beneath the center sill, directly and a compressor through belts and pulleys.
- To make room for the compressor, one of the two storage cellars was eliminated and one battery box was relocated.
- Cooling coils were installed inside the roof at the dining room end
- Ducts on both sides of the clerestory supplied cooled air to the dining room.
- The kitchen and passageway were not air conditioned.
- Big 4 cars #1141 and 1142, and NYC car #627 received electromechanical air conditioning. I haven't found a drawing of this system.

Arrangement of Air Conditioning Equipment under Car NYC Drawing R-49998, revision B



Comparison of underbody before and after air conditioning, looking down (kitchen side toward bottom)

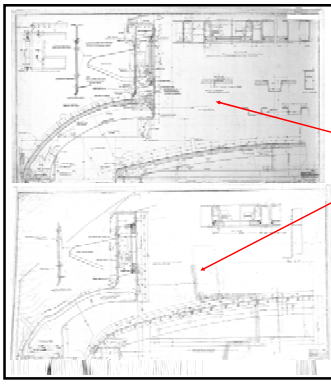


Upper: Pullman Dwg. 38-F-100, courtesy Pullman Library, Illinois Railway Museum. Annotated by Steve Hile.
Lower: NYC Dwg. R-49998, Arrangement of Air Conditioning Equipment under Car, courtesy NYCSHS Archives

Later (1930) cars

- Twenty additional diners were built by Pullman in 1930, lots 6279 and 6368. As built, the primary external difference was the use of a wider clerestory roof.
- These cars received ice air conditioning, also in 1934, installed at Calumet under lot A-6412. This was replaced after World War II with a mechanical system built by Lundy.

Modeling note: there have been some requests for the wide clerestory cars. The principal changes would be to create a different roof and to use a different sprue of Branchline air conditioning parts. Due to John's passing such a car is unlikely to be offered unless the business is sold to a new owner.



Comparison of roof decks – 1928 vs 1930

Distance between deck plates
1928 – 5'-5 3/8" – drawing 28-F-43
1930 – 6'-6" – drawing 53-F-15

Drawings courtesy of Pullman Library, Illinois Railway Museum

Resources for Research

- Pullman Library of Illinois Railway Museum
  - Lot specifications and drawing lists – as built
  - Air conditioning lot A-6435 drawing list
  - NYC Specification 701-E, including supplement 2
- NYCS HS Archives
- Randall, W. David, *The Official Pullman Standard Library: Selected Heavyweight Cars,* 1995. Photos 294 thru 297.
- Hungerford, Edward, *The Run of the Twentieth Century,* 1930. Reprinted by Wayner.
- NYC public timetables, various dates.
- https://www.canadasouthern.com/caso/passenger.htm

NYC Specifications

Modeling Resources

- As mentioned in the title slide, this presentation is adapted from an article in the New York Central System Historical Society's Modeling Magazine, 2023 Third Quarter issue.
- Bob Chapman wrote an alternate presentation on building the same kit in the 2023 Fourth Quarter issue

https://nycshs.files.wordpress.com/2023/09/nycmodeler4thqtr2023final3.pdf

Model Construction

- Kit components
- Parts to be purchased
- Tools required
- Basic decisions
- Trucks
- Underbody
  - Preparation
  - Center Sill
  - Detail parts
- Remainder of body
- Sides
- Lettering
- Roof
- Interior
- Final Assembly

Model Car Construction – kit components

- Cast resin car sides and roof
- Branchline sprues from former heavyweight Pullman cars
  - Body and end
  - Vestibule partition
  - Center sill
  - Air and steam lines
  - Truck sills, side frames, ends, brake shoes and springs
  - Underbody parts
  - PM air conditioning
  - An extra car side for temporary use
- Steel weight
- Decals
- Miscellaneous parts
- Directions

Parts to be sourced separately

- Essential
  - 36" wheel sets – code 88 or 110 as desired
  - Couplers – Kadee #5, 20 series or 140 series suggested. I used #148.
  - Paint: Pullman green for sides; flat black for underbody and roof. *I used TCP # 54 and #171, respectively.*
  - Evergreen or equal styrene
    - 0.060 x 0.250 styrene, approx. 1"
    - 0.040 styrene sheet, approx. 1¼" square.
    - 0.250 x 0.250 styrene, approx. ½", if the truck pivot is to be moved from inside to outside
- Optional
  - NERS 529-231 pair of battery boxes
  - Interior parts Two #2 – 56 round head screws, ¼" long, for coupler box mounting, if not using the Branchline swing mounts
  - #16 copper wire, insulation removed (approx. 1¼")
  - Hand grab drilling jig – American Model Builders or Tichy (borrowed from boxcar kit)

Some modelers may prefer Walthers 2411 trucks, which are closer to the prototype than the 2410A truck side frames provided in the kit and which facilitate car lighting from axle pickups. I didn't pursue this option.

Car construction basic decisions

- Truck pivot point: inboard or outboard from truck center.
  - Although the truck bolster has a hole at the center, the center axle makes it difficult to reach the screw. You could screw the truck bolster on and then attach the side frames, but I don't recommend this
  - The Branchline instructions assume an inboard pivot, and the movable coupler pocket somewhat mitigates the greater swing out of the couplers.
  - Some builders feel an outboard pivot will track curves better, especially if you body mount the couplers.
  - I used outboard pivot and found that the truck swing is limited by the back of the wheel striking the center sill. I'll probably revert to inboard pivot.
- Couplers: Body mounted or using movable coupler pockets.
- Underbody tool box (B&A), storage cellar (other cars as built) or none

Car Construction – trucks
Build side assemblies

- Install bearing cones (3) in back side of each side frame
- Apply the brake shoes for the center wheels to the back of the side frames – note that there are left and right shoes. Pins on the shoes fit mounting holes in the back of the side frame.
- Apply leaf springs and equalizer bars to the front of the frames. Set aside until glue sets up.
- Paint front of frame assemblies and the remaining brake parts flat black

Car Construction — trucks
Install wheel sets and assemble to truck bolster

- Place the axle end of a wheel set into the center bearing of one side frame, then install the bolster onto that frame by pushing the pins on the bolster into the holes in the side frames. (Do not glue at this time.) The conical side of the mounting holes should face down so flat head screws can be used for mounting to the body at a later point.
- Then install the other side frame in the same way, fitting the axle end into the center bearing.
- Install the two end wheel sets, gently pulling the side frames apart to allow the axle tips to fit into the bearing cups
- Test the assembled truck for free rolling. It should readily roll down a 1% grade – 1" in eight feet. Pull the bolster pins out slightly if necessary to loosen the fit.
- When satisfied flow plastic glue into the joints between side frames and bolster.

Car construction – trucks
Add truck ends

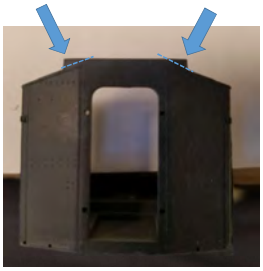
- When glue joints are set install the brake shoes on the back side of each end of each side frame (4 places per truck), if separate
  - Early production trucks have four loose brake shoes to be installed on the back of the side frames, again using the pins and holes to align them. Late production cast the two end shoes in place on the side frames.
- Install the truck ends between the bases of the brake shoes
- Modify the inboard end of each truck by removing the upper bar as shown in kit directions
  - Modify the end closer to the offset mounting hole, if trucks are to be mounted with pivot offset toward the center of the car as originally designed
  - Modify the end farther from the offset mounting hole, if trucks pivot is offset toward the car end.

Car construction -- prepare underbody

- Orientation: the block for mounting the brake cylinder is on the kitchen side of the car. When holding the car body upside down with the kitchen side away from you, the dining room end is on your right and the kitchen end on your left.
- Drill #78 holes for hand grabs on the right side of both ends as shown on the drawing: 6 at kitchen end, 3 at dining room end.
- Drill #42 holes and tap for #2-56 screws to mount trucks and couplers (or coupler boxes).
- Cut the mounting block for the UC brake valve off flush with the underbody ribs (it is at the wrong location for this car)
- If you are using the inboard mounting pivots, cut ¾" off one end of steel weight to avoid conflict with the truck mounting screws. Glue the weight inside the car body – contact cement or epoxy suggested.
- Straighten the body / end part by temporarily applying the Branchline side included in the kit to the matching side of the body.
  - On Branchline cars one side has a set of three pins spaced closer than the others, while the other side omits the middle pin so the spacing is uniform. Be sure to apply the car side to the matching side of the underbody.
  - Consider applying Branchline Pullman car sides to both sides of underbody – borrow a side from another kit. Allow the body to stand as long as possible so it will not resume any curve from cooling out of the mold.

Convert the car ends from the pediment style to the round style.

- Cut off triangles of plastic from the top of each end, leaving the row of rivets which serve as a marker.



Convert the car ends from the pediment style to the round style.

- Test fit the roof on the car body and sand or file the top of the roof end until you have a good fit.

Car construction – center sill and associated parts

- Apply steam line to center line of underbody. Apply brake rods to bosses on top of steam line.
- Shorten the bottom flanges of the center sills about 5/16" at each end for truck clearance.
- Mount hand brake rods with wheels on outer sides of center sills. The shorter piece goes on the side with the mounting block for the brake cylinder, and the longer one opposite it.
- Mount air and signal line pipe groups on outer sides of center sills. The longer piece goes on the side with the mounting block for the brake cylinder, and the shorter one opposite it.
- The center sill with additional slots near the middle goes adjacent to the cast on block for the brake cylinder. The notches on the top edges also differ, matching the corresponding ridge inside the slots. Test fit each sill; widen the notch slightly if needed.
- Remove the temporarily installed car side(s). Support the middle of the body, allowing the ends to hang down (for example, over the corner of a table). Apply plastic cement inside the first slot and push the top edge of the matching center sill into the slot until it is fully seated. Engage tabs from steam line / brake rods previously mounted to underbody. Repeat for second center sill.
- Test fit the motor generator part from the Pullman Mechanical AC sprue between the center sills (to be permanently installed later). Adjust center sills as needed.
- Replace car side(s) so center sills will set up in correct position to hold car body straight

Car construction – center sill

Bottom flanges of the center sills were previously shortened about 5/16" at each end. When glue is set trim the web of the center sills flush with the body bolster to allow the trucks to swivel smoothly.

Location for 0.250 x 0.250 styrene for outboard pivot, if desired.

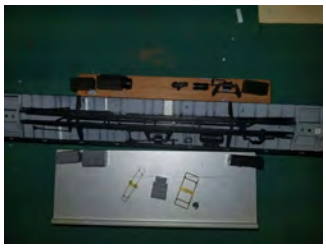
Car construction – underbody parts

- Thread each brake rod through the opening in the corresponding cross bearer, then slide the cross bearer over the center sills and down until seated against the floor and center sills. The brake rods should lie parallel to the bottom of the center sills.
- Insert lever ends of the brake cylinder in the slots in the center sill adjacent to the cylinder mounting block, then mount cylinder in the block. Note that the small cluster of piping goes to the left of the cylinder, away from the hand brake rod.

Car construction – underbody parts

- Generator – drill #61 hole in the side of the center sill. Generator should lie on or slightly below the center sill flange.
- Brake rods. The angled brake rod goes adjacent to the generator, the other three in the remaining positions. The "tab" goes in a slot in the center sill adjacent to the cross bearer and the rod extends toward the truck mounting bolster.
- Hand brake chain, post and support.
  - Insert the long end of the post into the ring on the end of the chain, with the chain extending to your right and curving up. It will sag down when the car is turned right side up.
  - Insert the tip of the short end of the post into the hole in the center of the wheel. Turn the post support so the hole is toward the center sill, insert the tip of the post, then place the mounting pins of the support into the two holes on the underbody, next to the side sill.
  - Slip the fork at the end of the chain over the brake lever on the cylinder. Glue in place.

Car construction – underbody parts



Car construction – underbody parts (continued)

- UC air brake valve. Place a short piece of styrene, .060" x .250", adjacent to the brake cylinder you just installed between the two ribs and drill a 3/16" hole. (White in photo). *This technique is suggested in the Branchline instructions when installing the ice air conditioning system.*
- Steam trap. Install in the space where you previously cut off the mounting block for the brake valve.
- Motor-generator and drive shaft. Install on the center line of the car beneath the center sills, at the dining room end of the car.
- Air conditioning compressor unit, on aisle side of dining room end.
  - Assemble the two sides together. *I found it necessary to shorten one of the internal alignment pins.*
  - Install compressor unit adjacent to the cross bearer. Line up the round end on the compressor with the pulley at the end of the motor generator.

  It may be necessary to trim the air and steam lines to get the unit close enough to the center sill to avoid having it project beyond the face of the underbody.

Car construction – underbody parts (continued)

- Single battery boxes from kit (two). Apply a back to each box per directions.
- Third and fourth battery boxes
  - Option 1 – modify two Branchline double ice boxes to make each battery box
    - Shorten to single box length (4 scale feet) using a saw, cutting one to the left and the other to the right of the center divider.
    - Enclose the back as for the single battery boxes, then use leftover material to cover the cut off end of each box.
  - Option 2 – use a set of two New England Rail Service single battery boxes, item 231. Narrow as needed to clear brake rods
- The adjacent boxes on the kitchen side of the car should match.

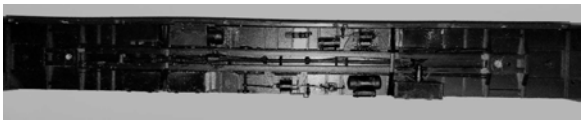
Car construction – underbody parts (continued)

- If steps in kit are multi piece, attach left and right sides to the step treads, using ribs on the back of the sides against the bottom of the treads for alignment. Note that there are "right" and "left" steps – you want a "right" so the mounting holes will be at the end of the car. Install the step on the kitchen side, at the dining room end.
- If kit includes a single piece step simply install it.
- Modify a Branchline single ice box, to represent the storage cellar (optional).
  - Assemble the box. When glue is set cut twice through the box laterally, removing a center "slice" so the box, when reassembled, is approximately 2 scale feet deep and clears the brake rod.

Car construction – underbody parts (continued)

- Install the second brake cylinder using the mounting block provided. Cut the tabs off the ends of the levers as there are no slots in the center sills for them to be inserted into. You can use short pieces of 0.060" x 0.060" styrene, glued to the center sill, to rest the levers.
- Install brass "brakeman" steps on the remaining three corners. If modeling a car "as built" substitute stairs on the right end of the aisle side.
- Install a wider step under the kitchen service door
- Paint entire underbody and equipment flat black.

Car construction – Underbody after installation of detail, before installation of trucks and couplers



Car construction – remainder of body

- Insert 18" drop hand grabs in the holes at the bottom of each end and secure with ACC. Install straight hand grabs on both ends.

  If you used the AMB or Tichy drilling guide you need to substitute 18" grabs for those in the kit.
- Vestibule walls. Test fit the vestibule wall in the two slots on the inner surface of the wall supports at the dining room end, trim slightly if necessary. Using the wall as a template, cut a similar shape from .040" styrene sheet and test fit it in the two slots on the inner surface of the wall supports at the kitchen end. Cut a window, approximately 24" wide by 30" tall, in the new wall, approximately 4" from the edge. This window will be on the aisle side.
- Install diaphragms on car ends.
- Paint the front surfaces of underbody boxes, the exterior sides of both vestibule walls, the diaphragms and the ends Pullman green. Paint interior sides of vestibule walls flat white.
- Insert both vestibule walls in the two slots at each end.
- Mount trucks and couplers using #2-56 screws.
- Test coupler height, rolling qualities and truck swivel and adjust as needed.

Car construction -- sides

- Remove all flash or bumps from the car sides and roof. Apply primer paint inside and out.
- Install three 30" hand grabs on each car sides as shown in the diagram: vertical at vestibule service doors, horizontal at ends having no door. Apply ACC to inside of hole. Cut hand grab ends flush if they extend through the car sides.
- Bend two 42" hand grabs and install on both sides of kitchen service door.
- Paint outside surfaces of both sides, both ends and both interior walls Pullman green. Paint inside surfaces of both sides and both interior walls desired color. I chose a flat white.
- Install prism windows in kitchen, pantry and passageway single window openings (9 total). Install clear acetate in double windows and windows in vestibule and service doors.

Car Lettering

- Gold lettering is supplied for cars lettered
  NEW YORK CENTRAL
  Center the letter "K" on the car side.
  - 1934-36: NYC 417-435 or 385-390, using Roman lettering. Number above center of truck at each end.
  - 1936-40: NYC 628-649 or 654-650, using Roman lettering. Number at center of car.
    NYC 627, 650, and 651 had a different AC system.
  - 1940-59: same, but using Gothic lettering.
- *Decals for MC, Big 4 or B&A cars are not included. Champ PH-31 or CDS 671 are suggested.*
  MC NEW YORK CENTRAL LINES MC
  CCC&StL NEW YORK CENTRAL LINES CCC&StL
  BOSTON AND ALBANY

Cars in the two tone gray scheme also require a different decal, including striping above and below the windows. Champ and Microscale are suitable.

Car Lettering

Roof

Install roof details listed below as shown in the roof plan and car elevations

- Ladder rest hand grabs – seven required.
- Straight hand grabs --? required
- Ward vents – three required, mount in 1/16" hole.
- Globe vents – three required, install on deck surface.
- Exhaust fan – one required.
- Small vents -- three brass rivets in #68 holes, in line across roof above the partition between kitchen and pantry.
- Water fill – modeled using a gray plastic rod with cap – one required. Drill hole on center line of roof, approximately 3/16" from row of rivets. Cut off as needed so it will project about 3/32" above roof surface.
- Range vents – two resin castings. Install with flat surface on top in locations shown.
- Hatch covers on upper deck, each roughly .250" x .250". Cut from styrene supplied. Scrape off cast in rib where they are to be installed to obtain strong fit.
- Hatch covers on kitchen side lower deck, both ends (over refrigerators shown in floor plan). Approximately 3/16" x 1/8". Cut from styrene, not supplied.
- Pipe extending across roof and down into kitchen side lower deck (optional; its function is unknown but it is seen in some photos). Form from solid #16 copper wire bent to shape. Cut the exposed end perpendicular for best appearance. Drill holes into the roof on opposite sides of the wire and use short pieces of bent wire to represent mounting hardware.

Paint top and sides of roof flat black. Weather as desired to represent accumulated smoke and grime washed with rain water.

Interior -- optional

- Paint roof interior a warm white or tan appropriate for incandescent lighting.
- Wall off kitchen and pantry area from vestibule and dining room with sheet styrene.
- If lighting is desired, place one or more AA batteries in kitchen and connect to surface mounted LEDs in the roof, using suitable dropping resistor and 2 pin connector to allow disconnection when not in use. *(Batteries not required if using Walthers trucks or otherwise using pickup from rails.)*
- Cut finish floor from thin styrene for passageway and dining room areas. Cut archways for each end of dining room.
- Install tables and chairs: Palace Car Company or old Walthers interior sets
- Populate with seated passengers, standing waiters and steward, cooks.

Final assembly

- Mount the car sides on body using Goo or similar flexible glue. ACC is too brittle and styrene cement may not bond well to the material from which the sides are made.
- Final roof installation.
  - If roof needs to be removable for battery replacement, divide the piece of steel cut off of the weight into two equal pieces and glue them above the end partitions at both ends of the car. Then glue small magnets in the recess of the roof casting, shimmed so each magnet will just touch the steel piece at that end.
  - If roof does not need to be removable, simply glue it in place.

Credits

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